Understanding tension between traditional narrative structure and participant agency as a level of conflict that progresses virtual reality narrative

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ABSTRACT

This paper deals with the issue of virtual reality as a developing narrative medium wherein a viewer is a participant. In a theoretical analysis of various authors who indicate that interactivity breaks the predetermined sequence of narrative, I identify that a participant's agency in virtual reality narrative creates tension between her own freedom to act and an adequate narrative experience. However, interactivity is unique to the medium and generally favoured over the participant being constrained to the role of passive observer.

I support the argument that fully interactive virtual reality narrative is essential in this medium, as it enhances presence and remediates older mediums to tell new stories. I therefore propose that conflict is the necessary progressive force that can harness a participant's agency to create interesting narrative experiences. Through analysis of Robert McKee's (1941) model of the three levels of narrative conflict and the capacity of different narrative mediums to engender each level respectively, I propose that the tension between agency and narrative is a potential level of narrative conflict between participant and narrator that can be utilized in virtual reality narrative. This paper proposes a conceptual model that can be utilised by the creator of virtual reality narrative as it envisions a relationship of conflict with the participant to construct a narrative framework that is able to produce emergent virtual reality narrative.

CHAPTER ONE
INTRODUCTION AND BACKGROUND

1.1 Introduction

In the early nineteen-nineties, virtual reality (VR) came to the attention of the mainstream media, but its promise of becoming a mainstream consumer media form didn't realise during that era. It was only recently that virtual reality has undergone a revival with more everyday consumers being exposed to it than ever before. This begs the question whether virtual reality is a sideshow gimmick, or whether it is a narrative medium in the process of developing significant syntax and techniques and drawing a sustainable audience. This paper therefore asks the question: Is virtual reality a narrative medium that is capable of engendering interesting stories?

Virtual reality is a new medium that originated from the electronic age. It has distinct properties that make it unique to other narrative mediums as it creates a sense of presence for the audience and, in addition, gives them the ability to interact with the environment that is presented to them. However, as I will cite from various authors in the chapters to follow, interactivity is deemed incompatible with narrative, as narrative requires a strategic sequence of unfolding events that leads to a climax and resolution. Conversely, virtual reality gives the audience control and they have the freedom to move around in the 'virtual' world while looking in any direction. The computational aspect of virtual reality affords the audience the ability to interact with the medium, and they are also able to change and influence the virtual world with which they are confronted. This interrupts the predetermined nature of narrative, and it is this challenge that has brought about the debate of whether narrative is possible when the audience is able to interact with and even manipulate the medium. In fact, narrative plays out differently in different mediums because different mediums have different characteristics. I therefore place my argument within the debate of whether, when considering virtual reality as a medium capable of narrative, the established narrative techniques of older media can successfully take advantage of the unique properties of the medium. My position is that when creators rely solely on legacy techniques, they cannot produce interesting virtual reality narratives without first interrogating traditional techniques of narrative. This study thus aimed to define a theoretical model from which creators of virtual reality narrative can conceptually change the way in which they

approach their role in the development of a narrative. It is argued that this will enable them to create enhanced foundations for emergent virtual reality creations.

1.2 Definitions

I shall commence by determining a definition of virtual reality to establish whether it can be defined as a narrative medium. I shall thus start with a brief history of the medium from the early ninety-nineties, as outlined by Rheingold (1991) and Chesher (1992). I shall then continue to define the principal properties of presence and immersion by referencing the three factors of presence as determined by Steuer (1993), the three axes of virtual reality as defined by Biocca (1992), and the two dimensions for immersion as defined by Rheingold (1991). I shall also contrast the medium of VR with that of the traditional screen as determined by Manovich (2001). Furthermore, I shall define what is meant by a narrative medium and the effects of the properties of different media on narrative, as outlined by Ryan (2004). Ryan also defines the properties of digital media and introduces the tension between the interactive properties of digital media and narrative. Ryan's notion of how different media use different properties to achieve a satisfying experience is echoed by Louchart and Aylett (2003). To support my argument, I also refer to Murray (2011) to propose that when developing the techniques of a new medium, one should not draw from the techniques of legacy mediums. I shall also introduce Manovich's (2001) view on legacy mediums and conclude that any legacy techniques need to be evaluated rather than blindly discarded or reused in new media.

1.3 Problems of Interactivity in VR

Next, I shall refer to the problems that interactivity poses in the medium of virtual reality by referring to Biocca (1992) and Arts and Technology (2015). Both these sources point to the hardware and system constraints of virtual reality and elucidate how these challenges impact interactivity. I also explore Murray's (2011) views on the four affordances of a computer and Manovich's (2001) principles of new media, and conclude that interactivity is a primary property of digital media. This view is also proposed by Ryan (2004), whose definition of interactivity underpinned this investigation. I shall also refer to Steuer (1993, p.10), who determines that

interactivity "is the extent to which a user can modify content", arguing that this is a dimension of the sense of presence created by virtual reality.

1.4 Dramatic Agency

Once I've determined that interactivity is necessary for the medium of virtual reality to be utilised to its fullest potential, I unpack Murray's (2004) definition of dramatic agency that seeks to define the type of interactivity that influences the dramatic aspect of narrative. I also refer to Aylett (1999), who determines that the ability to move around and interact with the environment is essential for the virtual media participant to feel 'present'. However, even though interactivity is essential in virtual reality, many problems are highlighted, such as Ryan's (2004) analysis of hypertext. In this context, I also refer to Manovich's (2001) reference to hypertext in search of corroboration of this argument. I shall make reference to Ryan's (2009) comparison of ludic and narrative immersion and then consider the two sides of the argument. The first side is that the participant of a virtual reality narrative should be constrained to the role of visitor without being able to influence the narrative; and the second argument is that interactivity is necessary to enhance the participant's sense of presence. Murray (1998) describes the visit as similar to the experience of an amusement park ride and explains that this construct of a visit establishes the boundary, or the fourth wall, between the participant and the narrative world. I shall also refer to the mental demands of virtual reality on the participant when it comes to interacting with the narrative, and in this context I refer to Steuer (1993), who makes a case for the trade-off between the vividness of the experience and the participant's willingness to interact. I also refer to Lindley (2002), who determines that there are two types of gestalt competing for the participant's mental capacity: that of gameplay gestalt and what he terms as the narrative gestalt. Manovich (2001) supports these views. However, I shall conclude that dramatic agency is necessary for virtual reality narrative to truly take advantage of the medium's properties.

1.5 Narrative Progression and Conflict

It is at this point that I determine that the problem of virtual reality narrative is a problem of whether narrative progression is possible when a participant is in control of her own experience. I shall start off by defining narrative progression with the support of McKee (1941). I shall then

examine various other methods of enabling the participant to engage and move an experience forward, one of which is Murray's (2011) proposal of scripting interaction for the participant. I shall conclude that progression in a story is achieved through conflict, and then look to McKee to outline the different levels of conflict and how they are best expressed in the three most prominent traditional narrative media, namely: the novel, theatre and cinema. I shall then move to determine which level of conflict takes best advantage of the unique properties of virtual reality.

However, I shall argue that inner conflict is problematic in virtual reality because of the problem of who the participant is inside the story. This view is corroborated by Murray (1998), who argues that the self should be separated from the fictional world. I shall then consider Manovich's (2001) arguments to support extra-personal conflict as the navigable space of new media, but determine that it is also problematic by referring to Ryan (2004) and Lindley (2002), who state that conflict with the environment may lead to nothing more than ludic immersion. Finally, I shall determine that personal conflict is also challenging in virtual reality because it relies heavily on the participant being aware of the character that she is playing in the narrative. However, personal conflict is the preferred level of conflict for authors Steuer (1993), Lindley (2202), Aylett (1999) and Murray (1998; 2011), but I shall argue that none of the three levels of conflict prove to be best at taking advantage of the unique properties of the medium of virtual reality.

The debate of whether virtual reality is a medium capable of narrative and whether the properties of interactivity will shape the form of the narrative in the medium is extensive and complex. However, I believe that a gap in these theories emerges in the question of how a virtual reality narrative progresses while still allowing the participant to experience the medium to its fullest by allowing her to feel present through interaction with the world. By arguing for dramatic agency to not only interact with but also shape the narrative, I shall contribute to the body of knowledge that exists on the subject of virtual reality narrative. This will be accomplished by determining that narrative progression is possible in virtual reality, as it is in any medium, through conflict. Because none of the traditional levels of conflict have proven to be best at progressing virtual reality narrative, I argue that the tension that already exists between the narrative constructs of a story and interactivity in virtual reality should be utilised as conflict.

1.6 Conceptual Model

In light of the above arguments, this study proposes a conceptual model where the creator of the narrative is positioned in direct conflict with the participant. The creator enters the narrative world by representing her own responses to the participant's choices and actions as the embodiment of the narrative constructs itself. I shall then move to recommend that the author's new role as creator of virtual reality is to establish a narrative framework, rather than outlining one of many possible narrative trajectories. By applying the emergence theory to some key concepts of story as proposed by McKee (1941), I shall highlight the key aspects of story that are necessary for creating the framework. I then propose a set of artefacts that the creator may use to develop the narrative framework − this is similar to how the script aids the filmmaker to outline the narrative of cinema.

1.7 Conclusion

This paper assumes that virtual reality hardware is developing rapidly and an analysis of anything specific will become outdated soon after or before the publishing of this report. For this reason, no reference to specific hardware will be made. I also assume that a qualitative study of a South African audience will not be significant yet, as the cost of virtual reality hardware is not affordable to a wide spectrum of audiences. However, with continued development of the related technology, the cost should become more affordable at a later stage, when this study will be highly relevant. It is also assumed that, although some of the suggestions might not be possible right now, technology will develop to a point where the ideas could be implemented. This paper is a theoretical review of virtual reality research; therefore, because none of the proposed methods have been practically implemented or tested, it is limited to some conjecture and scholarly argument. The scope of this paper specifically looks at conflict as the progressive force of virtual reality narrative and does not seek to outline any technical methodologies in developing conflict in virtual reality narrative.

I shall now start by clarifying what is meant by virtual reality, as the term can be interpreted in many ways. I then continue to define what is meant by a narrative medium. These definitions will establish the necessary foundation from which virtual reality narrative can be investigated.

They will also illuminate the problem of narrative progression and conflict as the drivers of narrative progression and what I mean by ‘interesting narrative’. The following section will move towards establishing virtual reality as a medium that is capable of interesting narratives.

CHAPTER TWO
VIRTUAL REALITY AS A NARRATIVE MEDIUM

2.1 Definition and Brief History of Virtual Reality

Lev Manovich (2001) explains that virtual reality is a medium which has been made possible by recent developments in digital technology. However, its origin is vested in real screen technology, which is much older. One can argue that, just like aspects of virtual technology, screen technology also creates a multisensory experience. According to Manovich (2001), the screen has, from its inception, made a virtual world available to viewers because the screen creates a 'window' through which the virtual world is viewed by an audience. What differentiates the screen from what creates virtual reality and virtual reality itself, is the perspective of the viewer. Manovich (2001, p. 96) argues that, rather than "being a neutral medium of presenting information, the [traditional] screen is aggressive. It functions to screen out, to take over, rendering non-existent whatever is outside its frame". The perspective on display is that of the author (or creator), who frames what she wants viewers to see and excludes what she does not want them to see. The screen presents the subjective representation the author prepared prior to the onlooker viewing the work. The author has the opportunity to carefully compose what is visible and decides what is not. Manovich (2001, p. 97) further explains that "…with virtual reality, the screen disappears altogether [as] images completely fill viewers' visual field. No longer is the viewer looking forward at a rectangular, flat surface […] which acts as a window into another space. Now she is fully situated within this other space." With the viewer now engrossed within the world, she is able to look in more directions than those that are visible in front of her. In virtual reality, the author relinquishes her ability to decide what is shown and what is not. The medium lacks a subjectively framed window and the choice of what is in view and what is not lies with the viewer.

The first well-funded development of virtual reality technology was pioneered by Ivan Sutherland in 1966 when he decided that he wanted to put a human in a computer-generated world. A previous conceptualisation of virtual reality was known as Sensorama,[1] which had been

[1] The Sensorama was a head-mounted display and audio-visual olfactory experience booth.

designed by Morton Heilig, a cinematographer, and Myron Krueger, an artist and computer scientist who coined the term 'artificial reality'. Sutherland created a head-mounted display (HMD) that could track head movements along with the software and hardware to render a virtual world. Sutherland's HMD enabled what Manovich (2001, p. 97) refers to as "the disappearance of the screen". With the screen attached inside the HMD tracking the user's movement, the software created the illusion that the user was looking around in the virtual world. The screen would only display what the computer determined would be visible to the viewer, depending on the direction of her head. This technology was very similar to modern virtual reality devices that later became available to consumers. Sutherland also created a 'wand' that enabled the user to create and manipulate computer generated graphics inside the virtual world. Sutherland and his students found that the wand vastly enhanced the sense of presence inside this world, establishing that the more senses are involved, the more complete the illusion becomes (Rheingold, 1991). Sutherland's wand introduced the ability to interact with the world, and through these developments, virtual reality can be described as a medium which stimulates multiple senses, involving its user in the virtual world by means of interaction. Monaco (2000, p. 544) explains the version of virtual reality that has become available to mainstream audiences as "…a consumer product [which] means to exploit multisensory perception to increase our involvement" (Monaco, 2000, p. 544).

Referring the illusion of being inside a virtual world, Rheingold (1991, p. 112) defines a summary of the two dimensions that are necessary for the illusion of virtual reality as follows: "The idea of *immersion* – using stereoscopy[2], gaze-tracking[3], and other technologies to create the illusion of being inside a computer-generated scene – is one of the two foundations of VR technology. The idea of *navigation* – creating a computer model […] and enabling the user to move around, as if inside it – is the other fundamental element." Virtual reality is therefore defined in this report as a three-dimensional computer-generated environment where computer hardware generates the necessary sensory stimulation and tracks the head and physical

[2] Stereoscopy is a method of taking a picture of an object from two different angles. These angles are similar to the distance between the two human eyes. Each picture is presented to the corresponding eye, creating the illusion of depth.

[3] Gaze-tracking describes the process where the computer is able to keep track of a user's eye movements across the screen.

movements of a human participant and reacts to her manipulations, thus creating the feeling of full immersion and a sense of presence in the virtual world.

The term virtual reality was coined and popularised by Jaron Lanier, CEO and founder of VPL Research. Lanier, who was primarily a musician and computer engineer, partnered with Autodesk in June of 1989 to announce the new technology of 'virtual reality'. Lanier started VPL together with Tom Zimmerman who created the DataGlove, which was a wired glove used to interact with a computer through natural hand gestures. The technology was sourced by NASA for further development and later VPL also released the consumer version called the Nintendo Power Glove. The Power Glove sold over a million units and became the staple of the virtual reality community at the time. VPL also introduced more virtual reality hardware such as full-body motion tracking and a head-mounted display. Even though VPL was not the only company developing virtual technology hardware in the early nineties, Jaron Lanier contributed to the early virtual reality systems by bringing the technology to the attention of mainstream media. Lanier was prominently featured on the cover of the Wall Street Journal which also feature prominent articles on VPL's virtual reality technology (Virtual Reality Society, n.d.; Reingold, 1992; Chesher, 1994; Schnipper, 2014).

Following the widespread interest in the nineteen nineties, virtual reality slowly disappeared from the public eye. Two decades later, virtual reality underwent a revival in mainstream media when news broke that Facebook[4] had bought Oculus[5] for $2 billion. In 2015, Google[6] introduced a low-cost Google Cardboard[7] at the Google I/O developer conference. By January 2016, Google had shipped over a million of these devices and opened the possibility that virtual reality offers to the everyday-consumer (Bavor, 2016). By this time virtual reality was making headlines at the 2016 Sundance Film Festival, showcasing a number of virtual reality projects as part of their

[4] Facebook is an online social media and social networking platform that was launched in 2004. The platform is used by registering and creating a personal profile. Users can then invite other users to join their network and exchange messages and posts with one another.

[5] The company was founded when the Oculus Rift was created by Palmer Lucky who managed to raise $2,5 million on Kickstarter (Kickstarter is a funding platform where the general public can then donate money towards the realization of a project they feel has value to them). The device was named the Dev Kit 1 and was specifically aimed at a new generation of virtual reality researchers and developers.

[6] Google is a technology company that was initially focused on internet technologies such as search and online advertising, but has since its creation expanded to research and development of emerging technologies.

[7] A device that can be used, together with a smartphone, to create a low fidelity virtual reality head mounted display.

New Frontiers programming (Bakare, 2016). Virtual reality was no longer confined to the laboratories of engineers and researchers of industrial applications of the preceding two decades. Suddenly the question of whether virtual reality is a narrative medium capable of interesting stories to match that of other, more traditional media, becomes relevant.

The history and development of virtual reality is most often concerned with technological innovations that made the medium possible. However, the question of virtual reality as a narrative medium is not only concerned with the related hardware. According to Steuer (1993), most of the early definitions of virtual reality were primarily searching for an explanation of the computer hardware and the technology that displayed or created the virtual reality experience. But today the question of virtual reality as a narrative medium requires more than an investigation into the hardware capabilities that could enable virtual reality narrative. In fact, the key question of virtual reality narrative is whether the software is capable of successfully immersing the viewer into the story, and not merely engaging her as a manipulator of visual stimuli. Virtual reality is designed to engender a human experience through a mental interpretation of sensory stimuli which are created through the combination of hardware and software. The experience of virtual reality gives the viewer the ability to influence or manipulate what is perceived using a wand of sorts, and together the hardware and software generate an experience of presence for the human participant. The quest to address the question of virtual reality narrative is central to this experience, which is an investigation that is best described by Reeves (cited in Steuer, 1993). Reeves poses the problem whether an individual's interpretation of the environment and the conscious process of narratisation contribute to the perception of a real experience. Can a viewer be present in a narrative and still experience the narrative in the form that it was intended, if the author is no longer able to define the experience from beginning to end?

2.2 Presence in Virtual Reality

Presence is a feeling of being there. Steuer (1993) seeks to define the term 'telepresence' as a feeling of presence mediated by technology and aims to define the dimensions that determine telepresence in virtual reality. He relies on Gibson (1979 as cited in Steuer, 1993) to define presence as the experience of one's physical environment rather than the physical surroundings

of the actual world. Gibson relates presence to the perception of one's surroundings as interpreted by the senses. Steuer (1993) explains that one experiences two environments simultaneously when presence is mediated by a communication technology medium: the one is mediated by the medium, and the other is mediated by the environment one is physically present in. It is important to note that Steuer's definition of telepresence is interpreted by Manovich (2001) as a technology where the viewer can be present in a reality she is not physically in, as well as having the ability to manipulate such a reality. He mainly argues that telepresence is when a person can be present in a physically remote location. Therefore, the virtual reality a viewer is present in is still a physical reality, and therefore the actions of the viewer can influence the reality she is 'telepresent' in. An example Manovich (2001) gives of telepresence is that of an air force pilot controlling an unmanned aircraft remotely. For the purposes of this paper, I shall merely refer to presence and will not make the distinction between presence and telepresence. I shall draw upon Steuer's dimensions of telepresence in virtual reality to define the factors necessary to feel present in a reality that is different to the physical location of the human viewer's body, as I would argue that they will be the same whether the represented reality is of this world or of a computer-generated one.

Steuer (1993, p. 10) defines the factors that influence the sense of presence as "…the combination of sensory stimuli employed in the environment, the ways in which participants are able to interact with the environment, and the characteristics of the individual experiencing the environment." Biocca (1992) supports this definition and suggests that the elements exist on a continuum which he describes as a matrix. This matrix is defined by three axes, namely "the measure of sensory stimulation, the control of sensors, and the ability to influence the world around you" (p. 27). Both authors suggest that the extent to which the senses are stimulated (i.e., the level of immersion) and the ability to manipulate the environment (i.e., the extent of navigation/interactivity) contribute to the participant's sense of presence. The sensation of presence that is mediated through the technology of the computer-generated environment allows the participant to perceive the environment as real.

When a participant is present in a virtual reality environment, she perceives the environment to be real, not because the technology is successful in fooling the senses, but because of the desire to experience immersion (Murray, 1998). The latter author (p. 110) argues that instead of the

"willing suspension of disbelief" as theorised by Coleridge (cited in Murray, 1998), the participant uses her intelligence to reinforce and not question the reality of the experience, calls this the "active creation of belief". Murray advocates for virtual reality to be both immersive and participatory because participation aids in the creation of immersion. She explains that participation creates a small feedback loop when an object reacts to a participant's manipulation in the immersive world, thus reinforcing the active creation of belief that in turn reinforces immersion.

This is not to say that other mediums are not immersive. As previously stated, the screen and any other medium of communication stimulate either one or many of the senses. Film for example fulfils the dimension of sensory stimuli but lacks the ability to allow a viewer to manipulate the environment. Biocca (1992) argues that all past media have sought to improve the illusion of presence by stimulating the senses. Virtual reality, however, introduces the second dimension of sensory experience through the ability to influence and manipulate the world you are present in, as expounded by the various authors above. In essence, virtual reality allows for a more direct manipulation through bodily gestures and a deeper sense of sensory stimulation and presence.

Computer games, like film, are an audio-visual sensory experience. However, computer games engender the added ability of the player of the game to participate and influence the game world. Admittedly, by this definition computer games that are played using a console or computerised devices can give the player a sense of presence through immersion and participation. However, where virtual reality supersedes traditional computer games is that it allows for bodily interaction rather than mere abstract interaction by means of a mouse or a game controlling device that is used to play computer games. Therefore, if a game is experienced by means of the virtual reality medium it creates a deeper sense of presence than the experience that is presented on a traditional computerised medium.

2.3 The Virtual Reality Medium

Medium can be defined as "a material or technical means of expression" (Ryan, 2004, p.16). A prominent aspect of media studies is the content of the messages that are communicated through the medium and how people react to the messages conveyed. This particular area of study focuses on the influence of political, economic and institutional factors on the content of such

media and how audiences interpret the messages. Another aspect of media studies focusses on the characteristics of each individual medium and how these characteristics make one medium different from the next. This paper is concerned with the latter. I shall discuss how the unique characteristics of the medium of virtual reality determine what content can be successfully represented through the medium.

Aristotle notes the difference between mimetic and diegetic modes and therefore argues for a difference in the structure of epic or tragic plots. The unique properties of presence and participation are characteristics of virtual reality that indicate that the type of plots represented in this medium will be more mimetic and closer related to epic plots. Virtual reality lacks the controlled representation that the frame affords cinema. A virtual reality experience is not a sequence of frames that run for a specific amount of time; it is a world that a participant enters and where she has the freedom to stay as long as she wants to, if she is interested enough to do so. Walter Ong (as cited in Ryan, 2004) studied the contrast between oral and written narrative and argued that both oral and written mediums influenced the role of narrative, the shape of the plot, and the narrative themes that are communicated. He reinterpreted the difference between the mediums as observed by Aristotle and stated that the written origin of a narrative produced a crafted rise and fall in tension, known as Freytag's triangle, because the global overview afforded by the writing space allowed for the structuration of such a plot (Ryan, 2004). I argue that it is not only the writing of such a plot that determines such a structure, but because an author has the time to predetermine what the viewer will eventually read or see, she has the foresight of exactly how the narrative will end and can plot the perfect trajectory that creates the desired experience. However, I shall later demonstrate that a virtual reality narrative cannot be predetermined exactly and therefore the plot of virtual reality narrative will be influenced by this uncertainty.

Virtual reality augments the immersive properties of previous media by introducing the unique characteristics of presence and the ability to participate. This allows the participant to affect the narrative in real time. Manovich (2001) and Ryan (2004) both refer to Jay Bolter and Richard Grusin's (1999) concept of 'remediation'. They argue that every new medium refashions prior media and is developed to remediate the deficiencies of another medium to achieve reality as the end condition. The theory of remediation relies on all media as "…continually commenting on,

reproducing, and replacing each other, and this process is integral to media" (Ryan, 2004, p. 31). Ryan continues to define a list of narrative implications of remediation and this paper is primarily concerned with the topic of 'medical remediation' which she defines as "…the invention of a medium to overcome the limitations of another medium" (Ryan, 2004, p. 32). In this context, the medium of virtual reality remediates that of cinema and earlier narrative media by introducing the property of participation which contributes to the sense of 'being there'. This dimension therefore overcomes the limitation in older media through medical remediation. Moreover, participation in the content of the virtual reality medium allows for a deeper sense of presence as it resembles participation in reality.

To advance my discussion of the virtual reality medium and its narrative ability, I note Ryan's (2004) proposal that any medium can convey a narrative, whether intentional or not. Virtual reality is a digital medium and, much like other digital media such as computer games, it has many of the essential building blocks of other narrative media: still or moving images, text, and audio effects. Digital media has the potential to recreate the interesting narratives of older mediums that preceded it and to augment these narratives with the procedural and participatory affordances of the computer (Murray, 2004). However, the addition of its computational affordances brings its narrative ability into question, as it questions the ability of a participatory digital medium to be a narrative.

2.4 Digital Media and Narrative

2.4.1 Digital media

The electronic or digital media can be described as a medium that uses a computer's procedural abilities in the production and display of content. Ryan (2004) outlines the distinctive properties of the digital medium as a medium that not only responds to changes (i.e., it is reactive), but also responds to changes deliberately executed by its users (i.e., it is interactive). The digital nature of such a medium also allows for multiple sensory and semiotic channels. It has networking capabilities that connect machines and people across space in real-time or through delayed communication. Digital media, however, have volatile signs that can be refreshed and rewritten without throwing away the material support. Murray (2011) explains that the digital medium is modular and tends to be composed of many autonomous objects that can be used in many

different contexts and combinations. It is also modular and can undergo various transformations during the run of a single work. The digital medium changes all the time and it is hard for its creators to tell what it is; therefore it is also hard for the audience to tell what it is (Murray, 2011).

Manovich (2001) terms computer media as media that are created, manipulated, stored and distributed on computers as new media. He explains new media are the convergence of two different historical trajectories, namely computing and media technologies. He explains that new media follow post-industrial logic which is a process of "individual customisation rather than the mass standardisation of the industrial age" (p. 30). Manovich (p. 27-48) lists five principles of new media: numerical representation – digital code is subject to algorithmic manipulation and is therefore programmable; modularity – echoing Murray (2011), media elements are represented as collections of discrete samples and can therefore be assembled into larger-scale objects although they continue to remain independent; automation – the computer takes over some of the work that humans had to do, especially considering the sheer number of content made available by the computer; variability – comparable to Ryan's (2004) volatile signs, new media objects are not fixed and can exist in different versions. Finally, Manovich (p. 45) lists the principle of cultural transcoding which refers to the effect of the computerisation of media on culture as well as the effects of culture on the interpretation and consumption of new media. All three the cited authors (Manovich, 2001; Ryan, 2004; Murray, 2011) agree that a medium such as virtual reality consists of modular elements that are not fixed and can mean different things at different times. In addition, the interactive nature of the VR medium allows for the human user to execute programmable algorithms on the numerical code which means that the medium can respond to such instructions. The properties of the digital medium are thus completely different to the properties of traditional media. The computerisation of the digital medium has introduced new challenges for narrative and, at face value, it would thus seem as if the narrative mode of the digital medium is problematic because of these properties.

2.4.2 Narrative

Ryan (2004) and Manovich (2001) explain that there are two modalities of narrativity, namely narrative on purpose or narrative that possesses narrativity without intending to be a narrative.

Ryan (2004) further explains that a narrative medium can either be classified as expressive or communicative. When events from real life are recollected and retold, such a telling can qualify as possessing narrativity without intending to be narrative. Such a telling is classified as communicative. When the telling of such events is carefully structured to have a desired impact on the audience, then the narrative is intentional and the classification is expressive. Traditional narrative media that produced a fixed and final outcome had the luxury of an author who carefully considered the structure of the events long before the viewer was exposed to the narrative. However, digital media is slightly different, as a viewer is able to interact with the narrative in real time and therefore the narrative cannot be rigidly fixed. This does not mean that the digital medium does not possess narrativity. A narrative can lie anywhere between the two extremes of expression and communication. Narrative to the expressive extreme aims to result in interesting, emotional stories. Narrative to the communicative extreme is the mere telling of events in chronological order and is void of intentional character developments or story arcs. It is therefore important for virtual reality narrative to be interesting in the same way that it must be to the expressive extreme, and therefore virtual reality narrative must incorporate interactivity in such a way that it results in interesting, expressive narrative.

When considering expressive narrative, I refer to the definition of story as defined by McKee (1941, p. 33) as “a selection of events in a strategic sequence that arouses a specific emotion”. However, sequence is bound to a deliberate temporal structure. In traditional media such a sequence was assembled once and its order was determined once and for all. When a viewer is able to interrupt this structure by interacting with the digital medium, the principle of variability and modularity is essential for the computer to respond to such interaction. “In designing all functions and data structures, a computer programmer tries to always use variables rather than constants […]; this principle means that the user is given many options to modify the performance of a program of a media object…” (Manovich, 2001, p. 44). Variability and modularity thus require a database in order to store and perform operations on the infinite number of elements available to the computer program. Databases are intended to be accessed in any random sequence.

The audience of a digital medium searches for and interacts with a computer database through an interface and there is no need for the interaction to follow a structured, predefined sequence.

When narrative is intended to be presented in a carefully, predefined sequence, it is easy to assume that databases and narrative are natural enemies. According to Manovich (2001), databases store data that are organised for fast search and retrieval. The data are a collection from individual items and each datum has the same significance as the other; there is no hierarchy. However, Manovich (2001) does not believe that a database is incompatible with narrative, as he argues that each has a different way of making meaning out of the world. A database might not contain any narrative qualities, but the key to coaxing narrative out of the elements stored in a database is by means of computer algorithms.

The digital medium is numerical and therefore it can be manipulated through algorithms. Through the interaction of a human computer user, algorithms are executed on the database and the computer is able to produce an outcome that is based on the user's interaction. Manovich (2001) illustrates such an algorithmic phenomenon by referring to computer games. According to him, each game contains a simple algorithm: kill enemies, collect treasure and go to the next level and repeat. As players move through the game they discover its algorithm, which means that they build "a mental model of the computer model" (Manovich, 2001, p. 223). Similarly, Manovich (2001) explains that when a reader reads a book, she constructs a mental model of the narrative, uncovering the hidden narrative algorithm. One can therefore argue that the narrative world can be thought of as a database; once all the elements of a narrative have been extracted and the hierarchy flattened, they are nothing more than different parts, none being more significant than the other. It is only once the author applies the underlying narrative that the elements are arranged through the characters' interactions with one another and the world, that narrative emerges.

Although it would seem that the preferred medium of strategic, sequential narrative is language, this is not to say that narrative cannot be expressed through the digital medium. Different mediums draw on different aspects of the content to achieve a satisfying experience (Louchart & Aylett, 2003). I would argue that when a digital medium borrows from legacy media for its development, one's thinking is inhibited by the constraints of older media that contributed to the development of the conventions of the older media. Murray (2011) suggests that people get confused in design situations and tend to re-inscribe legacy patterns from previous inscription

technologies[8] and judge new mediums by those terms. Manovich (2001, p. 69) refers to this legacy as "the cultural interface" and argues that a cultural interface "is made up of other already familiar cultural forms". Even though he argues that one needs not forget everything learned from older media because culture does not suddenly change course and therefore the audience will continue on the trajectories of old media, he cautions against ignoring the cultural history of the techniques used in older media when building on them for the development of new media.

Can it therefore be argued that interesting stories, as defined by McKee, render digital narrative problematic because of the medium's ability to react to user input? I would argue that a strategic sequence itself is not what makes a narrative interesting. In this context, Ryan (2004, p. 9) defines the concept of a narrative script as "a cognitive construct [that is] formed in the mind of the interpreter in response to the content presented by the medium". This concept relies to a limited extent on a specific sequence to qualify as narrative. It states that the content must consist of "a world populated with characters and objects that undergo changes that are either accidental or caused by deliberate human actions" (p. 9). Moreover, a narrative script must allow coherent and intelligible reconstruction of the interpretive networks of goals, plans, causal relations and psychological motivations around narrated events. I therefor argue that what she suggests is that if the sensory stimulation and interactions perceived by the participant is [sic] cognitively narratised, and if the content presented by the medium satisfies the requirements of the narrative script, it is arguably interesting narrative and that if a medium can generate a narrative script, it is a narrative medium, even if it lacks the strategic sequence defined by McKee.

Virtual reality narrative therefore seems problematic when its narrative potential is evaluated through the lens of predominantly language-based theories. The most likely conclusion will then always be that digital narratives are problematic to the point that interesting narratives cannot be expressed in virtual reality. Early virtual reality creators like Jaron Lanier experimented with improvisational theatre for VR called 'voomies'[9] or 'virtual movies' (Lanier & Biocca, 1992), as a way to introduce mainstream audiences to the medium where the experience could emerge

[8] Murray suggests that we reframe medium in terms of inscription (the ability to make a mark that is lasting and perceivable), transmission and representation. She states that the participant's ability to interact with the medium affects the inscription of the medium the most.

[9] 'Voomies' were theatrical installations where audiences would come to experience virtual reality. Lanier would have real actors, called 'changelings', behind the scene to move the experience forward and to ensure the experience ended at a certain time.

naturally based on audience interaction. Louchart and Aylett (2003) believe that the shape of truly digital narrative is emergent. Therefore, as I have already determined, narrative can emerge from a database of separate elements by means of an algorithm, whether this is the algorithm an author applies through her thinking, hidden in how the plot unfolds, or whether this algorithm emerges from a human who interacts with the data stored in a computerised database. This suggests that narrative potential of digital mediums such as virtual reality should no longer be in question. I assert that virtual reality is a narrative medium and when the necessary exploration of the medium is motivated by determining new conventions rather than copying old ones, the conversation can move towards defining the medium and, later, towards further and better expression.

2.4.3 Interactivity

By introducing interactivity to narrative, which is made possible by the digital medium, new challenges are introduced not only in how narrative is structured in such a medium, but also for the hardware systems that are used to represent the virtual reality environments (Arts and Technology, 2015). The hardware of virtual reality is not what defines virtual reality, although the limitations of the hardware impact what can be expressed by the medium (Biocca, 1992). However, new mediums will allow us to tell new stories (Murray, 2004), and virtual reality narratives can draw on the unique property of participation by interacting with the content which engenders a sense of presence that creates stories that could not have been told before. Presence through interactivity is thus a defining property of virtual reality. Participating in the narrative world by interacting with the digital medium reinforces a sense of presence in a profound way which is unique to the digital medium. In this context, the question of whether virtual reality is a narrative medium becomes irrelevant. If the content of virtual reality satisfies the conditions of Ryan's narrative script, it qualifies as a narrative medium. The more pressing question of virtual reality narrative is whether the problem of participatory narrative is worth pursuing and, whether despite its challenges, virtual reality narrative *should* allow the audience to participate or whether it should merely allow them to observe.

CHAPTER THREE
CASE FOR AGENCY OVER OBSERVATION

3.1 Introduction

Digital narrative is unique in the sense that it responds to audience action and allows the audience to interact with the narrative by inviting the audience to become a participant. This enables virtual reality to tell new stories in new ways. However, even though traditional narrative structures seem incompatible with participation through bodily interaction with the narrative, the conventions of traditional narrative media should be assessed first before dismissing interactivity as incompatible with narrative. This section seeks to define the property of interactivity and how it gives the viewer agency as a participant in the narrative. I shall provide a definition of agency and discuss different examples of interactivity in digital narrative. I shall also discuss how dramatic agency is necessary for interesting virtual reality narrative and consider the benefits of structuring participation as a visit, where a participant is constrained to the role of observer. I shall argue that, though sufficient, mere observation will not support interesting narrative.

A digital medium can be understood as something created and displayed on a computer. Murray (2011) identifies four affordances of computers. The first is the spatial, which can be understood as the conventions that allow the user of the computer to successfully navigate the digital content, and the second is the encyclopaedic, which she describes as the conventions by which the digital content is organised. These two properties make digital media a vast world that is capable of exploration as it contains the properties that are responsible for immersion. Manovich (2001, p. 252) terms this “the ability of digital media to create a navigable space”. Murray (2011) determines that the last two, namely the procedural and participatory properties, are what enable interactivity. The procedural are the conventions that control the digital content and its ability to execute according to rules. Participatory affordances are the conventions that enable the user to command the computer through input and to receive a response from the computer as output. Participation gives the user the ability to access the data, move through their navigable space, and react to the stimuli. “Just as the primary representational property of the movie camera and projector is the photographic rendering of action over time, the primary representational property

of the computer is the codified rendering of responsive behaviours. This is what is most often meant when we say that computers are interactive" (Murray, 1998, p. 74).

I have already established that virtual reality creates a sense of presence that is reinforced by participation. However, a viewer of a virtual reality narrative can either be present in the world as an observer (or more suitably termed visitor) or as a participant (one who is able to influence the outcome of the narrative). Ryan (2004) proposes that user involvement, or interactivity, is a cross classification of action and position. The participant's position in the world can either be defined as internal or external and her actions in the world are either exploratory or ontological. When positioned internally, the viewer projects herself as a member of the digital world by perceiving and navigating the space from a first-person perspective. Positioned externally, the participant is situated outside the world looking in; she is a god who controls the world, having a global overview of the navigable space. Exploratory actions are defined as actions that allow the viewer the freedom to move around [in the world] without the ability to alter the history or plot in any way. Ontological actions send the history of the world on different forking paths with every decision the viewer makes, her actions determining which story will develop through altering the navigable space in what Manovich (2001) refers to as 'real-time'. Interactivity can therefore either be classified as exploratory or ontological, regardless of the user's position being internal or external.

3.2 Definition of Agency in Virtual Reality

In one of her papers, Ryan (1999, p. 111) succinctly defines interactivity as "the ability to move around and the power to modify things in the environment". Steuer (1993, p. 14) defines interactivity as "the extent to which a viewer can participate in modifying the content of a mediated environment in real-time". Both authors agree that interactivity is the ability of a participant to affect change in a digital environment. However, Ryan includes in her definition the ability to move around which Manovich (2001, p. 269) describes as "the navigable space of new media that is … a subjective space, its architecture responding to the subject's movement and emotion". In my earlier reference to Rheingold's (1992) definition of virtual reality I identified navigation as a necessary property of the medium. Ryan (2004) declares that the ability to participate or interact is truly the distinctive and most fundamental property of digital

media, and Manovich (2001) declares that the database and navigable space are the distinctive principles of computerised media. Therefore, a user must be able to navigate the fictional world of a digital medium. With regards to the question of whether the user has the ability to modify it, I acknowledge that a world need not be modifiable for the participant to have the ability to navigate it. Could one therefore argue that the ability to freely move around would allow the user to participate, and does this 'freedom' satisfy the property of interactivity?

The term interactivity is problematic, as stated by both Murray (2004) and Manovich (2001). Manovich (2001) argues that interactivity is the most basic fact about computers and therefore stating that a medium object is interactive is meaningless as it automatically becomes interactive. Murray (2004) proposes the term 'agency' instead of interactivity. A participant experiences agency when the world she is present in responds to her engagement with it in an unambiguous manner. The procedural and participatory affordances of the computer thus create a sense of agency when the computer responds to the action taken by the participant. Agency gives the participant a sense of control. Murray goes even further to define something she calls 'dramatic agency', stating that "dramatic agency is created when the world responds to a participant's action, resulting in a dramatized change (p. 10). Murray explains dramatic agency with the following example: "If changing what a character is wearing makes for a change in mood within the scene, [and] if navigating to a different point of view reveals a startling change in physical or emotional perspective, then we experience dramatic agency" (p. 10). Agency is therefore not just the ability to affect change, but a feeling of having the freedom and the power to influence the history of the world.

The freedom of the participant to go (or look) where she wants to and the power to influence the world through her actions reinforce the sense of presence for the participant. This resonates with Aylett (1999) who concludes that the freedom of the participant to interact with the environment and particularly the ability to move freely within it are essential features that contribute to the feeling of presence. The freedom to move around the world might be enough to create a sense of agency, but it is when the actions and decisions that are taken by the participant influence the narrative that a participant experiences dramatic agency. I therefore define that dramatic agency is therefore a necessary requirement of interesting narrative in virtual reality. However, as Manovich (2001, p. 56) states: "While it is relatively easy to specify different interactive

structures used in new media objects, it is much more difficult to theoretically deal with user experiences of these structures. This remains … one of the most difficult theoretical questions raised by new media."

There are multiple examples of interactive narratives in digital media that are not necessarily of dramatic agency as the manifestation of interaction in interesting narrative. Here follow examples of existing interactive narratives and their qualifications of whether they provide the audience with dramatic agency.

The first example of such an interactive digital narrative is hypertext. Hypertext can be described as a network of fragmented texts that are connected by hyperlinks presented on a digital medium. The audience experiences the narrative through forking paths as they select to follow one link over another. However, Ryan (2004) argues that hypertext is a jigsaw puzzle that doesn't generate a unique story based on the participant's input. The text has been predefined and merely 'chopped up' or fragmented to create different possible narratives that the audience can discover. Manovich (2001) supports this argument by citing French philosopher Louis Althuser's concept of 'interpellation' that asks the reader of hypertext to mistake the structure of someone else's mind for her own. Therefore, the narrative that emerges as the user clicks through hyperlinks does not emerge spontaneously in real-time, as it was deliberately created prior to the user's interaction and she is merely required to piece it together in her own order. I argue that such an unfolding of events does not give the user dramatic agency.

Ryan's investigation into hypertext exposes another difficulty of interactive narrative. The first, as stated above, is that a predefined story that is fragmented rather than created in collaboration with the user's interaction does not afford the participant dramatic agency. The second is that interactivity competes with the mental processes that are responsible for the sense of immersion and the interpretation of the narrative, which raises the question whether dramatic agency could negatively affect immersion. Manovich (2001) describes this second difficulty as 'meta-realism', where the user oscillates between illusion and its destruction, shifting between the mental state of perceiving and actively participating. Lindley (2002) highlights this difficulty in computer games and describes it as the player's mind having to switch between the cognitive state of gameplay gestalt (the interactive state) and narrative gestalt (the illusionary state). I shall elaborate on

Lindley's theory of the two competing gestalts to highlight the problem with dramatic agency in the following section.

Lindley (2002) argues that the narrative in computer games sits on a higher level that is not influenced by the lower level that is concerned with interactivity. He argues that, in most cases, the one does not affect the other in a substantial way as narrative is dispersed throughout the game in cut-away cinematics. When these narrative parts are presented, the player's ability to interact is suspended. Interaction in computer games is therefore concerned with lower level small scale conflicts or challenges which the player needs to overcome to move forward in the game in an effort to keep her avatar alive. "Interaction at lower levels may include choices of which enemies to try to defeat or avoid, how to defeat or avoid them, which treasures to find or pick up, what sequences to try for solving puzzles, which particular paths to traverse, etc." (Lindley, 2002, p. 206). The plot may play out in an order that is determined by the actions of the player throughout the game, much like the puzzle piece interaction of the hypertext example. However, as Lindley (2002) concludes, the low-level interactions of gameplay have very little effect on the actual plot or the nature of the events and therefore probably do not truly afford the player with dramatic agency where narrative is concerned.

There is also the argument that the player's interactivity results in something that is termed 'ludic immersion' rather than in narrative immersion. When computer game players experience immersion when playing a game, a distinction is made between the sense of narrative immersion gained from viewing a story and the ludic immersion gained from playing a game. Ryan (2009) states that ludic immersion lies in the performance of a task and, therefore, ludic immersion can be achieved without narrative content. It only requires the participant to be physically engaged. Narrative immersion engages the participant's imagination as she mentally constructs and contemplates the story world. However, Ryan (2009) does suggest that narrative immersion of a fictional world can be achieved in computer games as such games can achieve a sense of spatial immersion by rendering vast, beautiful landscapes that the player is able to explore. The player is able to embody the space and orient her avatar within it. By being able to venture through the landscape, the player is motivated by a quest or the desire to know how it unfolds, and she experiences epistemic immersion. However, computer games may solve the challenge of spatial and epistemic immersion, but the interaction of the player has little effect on what story is

generated and therefore such games face the same challenge as hypertext; i.e., the audience does not experience dramatic agency.

Considering that in computer games agency is not successfully utilised on the narrative level, the only freedom that the agency of a computer game affords the player in terms of the narrative structure is in the order or sequence it is revealed. The same is true for hypertext. I can therefore conclude that in both these examples the user or player only exercises agency to determine how the visit to the fictional world unfolds. To come back to Ryan's (2004) earlier classification of interactivity, the mode of interactivity in the aforementioned examples is exploratory. My argument is that for interesting narrative to emerge from virtual reality, the participant must be more than an explorer, as she has to embrace dramatic agency. The participant's actions should impact the narrative level, the story should emerge from her actions, and the mode of interactivity must be ontological. However, the question of whether participation as a visitor is adequate for interesting narrative remains pertinent. I shall therefore consider the impact of participation as a visit on the participant's sense of presence in the next section.

3.3 Considering Participation as a Visitor or as a Dramatic Agent through Agency

The format of a visit is the simplest way to structure participation in virtual reality narrative. When the participant is not allowed to influence and change the virtual world, the narrative does not need to allow for the seemingly endless possibilities that could emerge from a participant's random actions. When the narrative is predetermined, it will follow a specific trajectory that could lead to the desired outcome – an interesting narrative. Murray (1998, p. 106) explains participation as "a visit by means of an amusement park fun ride". Not only is the predetermined journey structured to create the maximum entertainment value, but it also acts as a guide in the fictional world to ensure that the participant experiences everything there is to experience and to ensure that she does not spend unnecessary time where nothing interesting happens. In other words, the boat or car that the participant is positioned in within the experience acts as a border that separates the fictional from the self in real life, which is termed the 'fourth wall'. According to Murray (1998, p. 103), this fourth wall is "an essential part of a participant willingly entering the fictional world and safely suspending disbelief". Therefore, the role of the self in a virtual

environment is easily understood. A visitor understands her role and the boundary that defines participation is ‘look, but don’t touch’. The rules of a visit are well-defined and few questions need to be answered to participate and enjoy the experience.

The role of the visitor can be compared to Manovich’s (2001) explanation of the flâneur who is happy to explore and remain anonymous in the world among the crowds. He refers to Geert Lovink, who describes the ‘Net Surfer’ or the ‘Data Dandy’ as an explorer who wants to lose herself in the mass as a non-identity. Therefore, it seems that there might by merit in participation as a visit, as some participants would feel completely satisfied safely seated in the vehicle, enjoying the predetermined ride. However, I question whether participation as a mere visitor is more than what older mediums already allow. The three-hundred-and-sixty-degree navigable scene that virtual reality presents to the viewer and that allows her to look around and experience freely might grant a sense of immersion which a participant may be completely content with, but passively following the story that an author has created for a participant does not afford the participant with much dramatic agency. Murray (1998) supports this view when she states that legacy mediums have well established conventions that prohibit participation. She later argues that the role of explorer or visitor becomes lonely. Once the thrill of exploring a new world wears off, one can understand why virtual reality creator Jessica Brillhart (Google Developers, 2016) observes that even if a meticulously formulated path has been created for the viewer, she could not guarantee the audience would follow the path set out for them during a visit.

When the participant leaves the predetermined path during a visit, she might not be able to influence the world, but the ability to freely explore could afford the participant a level of agency that will contribute to a deeper sense of presence. I must therefore consider that the participant’s narrative experience will be influenced by the sequence in which her free exploration exposes her to the predetermined narrative by what she does and does not see. Manovich (2001, p. 268) determines the poetics of navigation as a position in which “the audience [is] able to define their own trajectory through a space they did not design”. He states that the designer creates an experience for the participant and, as the participant moves through the experience, she creates her own trajectory, generating a unique narrative based on her exploration of the world. This

unique experience will reinforce a sense of presence as the virtual world 'responds' by revealing its secrets without the participant having to do much more than just look and move around.

However, Murray (1998) states that we want to do more than just travel through the experience, specifically *because* we feel present. Exploratory experiences can be engaging to a point, and the agency experienced by having the freedom to explore at will *can* enforce a sense of presence. However, as we know, presence in the real world will be very limited in emotional range if we were just able to float through it without the ability to touch or interact with others. Likewise, the presence in virtual reality will have limited emotional significance if the participant's visit amounts to nothing more than an encyclopaedic navigation of a three-dimensional world. The question remains whether the participant would experience dramatic agency as a visitor. As I have previously determined, interaction reinforces immersion. When one considers agency in the context of narrative immersion, there are some types of immersion that are better suited for allowing participation and others that are more problematic.

Narrative immersion as defined by Ryan (2009) is divided into four types of immersion: spatial, epistemic, temporal and emotional. We've established that spatial and epistemic immersion can be successfully achieved with the agency afforded to the participant by digital media such as computer games. Temporal immersion, specifically the narrative effect of suspense, and emotional immersion remain challenging when allowing a viewer to participate. To create suspense in narrative, the storyteller requires a creative overview of how events will unfold through a top-down management of the participant's expectation. Suspense is created when a viewer foresees more than one possible outcome and experiences anticipation about which outcome it will be. Ryan (2009) makes the argument that the ability of the participant to choose a path eliminates the suspense.

Emotional immersion is mainly concerned with empathy towards others and the wide range of emotions we can feel towards others when evoked by narrative. When participating as ourselves, we also experience emotions directed towards ourselves. The range of self-directed emotion is much smaller. Therefore, as a participant, the range of emotions experienced during narrative immersion is limited compared to the emotions experienced through empathy when observing others. Participation as a visitor could therefore allow the visitor to emphathise without the

internal emotional focus of participation and therefore emotional immersion might be stronger during observation.

It is at this point that I must acknowledge the counter argument that agency may create an experience void of the narrative pleasure that an authored work provides to the viewer. Ryan (2004) raises this argument when she states that the reader wants to follow a journey defined by the author. She cites literary critic Sven Birkerts who is a defender of book form narrative and argues that when readers are caught up by the suspense of a novel and they are anxious to find out how the story unfolds, they would rather hand the reigns to the experienced author to guide them through as was intended than to freely explore and piece the story together haphazardly. This stems from the notion, which Ryan (2004) explains as narrative being an organized, strategic experience where the events follow a logical form and each sequence is significant in its ordering, resolving in closure. I argue that such a definition is formulated based on traditional narrative, specifically written language based narrative, where the audience can only take up their role once the author has completed the work. In such a definition, the consideration for agency will be problematic. I assert that when agency is deliberately incorporated to invite the participant as collaborator in the narrative, then coherent and interesting narrative is possible, but only if the conventions of legacy media do not dictate what can and can't be done.

3.4 The Problem with Agency in Narrative

If virtual reality must allow the participant to do more than passively observe the narrative constructed for them, the act of doing when considering ludology creates pleasure that does not rely on the criteria that apply to literary narrative. Ludology is a study of players actively participating in an experience and is used when analysing computer games. Ryan (2004) raises the argument that games are autotelic and that performing action is the point of games. It is what the player enjoys the most. Agency, when void of any dramatic consequence, could therefore also remove all sense of narrative pleasure when the pleasure is achieved from doing alone. When allowing the participant agency without considering the dramatic relevance thereof, narrative becomes secondary. Ryan (2004) cites Kendall Walton who states that narrative scenarios in games act as a prop to engage players' imagination where the design of the game itself falls short. Ryan argues that even though the narratives of computer games could be

interesting, successful implementation of narratives is limited and, typically, narrative is subordinated to gameplay. Therefore, computer games need not depend on narrative to be enjoyed.

Aarseth (2004) asks the question whether something (a plot or event) ceases to be narrative if the participant is actively creating it. He supports this argument by referring to Tronstad's theory of performative and constative dimensions. For example, when a player of a quest game is actively playing out the quest, she is not reflecting on the narrativity of the actions. After the quest has been completed, she can reflect on it, but then it is no longer performative but constative. Therefore, when design is mainly focused on ludic immersion, agency runs the risk of generating pleasure purely from immersion in the task of doing. Contrary to this, something ceases to be narrative when one is actively creating it; and once one starts reflecting on it as narrative, one is no longer actively participating in creating it. Manovich (2001) refers to this as meta-realism, as was stated earlier. However, as Lindley (2002) states, computer games tend to be designed to restrict agency to a lower level where it is concerned with small conflicts. I argue that this need not be the case. When carefully considering the design of narrative immersion, the creator can aim to give the participant dramatic agency. When agency is designed to create meaningful change in the narrative world, I emphasise that a participant's interaction with the world becomes narratively immersive rather than ludic.

However necessary, allowing a participant agency must also consider the real-world effect it has on the participant. John Carmack (Arts and Technology, 2015) raises the point that the unique property of presence in a virtual world suffers from the side-effect that the participant's body is also present in another world, which is the physical one. The disagreement between the perception of the senses in the virtual world and that of the physical world creates physically unpleasant experiences for the participant, more commonly known as 'virtual reality sickness'. The result is a limitation on what movements can be made within the virtual world. Virtual reality sickness is a challenge for both participation as a visit and participation with dramatic agency.

Among the biological constraints of the participant are the mental constraints that a participant may experience. Ryan's (2004) investigation into hypertext highlights the challenge agency

creates for digital narrative's 'immersiveness' when the cognitive resources are concerned with interactivity. Virtual reality solves the need for the participant to decode language to construct the immersive world, unlike hypertext. However, being immersed in a virtual reality environment that provides a rich sensory experience has the potential for the participant to move towards the other extreme where cognitive resources become overwhelmed by the sensory stimuli generated by the immersive world. Steuer (1993) argues by referencing authors Lang (1992) and Reeves, Detenber and Steuer (1993) that the more vivid an experience is, the less likely a participant is to interact with the environment. When Steuer (1993, p. 20) discusses vividness, he explains it as "the richness of the representational information communicated by the medium". He defines the first as the range of senses that can be stimulated as the breadth of experience, and the depth of this information as the second contributing factor to the vividness of the experience. Steuer (1993, p. 20) theorises that "the more vivid and the more interactive a particular environment is, … the greater [is] the sense of presence evoked by the environment". Vividness is therefore necessary, as the more senses are immersed the more present the participant may feel. But does this leave the participant with the necessary mental capacity to act upon this agency?

When a balance is achieved between vividness and agency, there is another competitor for a participant's cognitive capacity. Narrative competes for the same mental resources as the sensory vividness and cognitive functions that compel the participant to act. In this context, Lindley (2002) investigates the trade-off between 'gameplay gestalt' and 'narrative gestalt'. He investigates the way in which gameplay competes for the same mental resources in terms of perception, cognition and motor effort. He argues that when the participant becomes so entangled in the action that is afforded by agency, fewer resources are available for comprehension of the narrative constructs that are presented. Therefore, when considering the biological limitations of the participant, creating a sense of presence requires a balance between narrative immersion, sensory vividness, and the participant's sense of agency.

3.5 A Case for Dramatic Agency

To support the argument of whether the type of agency that reinforces presence can be achieved through observation alone, I refer to a study conducted by Newton and Soukup (2016). These

authors aimed to discover what a virtual reality audience's experience would be of a narrative environment. They argue that looking is doing and that the freedom to look in any direction is sufficient for the participant to experience agency. They also argue that it requires a lot of work from the audience just to decide where to look and that the role of observer therefore exists in an active state of participation. Their findings illustrate that both Steuer (1993) and Lindley (2002) have valid arguments. I submit to their findings and agree that, even as an observer, the participant is still actively taking part. I shall consider the argument that actively observing facilitates the construction of a narrative script in the mind of the participant. By actively choosing what to observe and when to change their gaze, they influence the sequence in which they are exposed to the fictional world and how the events unfold to them, therefore employing narrative gestalt.

Moreover, the above authors found that participants took on the role of a detective and argued that this in itself is significant. The role of the active observer is the role of a puzzle solver. Manovich (2001) explains that the participant experiences psychological engagement as she uncovers the clues and solves the puzzles that allow one to uncover the underlying algorithm. He argues that there is pleasure in information processing. The gestalt theory determines that the whole is greater than the sum of its parts and therefore, should the participant be exposed to all the narrative that is on offer, she will be likely to come to the same conclusion and thus solve the puzzle:

> "The mind is notoriously capable of emergent behaviour – of creating new connections and of forming new patterns of ideas in response to certain stimuli. It is much more efficient to store an incomplete version of a given narrative and to flesh it out when the need arises than to clutter memory with all the details of its logical armature. What is left out and what is included in this image depends on the individual interpreter. The complete and explicit representation of a story is an ideal, somewhat Platonic version towards which readers work, as they fill in their cognitive blueprint of the story" (Ryan, 2004, p. 12).

However, my considered position on the study by Newton and Soukup (2016) is that the participants were presented with a predetermined narrative and they therefore did little more than piece together a narrative puzzle. The study lacked the incorporation of dramatic agency, which

is where the actions of the participant influence the events themselves, rather than when the participant just watches how they unfold. Therefore, their observation about the 'active observer' is, in my opinion, due to the nature of the narrative content they presented the participants with.

Presence might be possible through observation only, but Murray (1998) finally states her preference for allowing the participant agency. Even though it is pleasurable to be transported to another world and feeling immersed and present within it, in a participatory medium such as virtual reality, immersion can be compared to the feeling of being immersed in a swimming pool or ocean. For some the flood of sensations can be enough, but for others "…immersion implies learning to swim, [and] to do the things that the new environment makes possible" (Murray, 1998, p. 99). I argue that while the VR medium is new, the adventurous types will be the participants that are most likely to exercise their agency, and for them agency will reinforce their immersion. Initially, the cautious or novice participant will be satisfied by being fully immersed in the role of an active observer only. But as their senses become used to the experience and they become confident in their abilities in the new environment, they will inevitably also want to experience agency and influence the world around them.

Manovich (2001) outlines how culture is influenced by new media and the computerisation of media and how, in turn, new media forms are influenced by culture. As the culture around virtual reality is established, eventually the participant of a narrative virtual world will need to feel dramatic agency. When a human enters into a new environment, they are unsure at first, and at this stage it will be safer to merely observe. As the person becomes comfortable, she will start to feel the need to participate because a sense of presence is experienced. A virtual reality narrative should therefore not constrain a participant to the role of an observer throughout the experience, but it should also not assume that the participant will immediately employ dramatic agency and that interesting narrative will immediately emerge in collaboration with the participant.

However, when an experience is entirely dependent on the participant driving it, agency poses a challenge for narrative progression, which is crucial for interesting narrative. A pre-defined narrative creates progression in the way the scenes are arranged and in the choices of the scenes that are included. Emergent narrative requires the narrative to progress at the will and through

the actions of the participant. I shall therefore consider narrative progression, particularly through conflict in virtual reality, in the next section.

CHAPTER FOUR
CONFLICT AS THE PROGRESSIVE FORCE IN VR NARRATIVE

4.1 Introduction

This study aimed to determine a narrative construct that would be unique to virtual reality narrative. Each medium has properties that make it unique, and for virtual reality that property is the sense of presence it affords the audience. This unique sense of presence bestows upon the audience, in some cases, a particular ability or abilities; but at the very least, it affords the participant the appeal to participate in the virtual world. Therefore, the audience of a virtual reality environment feels present through her sense of agency that reinforces the feeling of being present. However, agency creates a challenge for narrative effectiveness. The predetermined nature of narrative in older media allows the author to plan and select the optimal trajectory of unfolding events that result in an undeniable progression towards a specific ending. In digital media, the computer's affordance of responsiveness to user interaction allows the medium to respond to audience action, which opens up the possibility that the audience will influence and change the narrative work and, potentially, the outcome thereof. The participant of virtual reality is not only able to change the world, but her agency also affords her the ability to decide how and when to move through the fictional world. This freedom of movement in turn determines what she sees and experiences and when. When the author is no longer in control of what the participant sees and when, she loses control over how the participant perceives the narrative. This brings narrative progression into question. How will the narrative progress if the participant is not following a narrative trajectory that is defined by a predetermined plan that incorporates the necessary progression?

In a virtual reality narrative where a participant is able to determine her own unique trajectory in in the navigable space, predefined dramatic events can come and go, but it is not certain if the participant will be looking in the direction of such events. Without the author's control over how the narrative unfolds, the participant could be left uncertain or unaware of how to proceed. To determine the narrative construct of virtual reality, I shall therefore have to resolve how the

narrative might progress when a participant affects how the narrative unfolds in real time. The difference between traditional predefined narrative and virtual reality narrative can be compared to the disparity of participating and experiencing life as it unfolds and being told about events after they happened. In facilitating the debate of narrative across media, Ryan (2004) relates the type of audience participation that virtual reality allows as something that will rain chaos onto the dramatic value of narrative if actions are not channelled towards a goal. McKee (1941) argues that the pursuit of such a goal is what generates narrative progression. I shall now look to his definition of narrative progression and determine that conflict creates narrative progression. I shall therefore argue that if conflict can be expressed in a digital medium, progression in virtual reality narrative is possible.

4.2 Narrative Progression

As far back as the nineteen forties, McKee's (1941) definition of story referred to the medium of cinema as, at the time, it was the dominant medium for visual storytelling. Today cinematic storytelling is a most accessible medium and its audiences are also most likely to become the audience of virtual reality narrative. Manovich (2001) argues that both new media and the computer digital medium draw heavily on the medium of cinema. "A hundred years after cinema's birth, cinematic ways of seeing the world, of structuring time, of narrating a story, of linking one experience to the next, are being extended to become the basic ways in which computer users access and interact with all cultural data" (Manovich, 2001. p. 78). I therefore deem it relevant to refer to McKee (1941) for a definition of interesting narrative and how progression contributes to its significance.

He explains that the structure of an interesting story is compiled of "…a selection of events from the characters' life stories that is composed into a strategic sequence to arouse specific emotions and to express a specific view of life" (McKee, 1941, p. 33). The narrative progresses as each event in the sequence introduces more progressive complications that are created by conflict. Progressive complications are when the characters of the narrative face complications which determine the course of the story as the characters take action to overcome the complications. The complication/s becomes/become progressive because with every decision the character makes, the narrative passes a point of no return, building more and more tension to the point of

crisis. The point of crisis results in the story climax after which the tension resolves and the story concludes.

The intricacies of how the actions and decisions of the characters contribute to the narrative progression start at the onset of a story, when an event takes place that initiates an upset in the main character's life. The character faces the dilemma of choosing whether to accept the change or set out to restore the balance. The story starts developing when the character chooses the latter. However, the complication arises because of how the character decides to take action. According to McKee (1941), it is human nature for the character to choose to take the course of action that results in the minimal amount of effort to restore the balance. This never proves to be enough to restore balance and the character is forced to continuously put it more on the line to restore the balance. This creates what McKee (1941) calls "the gap". This gap forms when the outcome of action results in something other than what the character expected. With each attempt, she realises that it was not enough to restore the balance, and she has to take greater action to bridge the gap. Narrative progression is achieved with each such action-outcome interaction, eventually resulting in a climax that results in an absolute, irreversible change in the character's life (McKee, 1941).

When an audience sits down to watch a film, they know that the experience is about to take them on a journey where the progressive complications of a character's life will be revealed in a sequence of events that will result in her either achieving the goal, or that her 'life' will change (or even end) in a remarkable or dramatic way. Either outcome will unfold in front of their eyes through a skilful telling represented in a sequence of frames that have been strung together in a single strategic order that will result in the desired effect. However, when a participant enters the narrative world of virtual reality, she becomes present in that world. The sequenced movement through time is no longer facilitated through a sequence of frames, but she is now in control of movement through the navigable space. The participant has the agency to look and move around by her own volition. She must find her way through the world to discover the narrative for herself and, through her ability to interact, she can shape how the events will unfold. This new role is unfamiliar to the participant, whereas with the film medium, the role of the audience is clearly defined. In VR narrative, the participant finds herself in an ocean of narrative possibility.

The challenge associated with virtual reality narrative lies in how to move the participant from one complication to the next, which results in the progression of the story and a desirable emotional outcome for the participant. Narrative progression makes for interesting stories and interesting stories result in deep emotional responses to the events and characters. Progression in virtual reality narrative should happen through the participant exercising her agency to take action that will result in dramatic consequences for the character/s in the story. Because the audience does not know what the medium is and doesn't know how to go about participating in it, narrative progression might come to a halt if the participant doesn't act. The next section will consider how the participant might be guided to drive the narrative so that it may progress.

4.3 Guiding the Participant to Advance the Story

I have incessantly argued by now that a participant of virtual reality narrative is able navigate the virtual world as she pleases. I have also illuminated that the traditional way of determining a narrative trajectory for a participant will in the first instance not result in a truly unique virtual reality narrative that takes advantages of the properties of the medium, and that secondly, there is no way of determining such trajectory when the control lies with the participant. Jessica Brillhart (Google Developers, 2016; Media Evolution/The Conference, 2016) has experimented with three-hundred-and-sixty-degree video and has seen first-hand that a participant is overwhelmed by the immersive environment with no clear direction on what to specifically look at. She suggests that the creator of a virtual reality experience can overcome this barrier by determining a point of interest to draw the participant's attention. She states that a scene can be set up in a specific way to highlight a specific part thereof in order to naturally distinguish it from everything else as a point of interest.

In Steuer's (1993) explanation on vividness in virtual reality, he states that when a scene is too rich in sensory stimuli, the participant is less likely to interact because of cognitive load. When Brillhart used a point of interest in her virtual reality experiments, she reduced the vividness of the majority of the scenes and placed emphasis, or vividness, on one particular point. She also states that by using clever sound design in a three-hundred-and-sixty-degree space, the creator can signal to the participant where to find the point of interest, if s/he has not already noticed it. Brillhart therefore argues for a balance of the vividness of sensory stimuli to guide the

participant to where the important events are located within a scene. However, as cited previously, Brillhart acknowledges that even with the best possible persuasive techniques, a participant is still free to rebel against the trajectory that has been defined by the creator.

Attracting a participant's attention with clever scene and sound design is not enough to guide her to take action. Once a participant is aware of a point of interest, she still needs to know its significance and that she can act upon it. Murray (2011) proposes that the creator of the virtual reality narrative should script the interaction of the participant through any of the following four models. 1) By scripting the interaction, the creator can manage what is expected of the participant in the virtual world. By managing what is expected of the participant, the creator is able to guide her into the world and through the narrative to ensure a satisfactory experience. The first model is, what she calls, the tool model. By providing the participant with a tool with affordance of what can be done with it, the participant can seek out the matching action or object in the virtual world that allows for interaction. 2) The second model is, what Murray calls, the machine model. This model incorporates a user interface that the participant can easily understand and interact with. An example she gives is that of a control panel in a game that has dials and buttons that prompt the user to interact in various ways by using them. 3) The third model, the companion model, stems from the irrational belief that the computer is animated and the participant is guided by a physical presence in the virtual world. 4) The fourth model Murray proposes is the game model. The game model refers to how games facilitate interaction through structured play. She argues that the activities in a game model are pursued for their own sake.

The proposals made by the authors above are ways to indicate to a participant that interaction is possible and that something in the narrative world requires her attention. Guiding the participant to exercise her dramatic agency in order to drive narrative progression is more complex than just pointing the participant in the right direction. To prompt dramatic agency in a virtual reality narrative, the participant has to be aware of the ability to change and influence the narrative. Brillhart's medium of investigation was a three-hundred-and-sixty-degree video, which did not allow for any participation other than just deciding where to look. Therefore, she did not expand on her suggestion for creating a point of interest. Murray (2011) proposes that, for any new medium, we are better off looking to the core human experience. To determine the core human experience that drives narrative progression, I refer to McKee's (1941) theory of the gap that

emerges when the core human nature of taking the most minimal course of action is met with an antagonistic result. McKee (1941, p. 210) makes the statement that: “Nothing moves forward in a story except through conflict.” The key to narrative progression in virtual reality is therefore to make the participant aware that her action is required by entering into a situation of potential conflict.

4.4 Conflict as a Progressive Force

McKee (1941) explains that, at the heart of conflict, is the core human experience which he describes with reference to Jean-Paul Sartre as the essence of reality which is scarcity. He then notes that Heidegger observed time as the basic category of existence. Because our existence should not feel like a waste of time, we are willing to go “…into heady conflict with the forces of scarcity that deny our desires” (McKee, 1941, p. 211). McKee (1941) further argues that conflict engages the thoughts and emotions of the audience because we can relate to this core human experience. He argues that the audience becomes mesmerized and unaware of the passing of time, but when conflict is absent, the audience becomes acutely aware that things are standing still, just as they would if an orchestra would stop playing music before concluding the piece. He argues that beautiful photography might hold the attention of an audience watching a film for a while, but eventually their eyes and attention would wander, diverting their thoughts and emotions. In the same way, the participant in virtual reality would be enchanted by the vividness of the experience and environment but eventually, without narrative progression, they would disengage from their narrative immersion. The desires of the main or leading character must results in the pursuit of a goal. Thus the narrative must track her progress and unique trajectory in achieving that goal, and therefore narrative progression is achieved through the pursuit of a goal while overcoming complications that escalate with each conflicting event.

Computer games successfully prompt players to take action to move the game forward. These games illustrate Murray’s (2011) model of interaction structured through gameplay, as was mentioned previously. The participation of a player in a computer game is also underpinned by narrative; however, it does not necessarily progress the underlying narrative through dramatic agency. As previously discussed, narrative and interaction exist on different levels in computer games and therefore the authors Ware and Young (2010) concluded that games were not

successful in generating interesting stories through conflict. They state that planning lies at the heart of conflict, as a character seeks to accomplish a goal and faces difficulty in doing so. In essence, "the most familiar form of conflict in video games is violence" (Ware et. al., 2010, p. 210). Ware and Young suggest that a participant of a truly interactive narrative should face conflict when she formulates a plan to pursue a goal and then face difficulties that arise out of the story world in doing so. In contrast to this view, Manovich (2001, p. 222) argues that: "Everything which happens to [a player] in a game, all the characters and objects [the player] encounters either take [them] closer to achieving the goal or further away from it." Manovich believes that the pursuit of game level goals results in the player experiencing the game as a narrative. I argue that in computer games, this goal is predominantly about the activity the player is engaged in as well as the overarching goal of finishing the game, whereas in narrative, the goal is motivated by a desire to restore balance. As McKee's (1941) theory explains, once the participant has faced the initial upset of her world, she starts to formulate a plan and starts taking action to restore balance. Therefore, to engage the participant's dramatic agency in conflict that moves the narrative forward, the participant's actions should be driven by the motivation to achieve a goal other than just completing an activity presented during the course of the exploration of the virtual world.

Conflict can take one of three shapes in a narrative: inter-personal conflict, personal conflict or inner conflict (McKee, 1941; Ware et. al., 2010). Inner conflict is when the difficulties a character faces arise from her own nature, mind, body or emotions. McKee (1941) explains that the force of antagonism is a character itself. Personal conflict is when the difficulties that the participant faces come from other characters in the world. McKee (1941) explains that social conventions determine how people act towards one another. However, when a level of intimacy is reached with another, the conventions of the social roles are set aside and therefore they can act in ways that are not expected. This often causes conflict between two people, which is referred to as personal conflict. Finally, all sources of conflict outside that of personal interactions are referred to as extra-personal conflict. It is when the difficulties that arise are from man-made environments, institutions or social structures or the natural environment. In virtual reality narrative, the participant could potentially engage in any of these three levels of conflict as she faces difficulties that stem from the environment she is present in, or from other characters

or participants in the environment. She could also face difficulties within herself, or of her own belief or convictions about the world she finds herself in.

McKee (1941) theorises that interesting narratives are created when the three levels of conflict are woven together into a story. He expresses concern when only one level of conflict is utilised to drive narrative progression and categorises these narratives as less than interesting. However, even though all three levels of conflict are used together to create and progress interesting narrative, McKee (1941) proposes that each of the three prominent, traditional mediums of narrative, namely the novel, theatre and cinema, indicate a preference for a single level of conflict over the other two because of the properties that make each medium unique.

In this section I have established that conflict drives narrative progression and that progression is the key to ensuring interesting virtual reality narrative coupled with participant agency. In the next section I shall discuss the different mediums and their preference for a specific level of conflict over the other two. To determine how conflict will drive narrative progression in virtual reality, I shall consider how each of these levels of conflict takes advantage of the properties of the traditional narrative mediums and how they could take advantage of the unique properties of virtual reality, namely presence and participation.

CHAPTER FIVE
VIRTUAL REALITY AND THE THREE LEVELS OF NARRATIVE CONFLICT

5.1 Introduction

Narrative across digital mediums such as virtual reality proves to be challenging because it allows its audience agency. So far in this paper I have argued in favour of virtual reality as a narrative medium and determined that the unique property of presence is enhanced when the participant is allowed to influence and interact with the virtual world, given the adoption of a sense of dramatic agency. To ensure that the random actions of the participant contribute to the development of an interesting narrative that progresses to a point of climax, the actions of the participant need to engage in conflict. Conflict drives narrative progression and different types of conflict are expressed more effectively in different mediums depending on the properties of each medium. To determine the conflictual construct of virtual reality, I shall investigate the unique properties of the following prominent narrative mediums, namely the novel, theatre and cinema. I shall discuss how each of these mediums expresses the different levels of conflict, namely inner, personal and extra-personal conflict as determined my McKee (1941). Finally, I shall outline the possible ways in which the different levels of conflict may be represented in virtual reality and determine the preferred level of conflict that best takes advantage of the unique properties of virtual reality.

5.2 Traditional Narrative Media and Conflict

Conflict occurs when the protagonist faces antagonistic forces that challenge her with difficulties arising either from within herself, from others, or from the greater world of the story. Each medium has unique properties that allow it to tell stories in a different way and therefore each level of conflict is expressed in different ways and to different extents in different media. Therefore, McKee (1941) argues that each medium has a preference for which level of conflict takes full advantage of its unique properties. I refer back to Ryan's (2004) interpretation of medical remediation of a medium, where each medium improves upon the shortcomings of

another, but possesses shortcomings of its own. Therefore, while one medium might improve on the way another represents a specific level of narrative conflict, it will have its own limitations in other areas. This section investigates the remediation that the mediums of the novel, theatre and cinema have improved on for narrative, the limitations of these mediums, and preferences for representing the three levels of conflict.

5.2.1 The novel and conflict

The novel is a medium that came about with the invention of the printing press. The novel has the main constraint of having to represent narrative in a finite number of pages. However, the novel represents narrative through language, and language is best suited to represent a structured, predetermined, narrative format (Ryan, 2004). Therefore, the novel benefits from its author's careful planning to take the reader on a strategic trajectory that results in a desired (and sometimes undesired) emotional outcome for the reader upon the narrative's conclusion. The novel also benefits from its reliance on the reader's imagination where the story plays out in the narrative world that comprises developing (round) or static (flat) characters. The imagination has no limits, and therefore the novel can create magical settings with elaborate descriptions. It is not bound to the reader's current time or place and can move from world to world with the slightest change in grammatical progression. Where the novel excels is in its ability to take the reader into the mind of the protagonist and other characters. Therefore, inner conflict is best expressed in novel form (McKee, 1941). The properties of the medium allow for inner conflict to take full advantage of the medium.

However, the novel is not as the best medium to express personal or extra-personal conflict. It can certainly express personal conflict between different characters or groups, but the conflict between people emerges from dialogue and this dialogue has to be interwoven with setting descriptions and contextual narration. The experience of reading highly conflictual dialogue also requires high levels of mental processing to effectively construct the conflict in the imagination of the reader. The reading experience of personal conflict thus requires considerable effort on the part of the reader. Extra-personal conflict is also effectively represented in the novel, but suffers the same fate as personal conflict. The world and the settings are described through words, and it

understanding and clarity depend heavily on the reader's ability to imagine what is being described. Such descriptions also demand more mental resources with each change in setting.

5.2.2 The theatre and conflict

Theatre is a narrative medium that is played out live in front of an audience. A playwright carefully plans the narrative long before an audience views the play and therefore theatre is a predefined narrative artefact that is constructed prior to its performance through words and language. Theatre is limited to the stage it plays out on, and scene changes require the production team to physically change the space on the stage, while the audience waits. When scenes are not physically changed, the change is implied and the audience has to engage their imagination to follow the setting changes. Therefore, the narrative tends to play out in a limited amount of story locations. When the theatre audience sits down to watch a play, they engage in the active creation of belief. They submit to the telling of a story on stage and ignore the stage itself. They engage in the make-believe of the world created on the stage by the props and set. This is a delicate illusion and the actors would have to submit to the world created on stage, sometimes not acknowledging that they are being actively observed by the audience in the auditorium. This delicate border between make-believe and reality is what Murray (1998) refers to as the fourth wall. Because of this fourth wall, the characters would not easily engage with the audience or speak to them in a monologue that describes their inner dialogue, or inner conflict. It also becomes hard to distinguish between inner and outer dialogue in a theatrical representation. Theatre may therefore not be as good at presenting inner conflict as the novel is.

Much of the story of a play is conveyed through the actions and dialogue of the actors on stage which they rehearse prior to the live performance. During the live performance, the audience sits at various distances from the story playing out on stage, making it hard for the audience to always see the details of the exposition on stage. However, in a theatre production, the sound and lighting effects can be controlled and conveyed to each member of the audience equally, and therefore these effects are some of the most reliable of the properties to 'tell' the story adequately. The audience can also easily tell what exaggerated gestures mean that characters express towards one another. Therefore, personal conflict is effectively conveyed through dialogue and character gestures. Of the three levels of conflict, personal conflict is best expressed

in a theatre production owing to theatre's unique property of poetic dialogue (McKee, 1941). In theatre, dialogue is carefully constructed to contain subtext and characterisation that cannot always be visually conveyed. The heavy reliance on dialogue in theatre does not translate well to novel form, as discussed earlier, and its poetic nature and limited setting potential do not represent well in cinema either. McKee (1941) therefore argues that theatre is best at expressing personal conflict.

5.2.3 Cinema and conflict

Based on McKee's (1941) observations, extra-personal conflict is best expressed in the medium of cinema due to the unique property of editing and visual vividness. A screenplay for a film, like theatre, is meticulously crafted in words and language prior to recording and filming, and thereafter the footages is strategically crafted together into a single, predefined narrative trajectory. Just like the novel, the filmmaker can decide which events to include and exclude from the telling. However, in film chunks of the real-world time of the characters can be cut and never shown to the audience, skipping past boring scene transitions such as characters travelling to different locations. This allows the story to be told in many different locations which saves time as it is not necessary to show how the characters travel such vast distances. Unlike the novel, the new setting is instantly revealed and visually conveyed to the audience. The moment the story cuts to the new location, very little imagination is necessary from the audience to orient themselves to the new location. Cinema is completely capable of representing the conflict the protagonist faces with all the forces that impact the character/s from external environments in many different scenarios. Therefore, cinema is best at representing extra-personal conflict because of the properties that are unique to the medium.

The above discussion has shown that each of the three levels of conflict shows a preference for different and unique properties of different mediums. With reference to virtual reality narrative, conflict drives the progression of the narrative and the most defining properties of virtual reality, namely presence and agency, pose a challenge for creating predefined narrative trajectories. Like the mediums discussed above, virtual reality can convey interesting stories and, when the appropriate level of conflict is used to drive narrative progression, conflict engages the participant's dramatic agency to drive the story. While computer games might allow player

interaction, it is not successful in representing interesting stories using conflict. Ware and Young (2010) rightfully state that game designers cling to violence because they cannot imagine other forms of conflict.

I shall now continue to outline the different levels of conflict discussed above, and how they may or may not take full advantage of the medium's unique defining properties of presence and interaction as a step towards solving the issue of narrative progression in virtual reality.

5.3 Conflict in virtual reality

5.3.1 Inner conflict in virtual reality

A participant of a virtual reality experience enters as a presence in the virtual world. Therefore, one needs to solve the question of who the participant is playing in the story. According to Murray (1998), narrative immersion requires distance between the self and the story. She suggests that for us to maintain narrative immersion, we must keep the fictional world and the real world separate, and "when we enter the enchanted world as our actual selves, we risk draining it of its delicious otherness" (Murray, 1998, p. 101). Murray's notion of the active creation of belief implies that the participant wants to feel present and immersed. This relates back to her statement that I referred to earlier that the more she feels present, the more she wants to interact and have a sense of agency. However, a distance needs to exist between the participant and the role she plays in the narrative, and the participant needs to be scripted as to who she is playing. I would argue that the participant either needs to invent her own character, or take time to be introduced to the narrative to become aware of who she is playing.

Assuming a participant takes on a character, she may be able to experience the inner conflict of the character. Lindley (2002) states that this poses the challenge of how character development would occur in the participant's character. He coined the term 'first person actor' to describe the role of the dramatic participant. Character development can also be interpreted as a means of narrative progression through inner conflict. The character must face difficulties within herself, and continuously overcome the obstacles she creates for herself to achieve an irreversible change within herself.

However, as Ryan (2004) states, many characters in novels are not pleasant people, and the participant might not want to play this part or face the difficulties that this character will encounter. Being a character is different to reading about the character. Therefore, I do agree with Murray that there needs to be a divide between the self of the outside world and the participation in the inside the world. The medium of virtual reality might be too new to predict whether a participant can successfully separate herself from the character she is playing. I argue that this is not possible without hours of training. Murray (1998) proposes various methods in doing so; however, I do not believe that I can confidently say that inner conflict will provide dramatic progression in virtual reality and, therefore, it is probably not the preferred level of conflict of the medium.

5.3.2 Extra-personal conflict in virtual reality

A participant feels a sense of presence in virtual reality; however, she is still physically present in the real world. Because of this, the participant is prone to physical discomfort when the sensory stimuli of the immersive virtual environment and that of the physical environment do not correlate. The discomfort of being taken into different locations abruptly creates a challenge for the hop-scotch techniques of cinema to travel to different spaces. The narrative settings inside virtual reality may therefore be limited and extra-personal conflict in virtual reality thus suffers the same difficulty as in theatre. Extra-personal conflict with the world is then reduced to conflict with the immediate environment and a small amount of discoverable locations as the participant exercises her agency to move there. The amount of conflict that can arise from the limited environment is not as vast as that of the elaborate staging of cinema. The plot of a virtual reality narrative could be centred around the adventure of exploring the world that the participant finds herself immersed in as well as problem solving to determine the rules that make up the world that entices extra-personal conflict.

Manovich (2001) argues that spatial exploration is a mode of traveling through space which contributes to the explorer uncovering her identity and building character. He argues that different types of games utilize different aspects of spatial exploration to engage the player in a narrative trajectory of her own making. In adventure games, players explore a universe and gather resources; in strategy games they allocate and move resources and manage risk. In role

playing games, the player builds a character, acquires skills for the character and goes through a journey of self-improvement for the character. Ryan (2004) suggests that computer games exploit the most fundamental force that drives the plot forward, which is solving problems. However, Lindley (2002) cautions that, for computer games to be driven by narrative plot, they must move away from the discovery of artefacts or treasures that they rely on so heavily. And as noted before, ludic immersion that is created by performing tasks and learning the gameplay gestalt does not necessarily equate to narrative immersion.

Extra-personal conflict in virtual reality could also be created by having the player face difficulties that are posed by the world through methods such as inconsistency in interaction. However, I must be cautious in proposing a method of reducing conflict that relates to a human computer interaction problem. Not only does it run the risk of alienating the participant completely, but this might create frustration with the computer itself, and the participant might eventually stop her active creation of belief in the world when she realises that she's being kept from achieving her goal by a machine that is impossible to manage or control. Ryan (2004) states that, when analysing the problem of incorporating narrative in the traditional computer game construct, a participant cannot be expected to solve a puzzle in order to be rewarded with narrative insight. I must therefore assert that a participant's interaction should have dramatic agency to generate interesting narrative. Extra-personal conflict thus does not seem to be the preferred level of conflict for virtual reality narrative.

5.3.3 Personal conflict in virtual reality

It would therefore seem that personal conflict remains the last possible level of conflict that could successfully take advantage of the unique properties of interaction and presence in virtual reality. Lindley (2002) proposes that narrative progression, in computer games, could involve subtle negotiation among characters through complex interrelationships. Steuer (1993) argues that more participants in a virtual world will enhance the experience of telepresence. Aylett (1999) proposes that the necessary interaction between the participant and other characters must exist for the narrative to emerge. I must also note that she cautions that personal conflict in an

emergent narrative[10] requires the participant to act accordingly in order to ensure an enjoyable experience for all the participants involved and to successfully create interesting emergent narrative. Lindley (2002) raises the same concern of narrative depth where personal conflict drives narrative progression, and suggests that its success will rely upon the skills and interactions of the players.

In summary, it would therefore seem that the aforementioned authors suggest that when narrative progression is created through personal conflict, collective participation through well-defined roles is advisable as the presence of other participants poses a challenge for immersion. They state that when a participant is made aware of the role she is playing, she will act accordingly (Murray, 1998; Aylett, 1999; Lindley, 2002). The challenge with this approach lies in giving the necessary character briefing to the participant before entering the world. Computer games achieve this through elaborate game introductions which convey most of the back story and characterisation. Lately, computer game creators have incorporated these into the gameplay, but I argue that this is still a precursor to gameplay. In a virtual reality narrative, the participant could also be allowed a briefing period before introducing her to other characters; however, as I have expounded extensively, there is no guarantee that a participant with agency will follow any predefined portion of the virtual reality narrative, and therefore there is still the risk that the participant will not be fully briefed on the character that she will assume. Murray (2011) suggests that the participant can be briefed through an 'omni-channel'[11] approach, through which other content and other media serve to enrich the participant with knowledge of the world prior to entering it. Lindley (2002) supports this view and Aylett (1999) proposes this as one of two options. However, I argue that there is no guarantee that, once the participant has entered the world, she would have read or seen the briefing content on the role of the character.

Aylett's (1999) second option suggests that the participant can be influenced through the social presence of the other computer agents[12] and participants. She suggests that these characters are

[10] Emergent narrative is the type of narrative that only emerges in real time through the actions of a human participant in collaboration with the constructs that have been created and predefined prior to the participant entering the narrative world.

[11] Omni-channel refers to the phenomenon where different mediums such as computers, television, social media or even cinema are used in conjunction with each other to convey one consistent message over different communication platforms.

[12] An agent is a character that is completely computer generated with no human user influencing its behaviour in the virtual world.

already present and familiar with the world and they could therefore influence the participant's interaction with and behaviour towards the other participants and the world. However, she does admit that this point is largely unproven and that it relies on the fact that the participant will regard other characters, especially computer agents, as worthy in order to feel the social pressure. In this context, I refer to Ryan's (2009) argument that other characters, or agents, in computer games are usually used as a means to an end and are seen as disposable. Very little emotional response is vested in their development and wellbeing and therefore I argue that the option of social pressure, even though viable, remains unproven as a reliable means to make the participant aware of her role.

Another challenge with personal conflict in virtual reality narrative is expressed by Ryan (2004) who argues in her earlier publication on narrative across media against the participant getting entangled in the events that unfold between complex interrelations. She refers to a work entitled *Façade* by Bates and Mateas (2005). In this work, the participant becomes part of an interactive narrative wherein the computer agent's marriage is falling apart. She states that this experience poses challenges for the enjoyment of the experience and suggests that, rather than getting entangled in the conflict, the participant should exercise agency by determining her point of view and merely observing the narrative as it plays out. However, I would argue that the participant enters the world as a complex human being and will understand the complex personal interactions that she might be involved in and, in so-doing, contribute to driving the narrative progression. The participant may experience discomfort when having to deal with complex human emotions in personal conflicts among other participants or computer agents, but she would still have the enjoyment of immersive narrative. The story would progress and drive her towards the pay-off of resolution of the conflict. I must also admit that there is not enough proof to know whether this would in fact result in a satisfying narrative experience.

Ultimately, Ryan (2004) determines that there are two interactive modes for virtual reality narrative. One is where the plot focusses on adventure and problem solving (ontological/internal), and one where the plot focusses on interpersonal relations and personal conflict that can deeply affect the participant (exploratory/internal). My argument is against plots driven by adventure and problem solving, or extra-personal conflict, as they will not engage the participant in meaningful conflict or dramatic agency from which an interesting narrative could

emerge. In addition, personal conflict as the main progressive force relies heavily on the participant being separated from herself by playing a character and knowing the role she's playing. Therefore, she must know what the medium is and understand that the experience is highly dependent on an understanding of the character. Steuer (1993) insists that the individual and her background is the third determinant of telepresence and therefore, without the necessary information and knowhow, personal conflict could detract from the feeling of presence.

I therefore argue that there is too much uncertainty in the application of the three levels of conflict in virtual reality to confidently determine which of the three levels best takes advantage of the medium of virtual reality. What is certain, is that there is undeniable tension between narrative constructs and participant agency. I have illustrated extensively that agency poses several challenges for interesting narrative in virtual reality. At this point, I propose that this tension could be explored as a possible level of narrative conflict between the participant and the creator of the narrative world. In the following section I shall elaborate on what is meant by this, and explore how the conflict between participant and the creator could be used to further identify the borders of virtual reality narrative and aid in the development of virtual reality as a narrative medium.

CHAPTER SIX
A PROPOSAL FOR A FOURTH LEVEL OF NARRATIVE CONFLICT

6.1 Introduction

Story is not an accidental series of events and event choices are not represented randomly. Traditional narrative artefacts have been meticulously crafted through a process of decisions by the author of the work. McKee (1941) explains that the creator of a narrative defines a predetermined narrative trajectory by deciding which events to include and which ones to exclude in order to create the desired emotional outcome for the audience. Once the work has been completed, the audience sits down and experiences the narrative exactly as the creator intended. Virtual reality is a three-hundred-and-sixty-degree view into a virtual world where the visual and other senses of a participant are stimulated to fool the brain into thinking that she is present in another world. The participant wears a headset with a display that spans most of the field of view, and even though this display is still a framed screen, the distance from the eyes to this screen creates the perception that it is not there. The computer calculates what to visually render by interpreting the participant's head movements and, together, this creates the necessary sensory stimuli to create a sense of presence. Except for some clever sound design and visual composition, the creator of virtual reality has very little knowledge of where the participant will be looking once the participant enters the world. In virtual reality, as in any other medium, the creator's intention or goal is to create a satisfying narrative experience while the participant in this virtual reality is free to determine what actions to take and to work towards her own goal. Ryan (2004) describes this stand-off between participant and creator as a compromise between user freedom and system control.

In virtual reality, the creator has control over determining what world to represent to the participant, what characters should inhabit it, and what the rules of the world are. Other than these, the creator has very little control. These predefined parts are the embodiment of the narrative presence in the virtual world. The properties of digital media enable the creator to respond to participant actions as if she is present in the world with them. The creator cannot

premeditate exactly where the participant will look, even though she has the desire to provide her with a coherent narrative experience. The participant can rebel against any predefined narrative trajectory by not following the creator's predetermined path. I argue that this need not be a compromise, but that the tension between the creator and the participant can be interpreted as two parties with conflicting goals and this creates the potential for conflict. This chapter investigates whether the tension that exists between traditional narrative constructs and participant agency can be expressed as narrative conflict.

Ryan (2009) might state that, by reducing the constraints on the participant's actions, they become a problem for a well-formed narrative. But I argue that, by increasing the constraints on the participant, her role is reduced to that of observer, which I have established is not the optimal implementation of virtual reality narrative. By posing the participant against the author as two opposing forces having conflicting goals, the tension between participant and the creator transforms into conflict, which can be used as the progressive force in the narrative. The creator's embodiment of the narrative construct within the world puts her into the role of the narrator, or game master[13]. I will refer to the role of narrator as more than just a voice that retells the actions as they happen. In fact, the narrator is the predetermined presence of the author in the narrative virtual world.

6.2 The Narrator

For the participant to enter a narrative world, the world must first exist and therefore must be constructed by the creator prior to the participant entering it. The role of the creator can be viewed as the role of a narrator. Ryan (2004) deals with the emancipation of the term narrator from what is usually regarded as the presence inside the story that is responsible for telling the audience parts of the story through voice-over mechanisms. In more traditional media, this voice bridges narrative gaps and informs the audience of the necessary information that they need to understand the events that have unfolded or are about to unfold. Through the emancipation of the term narrator, a narrator is no longer the chronicler that observes the events, but the entire artefact that has been created as a result of an author's decisions and deliberations about what to

[13] A game master is a person who acts as narrative referee or moderator of a multi-player table-top role-playing game. The game master is responsible for weaving player actions into a coherent narrative and controlling the non-player aspects of the game, such as creating the environment and populating it with characters.

include and exclude from the world, which characters to include and exclude, and the rules that govern all. The term ‘narrator’ therefore refers to what is present in the narrative world that facilitates narrative cohesion.

When the narrator becomes embodied as the world and through the characters in it, it allows the participant to interact with the narrator. The participant can potentially act in a way that conflicts with the goals of the narrator; and the narrator in turn can react to the participant’s actions. The presence of the narrator, which is in direct opposition to the presence of the participant, enables actions that can create conflict, and conflict creates narrative progression. The narrator can influence the narrative trajectory by responding to the participant’s actions which guide her down a progressive path towards a climax. Being in conflict with the narrator gives the participant dramatic agency as her actions result in a change in the narrative world, and the narrative world can respond by means of other characters or new events. The narrator, as an antagonistic force that opposes the participant, allows the participant to move away from the role of passive observer, which allows the participant to exercise dramatic agency.

6.3 The participant and the narrator

The conflict between the participant and the narrator differs from the three levels of conflict that were previously discussed (i.e., inner, personal and extra-personal conflict). I propose that it is a fourth level of conflict that pits the narrator and the participant against each other. This conflict is fuelled by varying conflicting goals that exist and have to be solved in the same world. Louchart and Aylett (2003) introduce the role of a drama manager in their proposal for emergent narrative. The purpose of the drama manager is to ensure a satisfactory experience and narrative progression in an emergent narrative system. They suggest that the drama manager should not impose on the participant and only intervene to regulate dramatic interest. They propose that the drama manager intervenes by triggering events, adding to or subtracting from the action repertoire of characters, and adding or removing characters from the narrative world. Their argument is that the drama manager should only act when the result is satisfactory for the participant. They propose that when a participant is enjoying a task that she is currently busy with, the drama manager should not stop the entertainment merely because it does not form part of the strategic story line. I acknowledge their proposal for the role of drama manager, but in

addition I argue that, rather than just making narrative sense of a participant's actions and ensuring an enjoyable experience, the narrator should aim to oppose the participant to drive the narrative progression through conflict.

At the core of narrative progression is a protagonist taking action toward a goal and then realising, when the result is not what she expected, that she would have to take a greater risk when she acts again. Each time the protagonist experiences this gap between expectation and result, the story structure builds pressure on the protagonist and she has to make decisions under pressure (McKee, 1941). This same model for progression can be expressed as conflict between the narrator and the participant. The participant takes action towards a goal, and the narrator responds with a result that she did not expect; this means that the participant now has to adjust her plan. In turn, the participant will inevitably act in a way that the narrator did not expect and the world would have to adjust accordingly. This event structure is then created out of the choices of the participant in response to the narrative rules put in place by the narrator. The narrator's rules would also have to respond to the participant's actions and the main purpose of each of these two 'agents' would be to generate an interesting, coherent story out of the actions of the participant and the responses of the creator.

McKee (1941) proposes the concept that the author of a story is a 'mindworm'. According to him, the mindworm knows the participating character and has the power to cause events in the world and create specific happenings geared to challenge that unique person for a one-of-a-kind adventure. I propose that in the expression of conflict between the narrator and the participant, the narrator becomes like the mindworm. When the participant concludes the experience, the resultant effect should be that the resolution of her experience was the only logical way in which the events could have played out, leaving the participant satisfied with having experienced an interesting story and having been present in a world that has taken her on a narrative roller coaster where she was put under pressure to make choices that took her to the limit of the experience and to reaching an inevitable outcome that was unique to her. The dramatic agency that the participant experienced is, according to Murray (2004), the fitting result of the participant's action that made it a visually and emotionally satisfying experience.

Manovich (2001) and Ryan (2004) argue that narrative meaning can be coaxed through proper design from a database. I agree with Manovich (2001) that a database becomes a strategic treasure chest; i.e., one that the creator develops. A narrative can emerge from a database because when the appropriate algorithm is applied, the participant's interactions with the database will result in narrative coherence. The creator is therefore not only responsible for assembling the database for narrative possibilities, but also for defining the underlying algorithms that will determine whether the participant's dramatic agency results in narrative progression. Ryan (2004) agrees that new mediums can create new forms of narrative when they lend themselves to new levels of user involvement and new relationships between author, plot and user. When the narrator and participant enter into a world where they can act and react to each other's actions, they engage in a 'dance' of conflict and causality that drives narrative progression. Through careful design, the predefined database can produce the necessary responses to drive the narrative to an inevitable climax and resolution.

In one of her later papers, Ryan (2009) states that the solution to the paradox of narrative and interactivity will lie in the novel combination of top-down and bottom-up collaboration. The top-down element is that of the predefined level that the creator defines, and the bottom-up element is that which is influenced by the participant through interactions with the narrative. I propose that the top-down elements should create meaningful conflict that drives narrative progression and that the bottom-up elements should be enabled to contribute to the conclusion of the story the participant engages in. This process should be guided by structural elements that prompt the participant to engage with the narrator through dramatic agency and should result in an emergent narrative that generates an interesting story, whether the participant defies or complies with the narrator's expectations.

Traditionally, the creator of the narrative world stays behind the curtain or risks breaking the fourth wall. The author is invisible, whereas the creator of virtual reality narrative is brought to the foreground as the narrator antagonist. It could be argued that by placing the participant in direct conflict with the narrator, the creator risks breaking the fourth wall and drawing attention to the medium. Murray (1998) argues that the, or fourth wall, between real and not real exists to maintain the liminal world, but that this border needs to be tested to establish its existence. As a developing medium, the rules and viewing conventions of virtual reality are not familiar to its

audience or its creators. I therefore argue, in addition to what was stated above, that while the medium of virtual reality narrative is in the developmental phase, the creators of its content need to experiment and test its boundaries to establish what the medium is and what it isn't. By putting the narrator in conflict with the participant, the creator contributes to the development of the medium in exactly the way that Murray (1998) proposes.

I therefore argue that when a participant experiences a breakdown between expectation and the result that stems from the conflict between her and the narrator, the narrator draws attention to the self and to the medium. When the natural tendency of the participant to rebel against the predefined narrative is utilised to engage her in narrative conflict, the participant learns the conventions of the medium and the creators learn the behaviours and limits of the participant. By drawing attention to the medium, the creators can start to define the boundaries of virtual reality narrative. Only once the boundaries are established, can creative expression in virtual reality be explored. When the creator of virtual reality adopts the mind-set of creating a narrative framework that is rife with narrative possibilities, rather than meticulously deciding on only one of those narrative trajectories, she enters into a partnership with the participant and establishes a new role for herself, the participant and the plot. This new role for the creator in a new medium necessitates a new way of authoring[14] the relevant parts that will make up the virtual reality experience.

In the following section I shall define ways in which the creator can go about developing the various parts in preparation for the final construction of the virtual reality software which will run the narrative program.

[14] 'Authoring' is a term that is used in computing. It is usually used as a (gerund) noun to describe software that enables the creation of multimedia objects for electronic publishing. I have appropriated the term as a verb to describe the act of a creator establishing a framework from which narrative can emerge when a virtual reality participant interacts with it.

CHAPTER SEVEN
'AUTHORING' A VIRTUAL REALITY NARRATIVE

7.1 Introduction

Computer technology and digital media have the potential to redefine the stories of old media and also to create brand new ways of telling stories. Digital media introduces the unique property of interactivity; i.e., the computer's ability to respond to user action. Virtual reality is a wholly electronic medium and, as McLuhan (2003), Murray (1998) and Manovich (2001) agree, the constraints and thinking of media from mechanical origins limit the experiences that audiences can enjoy through an electronic medium and therefore the creators of narrative for the new medium should interrogate the legacy by thinking of the old. Having established virtual reality as a narrative medium and by arguing that interactivity only enhances its unique property of presence, I now move to my recommendation of how the conflict between participant and narrator is planned and created with the help of emergence in systems theory. I also illuminate how McKee's (1941) theories of 'gap' and 'value charge' relate to the properties of pattern formation and synergy respectively in emergent narrative systems.

In the early development of cinema, the film industry started resembling the business model of factories by rapidly rolling out content to stay in business. The huge film houses were not willing to depart much from the content that was already out there, as this was the safest economic bet (Monaco, 2000). Much of what we know about the features of the medium are as a result of this factory assembly line method of production. The format of cinema and the artefacts that support it can be attributed to the winning recipe that has produced guaranteed money-makers for their investors. Therefore, new artefacts need to be defined for the development and planning of narratives that are generated by the new medium of virtual reality. While there might be some overlap in these recommendations in terms of how computer games are developed and planned for, it is not intentional.

As was demonstrated above, computer games have not been shown to be a good example of interactive narrative. John Carmack (Arts and Technology, 2015) states that virtual reality is currently being built in game engines and he admits that this influences its narrative abilities. He

states that game engines are not built for narrative and that a platform for virtual reality narrative is necessary. As occurred in the cinema industry, the tools used to develop computer games that are now used to develop virtual reality narrative are a result of various economic and technological choices within the industry, and should thus be interrogated with rigorous scrutiny.

When considering the development of narrative for cinema, one of the fundamental artefacts is the continuity script. This artefact is designed with the entire story outlined scene by scene and in more or less the same sequence as it will be represented to the audience. As I've determined in the course of this dissertation, the narrative possibilities in virtual reality are endless and the creator cannot simply outline a specific story arc. Therefore, the creator must attempt to consider multiple possibilities, but to expect her to outline each of those possibilities from end to end or as branching narrative plots will require more than the one-page-per-minute custom of the continuity script and other similar conventions of the medium. The creator cannot accurately predict the actions of the participant and will neglect to outline all of the narrative possibilities that could develop out of the participant's interaction with the world. I therefore argue that a reformat of the continuity script that outlines multiple story branches and possibilities does not seem to be an artefact that can realistically be used in the development of a virtual reality narrative.

Considering the nature of virtual reality narrative and that a linear script that progresses from scene to scene is not sufficient to accurately plan the necessary elements to build the narrative world in virtual reality, I shall now proceed to uncover what artefacts are necessary. To do so I shall consider the narrative elements I deem necessary for the creator to consider prior to the real-time collaboration with the participant from which narrative will emerge. By applying McKee's (1941) theories on story to the concept of emergence in system theory, I can narrow down the necessary elements and move toward a proposal for the artefacts that may aid in the development of virtual reality narratives.

7.2 McKee's Theories on Story in Emergent Narrative

The theory of emergence states that "…the whole is more than the sum of its parts" (Albowitz, 1939). It explains that complex systems exist as a combination of many smaller parts rather that through their interaction with one another, bringing about something bigger than just a combination of the properties of the parts. The result is something entirely new with entirely different properties. The theory can be applied to various subjects such as philosophy, science, sociology, economics and art. Emergence theory determines that there is a macro-micro-level dynamic, where the rules of the one affect change in the other. The higher macro-level structure enforces rules upon the lower-micro structure, which changes the way the parts are organised. In turn, changes in the micro-level structure can influence change in the macro-level structure. The macro level provides context and strives to create coherence, while the micro level comprises the building blocks that are autonomous and discrete, and they determine the possibilities of the system. In a virtual reality narrative, the macro level is wholly determined by the creator. It is the predetermined narrative choices the creator imposes on the system that determine the world setting and the rules of the world. The micro level is also determined by the author, but this level comprises the parts of the narrative world that can be directly influenced by the participant's interactions. When changes occur through interactions with the micro-level parts, the course of the history of the world changes, and therefore changes how the overall narrative emerges.

An emergent system exhibits a formation of patterns that create a form of self-organisation within the system. Patterns form when positive feedback generates more of the same organisation among the parts. When patterns form, a small random event takes hold of a system and gets amplified into a global pattern. Positive feedback is created when energy is input into the system by means of a small event that could be something like and interaction between the parts, and the parts order themselves in a specific way that is able to intercept the energy. The system will then react to formulate more of the same organisations among the parts to intercept more energy, and thus a pattern emerges. When one looks at this pattern, it would seem that a unified description of the system is possible (Complexity Labs, 2016).

McKee (1941) describes a pattern that forms in a story as what he terms the 'gap'. This pattern emerges when the protagonist takes action towards accomplishing a goal; however, she takes

conservative action only to find that the expected result and the actual outcome are different. This difference between outcome and expectation is the ‘gap’. The protagonist must now recalculate and take action once again; however, this time she’s required to take greater risk and put more on the line. This brings about conflict between two opposing forces. With each ‘gap’ that emerges, the story progresses towards the eventual climax where the protagonist puts it all on the line and the story ends in an irreversible change in the life of the protagonist. I argue that this pattern is an abstraction of the narrative system and that conflict can be utilised as the positive feedback loop in such an emergent system that enables the participant to progress the narrative through her actions.

Emergence theory also determines that the interaction between the parts of the system result in synergies that add to or subtract from the overall system. Synergies are context dependent and their overall value is only created through the interaction between specific parts; therefore synergy will only occur if the right elements interact in the right way (Complexity Labs, 2016). The creator of a virtual reality narrative is tasked with creating the context within which successful interaction between the parts may occur. As with story, only specific parts will contribute to the progression of the narrative as some parts may interact and no conflict might emerge. This means that no ‘gap’ will be created. Moreover, some interactions in the system may result in the participant acquiring more information, but this information may not drive narrative progression through conflict, while others may well do so.

McKee (1941, p. 34) defines the value-charge of a scene as “universal story values that change from positive to negative or vice versa from moment to moment in a story”. With each story beat, a value change takes place that contributes to the changing of the value-charge of the scene or story event. According to him, the value-charge is changed through conflict. In emergence theory, I would argue that McKee’s concept of the change in value charge is determined by the synergy of the interaction between the parts of the emergent virtual reality narrative. In an emergent virtual reality narrative, each interaction can determine a value change in the overall narrative system, which should either add to or subtract from the system. I therefore suggest that each interaction between the participant and the narrator contributes to an overall system multiplier. This multiplier acts as the system memory and determines that the rules that govern the interaction of the participant with the story elements and other characters escalate the

intensity of the action the participant must take with the next interaction. This multiplier will result in the progression of the narrative, as each risk the participant must take increases in intensity and threat with each conflictual encounter with the narrator.

Emergent narrative requires the author's regulation to balance out the randomness of the participant's actions. However, the randomness of the participant's actions is required to generate and enhance the interest level of the virtual reality narrative that could emerge from the expression of dramatic agency. For virtual reality narrative to progress, change needs to take place in the system. The change must result in a change in the value-charge of each new interaction the participant encounters. Therefore, if the narrative structure is too rigid with too much order, the system will not undergo the change required for the narrative to progress.

McKee's concepts that were outlined here elucidate the fact that narrative can emerge through the conflictual patterns that progress a narrative towards the eventual climax and conclusion. The conflictual interactions in a story thus contribute to the overall value of the system and, through these synergistic interactions, an irreversible change emerges in the system value. The author of traditional narrative considers all aspects of the story when selecting the specific events that are strung together to determine the perfect narrative path. I argue that if the author steps back to articulate these considerations in the artefacts that aid in developing the virtual reality narrative, she will establish a narrative framework rather than a specific narrative trajectory that will develop a virtual reality narrative system that is capable of generating absorbing emergent stories.

7.3 Artefacts of Virtual Reality Narrative Development

By applying emergence in systems theory to McKee's concepts above, and as part of the process of writing this thesis I was able to identify the following artefacts that would contribute to the creator's process of developing a narrative framework for virtual reality. The framework helps define the macro-level system structure that is responsible for the integrity and context of the narrative experience. In addition, the framework also helps define the micro-level parts that will be the embodiment of the narrator who will come in direct conflict with the participant to drive a progressive, interesting, emergent narrative. To achieve this goal, I propose one overarching rule that should govern the synergistic interaction between the parts, and that is that every conflictual

construct within the narrative system must raise the level of risk the participant must take in the next interaction. I term this requirement the progressive multiplier rule. The artefacts that are necessary for the development of virtual reality narrative must therefore define the following: the world of the story, or a wold model; the inciting incident to set up the story for the participant – i.e., a narrated scenario; and the rules that govern other characters in the story world in their interactions with the participant – i.e., the character models.

7.3.1 World model

The world model will serve as a plan for the narrative world that should describe the settings and the rules that govern this world. The rules will act to govern the narrative coherence of the narrative system, for example 'humans can fly but not when they are wet'. In their paper on authoring emergent narrative, Louchart et al. (2008) suggest that the creator of an emergent narrative system determine the boundaries of the system; i.e., that which "separates the story landscape from the rest of the universe" (Louchart et al., 2008. p. 8). They determine that three types of boundaries that may be considered: spatial boundaries, contextual boundaries, and interaction boundaries.

The first of the three types of boundaries refers to the locations and time in which the narrative will take place. These can be seen as the scene descriptions of traditional narrative. The second determines what McKee (1941) terms the "controlling idea"; i.e., the irreducible meaning of the narrative. He explains that this controlling idea consists of two parts: the value and the cause for the change that start the quest the characters are about to undertake. The third boundary determines the rules that govern the manner in which the participant can interact with the world. This boundary would primarily be informed by technology and computer system constraints. However, I would argue that the creator should consider carefully what the participant can interact with. Interaction can easily veer to the side of ludic immersion where a participant becomes engrossed in repetitive action just because the system allows for it. Louchart et al. (2008) suggest that the creator should determine how to narratively justify the interaction boundaries that are defined by the technology.

7.3.2 Narrated scenario

I strongly argue against the presence of the participant in a virtual reality narrative as a visitor, as this constrains the participant to the role of observer. However, upon entering the virtual world, the vividness of a virtual reality experience may overwhelm a participant and, according to Steuer (1993), the participant is less likely to commence interaction at this stage. Once the participant has had some time to get used to the world, she will be better able to unbridle her cognitive capacity and to think about participating in the narrative world. The participant will therefore initially constrain *herself* to the role of observer − or visitor − during this initial phase. The creator should take advantage of this by utilising this period as the time in which to establish, what McKee (1941) terms, the 'inciting incident' or context of the world. During this time, the participant's curiosity may be enticed and she will take this time to start formulating a goal. However, the creator must strike a delicate balance because, as soon as the participant becomes comfortable enough, she will feel the need to touch or interact with the world. I suggest that the ability to interact be incorporated from the start. However, the interaction need not provoke conflict just yet. If the participant is gradually oriented to the narrative world and its rules, she will venture on the quest in pursuit of a goal.

7.3.3 Character models

The building blocks of the narrative system exist on the micro level. Through various interactions between the parts of the micro level, the narrative possibilities will start emerging. As previously stated, personal conflict is the most likely progressive force of virtual reality narrative and therefore the creator must take the time to craft various key characters that will act as the embodiment of the narrator who comes into conflict with the participant. Each character will be defined by a character model that should contain a short description of the person it represents and the role each plays inside the narrative world. I suggest that characters be divided into two categories. Each of these characters should be governed by a simple set of rules that this character abides by when the participant interacts with him/her. The first category of characters exists to divulge information to the participant. Thus interacting with such a character will not result in synergistic interactions. The first category are characters of exposition. By interacting

with them, the participant will gain key pieces of story exposition that better enable her to navigate and orient her character to the story world.

The second category of characters that inhabit the story world are the characters that are designed to oppose the participant and drive the narrative forward through conflict. These characters are governed by one underlying rule: their actions should not meet the expectations of the participant and they should be affected by the value of the progressive multiplier rule. Upon interacting with such characters, the participant must realise that the action she has chosen to take has not resulted in the expected result and she will have to risk more the next time a course of action is chosen. The second category characters must therefore possess a spectrum of responses to counter the participant's interaction, depending the progressive multiplier that escalates the interactions with the participant to achieve narrative progression. Laurel (2013) suggests the concept of the 'flying wedge', which narrows down the possible outcomes of each choice the participant makes. At the onset of the virtual reality narrative, a participant could experience any of the possible interactions on the character's spectrum. As the story progresses, the possible outcomes from her interactions with other characters are narrowed down, which advances her to an inevitable narrative resolution where an irreversible change has taken place in the narrative world.

When the predetermined structured narrative of traditional media is compared to emergent virtual reality narrative, I argue that the predetermined structure is merely one of many narrative possibilities that can be determined by the author of traditional narrative. The creator of virtual reality narrative should therefore not be preoccupied with determining one of these possible outcomes, but should rather determine the parts that are to be included or excluded from the narrative world and the rules by which the individual parts, along with the macro-level narrative construct, work together to create a system in which the participant's interactions with the parts will result in a coherent, interesting narrative. By preparing the artefacts defined above in enough detail, creators of virtual reality narrative will determine the necessary parts that will allow for enough conflictual interaction between them. From these synergistic conflictual interactions, various possible stories could emerge, which will be the result of the participant's dramatic agency. When the creator of virtual reality narrative embraces her role as a narrator who is able to interact with the audience through the unique properties of the medium, she can start defining

narrative frameworks that enable countless narrative possibilities. The tension between predetermined narrative cohesion and participant agency need not be resolved; rather, it should be embraced as the progressive force that utilises conflict from which interesting narrative possibilities emerge.

CHAPTER EIGHT
CONCLUSION AND RECOMMENDATIONS

8.1 Introduction

Virtual reality has received more attention from mainstream media in the time since Facebook bought Oculus than in its early years during the nineteen nineties. More consumers are able to experience the medium now than ever before. As an audience develops, more artists, filmmakers and creators are experimenting with virtual reality as a narrative medium. In many cases, these creators have illustrated that virtual reality is a medium capable of narrative. However, whether these are examples of interesting narrative that takes full advantage of the unique properties of the medium remains the subject of debate. The seemingly most incompatible property of traditional narrative is interaction. However, interactivity is the most reinforcing factor in the virtual reality medium, coupled with another unique property which is the sense of presence virtual reality participation gives the participant. When a new medium such as virtual reality is created and defined without considering the history of the constraints and thinking of older mediums, the incompatibility between narrative and interactivity seems overwhelming. However, when narrative is defined in new ways, such as Ryan's (2004) narrative script or how Manovich (2001) describes databases having narrative possibility because of how new media can have algorithms applied to the data, it becomes easier to envision virtual reality as a narrative medium that is capable of exploiting all its unique properties to create new and interesting stories.

8.2 Virtual Reality as a Medical Remediation

Through the concept of remediation, it could be argued that virtual reality is a medical remediation of older media. Because different media can tell different stories or tell stories in new and different ways, virtual reality brings about not only the remediation of presence in older media, but also a challenge in the relationship between the author, the audience and the plot. The audience of virtual reality finds itself in the new role of influencer, or participant, who is capable of taking control of their own experience and to influence the narrative, should the creator allow for it. The role of the plot is brought into question when the audience is in control of where to

look and where to go within the virtual world. In this context, the author's role as the creator is challenged as she can no longer define how the plot unfolds. This compels the creator to redefine her role in determining the story and establishing her role in relation to the participant. Over and over, creators who experiment with virtual reality find that the audience has a tendency to veer off predetermined paths. Moreover, audiences without the guidance of an experienced and knowledgeable author could find themselves feeling an overwhelming sense of presence, but being unsure of which choices to make and how the events in the world might unfold. Both creator and audience have to learn what the medium comprises and how to use it.

8.3 Narrative Progression in the Virtual Reality Medium

When considering narrative in virtual reality where a participant takes control over what is seen and when and how the action happens, the fundamental question is whether narrative progression is possible in this new medium. The other question is whether the participant's actions will result in anything more than ludic immersion, or whether the actions of the participant can result in dramatic agency. Narrative progression is necessary for a story to unfold in a way that builds towards a climax and eventual resolution. With each conflictual interaction between opposing forces, the narrative progresses towards the climax. When conflict is utilised in virtual reality to engage the participant's dramatic agency, the participant's actions result in the progressive force driving the narrative to climax and resolution. Any of the three levels of conflict (inner, personal or inter-personal conflict), can take advantage of the unique properties of a medium to different degrees of success. However, with virtual reality being a new medium, where neither the audience nor the creator is truly knowledgeable of the intricacies of the medium, none of the three levels of conflict prove to take meaningful advantage of the properties of interaction or presence in virtual reality just yet. Even though personal conflict holds the most potential, the dependencies on the successful implementation of personal conflict between participant and other characters make it too uncertain to confidently state that personal conflict is the best progressive driver of virtual reality narrative.

8.4 The Presence of the Participant in Virtual Reality Narrative

In virtual reality, the author is capable of embedding her own presence in the narrative because the medium can respond to participant actions. Therefore, the author's choices and potential reactions to participant actions are embodied in the narrative world in the role of the narrator who now comes in direct opposition with the participant. The narrator's goal is for coherent, meaningful narrative and is in direct opposition to the random actions of the participant. Therefore, the participant may have an opposing goal. I argue that the natural tension between the narrative construct and the participant's ability to interact could be expressed as a fourth level of conflict and that this concept of conflict between narrator and participant can be utilised as the most successful level of conflict to drive narrative progression in virtual reality. When the creator mentally accepts her role as an opposing force to the actions of the participant, she can utilise her understanding of conflict in narrative to plan and construct the necessary parts for the narrative world that can drive meaningful narrative progression.

When this model is conceptually applied to the development of a virtual reality narrative, the creator of such a narrative relinquishes her right to determine her own narrative trajectory, which is only one of the possible narrative trajectories that can be brought about by the narrative elements that make up the fictional world. When the creator applies her thoughts and efforts to determine a narrative framework instead, she spends time crafting the rules of the world that provide context to the random actions of the participant. Along with that, the creator determines the simple rules, or algorithms, that each of the characters abides by when interacting with the participant and, in so doing, a database of narrative possibilities is created in which the creator becomes the narrative embodiment within the world and can come into direct conflict with the participant. This conflict abides by one overarching rule, namely the need to progress the narrative to a climax and eventual resolution. The creator can then meticulously craft the building blocks and narrative coherence that enable the participant to exercise dramatic agency and then experience full narrative immersion. In considering McKee's (1941) theory on story through emergence theory, I identified that a pattern of conflict and a 'gap' between an expected outcome and the actual result emerge in the story. When the creator spends time creating a framework where such a pattern will emerge in the virtual narrative, I argue that the story will progress naturally as long as the participant takes a greater risk in the next interaction and each

interaction results in a synergy that contributes to the overall value charge of the narrative construct.

8.5 Technology and Virtual Reality

Virtual reality technology is developing at a rapid pace, and while interactivity in virtual reality is still technologically difficult to implement, this theorised approach may not be able to be fully implemented until the necessary technology is freely available. Moreover, currently a limited audience has access to virtual reality hardware. This audience is also not representative of the majority of the audiences of other, more traditional, narrative media. Therefore, the opinions and market trends that are defined by this group of early adopters are not representative of future virtual reality narrative audiences. While the current audience may be more comfortable with the ability to interact with a virtual world, it remains to be seen if this will be expected by the majority of audiences who enjoy other traditional narrative media in the future. In this context, this investigation raises questions about how narrative conflict will be implemented in virtual reality narrative and, perhaps more pressing, are the questions around the ethics of the effect of such conflict on the participant.

8.6 Recommendations for Future Studies

Future studies could focus on expanding scholarly debate on the emergent nature of virtual reality narrative. Authors such as Louchart and Aylett (2003) have contributed to the topic immensely. The theoretical model outlined in this dissertation undoubtedly contributes to their research. Further investigation is necessary on the practical implications of defining characters and their interactive spectrums. Practical research could also expand on the topic of determining to which degree each interaction should influence the escalation of the next interaction. The scope of this research could be expanded to include the exposition that is necessary to enable a participant to successfully interact and understand the story world she has entered. It is strongly argued that the exposition of the narrative should greatly contribute to the participant formulating a goal, which is an aspect of narrative that is critical for conflict to emerge and for resolution to be achieved.

8.7 Conclusion

The storytellers and creators of virtual reality narrative need not debate whether narrative is possible with audience interaction, but should rather experiment with narrative progression through giving the participant dramatic agency and drawing the participant into meaningful conflict situations that change the value of the overall system. It is only when this occurs that an irreversible change in the fictional world will be achieved that will signal the climactic ending of the experience. Only once a participant has successfully collaborated with the creator to experience a narrative that achieves such a condition, can the debate of whether virtual reality is a narrative medium that is capable of interesting stories be settled. The creators should therefore not occupy themselves with applying legacy methods and thinking to a new and very unique medium, but they should embrace the new roles that virtual reality demands of both them and their audiences.

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