Thesis

MA Visual Effects – University of the Arts London

"Enhancing the Gameplay Experience in Video Game Combat through the Implementation of Visual Effects"

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Abstract

This thesis analyses how visual effects enhance the gameplay experience in video game combat. To explore this subject, many sources, papers and games were explored with varying opinions on different topics within this field. The findings showed that primarily, visual effects increase streamlined information, immersion, and realism within video game combat. The majority of players perceive these to be positive factors within video gameplay. The findings in this paper could be used to help game and visual designers continue to create enhanced gameplay experiences with the skills explained and discussed here.

Acknowledgements

I would like to thank my thesis supervisor Nigel Mairs for his guided support throughout my thesis proposal and thesis development. I would also like to thank my course leaders and teachers throughout my Visual Effects master's course at the University of the Arts London, my family and my boyfriend for their supportive nature throughout my Master's degree.

Contents

Introduction

Video games offer a unique experience to players through interactivity within a digitally created environment, playing characters with fictional backstories and motives. In many cases, combat scenes with strategies are implemented to progress the game and provide immersive gameplay, immersion being what researchers such as Taylor (2009) have found is a particularly sought-after factor in video games.

This thesis will be looking at combat within video games, and more specifically, what visual effects have to offer this part of the experience. The aims of this thesis include research as to where visual effects and visual design are specifically implemented in combat within video games, and how they change the gameplay experience for these moments in combat.

Visual effects are generally acknowledged to bring to life action and magic in films and TV that can't be filmed, or to enhance scenes that have in fact been filmed. In worlds that are completely digital, visual effects have historically been included seamlessly within video games. Choices made by the game's creators such as weapon and creature design, game mechanics and bodily damage all heavily lean on visual effects to enhance the combat experience. This is common in genres such as survival horror and fantasy games, both of which will be explored with game examples, and through conducting research on the effective visual changes some of these methods bring to these games.

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Additionally, there is an ethical side to look at when any depictions of violence are made to seem more realistic or immersive in video games, specifically linked to psychology when playing a game, and the development of psychology within children, who are, as Sternheimer (2007) suggests, the main target audience for many games revolved purely around combat. So, the question of whether visual effects' implementation affects these issues within games negatively will also be discussed.

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This study will benefit game designers, visual effect artists seeking employment within the gaming industry, and video game enthusiasts who purely have a thirst for knowledge for the complexity of video game design.

Literature Review

When researching visual effects within video games, many scholars found that visual effects work alongside gameplay to enhance the player's experience. In relation to combat scenes, Killick (2022) states that combat designers work to enhance this experience when players meet enemies, and Smith (2023) states that weapons and artillery are a huge factor influencing the player's experience when in close contact with enemies. Specifically, this refers to the intricacies of weapon design being carefully thought out by visual artists. When looking into combat design reliant on visual effects, Mattila (2018) also suggests that visual effects can alter the level of importance or damage, revealing this information to players purely through visual effects. This ties into the theory that visual effects relay information to the player in a streamlined manner, protecting immersion in the game, something Mason (2023) explores. Immersion is one of the areas that continually gains positive feedback from gamers according to Taylor (2009).

Looking at ethical debates, however, Przybylski (2009) states that, regardless the form of combat in video games, what the player really enjoys is the psychological feedback and progress the game gives you as a player experience. Taking away the visual effects, a player would still get this 'satisfaction' from these game mechanics rather than the violence and realism visual effects offer. Furthermore, during this research, negative connotations arising from the realism visual effects provide to violence in games can be found, as explored by Bender (2007).

This created a variety of research perspectives: those from different areas of combat in gameplay, but also those that are directly positive or negative for the exploration of this topic. This offered a well-rounded exploration of views and ideas for this thesis.

Methodology

A qualitative content analysis research method was conducted for this thesis. The research methods consisted of gathering data and information from online sources that other researchers have identified. Using the keywords, papers, other theses and articles that agree with or contradict the argument surrounding visual effects enhancing gameplay were found and implemented into this thesis to back up statements throughout.

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The research was centred around different perspectives of visual effects within video games but stuck to the keyword 'implementation' in the title; how the addition of visual effects adds or takes away from combat in video games. This research was conducted using academic online search engines and library resources at the University of the Arts London. These academic papers have been compared and contrasted, with the subsequent findings used to produce and develop information, and therefore aid this thesis.

The terms referred to when carrying out research and judging the quality of sources include 'credibility', 'dependability' and 'variation'. Unlike quantitative research, "qualitative studies are concerned with process, context, interpretation, meaning or understanding through inductive reasoning" (Yilmaz, 2013, p.313), which was a more fitting research structure for the thesis topic, given the fact that it centres around opinions and mostly artistic approaches. With a qualitative research method, this research was able to be conducted by deciphering people's feelings, ideas, and perceptions, so being more subjective.

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Chapter One: Common game mechanics in combat-led games

Game mechanics within video games are significant factors in player feedback and gameplay experience. Arguably, the combination of game mechanics forms the skeletal structure for making a game itself. The seven core game mechanics within a game, according to Giakalaras (2016) are badges, levels, leaderboards, progress bars, virtual currency, awards trading and gifting, and challenges between users (Figure 1). These game mechanics are commonly found in most online and role-playing games, which typically have combat-led gameplay. The correlation between these shows us that there is a pattern of combining these gameplay structures to produce games which provide progress within combat.

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The game mechanics listed in the previous paragraph provide "opportunities for mastery, achievement, heroism, and self-directed action." (Przybylski, 2009, p.244). This alone can provide a sense of progress for a player, providing more of a sense of achievement within a game, but visually enhancing these mechanics can add another level to the experience these provide. As Fabricatore (2007) suggests, "when playing a game, players seek challenge, mastery and reward, all packed in enthralling and motivating activities." (Fabricatore, 2007. p.1). Applying this theory to this chapter, the 'challenge' and 'motivating activities' in combat-led games usually revolve around inflicting damage and completing battles. Game designers are using game mechanics to emphasise these factors within combat games, and feedback such as progression, badges and leaderboards. The majority of multiple progress systems include a 'reward' mechanics system, entailing better gear and weapons to continue combat at harder levels and in swifter ways.

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On the subject of visual factors of game mechanics such as progress bars and levels, the famous online role-playing game World of Warcraft (2007) offers a visual addition to symbolise more of an achievement when players reach a new level or progress so far in the game. A glowing light animation surrounds the character (Figure 2) accompanied by a radiant cymbal sound to signal to the player they have levelled up. These visuals offer the player a special 'majestic' feeling instead of just seeing the number of their level change. Applying this to the combat within the game, players will have had to complete quests, the majority of which entail slaying a variety of creatures and monsters the player may encounter. Every time the player kills one of these enemies, a slight glow is seen on the

progress bar as it advances, indicating to the player that the more combat they do, the quicker they level up. The subtle visual details such as these make the gameplay experience for combat more exhilarating as the character progresses before the player's eyes. World of Warcraft also offers a vital 'reward' system as well as multiple progression systems. These go hand in hand, the more you progress within the game, the more rewards you will get to enhance the combat experience. Weapons with upgraded attributes and gear with a high level of damage intake offer rewards unlocked for a player, motivating the player to participate in further combat, and driving competitiveness within the player's mindset.

A famous game mechanic in the combat-led sci-fi game 'Fallout 4' (2015) is the implementation of a 'V.A.T.S' system ("Vault-Tec Assisted Targeting System"). This is where the combat turns to slow motion and the player can select an area to shoot the enemy, with different levels of damage, and their hit chance percentage indicated. This use of slow-motion visuals, and different areas of selection with an on-screen depiction of where to shoot is one of the reasons Fallout 4 stands out from so many combat games and relies on this visual enhancement to set apart usual combat styles from this system.

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The use of visual effects in these mechanics not only creates this immersive feel in the character's progress for the player, but also helps the player understand the combat mechanics themselves better. Directing a player's eyes to the progress bar, rewards and levelling up can ensure they are aware of the progression of the game in a more streamlined manner (Mason 2023). It doesn't take away from the game's atmosphere while in combat, or the immersion the player feels, as it doesn't require relays of heavy text, just a simple glowing effect or similar, that the player becomes familiar with. In Fallout 4 the V.A.T.S system even arguably enhances the atmosphere of the combat scene the player is seeing and experiencing. Rewards systems such as "collectables or hidden items, will often have a visual cue for players such as glistening particle effects or highlighting them in a solid colour" (Mason 2013). This is another example of a streamlined relay of information visual effects can offer to the player that ultimately will not take away from the immersive combat situation and character progress they are focused on.

Chapter Two: Designing dynamic combat sequences

2.1 Creature design

Combat scenes overall are usually very visually coordinated by visual designers and artists, as there are various techniques used to enhance the experience overall for the players during such scenes. Creature and enemy design is one major factor visual artists take into account when creating a combat scene. Chase sequences are a very common type of combat sequence used in survival horror video games and many more, where the player can be subjected to combat resulting in damage. Smith (2023) states; "The main factor that creates an engaging chase sequence is the assertion that the player must feel that they cannot directly defeat their assailant. The player must feel powerless in the face of an insurmountable challenge, prompting the player to conclude that escape is the only means of survival." (Smith, 2023, p.21). During the creation of a chase sequence, it is very common for the enemy to be designed in such a way that the player knows the only way to progress through the game is to run. This is done, as Smith mentioned, by ensuring the player feels they can't defeat the enemy and is powerless. This can be done by designing the enemy in a foreboding way, for example, an enemy which is far bigger than the character being controlled, heavy armour or extenuated, protruding muscles in the body design. To make the player feel 'powerless', there may even be an animated cutscene, where the character looks scared, and turns to run away, maybe even attempting to shoot with their gun, which looks measly in comparison to the design of an insurmountable creature in front of them.

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A perfect example of this is featured in Resident Evil 2 – Remastered (2019). In this game, there is a chase sequence cleverly designed with all of the aforementioned elements: "the player is periodically chased by a seven-foot creature called Tyrant, colloquially known as Mr. X, who happens to be impervious to most weapons and artillery" (Smith, 2023, p.21). Mr. X is seven foot, wears a suit and is known to make an appearance in the game with a cutscene (Figure 3), usually crashing through a wall signifying extreme strength, followed by heavy footsteps and ominous music being his theme tune. Mr. X is designed in a way different to the other mutants in the game, his face is hidden by shadowing, he moves at walking speed and his mutant scars and skin are also hidden, setting him apart from anything attackable the player has come across in the game so far. He walks in an almost

human-like manner, and the destruction of the environment around him hints to the player they would be defeated in one swoop.

In attackable creature combat scenes, we can see a more rapid animation of movement from mutants and creatures, or even humans during Resident Evil 2 (2019). They move less ominously, the player's character is normally in more of a defensive and ready state at the cut scene animation, and the creatures move towards you quickly. They are also visually designed in a more typically savage way, their skin is ripped apart, they present human features which are heavily distorted, their clothes are tattered if they have any on, and they seem to look and act inhuman (Figure 4). This indicates to players that this is an attackable creature merely due to the fact of familiarity within design and gameplay patterns. The animation and visual design signify that lower intelligence and more animalistic tendencies are present in these creatures due to a lack of sophistication in movement and appearance, unlike the clever design of 'Mr. X'.

Švelch (2013) describes the creatures 'necromorphs' in the game Dead Space 2 (2011), saying they "provoke the emotions of "disgust" or "awe," because they are both alive and dead and they are both one and many. They represent a fantastic, non-existent biology" (Švelch, 2013, p.194). Similar techniques of design are used in the creature designs of mutants in 'Resident Evil'. This design technique is chosen to be intimidating, attackable or not, making the tension during combat more intense. This is managed by the bodily damage talked about, protruding bones and flesh, linked to death and danger. Visual effect designers such as 3D modellers and texture artists in modern horror games aim to use these factors in design. In modern-day games, creatures are also designed to look as realistic as possible. This can make the player feel like they are in more danger as the sense of visual realism can create more of a sense of immersion in a game.

2.2 Weapon Design

Within combat-driven games of any genre, it can be said: "weapons are the central method through which players interact with the world in these games" (Giusti, 2012, p.1), and therefore it is imperative to pay close attention to the details. Visually, and mechanically,

how these weapons work in the game environment shapes combat gameplay itself, as it is part of the drive for the story and progression for the player. Styles of weapons vary, for example, fantasy swords and staffs tend to exude magical properties, whilst guns are usually in line with real-life to game haptics and tendencies, visually and practically. Guisti (2012) suggests that "action-oriented games focus heavily on players using weapons, but categorizations used for weapons are borrowed from real-world patterns" (Giusti, 2012, p.1). Building from this, we can also identify that in some games "weapon design is currently obstructed by reliance on the terminology used to describe real-life weapons"(Giusti, 2012, p.1). Terminology for real-life weaponry such as 'sniper rifles' and 'pistols' are commonly used in video games, even though the world is purely fictional in most cases. In alignment with this, designs of guns and the 3D models of these guns in games tend to be similarly referenced from real machinery and act in accordance with them also. As we can see (Figure 5), the 'Resident Evil' series follows this design pattern with gun models in-game. Variations of different models of guns used in real life such as rifles, handguns and machine guns are utilised. Whilst this limits the visual designers in some games, it also can make the player more immersed in the game when fighting fictitious creatures whilst handling known weapons we hear about in real life. Modern survival horror games do this, and "classify weapons in a way that defines weapons by the gameplay behaviours they elicit using a language of common weapon design patterns" (Giusti, 2012, p.1).

Weapons are widely recognised as integral parts of many popular games, such as the 'Legend of Zelda' franchise. 'Legend of Zelda' games feature notable 'signature' weapons; "Link [the protagonist] wields the Master Sword, Kratos thrashes monsters with his double-chained blades, Master Chief brandishes his plasma sword" (Rogers, 2014,p.271). Therefore, the design of these weapons must be unique, memorable and imposing to create a sense of honour and familiarity while equipped. Fantasy weapons during combat visually aid the game, which must be acknowledged when visual effects artists design and model weapons. Elements are utilised, such as fire emitting from swords that include fire combat abilities, or oppositely, ice shards on staffs used by frost mages that have ice throwing abilities. The design is usually coherent with the magical abilities, and this creates a visual layer of satisfaction during combat for players.

With guns in more survival-oriented combat in games, supplementary features such as scopes and silencers are added in the design, sometimes obtained as collectables so that the combat is enhanced through progression in a game. Scopes on guns enable players to see further, and towards their target, whilst enhancing the guns' appearances and levels. A common weaponry-enhancing factor is present in Fallout 4, a game where players can scavenge parts and build add-ons for their guns. As players add these parts on, their weapon becomes more powerful and changes visually, becoming increasingly complex. This visual and mechanical element is another layer added to combat within the game, where players progress through scavenging and building skills for their character, whilst also increasing combat skills throughout the game. Visual effects artists will have designed these add-ons bearing in mind the overall gun design, creating appearances that reflect the attributes of a weapon and serve as a visual cue to indicate how powerful it has become with respect to its chosen upgrades.

Regardless of the fact that without visual effects artists actually modelling and texturing these weapons, players wouldn't have anything to fight with at all, these minor visual additions to a game can make all the difference in a combat-heavy game. Without it, and with a weapon designed without these things in mind, the combat just wouldn't be as propelling for a player, and this is part of the reason why the games mentioned are so successful as combat games.

2.3 Spell Design

Within fantasy games, the most common forms of combat are spells and magic. Visual effects are integral in creating the scenes we see when a spell or magical element from a sword is cast, and the design choices are very intricate in most of the combat we see in these magical environments. Mason (2023) suggests in an article that; "In fantasy settings, VFX is used to create the fantastical particle effects of spells. These effects make use of colour and patterns to communicate their otherworldly, sometimes dangerous, and fantastical effects, and as a result, help immerse the player in the world." (Mason, 2023). Particle effects are an important part of visual effects and can be used to create weather such as fog, and simulations such as fire and blizzards in game environments. But it is also a

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huge part of creating these magical spell designs during combat scenes. The design process of creating these spells to drive a fantasy battle is very focused and thought through by visual designers to enhance the atmosphere a player is experiencing during combat.

For example, Mattila (2018) states that for spells within fantasy games, the "level of importance can be controlled and adjusted by modifying the size, shape, saturation and opacity of the effect." (Mattila, 2018, p.4). An example of this is a spell that is significant, such as a special power that is emphasised in design by standing apart from other spells the player may use in combat. This is done purely through the design, making it bigger in scale, colour and radiance. For example, in World of Warcraft (2007), when playing the Arcane Mage character class, one of the strongest spells castable is the 'Arcane Barrage' (Figure 6). This spell not only spans a great distance but is overwhelmingly radiant and colourful. This indicates to the player that during combat the visual design correlates with the intensity of the power, so it is communicating with the player purely through visual effects. On the other hand, "Attacks and spells that don't affect the player or game in a dramatic or significant way should visually indicate they are less important than the mechanics that have a significant effect on the gameplay." (Mattila, 2018, p.4). This relates back to the immersion visual effects creates, as this visual communication can "help players suspend their disbelief and remain enthralled in the game world without their sense of immersion being broken by text explaining various aspects of gameplay." (Mason, 2023). This swift visual communication to the player expands throughout a lot of fantasy combat, with motifs of characters and their spells becoming familiarities with the player and enemies in-game, who know what to expect due to a simple visual hint. "When a player sees a yellow lightning bolt or a red fireball object being flung at them by enemies, it's easy to understand the effect they'll have." (Mason, 2023). This is another example of how visual effects can create awareness in combat to the player in a more streamlined manner, whilst retaining immersion in the game's environment and atmosphere during combat.

Not only do visual effects contribute to this effective communication during combat, but also add to games' overall magical aesthetics. (Figure 7) shows the development of a spell design made by Luis Aguas, a visual effects artist for World of Warcraft. He explains, "There are three key components that make up any visual effect. Shape language/silhouette,

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motion/timing and colour/value. You will find these core principles in every game. However, their application is what sets them apart." (Aguas, 2018). A lot of fantasy games rely heavily on an otherworldly spectacle, and the magic and spells during combat especially are a huge highlight of this. The unique spell designs associated with different characters of different abilities and aesthetics are made possible by visual effects in creating beautiful and coherent spell patterns and designs.

Chapter Three: Damage and Healing

Damage and healing within the combat in games is a method of communicating the progress of the fighting sequence. In other words, it helps to inform the players who are closer to winning a battle and those who are potentially on their way to losing. The damage seen is usually emphasised by either 'total health' numbers on the screen decreasing or increasing, bars filling up or reducing, and visual hints such as red blood coming from the character or the enemy on which damage was inflicted. A common technique game designers use is to create a build-up of blood on the screen indicating the amount of damage your character is taking; it signifies to the player in a way they can't miss that they need to heal. An example of a game that does this is the Resident Evil series, "In Resident Evil (2015), when the player's health is low or critical, the "Danger" condition state activates. Although the player is not in any immediate danger, this low-health state is visually exacerbated." (Smith, 2023, p.15). This involves a series of visual hints offered by visual effects signifying the player is in a 'danger state'.

When healing, in whichever form this may take in a game, this visual design of blood may disappear whilst a sound effect or glow is shown to 'revitalise' your character. Characters or enemies that were limping or walking slower may then go back to moving in their usual unhindered way. This ultimately is summed up by some sort of health bar re-filling, emphasising the swift communicative game mechanics and visual haptics offer, which also becomes a routine of checking this bar during combat for the player. When damage is inflicted on enemies, we may see the animation of their movements becoming more unstable, slower or weaker, or their skin becomes bloodier and more damaged. This is normally portrayed in games in which the enemy doesn't have a health bar, and it is up to the player to determine how far along to defeating their enemy they are purely by visual hints and changes to the character's texture or model animation.

As mentioned previously, visual effects make communication to players much more efficient and concise, and part of this is also for communicating damage and healing to a player. Simple additions such as user interface elements, for example, simple numbers appearing after an attack was performed to communicate to the player how much damage was dealt (Nordberg, 2020, p.10). Similarly, relating back to spell design that visual effects artists

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create, gradients can signify within a spell or attack how much damage it makes from a distance, “if an attack deals more damage the closer the player, the contrast is higher from the centre and fades out further” (Nordberg, 2020, p.13). This can give the player a routine signal as to how much damage they are dealing, and what is helping them win in a battle. Another way visual effects communicate to the player, commonly in fantasy online games during high combat sequences, is by using particle effects similar to spell design. “A common example of this seen in action games is highlighting enemy weak spots with colour and particle effects to indicate to the player where to strike.” (Mason, 2023).

In terms of 3D modelling for damage and healing within a game, healing is usually restored with ‘medical packs’. In games such as the ‘Doom’ (1993) series, this is implemented with a texturing of a red cross on this item that when used, restores part of your health displayed on your health bar (Figure 8). This series of visual leads is accompanied by the texturing of this model to quickly communicate to the player what the item is so maximum time can be devoted to the gameplay itself. The red cross logo is commonly used by hospitals, symbolises health, and is very often used by health packs in games to heal damage (Nordberg, 2020, p.12). Visual effects artists have used this design so players with knowledge of what this symbolises in the real world can relate this quickly to the game, whilst also increasing the feeling of immersion due to familiarity.

All of these examples mentioned create this swift and efficient communication to the player so that it doesn’t take away from the immersion experienced in a game. This is an important factor especially within the damage and healing communications to a player, as this is the element within combat that determines failure or progression in most action-led games, so it needs to be as subtle yet as immersive as possible.

Chapter Four: Ethical issues surrounding visual effects in combat within video games.

There has been a long debate since the invention of video games themselves, as to whether or not they passively or directly contribute to actual violent behaviour in society. This is the main ethical concern surrounding video games, especially those revolving around combat itself. It must be noted that many people have connected the realism of a game to these concerns, and if this factor heightens these issues. In turn, it also then has to be accepted in this thesis that visual effects are one of the main contributors to making modern video games look more realistic. Bender (2014) explores the concept of realism in games as an "alternate analytical tool to account for the impression of truth and authenticity produced by specific stylistic components of these representations of combat violence." (Bender, 2014, p1). The stylistic and visual approaches to games therefore must be considered to have an impact on this opinion, for example, a more stylised game may be perceived by the player as less realistic and thus impactful on their real-world perceptions, whereas characters and weapons which are highly photorealistic, offered by visual effects, may form more of a connection to the real world and capabilities within it. This needs to be acknowledged, especially for children or people who are less able to differentiate between the real and the digital.

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Using an example of this research and opinion, the survival horror game Night Trap (Digital Pictures 1992) and fighting game Mortal Kombat (Midway Games 1992) triggered federal hearings in the United States, based on the "realism" of their violence portrayed (Schott, 2016, p.32). This was when video games were progressively trying to capture real-life visuals rather than being completely stylised or purely arcade games. This was due to a rise in the technology in video game development, one of these developments included visual effects and better 3D modelling and rendering. This improvement in technology and the race to create realism may have been contributing to the worry we have in the present day over modern games being highly realistic, and their relation to actual violence and combat. This is because not only do we now have high-level graphics and photorealism in combat games but, as Zagal (2009) highlights, "modern videogames are no longer about "mindlessly" pushing buttons. Instead, players engage rich narrative storylines and employ complex discursive practices and problem-solving strategies in order to understand and master underlying game mechanics" (Zagal, 2009, p.2). Here, the author combines photo-real

violence with a deeper sense of immersion and connection to the storyline, characters and overall actions in the game, which some can see as an added potential danger to players.

On the other side of this argument, Przybylski (2009) dives into another related theory; “games involving war, combat, or adventures may provide opportunities for psychological satisfactions that are irrespective of the violent elements within the games.” (Przybylski, 2009, p.244). The complex practices and game mechanics which visual effects add can be seen as a means of purpose and achievement that combat in games brings, rather than just taking part in it for the violence and death itself. For example, a player in combat games may not be killing simply for the act of killing, but rather for enjoying the sense of progress and achievement that game mechanics offer, which is the basis of the game. Przybylski goes on to explain “players often “like” the act of killing in games primarily because it represents feedback of progress or advancement through the game.” (Przybylski, 2009, p.244). As mentioned before, reward systems and progression all depend on the advancement of combat within a combat-based game, giving the player fulfilment and advanced skill in a game. These mechanics which are enhanced by visual effects gives this purpose, so the killing the player is experiencing isn’t meaningless and just for the ‘thrill’ of it.

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This theory could suggest that high level visual effects’ part within game mechanics are not always the reason why games such as arcade games, some of which involve minimal combat and low graphics, are still successful to this day. A mechanics system that is purely made by skill leading to rewards is enjoyable for a player because you are getting feedback in real-time when you see the score rise or see that you have beaten a high score at the end, motivating the player to want to try again and again. This is an example of how combat and high-level visual effects used simultaneously are not always needed to create a successful game, nor therefore are they necessarily responsible for increased actual violence, an argument that could be explored by anti-violence researchers in the field of gaming.

Discussions of findings

Throughout the creation of this thesis and especially during the research, there has been a lot more brought to light on the topics of visual effects, video games and combat, as well as how these all combine. The findings throughout this thesis support the idea that for the majority of video games explored, the implementation of visual effects increases the quality of combat gameplay for the player. For example, it was found that visual effects in combat enhance the immersion between the game and the player in most experiences, immersion being important for positive feedback from players' experiences. It was also found that visual effects created more streamlined information for the player, preserving this immersion for the player's attention to the environment and intensity of the combat in-game. Most research also leaned towards the fact that more visually appealing and realistic models were on the rise to increase immersion and overall visual satisfaction within the stylisation of video games.

Ethical concerns regarding realism in violent games were discussed. However, while it was necessary to consider these issues alongside, the focus of the thesis remained on the role of visual effects in creating a better gameplay experience. The driver here is the technical achievement in bringing fantasy to life; the effect on players' interaction with the real world has to be accepted as a possible negative consequence, but the level of harm is highly debatable.

While it has been found that visual effects are not aways needed technically for a successful game, such as in arcade games or highly stylised games, it was still seen that what visual effects offer in modern combat games greatly enhances the gameplay experience. The reasons for this were discussed throughout the thesis, all derived from findings during research on this topic in different areas covering weapons, spells, game mechanics, and overall combat scenes within a game. Most of these findings all leaned heavily towards praise of visual effects within a game, a lot of which revolves around the immersion and greater excitement that visual effects offer.

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Conclusion

The research presented in this thesis has shed light on the specific means through which visual effects can optimise the experience of combat-driven games. This information can serve as a guide for visual effects artists and game designers to improve their work. Following is a short list summarising the key topics discussed in this thesis, in no particular order.

- Opacity and gradient effects in spells
- Choice of realistic or stylised weapon design
- Factors when proceeding with creature design
- What to consider while creating a chase sequence
- How to present damage or healing in combat
- Which game mechanics to increase within the gameplay
- How much “realism” is wanted in the combat gameplay

This thesis can serve as a starting point for future research in the field of game design, as it summarises the role of visual effects in combat-driven games. In addition, the research conducted could help individuals appreciate the topics discussed when experiencing gameplay and acknowledge the artists' work in areas that they may not have known beforehand.

Some limitations and implications for future research may be limits to technology in the future, the ethical issues discussed (and if these worries increase in society) or changing trends within gaming. However, according to the research and examples used in this study, stylised games tend to not revolve around combat-based action and therefore are rarely at the forefront of how visual effects are utilised in combat scenes. On the other hand, it seems unlikely that developments in technology will slow down any time soon, so this may not be a limitation, but rather it will continue to help show off the capabilities visual effects can offer video games.

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Appendices

Figure 1 - https://www.researchgate.net/figure/Example-of-some-game-mechanics_fig1_315518111

Figure 2 - https://47af5b8e.flyingcdn.com/wp-content/uploads/sites/31/2020/09/Leveling-in-Shadowlands-1536x864.jpg

Figure 3 - https://gamerant.com/resident-evil-2-remake-how-survive-mr-x-tyrant/

Figure 4 - https://monster.fandom.com/wiki/Irregular_Mutant

Figure 5 - https://www.gamerevolution.com/wp-content/uploads/sites/2/2023/03/Resident-Evil-4-remake-all-weapons-list-real-life-guns.jpg

Figure 6 - https://wow.zamimg.com/uploads/screenshots/normal/170978-arcane-barrage.jpg

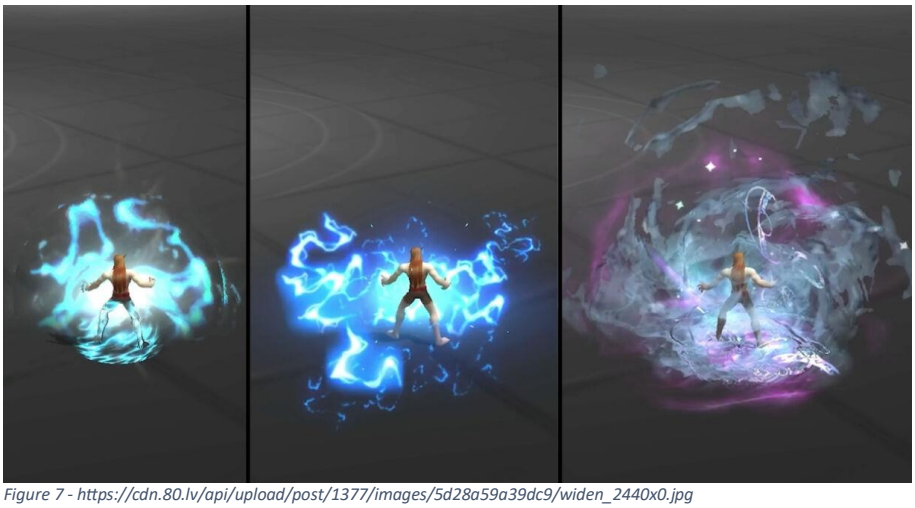

Figure 7 - https://cdn.80.lv/api/upload/post/1377/images/5d28a59a39dc9/widen_2440x0.jpg

Figure 8 - https://doomwiki.org/w/images/7/76/MedikitE10.png