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THE HIDDEN WORLD OF GAMING

AN EXPLORATION OF PRE-PRODUCTION DESIGN, HYPERREALISM, AND ITS FUNCTION IN ESTABLISHING CONCEPTUAL AND AESTHETIC VISUALISATION, CHARACTERISATION AND NARRATIVE STRUCTURE

By

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I, Simone Beneke, declare that:

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Dedication

I would like to dedicate this body of work to my husband Niall for his amazing continual support and belief in me as well as the energy boosting cups of tea he makes and my parents Johann and Chyrine for their love and support throughout my academic journey.

Acknowledgements

I'm sorry for any spoilers you may read in this thesis. I tried not to include too many.

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ABSTRACT

Pre-production design in the video game industry is an extremely important and fundamental part of the pipeline production as it impacts the production, post-production and distribution phases of game development. It is what sets the foundation for the visual and narrative style of the project and, if done incorrectly, it can have adverse effects on the other phases of production, ultimately wasting time, money and contributing to the failure of a project being executed efficiently. The purpose of this study is to explore the impact of pre-production design on the video game industry as a whole and the effects that hyperrealism has had on the industry itself. To fully understand the context and importance of pre-production design, its history and origin will be explored. The two aspects of hyperrealism that I will be referring to and discussing are those of creating a reality that goes beyond true reality, and the integration of the constructed reality into one's own natural reality. How does a game appear visually hyper-realistic. Where the visuals of the game can picture perfect and in fact sometime better than reality? Secondly, how does a game as a whole evoke the notion of hyperrealism as expressed by theorists like Umberto Eco and Jean Baudrillard where playing the game becomes a part of one's life? The notion of leaving the game can be distressing as the player does not want to lose out on this aspect of the hyper-real simulation (or Simulacra) that has become a part of his life.

As this study has a practice-based component, a set of character and creature designs will accompany my theoretical work as an exploration of pre-production design within the context of video games. This has been done in order to explore how design ties in with hyperrealism when looking at creature and character design. Gameplay mechanics have also been briefly considered as the character and creature designs will impact what is visually achievable in the game.

Through investigation of both theoretical and practical applications, the study will conclude that pre-production design is imperative to the success of the making of a video game.

INTRODUCTION

The aim of this study is to explore the conceptual and technical processes of pre-production design within the video gaming industry. The desire for hyper-reality within video games has become central to the nature of pre-production design and the pre-production phase in general, especially when comparing it to its humble roots within the animation industry (Dunlop, 2014). Thus, to fully the understand the importance of the process of pre-production design in the creation of video games, I will be exploring the process within the context of the drive toward hyperrealism in video games. This exploration will be illuminated through careful analysis of pre-production design within specific case studies of video games.

For the purpose of this project I shall be using a qualitative research methodology. Qualitative research is focused from many forms of information, ranging from theoretical work, case studies, videos and many more. This research method is more suited to the creative field. Data is collected and analysed to explore the purpose of the topic and the motivations, reasoning and opinions within the topic. Unlike quantitative research, which is stricter and purely about data analysis, qualitative research is more open and allows for exploration of the nature of the topic. I will be using a large range of resources for my thesis to explore the notion of pre-production art in video game design. My project also falls into the category of Practice Based Research. This is because I will be creating practical examples of pre-production designs based on my findings which will act as a working example to back my theoretical work. The focus of this project is to explore the realm of pre-production design within the video game industry. I will be looking at the tools used in pre-production art and the purpose and use of pre-production design as well as looking at the advances in this art field and how hyperrealism may impact pre-

production design development. In my investigation into research methodologies, I looked at both Practice Based Research and Practice Led Research.

Although these two methods are similar, they have distinct differences. When looking at the following quote on Practice Based Research, it is clearly seen to be research that has a foundation based on practical application that will then be supported by the theory. The main aspect of this research is that it starts, develops and concludes with practical work.

> Practice Based Research is an original investigation undertaken in order to gain new knowledge partly by means of practice and the outcomes of that practice. In a doctoral thesis, claims of originality and contribution to knowledge may be demonstrated through creative outcomes in the forms of designs, music, digital media, performances and exhibitions. Whilst the significance and context of the claims are described in words, a full understanding can only be obtained with reference to the outcomes (Candy, 2006).

The study will be supported by a practice-based component which comprises characters that I have designed using the principles of character design and hyperrealism which are integral to video game production. These are based on the game *Hoard of the Dragon Queen* by Wizards of the Coast. The reason why this has been chosen as the source for my practical is that the very nature of *Dungeons and Dragons* is that of immersive gameplay. It is the kind of game where choices made impact the games' narrative, presenting the perfect opportunity to illustrate pre-production design and hyper-reality. My processes will be detailed in this study in terms of a reflective chapter.

Pre-production design is where the concepts for a production are established; the visual designs such as the character designs, creature designs and environments are explored and developed. Colours and tones are chosen for the production as they too can affect the long-term outcome of the product being created. This is where hyperrealism begins to affect pre-production design as hyperrealism, as a projected desire for a video game or production, requires the pre-production design phase to visually establish this outcome.

Hyperrealism, in broad terms, is the enhancement or introduction of a false reality into our own reality; a reality that is highly immersive to the extent that the participants can either not distinguish what is or is not their reality or simply do not wish to remove the hyper-reality from their own reality. To understand the importance that pre-production design and the pre-production phase have in the role of the development of a video game, one must first understand what pre-production is. Within the context of this study, chapter one is dedicated to exploring the origins of pre-production which is first truly seen in Walt Disney Studios in the 1930s. This is most notably seen in the animated feature *Snow White and the Seven Dwarves*, which was released in 1937. This film animation showed how new methods in production had advantages and disadvantages. The use of realism in the character design of *Snow White* can be criticized as making her bland and boring (it doesn't use stretch and squash for the main characters like Snow White, due to rotoscoping being used primarily for her movements). In terms of pre-production design, this considered as an error as it is an unintended outcome. This where were we see that in pre-production design the use of live action helped create a realistic character, creating the distinctiveness that a character must have. Disney continues to explore how to achieve realism and uniqueness. From this beginning, one can see how the concept of pre-production has evolved

and been assimilated into becoming an integral part of the production of video games (Dunlop, 2014).

The development phase is one of the early steps in a long process. This is where the concept or idea for a film or game is created. Within this phase, some preliminary artworks will be made to visually illustrate the idea of the project. The team will create examples of the script and dialogue, as well as a list of possible voice actors, tools, timelines and budgets for the project (Dunlop, 2014). Once a project has been approved, it will then move into the pre-production phase. This is the most important aspect of the production of an animated film or video game because all features and processes of making the project are explored in this phase. The more refined the exploration, the more likely the project is to succeed in becoming exactly what was visualised. This is because all actions within the production phase will be based off work carried out in the pre-production phase (Tumblehead Animation Studio, 2016). This is why all aspects need to be explored in the pre-production phase to ensure that no issues arise during production which will affect time, money and the use of resources as well as the overall outcome of the project. From this is it clear to see the importance of pre-production and, following on this, one can understand the critical importance of pre-production design, which sets the tone for the visual outcome of a project (Dunlop, 2014). Following on from this, one will see how the production phase and then distribution phases function to create and distribute the project. Furthermore, it will also be seen that advertising and final editing will be influenced by pre-production.

The importance of pre-production design is only truly understood when its origin and development is explored in both animated films and video games. From its origins in Walt Disney Studios during the 1930s, one can see how pre-production exploration into animation

techniques and visual styles, such as character design during the production of *Snow White and the Seven Dwarves* in 1937, developed the visual style that is seen in the final version of the film. It can also be seen when analysing the production of the video game *DOOM*, first released in 1993. This game showed that exploration during the pre-production phase led to the innovative inventions of programs that would enable the production team to create a visually compelling game. With both *Snow White and the Seven Dwarves* and *DOOM*, the projects were created with the purpose of capturing the audience, by creating something visually compelling. It is this desire to draw the viewer in, that brings us to the notions of hyper-reality. To remain relevant to the times, movies and games have attempted to become more and more visually realistic, by creating a hyper-reality within which the viewer or player becomes completely enraptured.

Chapter two of the study will investigate the concept of hyper-reality as it relates to the ideas of Umberto Eco and Jean Baudrillard. I will look at the ways in which hyper-reality has become a major part of video gaming and how it is changing the video game industry. This chapter will examine Eco and Baudrillard's ideas on hyper-reality and illustrate to what extent they apply to the focus on the hyper-real in video games. Baudrillard believes that hyper-reality is becoming a part of our reality and is now becoming indistinguishable from reality (Baudrillard, 1981). In Baudrillard’s view, we are now living in an age where the lines between hyper-reality and reality are becoming blurred. While there are nuanced differences in their explanations of hyper-realism, both Eco and Baudrillard argue that reality and hyperreality have become inextricably intertwined and that it has become more difficult to distinguish what is reality and what is hyper-reality.

The understanding that the simulacra functions as a one-dimension replication of the real world and that it can be exposed is an interesting aspect in this project, as we see in video games

how the fake reality presented in games can be exposed through glitches and the lack of essence that the real thing would have. For example, many games have limited dialogue options so if a player's character pushes the dialogue options of a non-player character far enough, the non-player character will start repeating the same limited dialogue breaking the illusion of a life-like character. In Baudrillard's written works, he explores how the nature of Simulations and Simulacra[1] take on various stages and forms, whether it be by replicating exactly or by deceiving the viewer into believing that a particular simulation of hyper-reality is the true reality (Baudrillard, 1981). These notions of hyper-reality, although each form is distinct and varied, can be applied to the way video games in the MMORPG (massive multiplayer online role-playing game) genre function. As they often lure the player into becoming invested in the game through real-time features, the player will actively participate and the game will fuse itself into the players' reality, making the line between hyper-reality and reality disappear because reality is now a hyper-reality.

Eco, on the other hand, believes that we perceive hyper-reality as separate from our own reality; that it is a projection and recreation of a perfect or ideal reality. We understand the difference between the real and hyper-real, but marvel at how 'real' the fake appears (Eco, 1990). For example, when exploring hyper-reality within the context of Disneyland, he states that it does not deny that it is not real. In fact, Disneyland boasts of the marvellous fake world that it has created and we, as viewers, are taken aback by the complexity of this fake world (Eco, 1990, p. 48). We are drawn to it instead of denying it and we willingly allow ourselves to be

[1] Simulations and Simulacra is the concept of the hyper-real functioning within the real space. The simulation is the environment wherein the Simulacra occurs and the Simulacra is the hyper-realities' interactions within the real world, meaning that there are different types of Simulacra that illustrate this effect within a simulation.

immersed into the hyper-real. It is this concept of creating a hyper-reality, where the viewer will be willingly immersed, that is most easily linked to video games as there is a push for the games to be increasingly realistic, more immersive and visually impressive. As the player wants to be a part of the hyper-reality, the pre-production phase within the development of a game must be even more focused than before to create a solid foundation that supports this so that the outcome of the production of the game will be an immersive hyper-realistic game world. Within this chapter, the game *Horizon Zero Dawn* will be explored, as it is a game that was developed with the intention of being hyper-realistic. Much like Eco's notion of hyper-reality being an idealistic version of reality, *Horizon Zero Dawn* was intended to be visually perfect, similar to a nature documentary (Hernandez, 2017). This notion of hyperrealism and its context within gaming, brings us to the third chapter, which explains how pre-production design and hyperrealism work together in video games.

Chapter three will explore how pre-production design functions as a whole and how it is the necessary phase through which the foundation of a project is established. This chapter will compare, and contrast, the role that the pre-production design phase plays in both animation and video games. The reason why animation is important in the exploration of pre-production design, is because it has some of the earliest examples of pre-production design, seen mostly during the creation of storyboards. It is important to understand that the requirements of pre-production for video games are different from those of animated films as the needs of storyboarding in video games are for different outcomes. As the animation sequences of the creatures and characters in video games could be viewed from all angles, this has challenges that affect the pre-production phase. Early designs need to give consideration to what will be required from the production team to animate for the game. Animated films need only look good from the angle that the

viewer is subjected to at any time, whereas the animation cycles in a game must be good from most angles.

Video game companies have also got to factor in what graphical qualities they can use as they must be aware that the player's computer will need to be able to render the graphics while playing the game. This presents the challenge of creating a game that is visually impressive whilst not hindering the performance and frame rate of the game. This important aspect must be explored during the pre-production phase. To explore how all of these aspects in pre-production design function in a video game that is striving for a hyper-realistic and immersive world, we shall explore the pre-production within the video game *The Witcher 3: Wild Hunt*. This game illustrates clearly how the pre-production team worked tirelessly to refine and create the world of *The Witcher* so that the production team could create a hyper-realistic gritty fantasy world in which the player could become totally immersed.

John Howe's book *Fantasy Art Workshop* (2007) creates illustrations for pre-production and post-production and emphasises the importance of detail, illusion and the creation of a false reality. His illustrations act as a window into another world that we, as the viewer, are able to look into (Howe, 2007). Howe focuses on creating believability, taking into account expressions on a face, how armour would fit and look on a soldier through to the subtlety in the way in which the colour in the distance will change and how it will affect mood. The concept of escapism in hyper-reality and the notion of hyper-reality in itself is a goal that companies are now pushing their video game production teams to aspire to, to make better games with more absorbing realities that envelope the player into the video game's reality (Ubisoft, 2016).

Chapter four details the practice-based component of this study. For this component I have created character and creature designs, as though they were intended for a hyper-realistic

video game, thus creating a practical application based on my theoretical exploration. I have been given permission from the Wizards of the Coast to use their storylines and campaign settings for my practical. In the exploration of hyperrealism, I have attempted to create pre-production designs that are hyper-realistic and have taken into consideration what the production team would be able to do and thus altered my designs to fit within those standards. To maximize the potential for the creation of an immersive hyper-real world within the game, I have adjusted the designs of characters and creatures to reflect some aspects of our own reality so that they are believable. This is intended to form a way for the player to connect with the non-player characters in order to believe that a creature in nature would most likely look as depicted in the game. In addition, the environments have been created to depict realistic topology and foundations. In many of my visual creations, I have compared the illustrations that have been designed by artists from the *Dungeons and Dragons* franchise. It is important to note that their designs were not created with the intention of being made into a hyper-realistic video game and therefore many of the designs do not illustrate the credibility that is needed for the game to be immersive. To do this, while allowing for what would believably occur in a real setting, I have taken into account how designs need to be altered and modelled so that there are a number of unique looking characters and monsters, with their own individual cosmetic or physical traits.

My conclusion will be a reflection of how the theoretical and practical components of my thesis interlink; exploring whether or not the impact of hyper-reality has a grounded standing in pre-production design; how pre-production design is influenced by the nature of video game development and finally whether my art appropriately explores these concepts

CHAPTER 1

THEORETICAL EXPLORATION OF THE ORIGIN OF PRE-PRODUCTION IN DISNEY AND ITS PROGRESSION INTO VIDEO GAMES

1.1. What is Pre-Production Design and Why Should it Matter?

1.2. The Importance and Function of Pre-Production Design and the Pre-Production Stage

Pre-production design is the early developmental visual artwork created for films, animations and video games (Shamsuddin, 2013). Pre-production design is ultimately used to create and set the visual tone for a project. Its purpose is to explore moods - for example in what way colour variations within an environment design can influence how the environment is perceived by the viewer. Character and costume design are explored and altered from the point of view of ensuring design continuity within conceptual designs and the overall potential focuses within the intended project. It essentially functions as a means to fine tune all of the visual elements, from the proposal to the prototype of the intended project, before the project is approved and final development commences. Pre-production design involves many visual elements that are explored and developed until a satisfactory vision is achieved. I will be focusing specifically on the design elements (theme, colour, mood, lighting, overall design continuity) of pre-production when considering character and creature design. Within the pre-production phase, the planning of how the production phase will unfold with regards to timeline, use of programs and sample coding in the project, is created. This is an important step in the production process as the planning process will inevitably affect the long-term finished result of the intended production. The early visual conceptualisations created during the pre-production

phase are critical to the success of the project's final result (Chen, 2007). The final vision seen in the pre-production phase will most likely mirror the outcome of the intended project's final state. Within the context of film, storyboarding is a very important aspect of the pre-production phase as it establishes the key shots that will be used in the film/animation. When looking at storyboarding within video games, it should be noted that they are used to establish key shots within scenes and are more commonly used within the cinematic cut scenes when integrated into video games. It must also be considered that while storyboarding is used differently in different industries, it will commonly contain conceptual designs that illustrate the colours, moods and tones of the chosen project.

Concept art such as character design, creature design and environment design play an important role in the pre-production phase as these artworks are used to establish the visual tone of the project. The finalized designs within this phase will affect animation, sound design and more (Lionhead Studios Limited, 2015).

In the Lionhead Studios Limited films mentioned above, specifically their video *Return to Albion - Rosewights*, for the game *Fable Legends*, the lead concept artist Mike McCarthy created a design for the creatures called *Rosewights*. Ultimately, the original conceptual designs proved to be far too complex for the production team animators to create a model that would allow all of the creature's parts to move independently during its movement path animation. The problem was caused by the fact that the design was already approved during the pre-production phase and it was only during the production phase that it was realised that the animation could not be done as was envisaged. This meant that the animators had to improvise and come up with a way to simplify the animation, yet still retain the design of the creature (see image below, Lionhead Studios Limited, 2015).

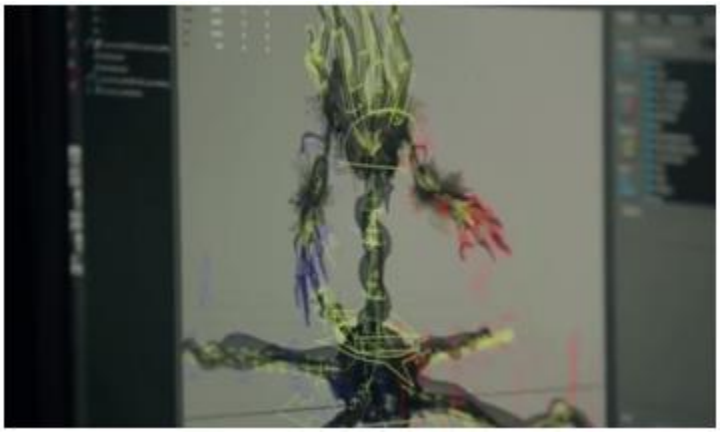


Figure 1 - (Video) Lionhead Studios Limited (2015) Return to Albion

The example shown in Figure 1 above, which also refers to the documentary on the early production of the game, shows how a design approved during pre-production, without the consultation of the team that would handle the production phase, caused complications throughout the production phase. This illustrates how essential it is for the pre-production designers to understand the technical implications that will have further repercussions in the project's development. It is therefore vital for the pre-production design team to explore the character design, creature design, environment design and user interface design with regards to how these different elements will impact the production phase of development. This is the reason why examples of how the production phase will be carried out are tested during the pre-production phase.

The aim of this chapter is meant for the exploration of the development process and importance of pre-production design in video game production. With the basic understanding that this phase establishes how the rest of the production of a project will be carried out.

1.3. The Phases of Production

For the purpose of understanding what pre-production design and its purpose really is, the process of creating a film/animation, or video game production, will be briefly explored. This

will illustrate the importance that pre-production and pre-production design play in the successful execution of either project.

There are five phases of production within a project. The first phase of the process is the development phase. This is when the idea of the project is developed, and a pitch is given to a company. Once the proposed pitch is greenlit, it then moves onto the second phase which is the pre-production phase. The pre-production phase is where the preparation for the production is carried out. In this phase, to ensure that the production and post-production run smoothly and efficiently, all aspects of the project are fine-tuned, and anticipated problems are prevented and resolved (Dunlop, 2014). After the pre-production phase, the project moves into the third phase which is the production phase. This is when the actual production of the project commences, and where the level of efficiency in the pre-production phase will be observed. After the production phase of the project, the fourth phase, the post-production phase, will begin. This is where all the elements from the production phase are put together and refined into a finished project. Once the desired result is achieved, the distribution phase begins, which is where the project is released to the public and distributed.

1.3.1. The development phase

The first phase in the development of a project, whether film/animation or video games, is simply known as the development phase. The development of the project is where the idea of the project is born. In this phase the stories are developed, including what will happen in the story and how long it will be. It is important to take into consideration the medium of the project as this will affect how and in what way the story will be approached (Dunlop, 2014). The possible characters and settings are all explored, such as the most important character; where the story will take place; will there be a comic relief character, will there be a villain or a monster; or

what is to be excluded? These are just a few of the aspects that will be considered when looking at the characters and settings. Similar to pre-production design although not as in-depth, as the project has yet to be approved, rough artworks will be created to portray the characters and other important elements of the project. The rough sketches are therefore created to merely help show the initial ideas of the visual style and tone intended for the project. The potential script will also be created along with a list of possible actors or voice actors who would suit the roles of the characters. Within this script, we will see more indications of the concept of the project for transition scenes, descriptions of characters and details on the visual features within scenes, all of which give an indication on how the project is intended to be seen. Along with all the aforementioned elements, the proposed projects idea, or development, is then pitched to the intended company along with supporting information such as the intended audience that the project will cater to, estimated costs and the time that the project will take in order to be created *(4 Talent*, 2017). If the pitch is successful, then the project will be 'greenlit', or approved for production, and only then will the pre-production phase be initiated.

1.3.2. The pre-production phase

The focus of this study will be on the pre-production phase, specifically the design aspect which falls within this phase in video games. Its is refered to as pre-production in both films and video games. The artworks created during pre-production are referred to as pre-production design. Many attributes of the project are consolidated in the pre-production phase of the development (Tumblehead Animation Studio, 2016). This is the phase where the planning of the production and the running timelines are finalised. This is done to ensure that the project's production runs as smoothly and efficiently as possible, this helps in finalising the plans for the budget of the project. The storyline and scripts that were discussed during the pitch will be

finalized and the voice actors will be cast to suit the intended vision of the characters. They will also read through the scripts and conduct line tests of their lines, which will help the animators and art team (concept artists) with creating the characters' expressions based on the actors' voices and movement. This ensures that the production phase will have the correct scripts and voices that will portray the story according to the pre-approved vision. The pre-production phase will be finalised once all visual aspects of the project have been designed and decided upon. It is this aspect of pre-production that will be the focus of this study. The sound team will also finalise effects the concepts for the production phase (Tumblehead Animation Studio, 2016).

1.3.3. The production phase

The production phase of a project is where the preparations made in the pre-production phase get put into action. The success of production is determined by how well the pre-production phase finalised and evaluated all aspects of the project, including fixing or eliminating potential problems. More people will be employed during this phase to ensure efficiency and speed. In the case of animated film, the sounds will be recorded, and scenes and special effects filmed and animated. This is the reason why pre-production is vital as it establishes the key frames, shots, characters' behaviour and colour scheme of the project. In the case of video games, the coding will be written and animations for the characters and other models will be created. The process for the creation of a video game is more involved than previously discussed here; however, this will be discussed in-depth in a later chapter with reference to hyperrealism. After the production phase is completed, the company creating the project will move onto the next phase of production, post-production. Poor planning during the pre-production phase will impact this phase the most dramatically as any errors encountered, or lack of research or management, will directly impact further phases, and teams will need to go

back to correct mistakes that could have been prevented earlier on, thus losing valuable time and resources.

1.3.4. The post-production phase

The post-production phase is when all the elements that are created in production get put together and refined. Within film, video games and animation, this is when all the scenes and sounds will be refined and rendered together. Soundtracks, title and credit scripts will be added to the films. This process also applies to video games. Additionally, within video games final testing, debugging will be carried out and all aspects will be perfected. In the case of both industries, a short trailer will be made to promote the project. The trailer is made bearing in mind the target audience and where publicity and marketing of the product will be focused. Posters, official concept art, gameplay trailers, and 'sneak peeks in the making' videos will be released to the public on various social media platforms to build support for the project, which will in turn, most likely increase profit potential. It is important to note that many companies take the marketing and building up of hype to the public as a crucial phase of the project as this will affect the success of the company and the possibility of sequels to the project.

1.3.5. The distribution phase

This final stage is the distribution of the product. In this phase the product, in the case of films and animation, will be shown at film festivals and theatres and finally released for purchase. In the case of video games, gaming conventions are held where developers will showcase a preview of the game, another hype building tactic. This will usually be the time where unique qualities within a game will be highlighted. As an example, *Shadow of Mordor* (Monolith Productions, 2014), is known for its unique nemesis system that will make every gamers' experience of the game different each time, based on who they encounter in the game

and how they react to these encounters. These game conventions usually occur months before, and can even be up to a year, before the game is distributed to the public.

Figure 2 - (Video) Middle-earth: Shadow of Mordor Nemesis System - E3 2014 Trailer

The example in Figure 2 above, illustrates how game companies will 'show off' new aspects and features of a game at these game conventions to boost support, publicity and funding.

It is important to remember that these new features will have been tested, researched and been subjected to vigorous testing during the pre-production phase and have been approved as viable new game features for them to be present post-production.

1.4. Disney: The Origin of Pre-Production and Pre-Production Design First Seen in Games

The pre-production phase began to develop in the early 1900s due to the effect of industrialisation on the industry into a faster paced consumerism. The beginnings of pre-production design are first clearly seen in the early animations created by Walt Disney Studios, one of the earliest examples being the full-length animated film *Snow White and the Seven Dwarves* (1937). Within the pre-production of *Snow White and the Seven Dwarves*, there were many concept artists, most notably Albert Hurter, Ferdinand Hovarth and Gustaf Tenggren. The

lead concept artist within the pre-production phase was Albert Hurter. Being the lead artist, Hurter had to approve the designs of the environments, characters and animals before they were finalised for the production phase of the film. Several concept artists worked on styles and ideas for the creation of the environments for the film. Hovarth created many concepts for the environments considered for the film, but some of these designs were considered to be too dark and scary. Some of the other conceptual designs of Hovarth's were not used either as they would not have been easy to use in animation during the production phase.

Tenggren, who was the colour stylist for the production of *Snow White and the Seven Dwarves*, was heavily influenced by artists like the book illustrator Arthur Rackham. As a result, traditional European landscapes, such as those depicted in Rackham's illustrations, were a strong element within his work. As this is exactly what Disney was looking for in their intended style for *Snow White and the Seven Dwarves*, several of Tenggren's artworks were used for the atmosphere that can be seen in many of the scenes within the film.

Figure 3 - Snow White and the Seven Dwarves concept illustration image 0 (left) Snow White and the Seven Dwarves concept illustration image 04 (right)

As can be seen in Figure 3 above, the dwarves were designed to look more cartoon-like and comical than the semi-realistic *Snow White*, evil queen and normal-looking prince. This functions well when these different character designs interact with one another.

As the attributes of the dwarves exude both a familiarity, due to the characters being humanoid and relatable, the style also creates an effect that the viewer relates to the emotion that is portrayed by the characters' exaggerated behaviour. Hurter found that his character designs were more efficient in establishing how the characters would look when he created sketches and drawings of the characters interacting with one another, stating that "it all starts with the inspirational sketch" (Thomas, F. & Johnston, O. (1981).This is an interesting concept as, by creating sketches of the characters interacting with other characters or environments, it allowed the artists to explore the behaviour of the character, which in turn developed elements such as the characters' posture, their common facial expressions and how their clothing would look and behave during certain movements and emotions. The exploration of colours for the characters was also explored when Hurter created these images.

The creation of the dwarfs' designs from the early and final designs illustrates the importance that pre-production plays. When looking at the early conceptual designs in the images above, one can see the colour style chart of the dwarves in the left-hand image; the right-hand image portrays the final designs of the dwarves. It can be seen how necessary it is to have a thorough pre-production process. When comparing almost all aspects of the dwarves, from the early image to the final concept design, one can see the extreme changes in posture and facial features.

When *Snow White* was originally designed, she bore similar characterises to *Betty Boop*, created by Fleischer Studios in 1930. This is evident in both characters abnormally large eyes

and cute cartoon-like behaviour. As Disney wanted *Snow White* to be more relatable to the audience, the early designs were deemed slightly too cartoonish. The design team was therefore tasked with creating a character that had realism and was yet cartoon-like enough to be fantastical. The physical design of *Snow White* was drawn to normal human proportions except for her face, where her eyes were exaggerated, and other features simplified. The reason for these proportions is because she was partially animated by using the technique called Rotoscoping. Rotoscoping is when live action footage is used for an animation. The animators trace over the footage when creating their animations but, although this technique is useful and helps the speed of production, it is often criticised as creating animation that is dull and ineffective when used for caricatures. Criticism is levelled at this technique because the exaggerated stretch and squash seen in non-Rotoscoped animation is not added, leaving the animation seemingly lifeless. As a result, this method was only partially used for the prince and *Snow White*. Live action footage was mainly used as reference images. It should be noted that the queen was not Rotoscoped and thus her animations tend to be more dynamic. The intention of using this mixed animation technique was to create a more lifelike character design for *Snow White*. Her realistic proportions were used to make her more relatable and realistic to the viewers, while her simplified features maintained her cartoon-like character.

1.5. Pre-Production Design in Early Video Games

When considering pre-production design in video games, it is important to note that, due to technology leaps that were continuously occurring and the competitive nature of the industry in the early days, there was a very secretive nature within many companies. Much like the race to explore space during the Cold War, every game company wanted to beat the other with the most innovative and competitive product. They all wanted to be first to achieve the best game, the best

graphics, the best gameplay and the best system. The earliest games that can be labelled as actual video games can be seen in the 1960s. Even though these games were very simplistic by today's standards, they are important to take note of as they were the first in video game history.

Below, in Figure 4, we see an image of the game *SPACEWAR*! from 1962 created by Steve Russell, illustrating how simple games were when they first started to appear. The video from which this image is taken, shows how games develop over time, becoming more graphically impressive and immersion driven. It is only in the early 1990s that we begin to see the use of pre-production design as a means to establish meaningful characters that have now become nostalgic to most gamers. Some of the earliest pre-production art for video games can be seen in the first *DOOM* game, developed by ID Software in 1993, and the pre-production designs for the game *Sonic the Hedgehog*, created by SEGA in 1991.

Figure 4 - (Video) Evolution of Video Game Graphics 1962-2017

Before *Sonic the Hedgehog* was created, the character *Alex Kidd* starred in a game series created by Sega. *Alex Kidd* was also SEGA's company mascot, but the character never became popular with their audience. This led to the Sega team deciding to create a new mascot which also meant a new game that would represent the company. The designer/artist Ohshima was responsible for designing the character *Sonic the Hedgehog*. The origin of the game gives us an

understanding of how a well thought out and planned character design can lead to the success or failure of a game series (*SonicRetro, 2009*).

Figure 5 - Sonic original design during the creation of the first game (SEGA, 1988)

The image in Figure 5 above is an example of early character design as seen in the 1980s. When compared to the character design illustrations of the dwarves from *Snow White and the Seven Dwarves* from the 1930s, we can see a similar experimentation with posture and expression. This is a unique example that clearly shows some of the early examples of character exploration in video games. It is important to see how conceptual design filters through the production phases and impacts a project, setting the tone for what these characters will become as mascots and icons for a company's identity.

1.6. *DOOM* - Pushing the Boundaries

Pre-production is taken to the next level in the game *DOOM*, which was released in 1993 by ID Software. This game is well-loved by many gamers and is considered by some to have been the game that pushed the boundaries of the video gaming industry, and even created the genre we know today as FPS (first-person shooter). This game changed the video game industries' direction from 2D cartoon platformers like *Sonic,* towards games that had action (as in

the genre) and were 3D based. To celebrate the 21st anniversary of the game in 2014, they released their never before seen concept art from their first game in the *DOOM* series from 1993. Viewing the methods in which they designed their creatures, textures, models and maps gives us insight into how one of the biggest games of the early 1990s was made.

Figure 6 - (Video) Doom (93-94) vs Doom (2016) - Equivalent Monsters Comparison (YouTube, 2017)

It should be noted that the intent of *DOOM* was to move away from the light-hearted cartoon-based games that were common in the early nineties, the aim was to create a game that was realistic and dark (Kushner, 2003). The use of a darker colour scheme was a new concept for the video gaming industry, as attempting to create a creepy and gory game was then unheard of. To compensate for the overwhelming darkness in the game, strong tones of red were used which lightened the overall visual impression but also enhanced the blood and gore factor of the game, as can be seen in Figure 6 above.

> Historically, 3-D graphics were being done at the time for simulation-type games, for flight simulators and things like that. So the decision to do three-dimensional graphics but with texture mapping and make it an action game influenced a lot of how the technology was made….It was never a matter of just building a technology in a blank room and saying, well, now, what games will we do with this? It was always driven by, well, we would like to make a game like this and this would be really cool, let's see what technology we can do that's in this quadrant of game development space, and then figure out what game we can make with what we actually wind up with. (Carmack and Kohler, 2013).

The pre-production art was created by a number of artists who used many techniques in the development of the game; for example, clay was used in some cases and in others they had their own software for designing the main characters and creatures. These designs were placed into the actual game, using the technology the designers had at their disposal at the time. The methods and tools that were used, advanced and helped develop the way in which technology would change for the video gaming industry. The main artists for *DOOM* were Adrian Carmack and Kevin Cloud. Adrian Carmack created clay models of many of the creatures, and also created variations of what the main characters would look like within the game. Gregor Punchatz was tasked with creating some of the designs for the creatures that would be seen in the game. To do this he created physical representations of the creatures with foam latex and steel armatures. The creatures that he created were the *Arch-Viles*, *Spider Mastermind*, *Mancubus* and the *Revenant*. The creature models were then digitized for the game by being photographed from five to eight different angles, as can be seen in Figure 7 below. This was done so that the

creatures would have realistic representation within the game, as the photographs would present the animators with all angles needed in order to animate the creatures. The creatures were edited, animated and overall visually touched up using a program called Fuzzy Pumper Palette Shop, a program created and designed by John Carmack, specifically for the development of the game *DOOM*.

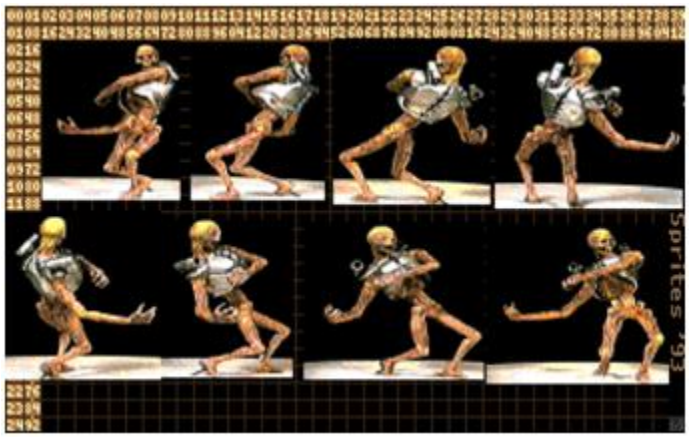


Figure 7 - "Each frame was captured on a turntable for multiple angles to create a faux 3-D effect." Johnathan Cooper (Twitter, 2018)

The program was designed to be able to create animations and visual designs, by the capturing of a series of images of an object and then by being able to digitally convert these images into 3D objects. Adrian Carmack was the main artist who used this program during the development of *DOOM*. As mentioned previously, the program used up to eight images of the object from different angles. The object, in this case a clay creature, was put into a brightly lit box that would be rotated as images were taken. For the development of the game, this system was used for the creatures, the character holding and firing the gun, as well as for the creation of some of the environmental textures, such as floors and walls, which were used in the game. I believe the creation of this program to be important as it illustrates how program development and design capability are key to creating a visually successful game.

When one compares the first works from Disney such as the early *Mickey Mouse* short animation, titled *Steamboat Willy* (Walt Disney Studios, 1928), and their first full length animated film, *Snow White and the Seven Dwarves* (Walt Disney Studios, 1937), to the more modern animated films *Frozen* (Walt Disney Studios, 2019)and Pixar's animated film *How to Train your Dragon* (Pixar, 2010), one sees the move towards realism. With *Steamboat Willy* the animations were very far from being realistic. The "rubber hose" animations were extremely exaggerated. As a result, with the characters being beyond realistic, the viewer could only relate to the extreme actions and not to the character and its personality. Although the show was comical, the characters were not relatable to the viewer. As mentioned, the character designs from *Snow White and the Seven Dwarves* were approached differently as compared to *Steamboat Willy*. The designers wanted the viewers to connect with *Snow White* and to do this they needed to make her relatable; hence her normal human proportions and realistic animation sequences of movement using Rotoscoping and live action referencing. The animals were created in a realistic yet simplistic cartoon style, making them seem more like actual animals, but with cartoon eyes and reactions which allowed, and even encouraged, the viewer to engage with the emotions of the animals. The same technique is used with the main character of *Snow White*. The film *Frozen* still uses the same large eyes in their character design as with *Snow White*; however, when one looks at the physical appearance, we see that whilst *Elsa* has regular human proportions, there are certain elements where emphasis has been placed, namely, hip width and waist thinness. The men in the film are similarly slightly altered as they have overly broad shoulders and slim hips. The main heroic characters have the stereotypical strong jaw. The use of convincing textures adds realism to the film.

1.6.1. *DOOM* and hyperrealism

The *DOOM* series was one of the first games to have 3D FPS (first person shooter) behaviour built in. The series was very popular owing to its gory and hyper-realistic environments and monsters. The *Witcher* series in general (collectively as a whole the series is available on PC, the first Witcher game was only available on PC) is known for pushing the boundaries of graphics with their three main titles The Witcher (2007), The Witcher 2: Assassins of Kings (2011) and The Witcher 3: Wild hunt (2015). This, however, has the drawback that not everyone can afford to own a PC with the advanced memory and graphics card requirements to play the game. Realism and hyperrealism have always been a strong selling point for this game company (Stuart, 2015).

In 2017's E3 show, the company Bethesda Softworks released information showcasing a few of their games. An important one to mention is the confirmation of the game *DOOM VFR* and the release of *Fallout 4* in virtual reality (Bethesda Softworks, 2017*).* The announcement of these games being created to run in virtual reality indicates to us how the push for hyperrealism and immersion is influencing video gaming companies. This shows the extent of players' desire for immersion, which is ultimately the successful function of the Simulacrum according to Baudrillard's notion of hyper-reality collapsing within reality, making them one and the same, this is why pre-production design is important in establishing thorough design that can aid in the development of a visually successful and immersive looking game. Pre-production design functions to create 'visual design' to focus and set the visual and conceptual tone of the project.

Figure 8 - (Video) Doom (93-94) vs Doom (2016) - Equivalent Monsters Comparison (YouTube, 2017)

In conclusion, pre-production design explores all of the possible primary visual and conceptual designs, moods and focuses within a video game. Pre-production design is an integral part of the process of the project creation mainly in the early stages of production, where the tone of the project is still being set (Tumblehead Animation Studio, 2016). Toni Bratincevic states "*The main goal of every environment artist is to find a way to bring that character and its story into a scene without the need to have an actual subject*" (Bratincevic, 2012). His definition is useful in illustrating the purpose and goal of pre-production design from the perspective of a pre-production environmental artist. Due to the push for graphic hyperrealism, this means that the artist must now create more visually substantial artworks that illustrate exactly how real the game will be. The artists' aim is to create a design which stands on its own and contains enough visual information to lead the viewer to understand what is going on in the imagery. Every year we see games attempt to be more realistic, immersive and hyper-realistic. As players cannot experience the virtual world completely, in the pursuit of realism, the senses of sight and sound

need to be over-stimulated to attain the desired effect of the game. For example, when the player is shot in the game, the screen will turn red, the colour representing blood. The more the player gets injured, the more this happens (Stuart, 2015). *World of Warcraft* remains graphically simple to allow for a larger audience to be able to play, due to the costs and performance issues of PC hardware. To create a hyper-realistic type attachment to the player, the company has created real-time apps that allow the player to access the in-game auction house. This is a common feature that is now seen in MMORPGs (mass multiplayer online role-playing games). This causes the player to become more invested in their online characters, as they view the character as a living being and an investment.

CHAPTER 2

THE CONCEPT OF HYPER-REALITY AND WHY IT MATTERS TO THE VIDEO GAME INDUSTRY

2.1. What is Hyper-Reality, Living in a Hyper-Real World?

For the purpose of this study, it is important to understand what hyperrealism is and what its impact is on the video game industry. This enables us to perceive the ways in which hyper-reality has begun to integrate itself within our reality and in turn gives us an understanding of how the video game industry is affected.

Hyperrealism is the imitation of reality. It does not depict the original completely, but rather creates an enhanced version with idealistic or fantastic elements from our own reality (Baudrillard, 1981). This affects the viewer in a manner where they are either aware of the hyper-real or it becomes indistinguishable from reality and the viewer is left unaware. This can lead to a situation where the viewer is compelled to willingly participate in the new simulated reality (Eco, 1990).

According to Baudrillard, an instance of Simulacra is seen in its purest form when the consciousness of the mind is unable to distinguish between reality and the image, or simulation. The image is the simulated reality, or false representation of the reality that places itself within the actual reality (Baudrillard, 1981). Hyperrealism explores the concept of realities, the loss of reality and the dominance of the Simulacra or simulation; hyperrealism also delves into the notions of the coexistence of hyper-realities existing seamlessly within the true reality. An example of this would be how the virtual world of social media, real-time online games and the physical world have become seamlessly integrated with one another. In a sense these realities have become so well integrated that many do not see them as imaginary forms of reality. They

are simply accepted and seen as true extensions of reality; even if the individual is aware that it is merely an image of reality, they still accept it readily as a form of reality that is more of a tool in life, rather than a possible intrusion of the mind (Kroiz, 2002).

The theory of hyperrealism, or hyper-reality, from the book *Simulacra and Simulation* (Baudrillard, 1981) by the French theorist Jean Baudrillard, will be discussed as well as Umberto Eco's *Travels in Hyper-reality* (Eco, 1990). While these theorists have rather different perspectives on the aspects of hyper-reality and its influence on the world, their theories help one to grasp the nature of hyper-reality. Hyper-reality has many functions in the real world. One may even be so bold as to say hyper-reality has become the real world now (Kinder, 2012). In today's age, we expect hyper-reality to be present in some form or another, whether it is obvious or not. A simplified example of this can be seen in the news where a newsreader will deliver a version of reality, as a telling of what allegedly happened. The viewer will believe this to be true until he reads another newspaper or watches a different news channel, and will quickly realise that there are now two images depicting reality, and is thus confronted with the thought of "*What is the true story, what is real*?"

We come across people who believe that reality shows (eg. Celebrity lifestyle shows) are true and that the lifestyle of the celebrities, as depicted in the media, is real. The viewer thus tries to emulate this lifestyle in the belief that it is better that way (Baudrillard, 1981). Advertising can also be seen similarly, as advertisements will portray an idealistic lifestyle that will supposedly come about once the advertised product is bought, thus luring the consumer into believing that the hyper-reality is obtainable. We are living in an age where advertising, in many forms, is all around us so it is easy to understand why many people will believe that owning certain things is associated with success and happiness. Through this we see how the hyper- reality that is

portrayed in advertising becomes the reality that many people wish to believe is actually true (Eco, 1990).

Within the video gaming industry, hyper-reality has become the ideal goal that is consciously and constantly pursued by video game companies. It should be noted that in some games brutal realism is the intended outcome; it is however the aspect of creating a 'realistic' game that ultimately creates a hyper-realistic game as a by-product. All games are essentially hyper-realities as they portray an alternate reality; however, these are not always as successful in enticing viewers as advertising or Disneyland (The Guardian, 2015). There are games that are produced with the intention of being hyper-realistic visually - for instance *Horizon Zero Dawn* (Guerrilla Games, 2017). This game will be discussed further as it serves as an example of visual immersion. Hyperrealism is desired not only by the video game companies, but by the gamers as well. To achieve this, video game companies often rely on the creation of an immersive game in order to create a successful hyper-reality. To be truly successful, the game must be hyper-realistic in many ways as the gamer plays using their eyes, ears and mind. To achieve this, the gameplay must be dynamic and the effects of storylines, as well as the world within the game, must be made transparent. The audio, which includes not only dialogue, but also ambient noise and music, must be carefully selected in order to establish an immersive reality. It is essential that the story and characters enthral the player and cause them to become attached to the game. By understanding these notions of hyper-reality, it becomes evident that it has without a doubt become a part of our lives, thus explaining its influence on the world of video games.

2.2. Jean Baudrillard's Concept of Hyper-Reality

Jean Baudrillard's concept of hyper-reality is first expressed in his essay *Simulacra and Simulation* (1981). His book illustrates the view of how hyperrealism can take many forms and

become a seamlessly integrated element of real life. Baudrillard questions what would happen in a situation where the real world becomes denied and only the Simulacra and simulation exist. It is his belief that this has already begun, as our reality is now a form of hyper-reality. Hyper-reality is so interwoven into our everyday lives that reality is no longer seen on its own but with hyper-reality as an extension of this truth. Baudrillard's concept of the Simulacrum explores his opinion that society can no longer distinguish between what is genuine reality and what is a Simulacrum or simulation. Writing in 1981, Baudrillard believed that we are now living in a world where simulations and Simulacra, such as advertising and reality shows, to name but two, have become so ingrained into our lives that we have begun to believe in them as true and normal features of existence (Baudrillard, 1981). The term 'simulation' is the event where reality and the Simulacra (the hyper-reality) blend into one another; where it has become indistinguishable to tell where the Simulacra and reality begin and end. Baudrillard explains that this loss of the ability to distinguish between reality and the Simulacra is attributed to a few things that occur and have occurred in society, for example newspapers, who each give a different version of a news story. Baudrillard has a different idea to Umberto Eco's ideas on how hyperrealism functions. Baudrillard believes that todays' reality has become hyper-real, believing that the images of hyper-reality are merely duplicated and grow until they envelope reality and thus make our reality into a hyper-reality, so we can no longer recognise what is truly real (Kroiz, 2002). Baudrillard explores this concept and the various instances in which a Simulacra will function and exist by using the example of a map to explain. He explains that there are four distinct stages of the Simulacra, explored in his chapter the *Precession of Simulacra* (Baudrillard, 1981).

The earliest stage is, in fact, the sincerest version of a Simulacra. It is created with the intention to reflect the reality chosen and, although false, its intent is to create a replica that may even be correct and reflective of reality. This version of a Simulacra is a 'faithful' copy of the original reality. Baudrillard states that in the first stage any sign of a Simulacra being evident would be that it would be a "*reflection of a profound reality*" (Baudrillard, 1981). This implies that the image attempts to be pure in its imitation. An example of this would be a wax effigy of a person or a replica of a Western town (Eco, 1990). At first glance the town would appear to be an authentic Western town but upon closer inspection, although the intent of the creation is to portray something that is true, one would see that it is not quite the same.

The second stage of Simulacra is seen as a 'perversion' of the chosen reality. This is when the Simulacra has been created with the intent to deceive and make one believe that the copy is the true reality; a modern example of this could be seen in certain elements of Facebook.

Facebook is an interesting creation as its primary intent was for users to be able to post what was happening in their lives so distant friends and family could stay in touch and keep updated on each other's pursuits. From this, one can see that the earliest forms of Facebook were in fact reminiscent of the first stage of a Simulacra, a tool to navigate the social world (Kinder, 2012). Facebook has oddly, over more recent years, changed into the second stage of Simulacra as people use their posts to portray larger than life versions of their lives. Rather than portraying the actual version of themselves, they portray a Simulacra of what they think their ideal life should be, presenting a second stage image to others on Facebook that some believe to be true, thus making Facebook a form of the second stage of Simulacra.

The third stage is more difficult to explore as it is perceived more through possibility than reality. This stage is where the simulation is the new reality, as the original reality no longer

exists. This implies that it would be based on Baudrillard's example of the map, which is as though the actual planet earth was gone and the only version left of earth was a map. The map now becomes the new hyper-reality and ultimately the new reality as no distinction can be made because there is no longer an original to compare it to. The simulation masks the absence of the original reality and becomes the new reality. The viewer is unaware of this.

The fourth stage is what Baudrillard deemed to be a Simulacrum in its purest form. This is a Simulacra where the simulation will have no relation to any form of reality. This form of Simulacra would be alien to us, as we would not be able to relate to it. It would be experienced as if one had been born blind and then suddenly acquired sight. In this instance, the use of the sense of sight would be an alien thing to experience and the world would be unrecognisable as the sense of sight has never been used and therefore has no context in their understanding.

2.3. Umberto Eco's Concept of Hyper-reality

In Umberto Eco's exploration of Disneyland in his work *Travels in Hyper-reality* (Eco, 1990), he discussed the concept of hyperrealism that is already within our own reality. He explores how the American Landscape has begun to be re-created into a hyper-real or fake reality. Eco travels to recreations of cities, such as Western-themed towns, and attends demonstrations of historic battles with actors. With these as living examples, Eco explains that these are generally fake and not realistic representations but are rather recreated to be ideal for the guest or viewer, serving to imply perfection of an era. He explores how the viewer interprets that which is obviously not real yet is drawn into the false reality willingly as it presents itself as a more appealing, hyper-real romanticized idea (Kroiz, 2002).

However, unlike Baudrillard who believes that our reality is lost with hyper-reality, Eco believes that the hyper-reality is still separate from the real, and that although hyper-reality in our

reality is becoming more developed, integrated and apparent as a marvellous feature of our world, we are still able to distinguish the hyper-reality from reality.

Eco illustrates this concept by giving the example that if you were to go on a safari ride in Disneyland, you would be guaranteed to see all the wild life animatronics that are present, as well as the live creatures; however, if you were to go on an actual safari, you would have no guarantee of seeing any form of wildlife whatsoever. This illustrates how hyper-reality does not portray reality in all of its truths but rather that it portrays an idealistic, or perfect, version of reality, *"where the wild animals don't have to be coaxed. Disneyland tells us that technology can give us more reality than nature can"* (Eco, 1990). This very notion makes Disneyland desirable because of the guarantee of enjoyment for the viewer. Even though these creatures are obviously animatronics, the viewer, instead of dismissing them as fake and not worthwhile, decides to marvel at the ingenuity of the animatronics.

Disney does not try to portray itself as reality, but rather very much announces its 'fake-ness'. In so doing, this causes Disneyland's hyper-reality to become a reality of its own. The fictional characters and animatronics become real for they are not imitating or acting as the image of some true reality but are their own truth by being original. This concept of perfection through artificial means suggests how society willingly looks towards hyper-reality rather than the true reality.

Disneyland uses the marvellous nature of its environment to sell its products. The shops and restaurant waiters look just like the shops and waiters from *Beauty and the Beast*. This distorts the viewer's perception and the viewer will end up spending real money on things they perceive to be fantastical (Eco, 1990). Much like Baudrillard, Eco notes the relationship between hyperrealism and consumerism. Hyperrealism is used to sell a lifestyle - a desire for something

more than real. This can be seen in video games where the concept of hyperrealism is the driving force for selling games. Video game companies sell 'realities' that the gamer can experience for a sum of money.

2.4. Hyper-realities' Place in Video Games

What is hyper-reality in video games? It is not only about the graphic superiority of a game but affects games in many ways in much the same way that, according to Baudrillard and Eco, there are many aspects of hyper-reality. For the purpose of this study the primary focus is on the graphical pressure that hyperrealism has put on the video game industry and, in turn, on pre-production design. There are however other forms of hyper-reality within video games, often based on the most basic principle of hyper-reality, which is the concept that the hyper-reality merges seamlessly within the true reality to the point where the participant can no longer distinguish what is true and what is false. Much like the various stages of Simulacra stated by Baudrillard in his theories, there are many variations of hyperrealism in video games.

An important aspect in the concept of hyperrealism is in how it functions within a game. How is the gamer immersed into the game that they are playing? Do gamers willingly allow themselves to participate in the hyper-reality and briefly allow reality and hyper-reality to become one, yet still be able to willingly and easily remove themselves from the immersive hyper-reality of the game? Or do they become a participant forced to be a part of the hyper-reality, aware of its intrusion until it merges seamlessly into their lives and they become unable to easily free themselves from the hyper-reality of the game? This is an important aspect of video games becoming hyper-real as it affects the gaming society, whether they are aware of the hyper-reality or not, and whether they are willing participants in the hyper-reality or not.

Hyper-reality in games through the real-time features is on the more aggressive spectrum of a Simulacra because the gamer is aware of the hyper-reality and gradual placement of time into the gamer's reality. This real-time feature is often based on a reward system that constantly draws the gamer back to the game. Whilst the gamer may initially have started playing the game willingly, the passive integration of real-time gameplay makes it difficult for the gamer to willingly stop playing the game. The rewards aspect of the game creates a desire for the gamer to keep participating so as to be rewarded; this then makes the player invested in the game, both in time and money, as they do not wish to lose what they have worked so hard for. This form of hyper-reality could be perceived as deceiving in nature, much like the second stage of Simulacra defined by Baudrillard. The game deceives the gamer into participating for rewards, with the end purpose of the game being to keep the player constantly active in the game so as to ensure that more in-game purchases take place.

An early example of the real-time feature of hyper-reality is the *Tamagotchi*, created by Bandai and released to the public in 1997. This is a game where the player has a tiny handheld pocket device and once this device is turned on, the player is able to hatch a tiny creature that will appear on the screen of the device. The game subsequently gets tricky as this creature will then require food, care and rest. All of this occurs in 'real-time', meaning that this creature needs twenty-four-hour attention to keep it alive and allow it to evolve and grow. The fact that this game took place in a real-time sphere was important in the context of hyper-reality in video games. But what forces or makes the player continue to play a game that will impact their day to day life? The game taps into the player's human nature to nurture something. It is because of this need to nurture that the player cares for a creature that is obviously not real, recognising that if the creature is not given what it requires it will die. This need to nurture creates a seamless break

in the line of reality and hyper-reality without the player even being aware of it. The player will most likely become invested in the creature and refuse to let it 'die' (Tiffin, 2001). The creation of the *Tamagotchi* illustrates a form of hyper-reality that places the 'image' into the true reality and makes it a part of the players' reality, albeit in a manipulative way. This makes this form of gameplay fit into the second phase of hyper-reality, where the intent is to deceive the individual. Although the player knows the *Tamagotchi* is not in fact a real creature, the player is manipulated and deceived into becoming attached to the creature, fearing it will die. It is also important to note that if the player does look after the creature well, he is rewarded by the creature becoming less dependent as the creature will evolve and develop new behaviours.

Modern implementations of this hyper-reality in video games can be seen in many ways. In the game *Pokémon Go* (2016) (this based off of the game *Pokémon* released on the Nintendo Gameboy in 1997 where you can play as a Pokémon trainer catching Pokémon on your quest to become a Pokémon master) examples of this form of hyperrealism that also use this 'real-time' baited hook. Certain *Pokémon* are available in precise locations, so to catch them and have them spawn in these locations procedurally over time, the player moves around in real life to 'catch' virtual *Pokémon* through their phones, with the game using the players' location and cell phone camera to function. The player can also hatch *Pokémon*; this however can only be done once the player has walked a certain distance. Hatching a *Pokémon* is important in the game and often requires catching *Pokémon* or spending real money to collect enough points and acquiring *Pokémon* specific food to force the *Pokémon* to evolve, thus getting a more powerful and evolved *Pokémon* (Fehlbaum, 2016). Players will often opt for the easier option of using real money, the only consequence of this is that the player could spend more money than desired, and if unaware they spend money on small advantages that may not further their player development

in the game. To further the hyper-realistic nature of the game when interacting with the real world, the player can decide to be a part of one of three teams. These teams then compete to control *Pokémon* gyms that are in various locations within the real world. To maintain control of the said gym, a team needs to have strong *Pokémon*, which is where hatching/evolving plays an important role.

The clever aspect of this game is that the players of the game need to physically be in these locations to participate. The fact that the game employs the use of actual physical locations furthers the Simulacrum's success. As one can see, *Pokémon Go* functions at its best, for the player, when the player is constantly accessing the game and participating in it. The use of rewards, such as evolving your *Pokémon* and the creation of competition through teams and controlling areas, manipulates the player into becoming personally invested in playing the game to win and get 'rewards' (Fehlbaum, 2016). Creating a real-time interaction-based game that functions within reality is not the only way that hyper-reality can take place in the video gaming industry. A real-time aspect that is being used more frequently in online games, acting in a passive way to ensure that the consumer/gamer will constantly play the companies' game, thus ensuring a continual stream of income, is when DLCs (downloadable content) or expansion packs are released. The gamer will feel the need for these DLCs and expansions so as to further their investment in a game that has become an active and seamlessly integrated aspect of their reality. Online games, especially MMORPGs (Mass Multi-player Online Role Playing Games), use this system to ensure a constant stream of players participating in the game. These games are often referred to as having a 'pay to win' system. These aspects of video games can be extremely enticing to the player(as it can be easy to progress and beat other players and advance your character faster if you have the money), as the player is lured into believing that they are earning

things of real value, which are, in actual fact, completely virtual, although they end up spending real currency. Players are manipulated into continuing to play as they are made to feel like they will lose out on their 'investment' if they stop playing. The fact that MMORPGs have large online communities makes this feeling of losing out seem real to the player. To the player that tries to leave a game such as *World of Warcraft*, it feels like a real-world loss as the player will lose real friends that they have made online. This further tightens the hold that the video game will have over a player, compelling them to continue playing the game.

Immersion is another form of creating a hyper-reality within a video game. This is mirroring the concepts of hyper-reality postulated by Eco in his exploration of Disneyland. He concluded that although the participant is aware that Disneyland is fake and all that is within it is fictional, the viewer still admires what has been created and is in awe at its representation of reality. Of his own accord the viewer chooses to be absorbed by the simulation and believe it to be true but is nevertheless able to voluntarily leave this hyper-reality and go back to reality. The same can be said about the hyper-reality that can be found within video games that use immersion as their tool to engross the participant in the world of the game.

For the immersive nature of hyper-reality in video games to be successful, a number of tactics must be employed to create a world that draws the player in, so that they willingly allow themselves to get lost within the game, and believe the simulation to be like a window into another world (Howe, 2007). Unlike the hyper-reality mentioned earlier with regards to the real-time rewards in online gaming, immersion requires believability to function. For a game to operate in an immersive manner, making the player want to play and get lost in the game, all aspects of the game need to be explored, such as the gameplay, visuals, sound, storyline, characters and dialogue.

My focus is with the role-playing game genre of video games as immersive gameplay is usually the key feature of these games. Within the role-playing game genre, the gameplay style is often nonlinear. Nonlinear gameplay is when a game may have multiple paths to take in the storyline and the impact of the choices that the player can make within the story will have far reaching consequences (Adams, 2006). When playing a game, the gamer often wants to feel like their character is making an actual impact upon the world within the game; they wish to have their character be a part of the world and not merely a viewer. This lends itself to being more immersive in gameplay and makes the game seem less linear and static, causing the game's world to appear to be living and breathing In addition, secondary storyline choices and side quest lines can feature, with their own multiple choices, possibly creating minor changes throughout the game.

Since there are now multiple paths within the storylines, the characters' dialogues need to be able to respond appropriately to choices that the player makes. For this reason, dialogue needs to be taken seriously during pre-production, as a lack of response from the non-player characters would break the illusion that the player is making an impact on the world. Life-like characters are created by designing non-player characters, as well as main characters, that have many dynamic features and unique and non-linear behaviours (Adams, 2006). In many role-playing games the player controls the main character of the story and is able to interact and engage in dialogue with other important non-player characters and non-storyline critical non-player characters. More modern games have designed the dialogues to have multiple options and responses, thus creating the illusion of the non-player character having true artificial intelligence (AI). If the dialogue is prodded enough however, in most games a non-player character will eventually begin to repeat dialogue or simply stop replying.

The AI behaviour of non-player characters, as they interact with the virtual world game, also plays a large role in maintaining a virtual world that is believable and immersive (Adams, 2006). The company Bethesda Softworks used a type of AI behaviour pattern known as Radiant AI in their game *The Elder Scrolls: Oblivio*n. Radiant AI allowed all characters to respond and act as freely as their coding permitted. Characters from main storylines would follow set routes; however, when called upon to do so, there were areas in which they could deviate from what they were doing in order to respond appropriately. This can also be seen in *Elder Scrolls: Skyrim*, although in this game Radiant AI was not fully implemented as the company found that key character non-player characters from main storylines would do something random every now and then. Even though this caused no harm, there were instances where the non-player characters would 'steal' an apple, which would then cause guards to kill the non-player characters, thus making the storyline impossible to complete, which would in turn 'break' the game. To prevent this, the company removed many elements of the Radiant AI and set non-player characters on stricter paths; for example, when the character spawns, restricting what the non-player characters do during each in-game day. One can however see some interesting improvised behaviour in less important non-player characters such as bandits. For example, if the player were to sneak up on a group of non-player characters and drop a sword onto the ground near them, without being seen, the non-player character will notice the sword and in some cases they will fight over it (*Skyrim NPC Fight*, YouTube, 2011).

For immersion to truly succeed through a willing participant, the gamer must be made to connect to the game emotionally. Much like with the *Tamagotchi* creature, the gamer must become ardently invested in the story of the game. For the player to develop any form of

emotional attachment to the characters and story, it is important that there be something that the player can relate to.

Finally, the last and most important quality that immersion relies on in any video game, is visual hyperrealism. For this to succeed in a game, the video game company must rely more readily on graphic quality advancements in game development, *"By having more dynamic experiences, or simulation driven design, the world's become more alive and involving, without necessarily having to be carefully – and expensively – modelled, animated and scripted"* stated by Tony Tamasi, senior vice president of content, technology at NVIDIA (The Guardian, 2015). From this one can see the time and cost-effectiveness concerns that video game companies have in the process of making games graphically appealing. Graphic capability is essential in the creation of hyper-realistic games. A strong immersive game has hyper-realistic graphics and visual design that draws the player in, causing the player to marvel at the world created.

When looking at video games, the visual believability of the environment, people and animals plays an extremely important role in creating an immersive game. The more realistically these are portrayed, the more the games' world becomes more alluring and immersive. Character proportions, even if the character is fantastical in nature, should have some realistic elements to it. In addition, effects such as fur, hair, skin, sky, clouds, grass and clothing should look as authentic as possible.

Hyper-reality has influenced game development to push realistic graphics and behavioural animation further than ever before. We are now living in an era where the viewer expects to be amazed by how realistic or life-like the characters are in a movie or video game, thus mirroring the notions of hyperrealism mentioned by Umberto Eco. In the video *Until Dawn Facial Animations*, recorded by GamesWord in 2014, one can see in the scene how diverse

character animations are as well as how dynamic characters' facial reactions in the game can be. Realistic expressions and hyper-real graphics allow the player to connect with the characters as they are able to recognise behaviour and emotions. When looking at the appearance of the characters, one can see that there is an extreme amount of detail, from the pores on the character's skin to the patterns of the iris. In the video it can be seen that the facial animations are not entirely natural. Much like with an actor on stage, some aspects of the game, such as facial expressions, are exaggerated which enhances the emotion from the players' point of view. This helps them to relate to the characters' emotion, thus guiding the player to experience the game in the way in which it was intended. This over-exaggeration also happens to illustrate important moments; for example, when the player gets injured, red blood splatters onto the screen and the sounds of a heart beating and struggling gasps for breath will be heard. While this would not happen in reality, it is done in the game to create alarm in the player who becomes concerned that the character may die, thus making them emotionally invested and drawing them into the simulation. This extreme move towards graphic hyperrealism means that in the pre-production phase, visual design must be completed to ensure that no changes need to take place in the production phase. All aspects of the production of the game must be finalised during the pre-production phase and not in the production phase.

Hyper-reality has indeed become an integral part of the world, with the video game industry taking the concept of hyper-reality in full stride as shown in the section above. Over the years, video game companies have developed games that have become more seamless within reality, or even create their own reality much like Disneyland, so that the player will want to immerse themselves within it again and again (DailyNexus, 2008). Based on the theories presented to us by both Eco and Baudrillard, one can see that their notions of hyper-reality are

indeed true as we are experiencing ever changing hyper-realities where the images are becoming more and more convincing, taking over and becoming the new desired reality. This has, in turn, created a push in the video game industry to create games that are so real and immersive that the player will yearn to take part in the hyper-reality of the game in order to feel a part of the game and the gaming world. Although but a momentary dive into the hyper-reality, it must be intrinsic and beautiful, luring the player to keep coming back to it. This occurs to the extent where some games are now a part of the gamers' own reality, very much like in Eco's statement *"...You risk feeling homesick for Disneyland"* (Eco, 1990). The video game companies that create intentionally immersive games, as well as the gamers themselves who enjoy immersive games, desire a game that will make the player homesick for the games' world. There are a few examples of games which create this emotion in the player. As mentioned earlier, with real-time rewards, the MMORPG games, for example, *World of Warcraft*, also do this by making the player invest time and even real money into the game to push and upgrade their character. This specific game has many players of all ages around the world who have invested several years of their lives in the game, showing us how powerful hyper-reality can become when utilised correctly. The same can be said of the game *Elder Scrolls: Skyrim. Skyrim* is known for being addictively immersive, drawing gamers to keep going back to the game over and over again for years. *Skyrim* has been available to the public since 2011 and to this day many players still play this game in their spare time. Although many continue to play this game in 2019, it should be noted that this is a game with so many stories within it, that the multiple endings per storyline makes it impossible to see the entire game in one play-through. As a result, many players choose to play this game through a number of different characters in order to see all the choices and impacts of certain storylines.

A modern example of an intentionally hyper-realistic immersive game is the video game *Horizon Zero Dawn* created by Guerrilla Games. This video game was created as a PlayStation 4 exclusive, meaning that the game was only released onto the PlayStation platform and there is no PC or Xbox version of the game. The game, released in March 2017, is an action role playing game (action RPG), where the player controls the character *Aloy*, the female protagonist in the game. In the game you play in a world that is based in a post-apocalyptic future, one thousand years from now, where civilization has fallen and returned to a nomadic hunter gatherer lifestyle and machine animals dominate the landscape that *Aloy* lives in. As mentioned before, this game was created with the intention to be hyper-realistic; to be visually perfect compared to any other game and not realistic (Hernandez, 2017). The studio art director for Guerilla Games, Jan-Bart van Beek, stated in an interview with Hernandez that...

> It's a form of hyperrealism that we started calling 'BBC-realism.' It's all shot in perfect condition, at the perfect time of day, with exactly the right dramatic light angle, cloudscapes and weather. There is a lot of cinematic grading to add contrast, atmosphere and saturation to the screen. It's a film process that takes weeks to find those conditions and film a 10 second snippet.... Procedural nature simply means that the artist does not have to place every single rock, tree or blade of grass by hand.... Instead the artists define rules and draw maps on where they want certain assets to appear. So with a simple paint stroke on the terrain they can have a collection of flowers appear. It gives them a lot of control, but also a lot of speed when working on a world as big as Horizon's. (Hernandez, 2017)

Van Beek's statement illustrates to us how the visual intention of the games environmental design was to create a world for the player, which would allow them to become immersed and engrossed in a world that is visually better than real, a world that is hyper-real. The intention was to create a cinematic level of quality much like that seen in nature documentaries. Van Beek comments about how the fact that they could procedurally generate the natural environment played to their advantage in creating something visually perfect. This is interesting to note as this, in turn, allowed the production team to create their environments faster and create exactly what they wanted, when they wanted it and how they wanted it; for example, establishing when certain visual effects would occur such as mist, how the light would hit the mist and at what times this would occur.

This process allowed for rapid speed within the development phase. It should also be noted, that by being PlayStation exclusive, it meant the pre-production team knew for certain what graphical and rendering capabilities they had to work with, as the game only needed to be able to function on one platform instead of many. For the game to be visually perfect they sped up certain weather phases, and enhanced colours and gold rays to ensure every sunset would be perfect, as can be seen in Figures 9 and 10 below. Much like Eco's notion of hyperrealism, *Horizon Zero Dawn* gives a reality that could not possibly occur to such consistent perfection in nature.

Figure 9 - GPU-based Procedural Placement in Horizon Zero Dawn - Slide 4 (Guerilla Games, 2017)

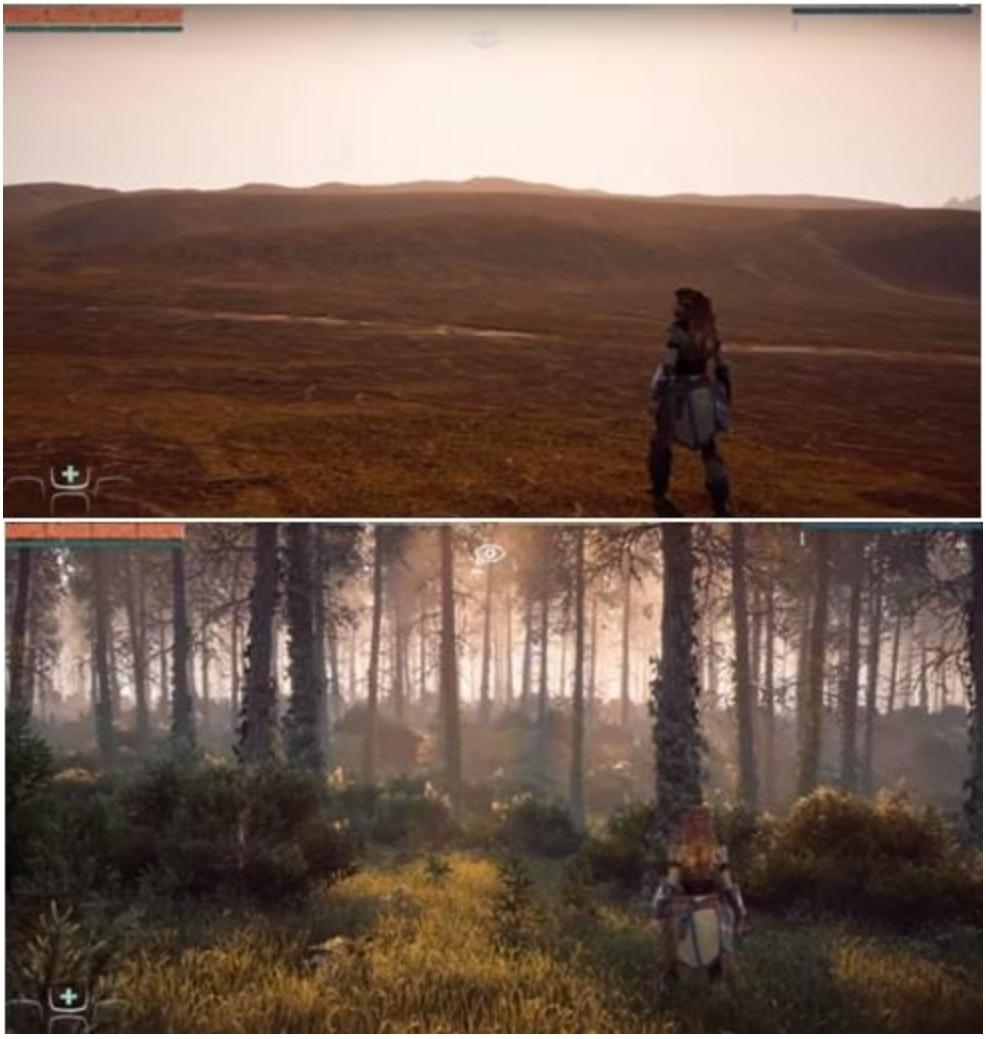


Figure 10 - GPU-based Procedural Placement in Horizon Zero Dawn - Slide 17 (Guerilla Games, 2017)

In conclusion it should be noted that the expressed desire for the game to be visually perfect and hyper-realistic in every way with regards to lighting, weather and environment as well as character and creature design, meant that the pre-production design team had to create sufficiently accurate and complete artworks, varying from conceptual design, 3D concept models to completed models ready for use. This ensured that the production phase would have a large enough base to work off, both visually and in the exploration of techniques for the production phase such as using GPU-based procedural placement. Exploring which methods would be most effective for the production phase ensured that when the production phase began there would be

no chance of major mistakes occurring, causing the production team to go back to the drawing board to figure out how to rectify the mistake. In the images above one can see how the use of procedural placement affects lighting and also demonstrates how the use of foliage can completely transform the environment and create a hyper-realistic perfection that is not constantly possible in real life. It has now come to the point where some video games have been designed to be intentionally hyper-realistic visually, creating an immersive reality that portrays a better, or hyper-realistic, form of reality at all points within the game. Although this reality may to some extent depict our own reality, it does not need to accurately represent our reality, but may rather be fantastical in nature, only drawing certain elements from our own reality. One can indeed link this to the first and even the third stage of Simulacra. However, it does not attempt to mask the absence of a true reality with its own, as suggested by Jean Baudrillard, as the player is willingly immersed into the games' reality (Kinder, 2012). These games are more similar to the concept of hyperrealism, introduced by Eco. Much like the guest in Disneyland who willingly goes into Disneyland believing its reality, so too must the player of hyper-realistic and immersive games believe in the games' reality. The games' function is not to deceive or replace but to rather lure the viewer in, giving the player something, which is perceived to be better. With these games, the video game company is well aware of hyperrealism and the desire for a hyper-real game, using this to their advantage. They are not trying to simulate or create a replication of our own reality, but rather they intend to create a glimpse into a perfect and better hyper-reality that the players desire.

CHAPTER 3

HOW PRE-PRODUCTION FUNCTIONS IN MODERN GAME COMPANIES

3.1. The Push for Hyperrealism in Video Games

Due to the push for hyperrealism in video games, the gaming industry has been prompted to make games far more complex and in-depth. The pre-production phase during the creation of a video game can have dramatic effects on the outcome of the game and determine how it will be received by the game company's audience. This is because the pre-production phase will set the visual characteristics of the game. Although some minor qualities may change during production, if the pre-production phase fails at communicating its visual standards and tone for the game effectively, it will cause the production phase to falter. Any poorly designed aspects during the pre-production phase, may require the production team to redesign, tweak or even start from scratch, something which should have been perfected in pre-production. This means that time, resources and possibly a substantial amount of money will have been wasted during the production phase, which is not optimal for a well-run game company. This concept can be seen in the following statement by Renee Dunlop in the book *Production Pipeline Fundamentals for Film and Games* (2014).

> …Since game-play drives art, the more horizontal slices that can be created during pre-production, the less reworking of art content will be necessary later in production…. Its goal is to provide confidence in the development process itself, serving as a stress test for the pipeline and a benchmark for the quality of art assets" (Dunlop, 2014).

This highlights the fact that pre-production is critical to the success of a game and cannot be overlooked as it will impact the video game's development.

The stages of producing a game are similar in some ways to the production of an animated film. As in animated films, we have the following stages: development, pre-production, production, post-production and then finally distribution. However, the phases of the production of a game are different to that of an animated film as there are different requirements within a game that ultimately affect what will occur within the pre-production phase (Dunlop, 2014). The pre-production phase in both films and games is considered to be one of the most demanding aspects of the production due to the implications that poor pre-production design can have on the rest of the phases of a project. Unlike with animated films, in order to ensure that a game can be made as efficiently as possible, and that any coding errors can be resolved, during the pre-production phase programming a demonstration production will begin (Dunlop, 2014). During the pre-production phase the teams will evaluate possible programs and methods to create an effective production line to ensure success, as stated by Dunlop in her book *Production Pipeline Fundamentals for Film and Game* (2014). She states that…

> with the early stages involving an intense round of technology evaluations, for example, perhaps a new graphics technique developed by the academic community can now be attempted in real time, helping to shape the look of the game. Or perhaps other games have found ways to squeeze extra performance out of old hardware. requiring you to author content in a new way (Dunlop, 2014).

From this quote one can clearly see how important it is for the pre-production team to explore as many aspects as possible of the current and developing technologies available, for instance coding, software and art formats. Any one of these will impact how far the pre-production design team can go with regards to creating visual concepts that could be implemented to create a hyper-realistic game. It will also explore in what ways the production aspect of the video game could be made more efficient with regards to resources, processing power, and overall time and visual capabilities. This can be seen in *Horizon Zero Dawn* as technology played a major part in whether a visually hyper-realistic game world could be achieved as the end result of the game. The artworks for the pre-production phase mirror what the production phase would ultimately create (Guerilla Games, 2017). Through the experimentation of the GPU (Graphics Processing Unit)procedural placement method explored during the pre-production phase, with this method the video game managed to successfully create a unique game world in a fast and efficient manner that, knowing what their technology was capable of, allowed the company to visually create exactly what they wanted, this is a valuable example of how exploration of methods can help create efficient ways of developing unique game visuals and landscapes.

The artworks that are created in a video game pre-production phase can extend from the conceptual designs produced in Adobe Photoshop and in traditional media such as drawing, painting and even clay. These are the rough ideas of the visuals in the game and should portray the visual intent of the game. The pre-production team will then be able go all the way from their finalized designs in Adobe Photoshop and conceptual ZBrush 3D models (these programs are are often used as the industry standard software), and subsequently take it from this stage of creation and place it into the production of some early prototype gameplay and explorations.

These prototype designs will be the creation of assets and the correlating animations made in programs like ZBrush and Maya. These animations and assets will later be placed and then run on the game engine for the game design teams to explore how it will render, function and perform. This will enable the pre-production team to see what problems may occur, what is not transferring visually to the renders that were initially explored in early designs and generally exposing what could and should be improved on to make a better game. Whilst many of the created assets may be un-textured, partially completed or even completed, depending on the game company, it will create a strong enough foundation for the production phase of the game creation to function smoothly, as all aspects will and should have been explored during the pre-production phase to ensure success and efficiency (Dunlop, 2014).

The animations that are produced for games are very different in some respects when compared to film animation. As mentioned earlier in the first chapter on pre-production design, the complex pre-production design of the *Rosewight* which was made to be too complex and ended up heavily impacting the production pipeline time wise; specifically a large impact on the production phase, making it apparent that within video game animation simplified designs are better or at least designs that have been made with the production phase in mind (Lionhead Studios Limited).

The reason for this is because the computer or console on which the game will run needs to be able to render information efficiently for a game to perform smoothly and at a high frame per second rate. This means that everything must be effective and condensed appropriately, thus requiring the animation cycles to take up as little memory as possible (Dunlop, 2014) If a design for an element of the game has not been designed with this in mind, like the *Rosewight*, it can negatively impact the production line.

There are a number of factors to be taken into consideration when carrying out pre-production design in video games as compared to pre-production design in animated films. While effective pre-production design is of vital importance to both, there are several important differences. The fact that the camera angle can be moved around in most games, and the fact that the player can decide what actions the character will do, whether it will be simple running and jumping or even combat, and the fact that there is an AI system controlling the non-player characters, means that there needs to be many variations of animation sequences per character, creature and environmental design.

The animation within a game requires the animated object to have as many animation cycles as possible in order for it to look perfect from all angles. Film animation however does not need this as the viewer will only see what is visible in a shot, so the animation does not need to look perfect from all angles, just the angle that can be seen at any one time (Masters, 2015).

As mentioned earlier, character and creature designs need to be created with consideration of the impact that the designs will have later on during the production phase. In the production of a video game, the character and creature designs need to be focused on to a greater extent within the pre-production phase than with an animated film.

An example of this can be seen in the video of the interview with the creature design team from *The Witcher 3: Wild Hunt*, where the creation of the creatures known as *Ice Trolls* by Game Informer (Hanson, 2013) is discussed. In the video, in examples shown on Adobe Photoshop, one can clearly see that the designs for the *Ice Trolls* originally started off with many variations. It is important to note that the team had a challenge when designing the creatures as the books by Andrzej Sapkowski had little to no proper descriptions of the monsters that *Geralt* fought; because of this the teams needed to come up with designs that still fitted the video games

tone and vision. Once the team had decided on an appropriate design for the *Ice Giant*, 3D modellers created the creature in ZBrush at a high render. A lower rendered version of the creature was then placed into the game engine to see how it would look, and how it fitted in with the overall tone of the game. What is interesting to note is that the designs of the shin guards needed to be changed as the artists realised that logically there was no way that the *Giant* could have put them on by itself as its hands were too large. Understandably this made the design unsound, breaking the realism of the creature design and they consequently opted for shin guards that were logical (Hanson, 2013). Hence, although the creature's design was almost flawless, one small visual error meant that the 3D model had to be changed, not because of animating feasibility but rather visual realism. This shows us how important the believability of the hyper-reality is in the video game, as a small detail was noticed and changed purely because it did not look right.

Environmental design plays an enormous role within most games. This can be said especially with regards to games that are role-playing games or open world based. These games often use a camera manoeuvring system that will allow the player to look around the environment. These can zoom in and out and alter the camera angle at will, exactly like a first-person camera where the environment will be viewed from a specific height associated with the height of the character. The environment must therefore emulate effects that the eye would create when looking at the environment (Digital Masters, 2012).

It is a considerable task to create a convincing environment for a number of reasons. The first reason is the enormity of the environment that needs to be created, especially when considering an open world based game whether that be in a 2D or 3D video game, repetitive patterns tend to break the simulacrum that environments in open world games try to create. This

is where engines and technology ease the problem, such as the implementation of procedural placement, as this speeds up the process. Repetition of design then becomes the second main concern. As the environment may have large fields or stone walls, a texture map will be created to cover these assets; however, in many cases, if the object is large, one can see the repetition of the pattern as the texture will get replicated again and again to cover the object (Guerilla Games, 2017). The same can be said of other objects. For example, if there is a dense forest in a section of the map, one cannot simply use the same tree asset continuously or else the repetition will look obvious, making the forest seem unnatural and thus destroying any chance of creating an immersive game in that particular area. To counteract this, the design team needs to create a few variations of trees so that when they are placed and rendered in the game engine, the repetition of the trees is not obvious, helping to create a hyper-realistic environment that isn't naturally possible. It should be noted that this is an issue that can also be encountered with the creation of generic non-player characters. If all the non-player characters look the same, then they obviously cannot be viewed as real, thus breaking the chance for the player to believe in the hyper-reality and the hyper-realism of the environment.

When animating the environment for an animated film it is important to note that, similarly to the animating of characters and creatures in an animated film, the environment only needs to look flawless from the chosen angles in the scene that has been produced. Because of this factor, when creating the designs for the environment such as trees, rocks and overall landscapes, the designs and eventual asset creation does not need to be functional, it just needs to serve the purpose of looking visually correct for the film sequence. This does not mean that environmental design plays less of a role in animated films, it merely means that there is more leeway within the creation of the environments when made into 3D assets and then animated, as

there will be no player trying to explore the environment, trying to see how far their character can travel or if they can jump on a rock in an obscure place.

Storyboarding is a feature that is used a great deal in the pre-production phase of making animated films as it establishes the shots within the film and creates clarity for the actual production phase. This is so that the sequences within the film can flow through with lines of continuity and have cinematically chosen shots that will create the desired effect for the scene, including deciding on lighting for a shot and whether the angles would be appropriate for the scene or not (Thomas and Johnston, 1981). This gives the production phase a strong enough base to be able to function efficiently and with ease (Thomas and Johnston, 1981).

It is important to note that while storyboarding does also get used in the pre-production design phase of the producing of a video game, it is not used to the same extent that it is used and seen in the pre-production phase of filmmaking (Dunlop, 2014). This is primarily due to the fact that in video games, especially those intended to be played in first or third person (first person view is from the viewpoint of the person, third person view is shot with the players character in the foreground), the use of storyboarding is made difficult as the situation of the camera angle is often being controlled by the player and not the game. At most, the game can alter the landscape and place certain objects therein or force the player to be directed to look in a direction where an animation sequence may take place. However, there is always a chance that the player will not pick up on the hints to look somewhere and will thus miss the scene, affecting camera angles and speed of story progression. Some games do force camera angles at some points in the game; however, one will often find that this breaks the illusion of the hyper-reality for the player. Storyboarding is used mainly for establishing in game cut-scenes that are controlled by the game, where the player will make dialogue choices. Storyboarding will also be used to establish

cinematic scenes, which are pre-rendered and tend to be of a higher visual quality than actual gameplay. This is because it functions in the same way as an animated film would, as it is pre-rendered and captured (Dunlop, 2014).

3.2. CD PROJEKT RED's Approach to Pre-Production Design

The video game *The Witcher 3: Wild Hunt* was created by the Polish company CD PROJEKT RED and released to the public in 2015. The game is a role-playing open world game set in a fantasy world based on the published fantasy novels by Andrzej Sapkowski. *The Witcher 3* is the third game in the series and is based on the events that take place in the books. In the story of the third game, *Geralt* of *Rivia*, a *Witcher*, or mutant monster hunter, is looking for *Ciri*, a child from an ancient elven prophecy of elder blood and the conjunction of spheres. *The Witcher* is set in a high fantasy medieval world, surrounded by other universes, where the belief in the conjunction of spheres, where universes overlap each other and things spill into other universes, is the cause of magic and allowing other foul beasts to exist. It is up to *Geralt* of *Rivia* and *Yennefer* to find *Ciri* before the wild hunt does. As mentioned, this game is based in a high fantasy medieval setting, where many of the creatures and even cultural happenings within the world fall within Eastern European mythology. This is in contrast to the more Westernised fantasy game lore that is seen in many games. Much like the books, *The Witcher's* universe has a very dark setting where war is rampant and good things do not often just happen, only less evil things. With regards to the making of the *Witcher 3: Wild Hunt*, it is important to note that the pre-production design team went to a lot of effort in creating the visual pieces that would portray this dark fantasy setting, and to establish a competent immersive hyper-reality before the final production phase began.

It is important for the pre-production team to know the limits of their animation and visual capabilities. In the pre-production artworks for *The Witcher,* one can see that the artist opted to strive for hyperrealism/realism as the artist knew that the game engine would be able to process and create an immersive hyper-realistic game.

In the images below, one can see the effect of pre-production design. In the artwork *Battlefield* by Madej, one can see how pre-production art needs to portray the atmosphere and setting of the game early on. By doing this, we can see in the screen shots from the game that the correct mood is portrayed. The clouds and muddy landscape create a gloomy ambience that illustrates a harsh and unforgiving land; the stray dog and dead people and animals within the scene show the viewer just how desperate and dire the situation has become in this world. The overall look of this image does well in creating a window into the *Witcher* universe during a time of war. In many aspects, with the art works for *The Witcher 3,* it can be seen that the visual intent of the game is to portray a very dark theme of war, monsters, death and fantasy.

Figure 11 - Madej, M. Battlefield, The Witcher 3: Wild Hunt. CD PROJEKT RED

When looking at the screenshots and videos of gameplay from the finished game as shown in Figure 12 below, one can see how, throughout the game, much like in the pre-production images, shown in Figure 11 above, landscapes destroyed by war are depicted, with packs of diseased feral dogs often roaming the battlefields, along with monsters attracted by the decay. This is in fact a concern mentioned by *Geralt* in the game as he believes all the wars are contributing to the number of monster attacks and nests surrounding the villages. Deserters hung on trees are frequently seen near the villages to serve as a warning to others (IGN, 2014).

Figure 12 - IGN (2014) In-game screenshot - The Witcher 3: Wild Hunt. CD PROJEKT RED

As the main character of the game is *Geralt,* the monster hunter, the creatures within the game are undoubtedly one of the strongest aspects of the game. Monsters play a large role in the storyline and offer a number of side quests for the player to eradicate them. The creatures are mostly based on Eastern European myths and legends. The interesting point about this is that the design team has taken these myths into account and has tried to create creatures which are as realistic as possible, in terms of muscle structure and proportions. This can be seen in the image below in Figure 13 of the *Fiend* by Madej. The *Fiend* is a sort of demon, described in Eastern European legends as cloven-hoofed, with horns. Instead of depicting the *Fiend,* also known as a *Chort,* as a demonic human figure with animal features, the designers instead went for a more

animal like approach to the creature. It is my opinion that this is a better design as it makes the creature less relatable to the player and thus more alien. The third eye, hulking posture similar to that of a bison or hyena, as well as teeth that jut out of its mouth, creates an image of a beast that is intended to be surreal and horrid. As one can see in the image, the creature is surrounded by a mist-like environment, which portrays the possible environment the creature would live in and gives the viewer an understanding of how it would behave, very likely being a creature that stalks.

Figure 13 - Madej, M. Fiend. The Witcher 3: Wild Hunt. CD PROJEKT RED

The image in Figure 14 below, is a screenshot from a quest within the game where *Geralt* faces off against a *Fiend*. In the image one can clearly see how the environment, coupled with the creature ominously depicted in the fog, illustrates the impression of the *Fiend* creature, as seen in the concept design in the image above. I think it is important to understand that the creature on its own would most likely not be as terrifying and immersive; however, when coupled with the mist and dark forest or moor-like environments, as well as the dramatic music, the event within the game becomes terrifying and foreboding. The player quickly notices the creature in the distance and must prepare to do battle with it.

Figure 14 - (Video) Video Game Source (2015). The Witcher 3 - The Isle of Mists: Locate Ferenc (Dead) Along Coast Level 22 Fiend Fight Gameplay. The Witcher 3: Wild Hunt. CD PROJEKT RED

Character design involves many phases from early concepts to 3D modelling and texturing, see Figure 15 below. All phases are important aspects of pre-production and production, as they establish the designs for the character and prepare the production phase for animation and scripting. In the artwork below by Marek, it is interesting to see the number of designs that are created for non-player characters. One can see how a number of designs are approached and refined in order to create an appropriate visual idea of what will be created for animating. If one looks at the designs of the armour and clothing, one can see that it has been designed to appear functional and even historically accurate within the context of realistic eastern European medieval armour, suggesting that such armour would be wearable; this is an important aspect of character and creature design as the designs need to be realistic as well as able to support the animation capabilities of the animation and game engine software.

Figure 15 - Marek, J. Early Concept Art. The Witcher 3: Wild Hunt. CD PROJEKT RED

In the 3D models by Blaszczak in Figure 16 below, one can see how realistic armour designs are converted into 3D models. By paying attention to minor details, simple yet authentic designs are translated into a characters' costume that is convincing. If the characters, creatures and environments are believable in their designs and proportions, this increases the games immersive character, thus making the game more compelling for the player. In the image one can see how the shoulder guards and knee guards stay in place on the characters' bodies, which illustrates that functionality was considered in the design; this is unlike some older games such as *World of Warcraft* where proportions are dramatically over emphasised to unrealistic proportions. The realistic proportions, as well as the unique designs, add to the appeal of the game characters' outfits.

Figure 16 - Blaszczak, M. (2016) Ciri-DLC. The Witcher III - non-player characters outfits. The Witcher 3: Wild Hunt. CD PROJECT RED

3.3. Game Engines and Tools in the Pursuit of Hyper-Reality

The *Witcher* series has always been known to push the capabilities of PCs and *The Witcher 3: Wild Hunt* is no exception. Much like the designers of *DOOM* who created their own programs to produce their games, so too did CD Projekt RED, with the creation of their own game engine known as REDengine in the first and second game's. They then revamped it and created REDengine 3. CD Projekt RED used REDengine 3 as its game engine for the creation of *The Witcher 3: Wild Hunt* as it was specially created for that purpose.

A game engine is created specifically with the purpose of making games. The game engine will have the 'Main Game Program'. This is the games actual core, which is where algorithms will be used to create the games logic (PC Gamer, 2015). The game engine will also handle rendering within the game and includes both 2D and 3D graphics. This requires a 'rendering engine'. This engine will render animations by various methods which are often specific to the game engine. The type of rendering methods will affect details such as visual authenticity or how the game will render in-game, as in its frames per second feature. Some

engines will choose frames per second whereas others will choose visual power over frames per second; this is often determined by the game company itself. Game engines will also typically have a physics engine, which is responsible for the laws of physics demonstrated within video games. The physics engine will determine how the games environment will react to forces within the game, for example how a character will fall and what the impact will be on the ground and on the character itself (PC Gamer, 2015). In some cases, there will also be a form of video editing support within a game engine, specifically for games that are heavy on cinematic cut-scenes. Along with these engines, there is also an AI engine. The AI engine is usually added onto the main game through the software. REDengine was made for the purpose of creating an immersive game as stated by CD Projekt RED.

> ...next-gen-ready solution that begins to blur the line between pre-rendered CGI movies and real time rendered graphics, bringing us closer to the most life-like world ever created in video games. All the state-of-the-art visuals form a living ecosystem allowing the player to be a part of a vivid environment. The new face and body-animation systems implemented in REDengine 3 offer realistic expression of emotions, movie-quality scenes and character interactions (Gallegons, IGN, 2013)

As previously mentioned, REDengine 3 was designed for *The Witcher 3*. It was designed to process non-linear gameplay for a storyline with more the than thirty different endings. It was made to handle more complex animations, better visual effects and an overall more impressive and immersive visual game which is critical to the success of any hyperrealist immersion. The intent was to be able to create an open world game that is immersive and enthralling, drawing the

player into the world of the game and compelling them to believe in the hyper-reality for the length of time that they choose to do so.

GameWorks was also used in the creation of the game *The Witcher 3*. GameWorks is a game engine created by NVIDIA to process graphics at high quality. GameWorks renders and controls various aspects of the game visually. It should be noted that while NVIDIA's engine does improve the graphics, it unfortunately reduces frame rate. Due to this, a player can select whether aspects like HairWorks (see following paragraph for more in-depth detail) will be active and to what extent it will work. Within GameWorks, PhysX was used in the creation of the game. PhysX effects can be seen throughout the entire game; it is a physics engine that ensures items such as clothing and ships sails move realistically during the game (PC Gamer, 2015). PhysX was also used to create the physics for the more destructive aspects of the game, for example the way in which items break on impact, and how the force of the impact would project or throw the object.

HairWorks is an aspect from GameWorks that is heavily implemented in the game. HairWorks is a unique tool as it makes the hair on the characters and creatures within the game seem more true-to-life. It allows for hair to be rendered within its engine in a more realistic manner. The hair on characters and creatures will then react based on movement and gravity. However, it should be noted that while this aspect of the game engine improves realism, it unfortunately slows the frames per second feature of most computers as it requires more processing power to render all aspects of the visual features of the hair (PC Gamer, 2015). One can see the impact that HairWorks has visually on the *Griffin,* depicted in Figure 17 below, from the film *The Witcher 3: Wild Hunt*, NVIDIA GameWorks Video by NVIDIA.

Figure 17 - NVIDIA (2015) The Witcher 3: Wild Hunt. NVIDIA GameWorks video

Within pre-production design in the video game industry, artists use many tools to create the visual artworks, with each video game company having a preference for specific art programs. The artists in the pre-production design team must be skilled at communicating ideas and work quickly to narrow down the ideas of the intended project so that a final idea for the project is decided on visually. To do this, artists need to be proficient in a number of artistic media. Most artists are able to use both traditional and digital media as both media are generally taught in the majority of educational art programs. Added to this is the fact that traditional media is more readily accessible to the learning artist (Tsai, 2008).

It is extremely important to note that while Zbrush, Maya and Adobe Photoshop are all excellent products that have been widely accepted as the industry standard for many years, a commercial license be must be obtained if a company intends to make money from any video games it develops. To use each of these programs becomes costly for any business, and new start-up businesses especially, may find the costs prohibitive. I therefore believe it is important to also explore what free software options are available that are able to compete with the standard

that has been set for video game development. There are three valuable free open source program's that I have explored that I believe have begun to compete with Zbrush, Adobe Photoshop and Maya with regards to their capabilities in creating strong artworks, rendering and user support. The open source program Blender has fast become a contender against Zbrush for its 3D model sculpting capabilities, as well as 2D and 3D animation and rendering capabilities. Krita is an illustration and digital painting-based software that is free for all to use. It is comparable to Adobe Photoshop in many ways, especially in its ability to create concept art, matte paintings and other forms of digital illustration which can be seen in pre-production design. Finally, there is Gimp. Gimp is another free software program that has been made available for users to create art; however, this program, unlike Krita, is better suited to working with image composition and works exceptionally well when used to create photo manipulated images.

Zbrush is highly regarded as one of the best 3D sculpting programs currently in use (EDUCBA, 2019). With an easy to understand system, users can, with little difficulty, get accustomed to how the programs User Interface and mechanics work. Zbrush also has its own built in rendering system and has been developed to work with Adobe Photoshop and Maya. This suggests that the use of these three programs together would mean a streamlined pipeline in terms of exporting from one program to another. Its ability to re-topologise (topology is the formation of grid like shapes, known as faces that are arranged in loops, also known as edge loops to create 3D models) easily is also a great asset in its software as it means that prepping assets and models for animation can be done quickly, re-topologising is typically done to re-organise they layout of the topology so that it is better suited to what it is needed for e.g. Animation. This is a feature that Blender has however it is constantly being updated, most

recently in the 2.81 update. The sculpting tools, voxel and quad remesher where some of the key updates.

Adobe Photoshop is a powerful software program that enables the user to create and develop a multitude of artworks. Adobe Photoshop has a large range of uses, ranging from photo-editing and photo manipulation to illustration and digital painting. It is an effective program that allows the user to import 3D renders and design texture maps. Its ability to edit imagery and allow for the creation of illustrations is however its main attraction. It has a balanced build that allows for both purposes; however, if one was to use free software, one would need to use a combination of both Krita and Gimp to achieve the same functionality. Krita is a free and open source software program that can act as either an illustrative or digital painting program. The program was designed with the intention of being used for creating concept art, illustrations and paintings. Due to this, it should be noted that its brush development and overall brush function system is one of its most compelling features. One is easily able to create a character design that mimics watercolour or oil paint. When compared to Adobe Photoshop's illustrative and painting system, it can be seen that Krita has a larger range of brush mechanics and could be better suited for the creation of characters, especially when painting conceptual illustrations. One could use a combination of Gimp and Krita to replace Adobe Photoshop. As mentioned before, Blender is also free and open source software. Blender can do many things and, if need be, can be used in place of Maya and Zbrush. This is because Blender was developed to be able to cater to many aspects of the pipeline production seen in both animation and video games. Blender can competently support the development of simulations, animation in both 3D and 2D, rigging models with armatures, 3D sculpting and modelling with a very fluid User Interface that is comparably similar to Zbrush; however, the brush mechanics within the

sculpting work slightly differently. Motion tracking software within Blender makes it possible to use motion capturing to create realistic animations. The program's software also enables artists to do compositing and rendering. The fact that it is free for both personal and commercial use, makes it a great option for start-up businesses. The fact that the program has become so advanced that it can compete alongside Maya and Zbrush means that it is a perfect alternative even for larger and more established companies that have sizeable budgets.

Gimp is a free art program that is also open source like Blender and Krita. It is a program that has been developed for the creation of artworks and is specifically known for being both an image manipulation program (Gimp, 2019) and for the tools it provides for photo retouching (photo editing e.g. Colour correction where you alter the saturation of image). It should also be noted that it is possible to do digital illustrations with the tools provided in Gimp; however, a comparison between Gimp and Krita, shows that Krita out-performs Gimp in terms of brush capabilities and overall painting and layer-based tools. Due to this, the best use of Gimp would be in the earliest part of the pre-production phase where the visual tone of a project is still being established. This program would work well to create concept art created from image bashing, also known as matte painting, this is where images or photos are merged together, and effects and brush strokes are added to create a quick illustration that should portray the tone or mood that the project is trying to establish. An example of a matte painting can be seen in Figure 11 one can see the use of both photos and digital painting overlaying to create the image. To sum up, Maya, Zbrush and Adobe Photoshop are remarkable products that offer a large amount of range and capabilities for creating art. Due to cost implications however, they are best suited to an established company with a large budget as each program does incur a cost that many start-ups or small companies simply cannot afford.

Programs such as Adobe Photoshop and CorelDraw are used during the early stages of conceptualization in the pre-production stage. The use of these programs enables the artist to create mood boards and rough concept designs for character designs, creature designs and environmental designs as well as user interface designs. As immersion within a game world is the primary goal for video game companies, artworks need to be as hyper-real as possible (Dunlop, 2014).

What makes this digital platform so useful is that it allows for the artist to work quickly. The artist is able to use multiple layers and re-edit artworks constantly; this means that the artist has the freedom to work fast without concern as any possible errors can be reversed. As the process of creating a visual narrative for the game develops, the designs will become more established and detailed. The artists will then begin to focus their efforts on narrowing down the designs of the game, improving on them and altering them until they eventually portray the most accurate intended visual form of what the video game should represent once the production of the game is completed. For the practical component of my thesis, I will be using Adobe Photoshop to create characters, creatures and environment designs.

ZBrush and Mudbox are used to create 3D models of characters, creatures and environments. ZBrush and Mudbox are used for both concept design as well as final models that will later be rigged and then animated and rendered in programs such as Maya and the 3rd party plugin RenderMan. It is important to note that ZBrush is able to create models with a very high polygon count, which means more detail. ZBrush can be seen as the digital form of a clay model that would be created during the pre-production phase, in the same way that clay creatures were created in the pre-production phase of *DOOM* in 1996.

ZBrush is mainly used to create high polygon count models of the characters, creatures and environmental objects. Similar to the artworks created in Adobe Photoshop, ZBrush is used to explore concepts and ideas for said models (Digital Masters, 2012). The reason why these programs are used within the video game industry is because they are specialized for conceptual design and are designed to be user-friendly thus allowing the artists to work fast and efficiently. It should also be noted that these programs are able to plug-in with other art programs such as Maya so that the models can be exported, consequently enabling the artists that work within Maya to rig and begin to animate the models; from here the animated and designed models can be taken to the game engine.

Maya is a program that has far more abilities than ZBrush as it is able to animate, create and render sequences. It is however not as capable as ZBrush when considering modelling a character or object as it is not made for the more artistic conceptual creations that ZBrush has been designed to create. For this reason, artists will often create the characters and other 3D objects in ZBrush and then export them to Maya where they will then be rigged in a low polygon form state and masked with a high polygon texture (Digital Masters, 2012). Due to the push for hyper-reality, technological advances have been made with artistic programs. We now have programs that act as tools to make art more efficient and user friendly. The artists involved with a project are often required to have good knowledge of environments, anatomy and colour theory as well as design skills. Artists will often specialize in a specific field within the pre-production design field. For example, an artist may specialize in creature design, with a skill set focusing on 2D designs in Adobe Photoshop or CorelDraw (Tonge, 2008). Having artists specializing in fields within pre-production design allows the team to manage resources more efficiently, as the team will know who is capable of doing what and to what level they are proficient in their field.

However, it should be noted that while traditional artworks are still seen in the pre-production phase, it is occurring far less in the process of pre-production design. This is due to the far more efficient capabilities of digital media such as Adobe Photoshop and ZBrush, which enable the user to create artworks in a matter of minutes. These programs also allow them to re-edit their artworks, unlike most traditional media, for example watercolour paintings, where it is far harder to edit (Digital Masters, 2012). There are however still some companies that utilize traditional media as a way to establish some idea of where the visual direction of the game will go. The use of 3D modelling and animation programs are readily used by video game companies as they have proved to be an efficient method of creating the animations that are needed for the games. 3D programs are able to create many of the visual aspects of the game that will then be implemented into a game engine and put into motion through coding (NVIDIA, 2015). As mentioned beforehand, the rendering capabilities of the games' engines used in the production of a game will affect what the video game company is capable of doing both graphically and in gameplay.

Because of this, each video game company will have specific art styles and ideas on what should be achieved visually. For the practical component of my thesis I have explored pre-production design with the intent of creating a hyper-realistic immersive game and my artworks will therefore focus on capturing hyper-reality, much like that seen in the pre-production artworks from *The Witcher 3: Wild Hunt* and *Horizon Zero Dawn*. This will allow me to create complex artworks, thus exploring the notion of hyper-reality and the impact it makes on design. We see how the creation of pre-production artworks can directly influence the production and post-production process. The clarity and depth of these designs improve the overall success in creating a video game that has hyperrealism as a driven concept within the visual narrative.

CHAPTER 4

PRACTICAL APPLICATION OF HYPERREALISM GOALS WITHIN A VIDEO GAME

4.1. Wizards of the Coast and *The Tyranny of Dragons* - How Would This Work as a Video Game Focusing on Hyper-reality?

For the practical conclusion to my thesis I have been given permission by Wizards of the Coast, the publishers of *Dungeons and Dragons*, to use their storylines and characters for my practical component. *Dungeons and Dragons* was first published by Wizards of the Coast in 1997, although the game has existed since 1974. *Dungeons and Dragons* is recognised as one of the earliest of role-playing games (Williams, Hendricks and Winkler, 2006). It is because of this that I have chosen to do my practical based on one of their campaigns.

Dungeons and Dragons is a table-top verbal role-playing game where a group of people create characters and play through a campaign, or story, created by either the official creators of *Dungeons and Dragons* or their own Homebrew. A Homebrew is where somebody creates their own story with some of their own rules, lore and races; however, they are usually based off how *Dungeons and Dragons* functions on a basic level, the Dungeon Master needs to be well aware of the games rules as it is needed to ensure that the game remains balanced and fair for all players in the game. For the purpose of the practical I have chosen to use an official campaign from Wizards of the Coast. In *Dungeons and Dragons* there would be a Dungeon Master and then the players participating in the game, on average three to four players in a campaign. It is however up to the Dungeon Master to decide how many players can join the game as it becomes more difficult to maintain an immersive story that is reactive to an increasing number of players.

The Dungeon Master is essentially the person in charge. They tell the story, voice non-player characters and control what the non-player characters and monsters will do. The players create their own characters that will then play in the storyline as the heroes or even the villains of the tale. The game allows for a lot of personal freedom as the character/player can choose to do what they desire in the game, with the Dungeon Master deciding whether it is permissible or not and pushing them to continue along with the storyline. The Dungeon Master plays a key role in maintaining and establishing a fun world for the players to immerse themselves in. This guidance is often required to stop the game from becoming ridiculous or over the top (Baur and Winter, 2014).

To recreate this adaptive gameplay in a video game from a technical aspect, the game would need to be based in non-linear gameplay. One would allow the players with agency make choices and create a reputation system that would be affected by what they do; this will thus affect how non-player characters would react to the player or players. This also means that a powerful AI system would be needed as the non-player characters would need to be able to react to certain things; for example, the non-player characters would need to react to the player appropriately if the player, for example, either stole from them or helped them. Side quests would also enrich the world of the game.

For the game to be visually hyper-realistic, the graphics would need to be hyper-real, similar to *Horizon Zero Dawn* which was made hyper-realistic by making everything as visually perfect as a nature documentary. For this to be possible, the game would need to run on a powerful game engine. For the purpose of the study I have created my practical component illustrating the characters, creatures and environments as though they were going to be hyper-realistic. With the designing of the game world it is also important for believability to be

considered as the hyperreal immersion of the game would be broken if the player were to encounter something that seemed improbable.

4.2. Aspects of Gameplay

Dungeons and Dragons has always been a game that was intended for a group of people to play. The story line *Hoard of the Dragon Queen* has been created with the intent that there will generally be four players; however, it is possible for up to seven players to take part in the storyline. The campaign has been built for players to create new characters that start at level one (Baur and Winter, 2014). The reason why this is important to note is that the part of creating a hyper-realistic video game that creates an effective simulation of another reality, requires the player to become emotionally invested in the game. As the table-top game allows for multiple players, this should be carried through into a video game version of the story too as allowing the player to play with friends will encourage them to become invested in the game from a social dynamic, thus making the behaviour of the game more of a successful hyper-reality.

For the practical aspect of the study I have chosen the *Tyranny of Dragons* expansion of the *Dungeons and Dragons* series. I will be using the *Hoard of the Dragon* campaign. This storyline is set in the 5th edition of the *Dungeons and Dragons* franchise and was the first official campaign to be released for the 5th edition. It should be noted that official designs have been made for many of the creatures and characters, however they were made for the table-top verbal variation of the game and thus some of the designs are not believable if taken into a video game. For this part of the study I will be recreating and producing the pre-production designs of the characters and creatures to be encountered, as though for the production of a video game. The goal will be to create an immersive hyper-realistic game.

From the first images onwards, I will focus on creating the correct mood through rough visual narrative. This will simulate the possible artworks that would be created during the development phase and will help establish a starting point for the exploration of character and creature designs as well as the overall concept of the game. This affects what characters and possibilities will be created for the story. For the game itself, the player would be able to pick the race and class of their character. For the pre-production phase of this concept, I will create examples of races with the basic clothing that the character will wear at the start of the game. This clothing will be based on the chosen class. I will also create some of the main non-player characters, which are characters that are controlled by the computer through a basic AI system that the player would interact with. I have finalized the designs for the non-player characters, player characters, environments and creatures, amongst others, *Kobolds, Guard Drakes, Half-Dragons, Langdedrosa Cyanwrath, Governor Nighthill* and a basic underground environment. I have chosen to use Adobe Photoshop as this program is commonly used in the video game industry.

The storyline of *Hoard of the Dragon Queen* is the first campaign within the *Tyranny of Dragons* expansion. The story of *Tyranny of Dragons* is set in the forgotten realms on Faerûn's Western shore known as the Sword Coast. In this realm the *Cult of the Dragon* has been active for many centuries, obsessed with making undead dragons to fulfil a prophecy; however, the new leader of the *Cult of the Dragon*, *Severin*, believes that it is through living dragons that the prophecy will be fulfilled. The cult intends to release *Tiamat* from her confinement in the Nine Hells and secure a treasure hoard worthy of her. *Tiamat* is a five headed dragon deity that represents each chromatic dragon. *Severin* has learnt that there are five dragon masks in existence, one representing each chromatic dragon, these being red, blue, green black and white.

The wearer of each mask is granted the ability to communicate and influence the dragon's behaviour. However, *Tiamat* guided *Severin* to the truth about the masks, which is that when they are all brought together, they will merge and become the mask of the *Dragon Queen*. Through the use of this mask, the *Cult* would be able to free *Tiamat* (Baur and Winter, 2014).

The campaign *Hoard of the Dragon Queen* takes place during the time when the *Cult of the Dragon* is still looking for all of the masks to free *Tiamat* and to raid and collect a treasure hoard for her. The players' story begins in a town that is being attacked by a dragon and its allies. The player must try and save the town, but whilst saving the town a scholar is kidnapped. The players will have to rescue the scholar, and while doing so they learn that the *Cult of the Dragon* is behind the kidnapping and that there is a subterranean dragon hatchery that the *Cult* protects (Baur and Winter, 2014). This gives the players the opportunity to destroy this hatchery and foil part of the *Cult of the Dragon's* plans. The storyline is presented in three episodes. This is a feature that could be used in the game to represent that the story is progressing in time, much like a book does with chapters.

4.2.1. Episode 1

The game will start in the town of Greenest. The players in the story will be approaching Greenest where they will see an adult blue dragon attacking the town with a group of its allies from the *Cult of the Dragon*. The cultists are in search of treasure that they will present to *Tiamat* when she is released from her prison. In the town there is a scholar named *Leosin Erlanthar* who has discovered that the *Cult of the Dragon* is possibly involved in something much bigger than raiding. During the chaos of the raid, *Leosin* attempts to infiltrate the cult to learn more; however, he is discovered and captured. The players will then have an opportunity to help save the town and rescue the captured scholar (Baur and Winter, 2014).

In the first episode the players will be guided by the governor of the town, *Governor Nighthill*. *Nighthill* will familiarise the players with what is happening so as to introduce them to the game. He believes that the raiders do not want to take over the town, but merely want to steal everything, and he asks the players for their help to rescue the missing scholar and save the town. In the town they will have to save townsfolk in various missions by fighting *Kobolds, Winged Kobolds, Ambush Drakes, Acolytes, Guards, Cultists* and a swarm of rats. The players will have opportunities to make choices on how to proceed with missions, making the game more interactive. They may pick locks, steal, help, save and more. In the missions they will encounter an ally called *Castellan Escobert the Red* who is a shield dwarf; the dwarf will provide information for missions and have keys to unlock certain areas for missions. Towards the end of episode one they will have to try to defend the town from the blue dragon that is swooping in and destroying the town each time it flies by. The player cannot kill this dragon as it is too powerful, but they will be able chase it away once they have injured it enough. The players will see a glimpse of *Frulam Mondath*, one of the main villains, during the raid. Before the raiders leave the town, the characters will see and be challenged by a *Half Dragon* known as *Langdedrosa Cyanwrath* who has taken hostages. The players will be able to accept or refuse the challenge. By choosing to fight *Cyanwrath*, the players could either be killed or they could possibly wound or even kill the creature. If any hostages die, or any foul deeds are dealt by the player, their reputation from Greenest will decrease and *Nighthill* will eventually stop helping them (Baur and Winter, 2014). At the end of episode one *Nighthill* will ask the players to rescue the missing scholar and get information on the raiders camp.

4.2.2. Episode 2

In episode two the players will search for the raiders camp on behalf of *Nighthill* as he offers them a reward for finding out information on the raiders. As they leave Greenest, the players will encounter a monk named *Nesim Waladra* who will tell them about the scholar named *Leosin* who has gone missing. The monk asks if they can find out where the scholar is being kept captive in the camp and attempt to rescue him. This will give the characters/players their quests for episode two. The players will need to track down the raiders camp, encountering straggling raiders along the way. During these encounters the players may try and get information from a *Kobold* that has surrendered and try to learn the location of the camp. The players' statistic score will affect whether this is successful or not (this would be if they have a high charisma score) (Baur and Winter, 2014).

Based on the information given by the *Kobold*, the characters will be able to figure out where the camp is located and will have gained knowledge about ambushes and other smaller raiding groups. In these raiding groups they will encounter *Kobolds* and *Cultists* (Baur and Winter, 2014). When they reach the campsite, the players will see the campsite has many caves around it as well as guard towers. In the campsite the players will see several prisoners, but not *Leosin*. The players may attempt to free the prisoners who are guarded by *Dragonclaws*. The players can try to sneak, fight or use disguises to get through the camp but even if they are successful in infiltrating the camp, they will encounter high level foes that may possibly see through their disguises. If the players are captured, they will wake up in shackles next to *Leosin*. While searching the campsite, they will learn more about what is going on, for instance that there are dragon eggs that will hatch in the caves. They will learn that the caves are off limits to all except the highest-ranking members, who intend to control these dragons when they hatch. They

will also find out that *Leosin,* the scholar and monk, is being kept at the back of the camp and is being questioned as to why he knows so much about the *Cult* and its activities. The players will then be able to attempt to rescue him in a number of ways and, if successful, they will escape back to Greenest for their rewards. Episode two will end with *Leosin* asking the players to go back to the raiders camp to investigate what is happening in the caves, and to find out if there is any sign of the *Cult* preparing for another attack.

4.2.3. Episode 3

Episode three will begin with the players travelling back to the camp only to find it mostly abandoned. The players will see that there are only a few hunters and guards left taking care of the hatchery, as well as *Cyanwrath* and *Frulam Mondath* together with her guards. The majority of the enemies are around the caves which will give a hint to the players as to where they should go. The players may once again attempt to sneak, fight or disguise themselves to get into the caves. Once they enter the caves, the players will go through many passages and rooms where they will encounter various monsters such as *Kobolds, Winged Kobolds, Ambush Drakes, Guard Drakes, Ropers, Stirges, Dragonclaws* and giant lizards. Throughout the caves the characters will be tested with traps and encounters that can be handled in numerous ways. There will be secret passes as well as treasure which the players have a chance to find if they want to. The players will enter the dragon hatchery inside the cave where there will be dragon eggs that are protected by a *Roper, Kobolds* and *Drakes* (Baur and Winter, 2014). The players can choose whether to leave the eggs alone or destroy them. The players will then continue onward in the caves where they find a *Mondath* and *Cyanwrath*. If the camp has been alerted, these two foes will either flee or attack the players accompanied by guards in the area. In the cave area where this occurs, the hoard of treasure that the *Cult* has stolen from Greenest can be found. This is the

final stage of the game, where the killing of the cult members and the destroying of the eggs, whilst recovering the stolen treasure, will deal a serious blow to the *Cult of the Dragon*. From this point the game would end and hint towards the continuation of the *Tyranny of Dragons* campaign with the *Rise of Tiamat* (Baur and Winter, 2014).

4.3. The Main Characters

For the creation of the main characters the player would be allowed to choose from seven different races and a wide array of classes. The races that can be chosen from are *Human, Halfling, Gnome, Dwarf, Half-Elf, Elf, Tiefling* and *Half-Orc*. In the images further on in this chapter, one can see how I have explored the designs of each race based on the lore given in the *Dungeons and Dragons* series. In the game of *Dungeons and Dragons,* players will often give their characters back stories, whereas in the *Hoard of the Dragon Queen,* generic background stories have been pre-generated. For the purpose of placing this campaign into a video game, it would be best that all players have the following chosen background.

> 3. Every five nights, you have a strange sequence of apocalyptic dreams. The world is destroyed by cold, choking fumes, lightning storms, waves of acid, and horrible fire. Each time, the dream ends with ten evil eyes glaring at you from the darkness. You feel a strange compulsion to travel to Greenest. Perhaps the answer to the riddle of your dreams awaits you there" (Baur and Winter, 2014).

The reason for this is that allowing the player to choose from certain backgrounds available would possibly create conflicting behaviours and abilities, especially if more than one person were to choose the same background. Background number 3, as shown above, would

have the least amount of lore and storyline conflict as one could simply state that the heroes of the tale are all bound together by fate. Below one can see the exploration of the possible races that the players may choose from. To narrow down the costume design of each character for the start of the game, I have organised that the class chosen for the character will decide the armour or clothing that the character will start out with. I have created three main categories - heavy armour, medium armour and light armour. These are shown in my Original artwork 1 further on in this chapter.

I decided on reasonably simple looking armour as this armour would be early level armour that is not entirely efficient. The one item that can be seen throughout the designs of all the class outfits is the satchel. This is something that all the party players will have and therefore making them generic would be the best option. The robes on the left-hand side are designed to be the light cloth armour that would be used by the character that has chosen the class of a wizard, warlock or sorcerer. This is because these classes do not get involved in close combat and would stay away from the fight area to do long ranged attacks and heal and support the other members of the party in general. To improve the variety of the designs, players could select the colour of the robe. The two middle outfits are for the medium armour classes these being hunters, rogues, druids and clerics. Clerics are one of the few classes that can benefit from either medium or heavy armour. It can be seen from the illustrations that there are leather guards all over and the design was made to be as form fitting as possible; this was to emphasize the agility based classes such as the hunter and rogue where the character will move in and out of the combat area. This leather outfit would come in various colours. Finally, on the right-hand side of the image we see the heavy armour designs. For these designs I chose to keep the shapes of the design as neutral as possible. This armour would come in various metallic colours with warriors, paladins and clerics

being the classes that would mainly use this armour. As shown, the metal parts of the armour cover the majority of the body, as the players wearing this armour would be in close combat and possibly suffer the most amount of damage. These players are often referred to as 'tanks'. As one can see, the main focus with the creation of these armour designs was to create something generic and yet be effective for the class that would wear it. When creating this original artwork, I chose to use the same base model designs throughout the designing process. This can very obviously be seen when looking at the model's postures in each variation of armour. By using the same base model, design time decreases as I did not need to redraw the base of the character each time. In Figure 15 (Marek, J. Early Concept Art. The Witcher 3: Wild Hunt. CD PROJEKT RED) one can see that the same technique has been used in a professional setting. This technique is frequently used because it is extremely efficient which is why it is the technique that I employed for the majority of my character and creature designs.

Original artwork 1 - Simone Beneke. Generic armour design. Adobe Photoshop, 2018

4.3.1. Humans

The *Humans* are one of the most common of the humanoid species in the Sword Coast and very diverse in many aspects. *Humans* are adaptable and due to this they have spread throughout the Sword Coast. In appearance, an adult *Human's* average height is between one and

a half to two metres tall. Skin tones can vary from pale to nearly black with hair colours varying from black to blond and the men can grow facial hair. Many *Humans* have some non-human blood and hints of other races may also possibly be visible in them. Due to the widespread nature of the *Humans*, they have many cultures and preserve their traditions through the ages. The race of *Humans* is in general an accepting people and they welcome other species into their towns (Baur and Winter, 2014).

4.3.2. Halflings

The *Halflings* are a small humanoid people that either live in agricultural communities or travel in large groups. These peaceful fun-loving people are concerned with the comforts of home and appreciate good food. On average this race is rather short, standing in the region of 91cm in height. Generally, *Halflings* have tan to pale skin, brown wavy hair and brown eyes. *Halfling* men often have long sideburns and beards, but moustaches are very rarely seen. These people are a practical people and so they wear simple yet bright clothing. Even with their bright clothing the *Halflings* are renowned for being some of the stealthiest characters and find it easy to avoid detection.

4.3.3. Gnomes

Gnomes are an exuberant and happy humanoid race that make their home in the hills and underground, keeping their homes hidden through illusions and smart building plans. *Gnomes* stand around the same height as *Halflings*. This excitable race is very flamboyant and have their hair in many wacky and wild hair styles (Baur and Winter, 2014). *Gnomes* are extremely friendly and love nothing more than to invite people over to visit. The *Gnomes* are a clever race and many of them become tinkers, sages, engineers and gem cutters. In appearance the *Gnomes* often

have tan or brown skin tones and fair hair. Compared to their hairstyles, the beards of male gnomes are very well kept.

4.3.4. Dwarves

Dwarves are a humanoid race known for being industrious in the field of mining and being great warriors. They count among their race some of the finest metal and stone craftsmen. *Dwarves* are a very proud and fierce people that are stubborn and loyal to a fault. They are naturally distrustful of *Elves, Halflings* and *Humans* and particularly hate *Orcs*. This is due to the many wars that have been fought. *Dwarves* are described as short yet broad in stature, weighing about the same as a *Human*. Adult *Dwarves* are generally shorter than *Humans*, with an average height of around one and a half meters tall (Baur and Winter, 2014). *Dwarves* tend to have skin tones ranging from warm deep browns to pale with a hint of red in them. The most common hair colours are black, grey and brown and occasionally red. They will often have their hair in simple hairstyles and male *Dwarves* are immensely proud of their beards, often styling and taking great care of them.

In my Original artwork 2 below, it can be seen that I decided that the *Dwarves, Humans, Gnomes* and *Halflings* would share the same facial designs as they have no extreme physical differences other than body types and hairstyles. With regards to all the facial structures of each of the races, I have used three different faces for each gender. This will reduce the amount of modelling needed and when combined with the choice of different hairstyles, gender, race, class, skin tones, scars, horns and jewellery, allows for a substantial range of customisation. When creating these character player races, I started by painting a greyscale illustration Then using various layers such as the overlay layer, colour layer and saturation layers, I was able to add colour, lighting effects and many other effects on the new layer above the greyscale image. By

slowly adding these colours and effects, there was no risk of altering the greyscale painting which allowed colours to be introduced in a realistic fashion. A traditional art comparison would be adding a transparent sheet over a greyscale painting, then painting your colours onto the transparent sheet. The colour would be visibly present but would not be on the actual greyscale image. Doing this allows you to protect the original design, and it also allows for experimentation with colours and lighting without damaging the original design. This is shown in each of the race illustrations that I have made (see Original artworks 2, 3, 4 and 5). All of the faces originate from one greyscale illustration. However, by using the available brushes and layer tools in Adobe Photoshop I was able to create a large variation of races by tweaking the facial structures slightly, altering hair styles and colours, adding horns or changing skin tones.

Original artwork 2 - Simone Beneke. Humans, Dwarves and Gnomes. Adobe Photoshop, 2018

4.3.5. Half-Elves

As one would expect, the *Half-Elves* are half elf and half human. *Half-Elves* are described as having a taller yet slimmer frame than *Humans* who are bulkier and have less pointed ears than *Elves*. Unlike *Elves*, *Half-Elf* men can grow beards and will sometimes sport beards to hide their ancestry. *Half-Elves* will mostly have the eyes of the elven parent. Due to being half human and half elf they are readily accepted amongst both *Humans* and *Elves*. Because *Half-Elves* are neither completely *Human* nor *Elf*, they are stuck between two cultures. *Half-Elves* tend to feel lost in their identity and will prefer the company of other *Half-Elves*

looking for understanding and support. *Half-Elves* will dress in the style of the people they most identify with (Baur and Winter, 2014).

4.3.6. Elves

As can be seen in my Original artwork 3 below, I have used the same basic facial structure for *Elves* and *Half-Elves* as differences such as ears and nose length would be minimal. In terms of production pipeline, this will also speed up the production time line as only minimal adjustments need to be made to the 3D models. In terms of physical bodies, the *Elves* are known for being tall, slender and graceful. They are a mysterious race of humanoids that live in places of beauty such as ancient forests and silver spires. They are known for their love of the finer things in life and prize things of beauty, such as fine simple clothing with bright colours, jewellery, music, the arts and the many other things that one would deem as good. Both male and female *Elves* stand just over 1.8 meters tall and have refined features with pointed ears. Although there are exceptions, most *Elves* have skin tones in varying shades of copper, bronze and bluish whites. Their hair is blue or green and they have eyes that are either gold or silver. *Elves* tend to be nimble and quick, are skilled in magic and long-lived. Because of their lifespan, *Elves* tend to pursue skills that require finesse, talent and patience. Most *Elves* are trained in either magic, archery, sword fighting or strategy.

Within the *Elf* race there are sub-species and within these sub-species there are differences in appearances. High *Elves* such as the *Sun-High-Elves* are masters of magic and tend to have bronze skin and hair that is copper, golden blond or black in colour with eyes of silver, gold or black. The *Moon-High-Elves* are much fairer in skin tone with tints of blue and they have hair that is black, blue or white with blue or green eyes.

Wood-Elves are masters of the wild and are inclined to live in forests. *Wood-Elves* tend to have coppery skin tones with hints of green; their hair is often black or brown and they have green, hazel or brown eyes.

The *Dark-Elves*, also known as the *Drow*, are masters of crossbows, magic and combat. The *Dark-Elves* have dark skin that is similar to the colour of obsidian and they have white or pale blonde hair, with eyes that are variations of lavender, silver, red, blue and pink (Baur and Winter, 2014).

Original artwork 3 - Simone Beneke. Half-elves and Elves. Adobe Photoshop, 2018

4.3.7. Tieflings

The *Tieflings* as shown in my Original artwork 4 below, are a humanoid race that made deals with demons. They were originally *Human* but their dealings with demons to gain power corrupted their bloodline with demons' blood. This changed the physical features of the *Tiefling* showing their 'infernal' heritage. Many *Tieflings* will have horns protruding from their foreheads, which come in many shapes and sizes. They also have tails that can be either long or short. The *Tiefling* people have sharp teeth and their eyes have a solid colour instead of a visible pupil, with a range of eye colours from black, red, silver white and gold. Their skin tones may vary from normal human skin tones to shades of red. Their hair colours range from black, blue and purple to red. Due to their appearance and demon reputation, the *Tiefling* people are feared and distrusted, making them nervous and suspicious of other races. They have no homeland and

because of their people being unwanted, they often travel and wander the land. They learn to trust gradually as they have needed to become strong to survive, often resorting to becoming thieves and crime lords.

Original artwork 4 - Simone Beneke. Tieflings. Adobe Photoshop, 2018

4.3.8. Half-Orcs

The *Half-Orc* race, illustrated in Original artwork 5 below, is a humanoid race that is of a mixed heritage, being half orc and half human. *Half-Orcs* are larger and more aggressive than their *Human* brethren who are calmer and smaller; because of this, *Half-Orcs* are often able to rise up in the ranks of *Orc* tribes as they tend to be more charismatic than full blood *Orcs* (Baur and Winter, 2014). *Half-Orcs* however have a harder time joining *Human* society due to their aggressive nature. The *Half-Orc* race excels at warfare and enjoys battle and they will often become warriors and barbarians that strive for adventure. On average these people have a large build, standing at two meters in height with very muscular bodies. They will often have grey skin and jutting jaws with large teeth showing their *Orc* heritage. Depending on where the *Half-Orc* was raised, and from which *Orc* tribe they originated, they will have many tribal scars marking their bodies.

Original artwork 5 - Simone Beneke. Half-orcs. Adobe Photoshop, 2018

4.4. Important Non-Player Characters and Foes

4.4.1. Governor Nighthill

The character *Governor Nighthill* is described as the governor of Greenest and will be a key ally in the first episode of the game, helping guide the players through what they should do (Baur and Winter, 2014) In the description of him in the campaign, he is said to be a *Human* male of sixty years in age.

As show in Figure 18 below, *Governor Nighthill* wears a light blue tunic and has a bandage over one side of his face and eye. His right arm is in a sling and his tunic is covered in his own blood as he was injured during the raid and has had no time to take care of his wounds properly. In the illustration below, one can see that the artist chose to illustrate the governor in a regular uninjured state. He is wearing blue as described and has long brown hair.

Figure 18 - (2014) Nighthill. Dungeons and Dragons, Hoard of the Dragon Queen (p. 21) Wizards of the Coast

In the illustration below, Original artwork 6, the character on the left-hand side is a minor character in the game that will give players keys and mini quests during the attack on Greenest. He is described as a *Dwarf* with fiery red hair who carries a lot of keys, so for his design I gave him a large beard and red hair. I decided that I should not add too many keys as this would appear unrealistic, so instead I added just two rings of keys. Since he works for the governor, and it can therefore be assumed that he does have some higher standing in the community, and is possibly wealthier than average, I added some gold jewellery to the characters' design.

In my illustration of *Governor Nighthill* in Original artwork 6, I chose to do two variations of him; one where he is not injured and one where he is, as described in the tale. In the game the players will encounter him after he has already been injured and thus it makes sense for his design to show that he is injured.

On the right-hand side of the illustration is *Governor Nighthill*. As he is described as an older man, I chose to give him greying hair and a beard. To emphasise that he is from a wealthy background, I added gold jewellery and golden accents to his clothing, which I believe helps illustrate his status.

Original artwork 6 - Simone Beneke. Dwarf and Nighthill concept. Adobe Photoshop, 2018

4.4.2. Langdedrosa Cyanwrath

This character is a *Half-Dragon* that is the offspring of a blue dragon, thus taking on the characteristics of the blue dragons' physical and mental nature. *Cyanwrath* is one of the main villains in the story and will challenge the player on two separate occasions. *Cyanwrath* fights with both a spear and a great sword and is a proud and aggressive foe for the players. Being a member of the *Cult of the Dragon*, *Cyanwraths'* armour is purple like all of the attire that higher members of the dragon cult wear. In the image below, we can see the illustration of *Cyanwrath* by Syme (Baur and Winter, 2014). In Figure 19 one can see that the artist has created the *Half-Dragons'* appearance to be reminiscent of a blue dragon; it is however my opinion that the head is unrealistically small when compared to the rest of the body. One can see that the artist followed the written information about the cult making the *Half-Dragons'* armour purple and using a contrasting gold colour to highlight the curves of the armour.

Figure 19 - Syme, B. (2014) Langdedrosa Cyanwrath. Dungeons and Dragons, Hoard of the Dragon Queen (p. 21) Wizards of the Coast

In my interpretation of the description of *Cyanwrath*, shown in my Original artwork 7, I have tried to create more realistic proportions for the *Half-Dragon* as well as draw a posture that evokes a more aggressive character. I chose to make his armour and weaponry angular and sharp to illustrate the evil or aggressive nature of the *Half-Dragon* and the cult to which he belongs. I added in the purple and gold to his attire to illustrate his high-ranking status in the *Cult of the Dragon*. I believe that this, combined with the sharper and more angular design of the armour, works well in portraying the characters' personality. The fact that the creature does not have a humanoid face means that the viewer will already struggle to understand or interpret its demeanour and personality, so the embellishment of his physical appearance must portray the personality of the character.

Original artwork 7 - Simone Beneke. Langededrosa Cyanwrath concept. Adobe Photoshop, 2018

4.4.3. Leosin Erlanthar

In the campaign *Leosin* is described as an elven monk who has decided to infiltrate the *Cult of the Dragon*. There are no real descriptions of him other than that he is an elven monk. In the image below, Figure 20, we can see that the artist has chosen to illustrate him as a young male wearing stereotypical monk attire and carrying a staff. On his back he has documents and quills in his bag; all these elements do well in illustrating that he is a scholar. Monks are a class that are patient, calm and focused. These traits, and those of being a scholar, are visually well portrayed, hinting at his nature. Making the character appear young suggests that he can still be foolish and has not developed the wisdom that comes with age. This works well as he recklessly tries to infiltrate the *Cult of the Dragon* and then gets captured (Baur and Winter, 2014).

Figure 20 - Syme, B. (2014) Leosin Erlanthar. Dungeons and Dragons, Hoard of the Dragon Queen (p. 19) Wizards of the Coast

For my interpretation of *Leosin Erlanthar*, shown in Original artwork 8 below, I chose to portray him with a green-based attire as I felt this was more monk-like. As he was in the field when captured and would most likely be taking notes of what he was learning, I also added a red bound notebook to his satchel, with notes and documents. I felt that the addition of red added an excellent contrast to his green and brown based outfit. Another reason for choosing a green based outfit was to create variance in the clothing of the non-player characters, as a large portion of non-player characters/enemies will be wearing purple or blue. I added ink smears to his hands to suggest he had been writing.

Original artwork 8 - Simone Beneke. Leosin Erlanthar concept. Adobe Photoshop, 2018

4.5. Creatures and Monsters

4.5.1. The Roper

The *Roper* is one of the more bizarre creatures found in *Dungeons and Dragons*. The *Roper* is found in rocky or cave-like terrain and is described as an ambush predator as it waits for its prey to approach. This creature is described as appearing to look like a large rock with a gaping mouth and tentacles near the upper half of its body. In descriptions of its behaviour it is stated that it hides from view amongst rocks with its tentacles around its mouth, concealing its gaping maw. The reason it is called the *Roper* is that its tentacles look like ropes and when its victim is close enough it grabs them with these rope-like appendages.

In the images below, Original artwork 9, one can see my interpretation of the creature as well as the interpretation of the creatures from the illustrator Brynn Metheney, shown in Figure 21. One can see that he has created this creature with the intent for it to look rock like whilst still having a skin like appearance over its body; this concept creates a creature that appears as a

realistic creature as it would be unusual for a creature to have evolved to look like a rock with man-made rope like limbs.

Figure 21 - Metheney, B. (2014) Roper. Dungeons and Dragons Monster Manual (p. 261) Wizards of the Coast

In my drawings I intended to illustrate its predisposition for ambushing by showing examples of both the creature lying in wait for prey and when it attacks. Keeping within the thematic style of Dungeons and Dragons, I have deliberately chosen to go along with designs that evoke the original illustrations of the creature by ensuring that there is continuity of design while at the same time creating an updated design that would be able to function in a believable hyperrealism setting. When creating the design, I also kept in mind that this creature would have complex animations due to all the rope-like tentacles. To simplify the animators' job, I made these features of the creature as clear and simple as possible whilst still maintaining some hyperrealism so that the animators would have a very clear indication of how they should proceed. With

regards to the colour variations of the *Roper*, I went with colours that would possibly be in the cave systems. One of the creatures has warm sandstone colours that would blend in well where there is more dirt and soil, and in contrast the other creature has a cold rock like colouration that would blend in well visually with the cold corners of the cave systems in the game.

Original artwork 9 - Simone Beneke. Roper design. Adobe Photoshop, 2018

4.5.2. The Kobolds and Winged Kobolds

The *Kobolds* are creatures also referred to as 'dragon dogs' in the storyline of this campaign. In the storyline of the game, the main character will face these creatures often as in the lore it is a common species native to the area. Due to the *Cult of the Dragon* being the primary focus within the storyline, it makes sense that the *Kobolds* would feature in this story.

Within the lore created by the Wizards of the Coast, the *Kobolds* are described as small lizard folk that are on average 60 cm tall. They have a lizard-like body and are bipedal with digit-grade legs, meaning they walk on their toes like a cat. The *Kobolds* have crocodile-like heads with horns that are a pale cream colour. Their skin is covered in scales with skin colours in varying shades of reds, rust and brown. The eyes of the *Kobolds* are described as red and glowing. There is a less common variation of the *Kobold* known as the *Winged Kobold*. The *Winged Kobold* has similar features but with the addition of wings that allow them to fly. This sub-species of the *Kobold* is held in higher esteem than regular *Kobolds* and because of this

higher status, they tend to have stronger leadership roles as they believe themselves to be more closely related to their dragon overlords whom they practically worship.

The *Kobolds* are found in tribes inside dungeons and around the homes of the dragons that they serve. They are found in large tribes to ensure survival as they have short lifespans and are generally small and therefore easy to kill. Due to their smaller stature and vulnerability, the *Kobolds* main method of attack is through ingenious traps that they make themselves. Trap building is a popular characteristic of the *Kobolds* culture with most *Kobolds* being trained in survival orientated skills such as trap making, fighting and mining.

In the image below, Figure 22, one can see the visual representation of a *Kobold* created by the artist Aaron Hübrich who helped illustrate the 5th Edition Monster Manual (2014). When looking at this interpretation of the *Kobold* one can see that the artist has vividly created the impression of scales and used a strong red to illustrate the demeanour of the *Kobold*. Placing a sling and dagger in the *Kobolds'* hands helps illustrate the notion that this is a creature that is a trapper and uses rogue-like behaviour to survive.

Figure 22 - Hübrich, A. (2014) Kobold. Dungeons and Dragons Monster Manual (p. 195) Wizards of the Coast

Below, in Original artwork 10, is my interpretation of the *Kobolds*. As mentioned before, my intent is to recreate these designs in a manner that would be utilised during the pre-production phase within game development whilst at the same time attempting to incorporate the goal of hyperrealism. These creatures are, in a way, depicted as comical when presented in the *Dungeons and Dragons* universe. To add this element, I used variations of yellows and reds, similar to those of a stereotypical jester. All variations of the *Kobolds* could use the same 3D model and then different texture maps to create slight differences. In addition, I have added assorted variations of armour and weaponry to each *Kobold*, thus reducing repetition of design which is critical for hyperrealism. Four unique armours, four weapons, four different skin textures and four types of horns, means that that there are 256 variations of the *Kobolds* visual appearance if a code is used to randomize these objects. An example of where this has been done before is in *The Elder Scrolls: Skyrim* where the *Draugr* enemies have randomised appearances.

Original artwork 10 - Simone Beneke. Kobolds. Adobe Photoshop, 2018

4.5.3. Drakes, Ambush Drakes and Guard Drakes

Within the game the player will encounter many *Drakes*, specifically *Ambush* and *Guard Drakes* which are primarily unique to the *Hoard of the Dragon Queen* campaign. The main distinction between these and a regular *Drake* is behaviour and occurrence. *Ambush Drakes* are fast and aggressive and, as one would expect, ambush their prey, whilst the *Guard Drake* is just as aggressive, but tougher. *Drakes* are primarily used as guards for *Dragons* and sometimes mounts for humanoid servants of *Dragons*. *Drakes* are a related species of *Dragons*, but they are much smaller and are unable to talk. They are described as wolf-like in their movements and behaviour and generally live in packs. The lore describes the physical appearance of *Ambush Drakes* as having a wingless dragon like body that is shorter and more compact, averaging the same height as an adult *Human*. They are covered in scales of varying colours of grey to olive with hints of orange on their faces. The *Ambush Drake* has a dog-like physical behaviour whereas most other *Drakes* have a more feline-like behaviour.

-When looking at the illustrations below of the *Ambush Drake*, Figure 24, and the *Guard Drake*, Figure 23, that were created by Conceptopolis for *Dungeons and Dragons*, one can see that the artists involved applied the description of the *Ambush Drake* within their design, although the use of orange was not applied to the face as per the description but has rather been used more as a way to accent and contrast elements of olive undertones seen in the *Drake*. In the *Guard Drake* one can see that the artists followed along a similar design to that of blue dragons. From this one can see that while *Drakes* may be from a *Dragon* bloodline, they are far more animalistic in nature.

Figure 23 - Conceptopolis (2014) Guard Drake. Dungeons and Dragons, Hoard of the Dragon Queen (p. 31) Wizards of the Coast

Figure 24 - Conceptopolis (2014) Ambush Drake. Dungeons and Dragons, Hoard of the Dragon Queen (p. 36) Wizards of the Coast

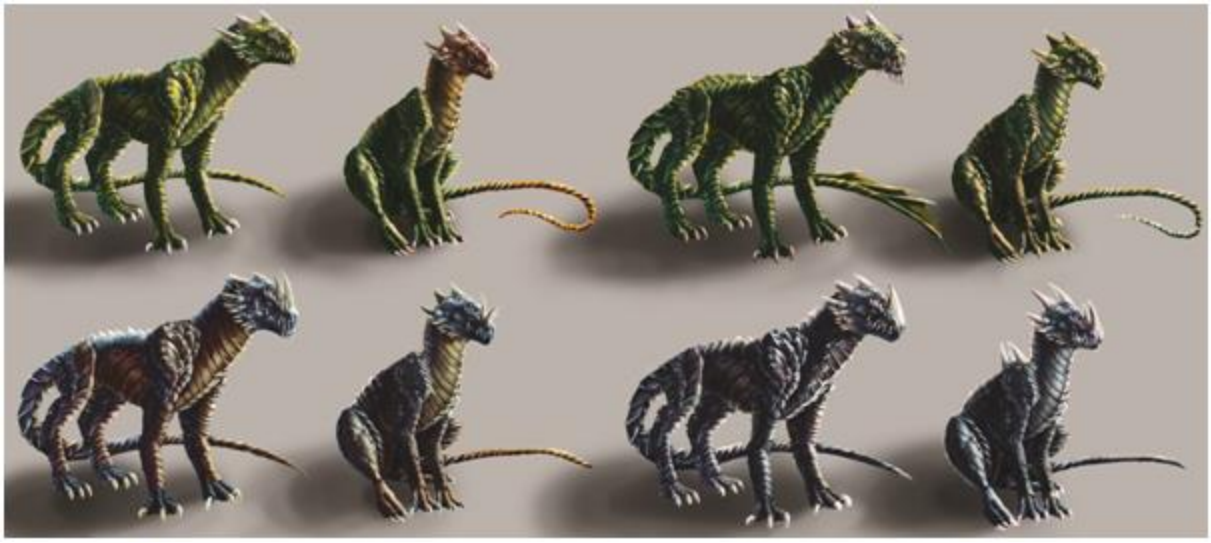
In my conceptual designs of the *Drakes*, shown in Original artwork 11, I kept within the context and given descriptions in the storyline. Due to there being both *Ambush Drakes* and *Guard Drakes* within the story, I chose to illustrate both sub-species of *Drake* within the same conceptual illustration. The green *Drakes* in the top row of the image are the *Ambush Drakes* and the blue *Drakes* in the bottom row are the *Guard Drakes*.

When designing the *Ambush Drakes,* I decided to make the bodies less bulky than the *Guard Drakes*. I refrained from using large horns for embellishment but rather kept the bodies covered in scales with small horns and fins for adornment.

You can see an example of this use of fins in the third *Drake* from the left. I feel that this feature illustrates the stealthy nature of this sub-species of *Drake,* in the sense that it makes the creature look more streamlined visually. With regards to their colouration, I chose to stay in line with the original colours of green. I did however create some variations in colouration of the *Ambush Drakes*, using reds and yellows to add patterns and differing colours. Using different colours and textures, instead of creating entirely different models for various versions of the same creature, enables the pre-production and production teams to work faster.

I would like to point out that for the second *Drake* on the top left with the red head, colouration was inspired by the tree agama, also known as the blue-headed lizard, native to South Africa. This lizard develops a stunning colouration during breeding season. I thought that adding this concept to the *Drakes* could give them depth.

In keeping with current designs of the *Guard Drakes*, I continued to use blue tones as the base for my creature designs but chose a subtler variant of blue which appears more steel-like in nature. Similarly, with the *Ambush Drakes* I have created variations of skin colours that will enable the level or type of creature to have specific textures. I wanted to make these *Drakes* bulky and tank-like, as compared to the *Ambush Drakes*. To do this I added bulky horns to their heads and in the example in the bottom right, horns on the shoulders as well. Keeping the lower part of the animal the same means that both the *Guard* and *Ambush Drakes* can be based off the same 3D model which will reduce production time for these creatures.



Original artwork 11 - Simone Beneke. Drakes. Adobe Photoshop, 2018

4.5.4. Giant Lizards

Throughout the game the players will encounter *Giant Lizards* amongst other foes such as the *Kobolds*. The *Giant Lizards* are known to dwell in subterranean lairs such as tunnels and caves, which the players' characters will venture into. In my illustrations of the *Giant Lizards*, shown in Original artwork 12 below, I chose to make their features similar to those of real-life monitor lizards and Komodo dragons. I decided on this course of action as both these particular lizards have strong features. The drool that comes from the *Giant Lizards'* mouth was added as a feature to make the creature seem more grotesque in nature. I gave the lizard milky blind eyes because as these creatures live in dark caves, they would most likely not use their sense of sight as much as their sense of smell.

Original artwork 12 - Simone Beneke. Giant Lizards. Adobe Photoshop, 2018

4.5.5. Swarms of rats, bats and Stirges

In the game the players will encounter swarms of rats in tunnels and bats covering the ceilings of caves with *Stirges* amongst them. The *Stirges* are described as large blood sucking mosquitoes mixed with bat-like creatures that dwell in the caves. *Stirges* are commonly found in groups and, in the case of this campaign, the players will need to sneak through a cave where there will be hundreds of sleeping bats and a few sleeping *Stirges* amongst them. While the bats pose no threat, they will however confuse the players allowing the *Stirges* to attack them.

The swarms of rats will be adversaries in the early part of the video game where the players must navigate tunnels. If the swarms of rats are startled, they will attack the players. While they only do a small amount of damage, the sheer number of rats may overwhelm the players.

In Figure 25 below of the *Stirge*, one can see that the artist has tried to imbue the creature with elements of both bat and mosquito characteristics. The artist has made use of bat-like limbs with three digits and the long mouth that is reminiscent of a mosquito's proboscis. I believe this

to be a unique and well thought out design although the red colouration of the creature does however seem very unnatural for a mammal-like species that lives in caves. It would seem improbable for an animal to develop such colourations in a low light environment.

Figure 25 - (2014) Stirge. Dungeons and Dragons Monster Manual. Wizards of the Coast

In my illustration design of the *Stirges*, Original artwork 13, I chose to make the creature more bat-like whilst embellishing it with mosquito-like features. I felt that this created a more grotesque creature and, as it is found amongst bats, I believe it would make more sense if it blended in with the bats. In the top two versions of the *Stirges*, I gave the creature a brown leathery skin which seemed more believable and natural for a cave dwelling creature. In the bottom version of the creature, I used more pink and purple undertones, giving it a fleshy colouration that, although may seem slightly unnatural, could look interesting with the contrast of the dark cave environments where they will be encountered.

With regards to my designs of the rats and bats, Original artwork 13, I tried to keep them as close as possible to the animals that exist in nature. I did however exaggerate some features to make them monstrous, making them look slightly diseased, with growths and discolouration.

Original artwork 13 - Simone Beneke. Rats, bats and Stirges. Adobe Photoshop, 2018

4.5.6. The Adult Blue Dragon

In the beginning of the game the players will encounter an adult *Blue Dragon*. The players will be unable to defeat the dragon, but they will be able to deter it and chase it away once it is damaged enough. In *Dungeons and Dragons* and the storyline of *Tyranny of Dragon*, dragons play a focal point in many stories. There are many variations of true dragon, but the most common sub-species are the *Chromatic* and *Metallic Dragons*. *Chromatic Dragons* are known for being evil, hateful and aggressive, whilst *Metallic Dragons* tend to be good and believe in honour and order. The *Blue Dragons* are very aggressive and attack from the air. These dragons hold their territories in barren lands such deserts and wastelands. *Blue Dragons* are vain and greedy and will often attack towns just for the fun of it. They take joy in lording power over humanoids and other creatures, sometimes attacking a town over many days to generate fear whilst attacking from afar. *Blue Dragons* will often collect many talented servants to serve them and will reward them for loyalty. The *Blue Dragons* are described as having blue colouration ranging from a pale blue to deep indigo. As they get older, their scales will become thicker and crackle with electrical energy. The *Blue Dragon* is electrical in nature and breathes lightning and electricity, being able to lob balls of electricity from far away. A *Blue Dragon* has large frilled ears and spikes that grow from its nostrils all the way to its eyebrows as well as spikes on its jaw that jut forward. The *Blue Dragon's* most distinguishing feature is the large single horn on its head.

In Figure 26 below one can see that the artist has given the *Blue Dragon* a hulking body structure with a menacing glare and used strong highlights to give the dragon’s colour a more dramatic feeling. The dragon has been given slightly tattered wing edges, giving it a rough around the edges look and implying that it is always ready for a fight.

Figure 26 - (2014) Ancient Blue Dragon. Dungeons and Dragons Monster Manual (p. 90) Wizards of the Coast

In my concept design of the *Blue Dragon,* as shown in Original artwork 14 below, I chose to present it displaying a more domineering posture, within electrical elements cascading off it. I also chose to make the scales of its body visually prominent, which makes the dragon appear to have a rougher skin surface. The reason why I have placed this dragon within the environment depicted is because the *Blue Dragon* only appears at the beginning of the story, circling the town of Greenest. In this section of the story it is a flying enemy that cannot be defeated so it will only be seen in the air swooping above the players for most of the time, only occasionally landing on the roof of a burning building. Due to this I believe that placing it within clouds would show its domain and illustrate how out of reach it is to the players in terms of difficulty.

Where the light is hitting the body of the dragon, I have added a tint of purple to create the impression of iridescence which is seen in many avian and reptilian creatures in nature.

Original artwork 14 - Simone Beneke. Adult Blue Dragon. Adobe Photoshop, 2017

4.6. Conclusion and Analysis of Practical Hyper-reality

Pre-production design within the pre-production phase is critical. The demand for hyperrealism in video games has made an enormous impact on the industry. This has driven the necessity for the pre-production phase team to work harder to handle the strain of producing and exploring all avenues that the production phase could take.

Within the context of my artworks, I tried to make certain that my designs would be functional to ensure that there would be no visual flaws, beginning from the process of creating the concept designs all the way to the development of the 3D models. It was in my field of interest to create visual designs that the viewer would find convincing. To do this, proportions needed to be realistic, creature design needed to make logical sense with regards to behaviour and clothing, and embellishments such as scales and horns needed to appear believable. In the case of designing all the starting armour for the player, I wanted the armour to look functional and realistic, so that if the designs were to move to the animation phase of production, the

armour would move easily without any visual repercussions. It also needed to look physically possible for the character to be able to actually move and function in said armour.

The reason why I went into such detail with my designs was to portray characters and creatures that could be believed. This is because for a video game to succeed in creating a hyper-realistic world that functions similarly to Eco's notions of immersion, I needed to take into account that what I created did not need to be real; it just needed to draw the viewer in, be visually amazing and yet in its own way be believable. As an example, if I had created a big dragon flying with tiny wings, it would seem improbable; so, even though the creature is not real, it should follow some concepts that are familiar to us to be believable.

To conclude, I believe that my practical functioned successfully to illustrate the way in which hyperrealism affects pre-production designs in video games. It serves the function of showing how pre-production design has got to take into consideration all aspects of production when characters are designed.

The goal for creating a compelling hyper-reality within video games means that the pre-production phase must be efficient and create artworks that clearly and effectively illustrate what is needed to be portrayed visually once the production of the game is complete. Assets, characters, creatures and objects created as 3D models in programs like ZBrush need to be built in a way that the animators can animate them. From the first chapter within my study I believe that it is made clear why pre-production design exists, and why it is so vitally important. With regards to animated films, pre-production design is also important as it narrows down visual designs, establishes storylines, storyboarding, colour and over all how the animated film will turn out. This was seen when looking at the various designs for the dwarves in *Snow White and the Seven Dwarves*. If the production team used the earliest designs of the dwarves, the film would

have looked very different indeed. If pre-production is explored to its fullest extent within video game design, it should create a production line that establishes a clear workflow for the production team and should act as the foundation for the production.

3D models and concept designs should be created and finalised with the knowledge of what the game engine that will be used is able to do. From the study one can see that in the exploration of hyperrealism there are many ways in which it affects our lives. Regardless of whether we are conscious of it or not, hyper-reality is a part of our lives. It is interesting that games target this notion of hyperrealism in so many ways, whether it be through the use of real time gameplay or emotional investment into a game. This emotional investment creates the drive for the player to continuously play the game, allowing the player to participate in some form or another with the game at all times, as seen in its earliest form with the creation of the *Tamagotchi*. The creation of characters and creatures that establish an emotional attachment for the player is a concept that is not unfamiliar. As discussed in chapter one, we see how Disney designed *Snow White* to be relatable to viewers. This was the start of a movement to make animated films that connected the viewer to the film.

Through chapter two we see how hyperrealism, with regards to Eco's theory, can be seen in video games today. These games do not claim to be reality, they are simply their own device creating a window into a hyper-real world which the player can momentarily believe and interact in. *Horizon Zero Dawn* and *The Witcher 3: Wild Hunt* attempt to create a fully immersive world by making hyper-reality their foundation, creating a world that is cinematically perfect, and creating non-linear gameplay and AI systems that make the player feel like they are actually making a difference in the video game world.

In chapter three, the inspection of the application of pre-production within video game industries proved useful in understanding the complexities behind why this phase is so important, further bolstering the discussion which began in chapter one. The use of *The Witcher 3: Wild Hunt*, as a means to understand pre-production design, allowed us to see that the nature of design carries through into the production phase. We see that having to change the design of a character in the production phase means that time and resources are wasted. This was seen in the creation of the giants in *The Witcher* where during production the designers had to remodel the armour on the giant as it did not seem believable that the giants' large hands would be able to fasten the belts of the shin guards. This small attention to detail shows how the concept of hyper-reality, and thus the creation of an immersive game world within a videogame, has pushed the pre-production design phase to ensure that all details are now meticulously examined.

Hyper-reality pushes pre-production further and further, much like with the design of the Fuzzy Pumper Palette Shop, created by the *DOOM* production team. This was created so that they would be able to visually craft a world within the video game that would amaze and capture their players' attention. A successful hyper-reality within a video game is limited only by the current available technology, thus the need for pre-production. Without this phase, new methods of animation, rendering, designing and other technologies would never arise. It is the pressure that is placed on the pre-production phase within video games that aspires for immersive and visually hyper-realist game worlds that push the capabilities of technology and thus design.

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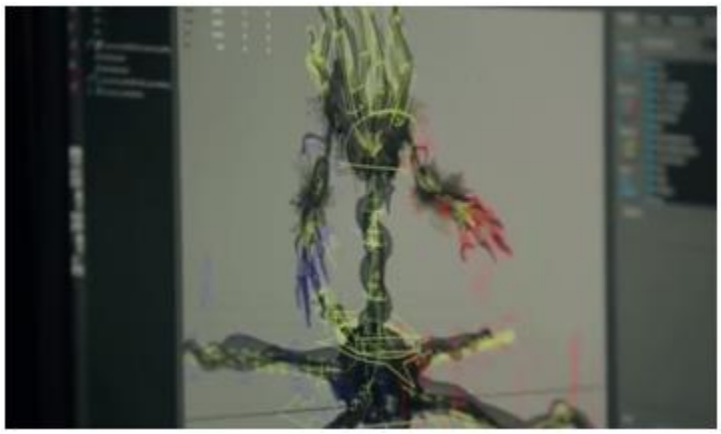

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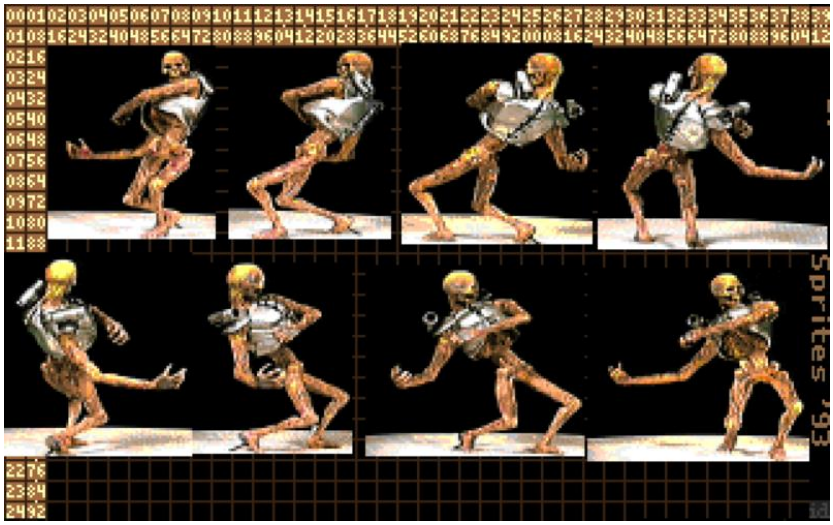

Figure 7: *"Each frame was captured on a turntable for multiple angles to create a faux-3D effect."* Johnathan Cooper (Twitter, 2018)
https://twitter.com/GameAnim/status/1079442093708271616

Figure 8: Doom (93-94) vs Doom (2016) - Equivalent Monsters Comparison. YouTube *Comparison'* 0:00-12:20 https://www.youtube.com
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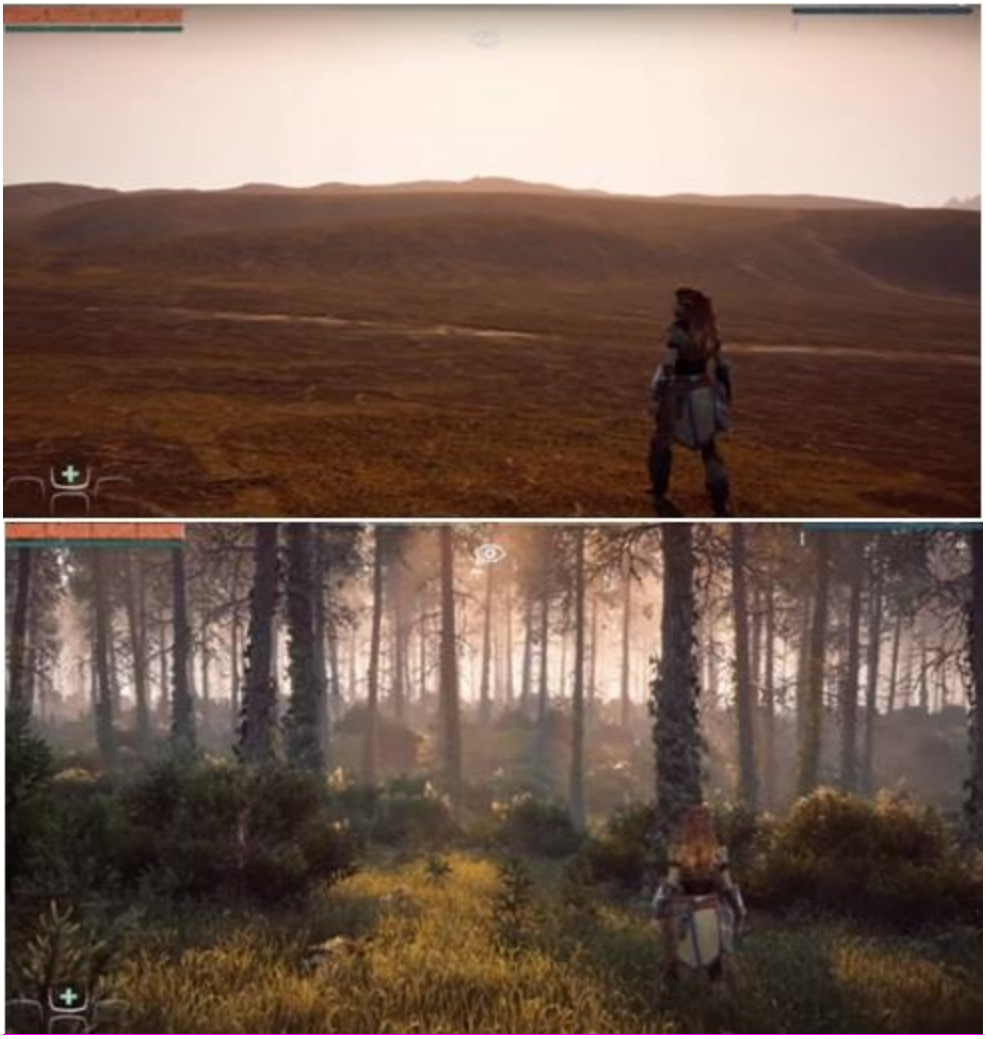

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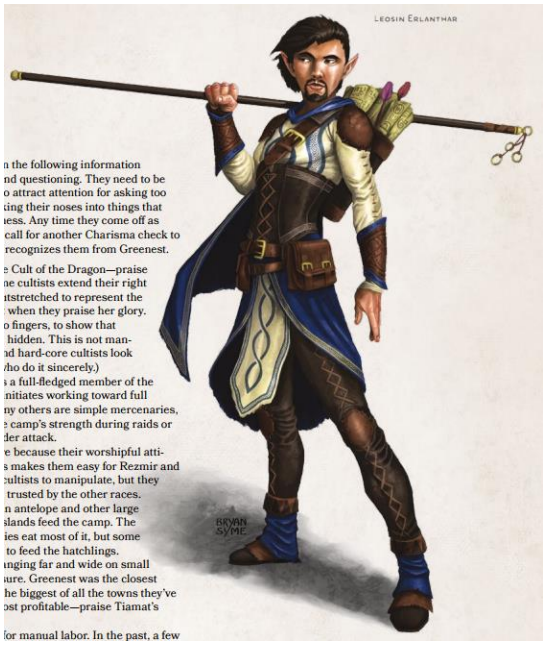

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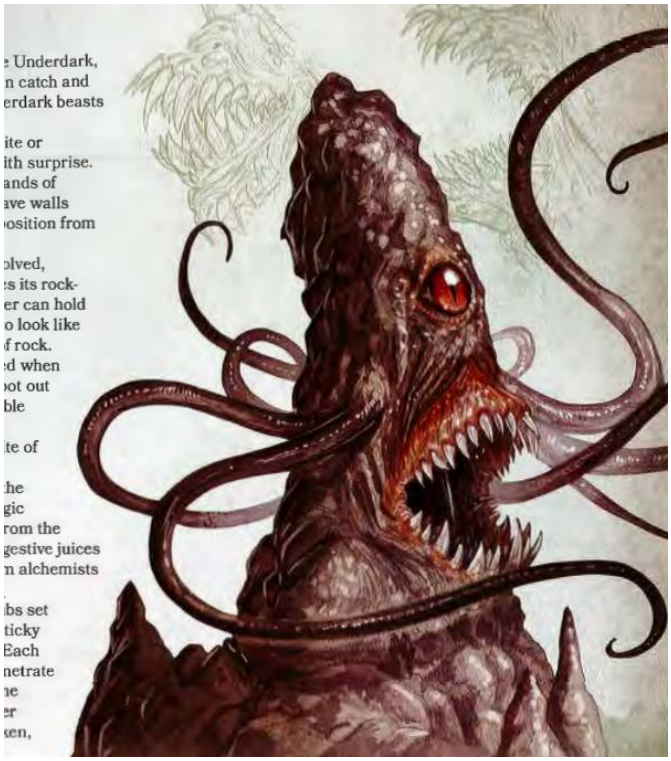

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My Original Artworks

Original artwork 1: Simone Beneke - Generic armour design. Adobe Photoshop, 2018

Original artwork 2: Simone Beneke - *Humans, Dwarves* and *Gnomes.* Adobe Photoshop, 2018

Original artwork 3: Simone Beneke - *Half-Elves* and *Elves.* Adobe Photoshop, 2018

Original artwork 4: Simone Beneke – *Tieflings.* Adobe Photoshop, 2018

Original artwork 5: Simone Beneke - *Half-Orcs.* Adobe Photoshop, 2018

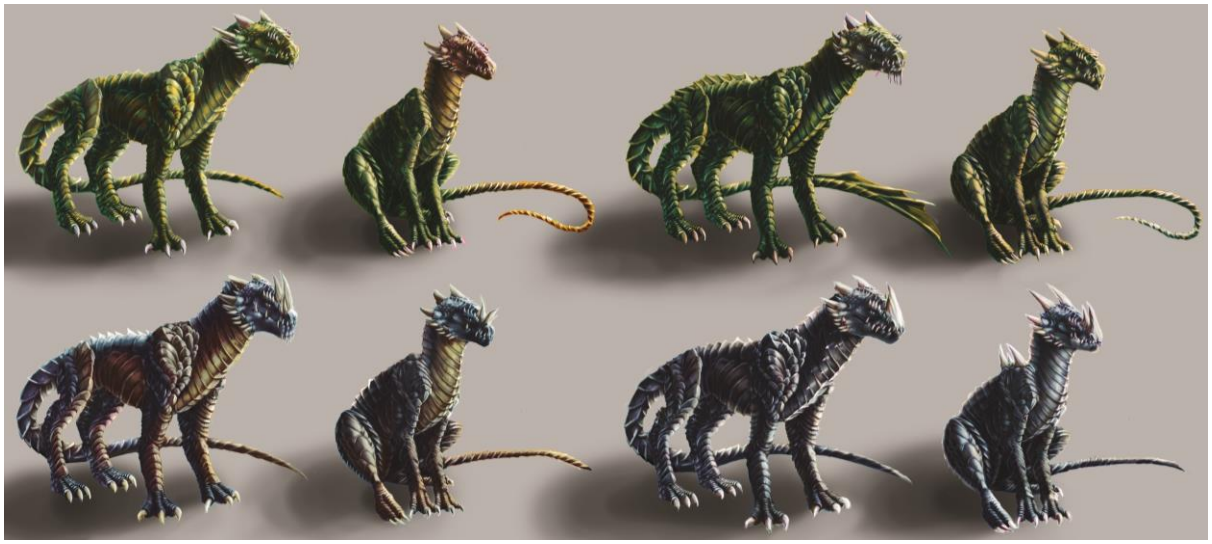
Original artwork 6: Simone Beneke – Dwarf and *Nighthill* concept. Adobe Photoshop, 2018

Original artwork 7: Simone Beneke - *Langededrosa Cyanwrath* concept. Adobe Photoshop, 2018

Original artwork 8: Simone Beneke - *Leosin Erlanthar* concept. Adobe Photoshop, 2018

Original artwork 9: Simone Beneke - *Roper* designs. Adobe Photoshop, 2018

Original artwork 10: Simone Beneke – *Kobolds.* Adobe Photoshop, 2017



Original artwork 11: Simone Beneke – *Drakes.* Adobe Photoshop, 2018

Original artwork 12: Simone Beneke - *Giant Lizards.* Adobe Photoshop, 2018

Original artwork 13: Simon Beneke - *Rats, bats and Stirges.* Adobe Photoshop, 2018

Original artwork 14: Simone Beneke - *Adult Blue Dragon.* Adobe Photoshop, 2017

APPENDIX 1

PERMISSION TO USE LETTER

Dear Simone Beneke,

This letter is in response to your request to use Wizards' intellectual property as follows (the "**Project**"):

Use of D&D storyline for Master's Thesis

Subject to your compliance with the terms and conditions set forth in this letter, Wizards of the Coast LLC ("**Wizards**") grants you permission to use the above mentioned Wizards' intellectual property including its relevant copyrights and trademarks (the "**Property**").

Restrictions on Use

- Do not use Wizards' trademarks in any title(s) or marketing of your project.
- Do not use for purposes other than academic

General Terms

You are granted a non-exclusive, revocable, world-wide permission to incorporate the Property into the Project as set forth above solely for noncommercial use. Any use of the Property not expressly indicated in this letter is prohibited. Wizards does not grant any additional permissions not contained in this letter and has no obligation to do so. You are solely responsible for obtaining all other third party legal permissions and for all associated costs. This permission is personal to you and you alone. You are not authorized to transfer or assign this permission.

Failure to comply by the terms of this letter will result in the automatic revocation of the permissions in this letter with or without notice to you. If Wizards waives any breach of any part of this letter, it shall only be in writing and will not act as a waiver to any future breach.

You agree that all uses of the Property shall automatically inure to the benefit of Wizards (including the creation of any goodwill), its heirs and assigns. Additionally, you further agree not to challenge any rights Wizards has in the Property and that Wizards and their authorized third parties shall have all necessary legal rights to fully utilize for any purpose anything similar to the Project, without notice, interference from, or compensation to you.

Wizards disclaims all warranties with respect to the permissions granted in this letter. You agree to indemnify and hold Wizards, its subsidiaries, affiliates, all respective officers, directors, employees, agents, successors and assigns harmless as to any third party legal dispute, loss, damages, liabilities, expenses, and reasonable attorneys' fees arising from your action or inaction in relation to the Property.

You agree not to use the Property in any way that might be deemed misleading or untrue and warrant that the Property shall not be used with, for, or contain any nudity, sexually explicit content, obscenities, derogatory or disparaging acts towards third parties, products, defamatory material, harassment, threats, promotion of discrimination, depicting dangerous or illegal activity, or material infringing on another's rights.

This document represents the entire agreement between you and Wizards. This letter does not create a partnership, joint venture, franchise, agency, or employment between you and Wizards. Permission to use the Property is not an endorsement or sponsorship of your Project. Changes to this letter are invalid without Wizards' written consent.

This document and disputes related to the permission granted shall be construed in accordance with the laws of the State of Washington without regard to conflict of law principles in a court of competent jurisdiction located in Seattle, Washington. If any provision of this letter shall be found invalid or unenforceable, the provision will be deemed struck as if it were never in the agreement and the remainder of the letter and provisions within shall continue in full force.

Sincerely,
WIZARDS OF THE COAST LLC

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DUNGEONS & DRAGONS | Wizards of the Coast
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APPENDIX 2

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

17 March 2017

Ms Simone Beneke 212505903
School of Arts
Pietermaritzburg Campus

Dear Ms Beneke

Protocol reference number: HSS0209/017M
Project title: An exploration of pre-production design and its function in establishing conceptual and aesthetic visualisation, characterisation and narrative structure

FULL APPROVAL-NO RISK

In response to your application received 7 March 201, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Dr Shenuka Singh (Chair)
Humanities & Social Sciences Research Ethics Committee
/pm

Cc. Supervisor: Dr Michelle Stewart
Cc. Academic Leader: Dr Sandra Pitcher
Cc. School Administrator: Ms Debbie Bowen

Humanities & Social Sciences Research Ethics Committee
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Website: www.ukzn.ac.za