THE EFFECTIVENESS OF SPECIAL EFFECTS:

PRACTICAL EFFECTS VS. DIGITAL EFFECTS

by

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THESIS ABSTRACT

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For centuries films have given filmmakers the ability to affect their audiences visually and emotionally. Special effects and digital effects make a fictional scene appear more realistic. In the film *An American Werewolf in London*, make-up artist Rick Baker revolutionized the use of practical effects when transforming David Naughton's character into a werewolf. In 1997 when *An American Werewolf in Paris* was released, director Anthony Waller utilized digital effects, instead of practical effects, when transforming various characters into werewolves. These transformation scenes were not met with as much praise as its predecessor. If we were to have a better understanding of how individuals perceive practical effects and digital effects it would allow us to determine which one better conveys an emotional reaction. This thesis will demonstrate which type of special effect, practical effects or digital effects, is more effective at relaying an emotional response in a viewer.

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CHAPTER I

INTRODUCTION

The focus of this study is to determine if there is a significant difference in emotional response when viewing practical and digital effects. More specifically, this study examines which type of special effect, practical or digital and set within the horror genre, is more effective at relaying an emotional response to a viewer. Movies incorporate different types of special effects to enhance a fictional scene, altering them in order to make them appear more realistic. As new technologies and techniques are developed, it is important to analyze whether or not their intended use is relayed from the filmmaker to the audience. The scope of this study evaluates how viewers respond emotionally toward two different movie clips set within the horror genre; more specifically, two different werewolf transformation scenes. Each clip contains a different type of special effect.

The main point of this thesis is to not only research which type of effect causes the greater emotional reaction within its viewer, but to also elaborate on how individuals perceive and interpret visual stimuli from a special effect. This will provide a better understanding of how audiences bond with fictional scenes, which incorporate practical and digital effects. By including literature from cinema studies and psychology, this research will not only fill in the gaps regarding special effects, it will also add a quantitative foundation for other researchers to build upon within these two disciplines. The importance of this investigation exists in the statistical findings of the quantitative data, which lends itself well to other areas of research. Before taking a look at the data

collected for this study, it is important to understand why filmmakers employ special effects in their films in the first place.

Special effects have remarkably changed our cinematic experience. These optical enhancements, cleverly hidden within a movie's scene, alter our perception of reality by bending visual rules. Not only have they influenced the way we experience movies; they have also contributed to major advancements within the world of technology (Netzley, 2000). As special effect technologies progress, filmmakers are able to expose viewers to new forms of realism intended to enhance their audiences' movie experience.

The line between illusion and reality becomes increasingly harder to detect the more realistic a special effect appears. Historically, filmmakers chose which effect to use based on the outcome they were trying to achieve. Each effect can be used alone, or combined with other effects in order to enhance the staged scene of a movie, making it appear more realistic. As effects are combined, it becomes progressively harder for the viewer to differentiate which type of effect is being used, which contributes to the illusion.

Since there are numerous classifications of special effects, this paper will analyze two categories of them: practical effects (makeup, mechanical and visual); and digital effects. Practical effects are techniques that are produced physically. This includes puppetry, makeup, and a vast majority of visual effects. Digital effects pertain to effects that are generated digitally by computers (Metz, 2008).

The incorporation of special effects into films started in the late 1880s (Metz, 2008). The creation, history, technique, and technical jargon of both types of special effects are important to understand when analyzing how this art form creates an

emotional response within the viewer. Countless investigations, including textual analysis, have been conducted to discover how audiences decode and perceive one type of special effect. However, there is a considerable lack of research exploring the audience's emotional response to both practical and digital effects when compared against one another. While the analysis of how a movie does at the box office demonstrates its popularity, it does not allow for a comprehensive understanding of how a particular movie, or scene, makes the viewer feel. By identifying which type of special effect is more effective, we can start to understand how an individual interprets a fictional scene or event. While both practical and digital effects appear in all types of film genres, the horror genre was selected for its ability to scare audiences. Fear is an easier reaction to achieve in audience members as opposed to reverence or admiration.

Participants of this study were shown two werewolf transformation scenes. The first clip was taken from John Landis's 1981 film *An American Werewolf in London*. This scene depicts David Naughton's character, Jack, transforming into a werewolf for the first time. This scene was monumental in the development of practical effects. Makeup artist Rick Baker won an Academy Award for his contributions to the film (Netzley, 2000). The second clip features a werewolf transformation scene from Anthony Waller's 1997 film, *An American Werewolf in Paris.* This scene portrays Julie Delpy's character, Serafine, transforming into a werewolf. *An American Werewolf in Paris* relied solely on digital effects for its transformation scenes. Unlike its predecessor, *An American Werewolf in Paris* did not win awards for its effect use and failed to captivate horror audiences.

I hypothesize that the practical effects used within the film *An American Werewolf in London* will generate more of an emotional response as a result of the special effects being produced in real, tangible form. This approach gives the viewer the perception that if they were to reach through the surface of a movie screen they could physically touch what was going on. They could, in effect, touch the prosthetics applied to Naughton's body and feel the hair penetrating from his skin. Since these practical effects were present during the filming of this scene, the filmmaker had the ability to choose the best angles to illustrate Naughton's transformation. Lighting could be adjusted, and the actor could be instructed on how to move in order to deliver the emotion the director ultimately wanted. This also provided the film crew with ample amounts of time to capture everything needed to complete Landis's final vision of the scene.

In *American Werewolf in Paris* the digital effects were not present during production and were generated by a computer during post-production. Since these effects were not present on set, both the filmmaker and the actress involved have no idea what the final image would look like during the filming process. The film crew did not have the ability to change things during production, and the actress had nothing on set to react to, as opposed to practical effects in the earlier film, which the actor had the ability of watching himself transform.

I put forward that audiences will not be able to connect as strongly to the digital effects used in *An American Werewolf in Paris* because they are not produced in reality and will be perceived as being fake. Before one can make these assumptions, however, it is important to consider what has previously been written and researched regarding these

types of special effects. It is also imperative to understand the terminology and history involved.

CHAPTER II

LITERATURE REVIEW

WHAT ARE SPECIAL EFFECTS?

The term 'special effect' applies to numerous techniques involving the manipulation of a staged event in order to make a fictional scene appear real. According to Patricia Netzley in her book *The Encyclopedia of Movie Special Effects*, practical effects can be broken down into three major categories: visual effects, makeup effects, and mechanical effects. Visual effects consist of in-camera or post-production manipulation. Makeup effects are materials applied directly onto an actor or actress. A mechanical effect is a physical effect that takes place on the set of a live action shoot. Mechanical effects include intricately designed sets, robotics, and vivid lighting schemes (Netzley, 2000). As new special effect techniques are developed, new subcategories are established.

In addition to practical effects, this thesis will focus on digital effects. Before the invention of the computer, visual effects were not considered a practical effect. The one characteristic that differentiates a visual effect from a practical effect is where the effect is applied. Application of an effect to a set or actor during a live action shoot is considered a practical effect, as opposed to a visual effect, which is applied to the image itself either in camera or in post-production (Metz, 2008). The digital age changed the characterization of special effects. Instead of visual effects having their own category, they are now considered practical effects, but only if the manipulation happens within the camera. If a computer applies the manipulation then it is considered a digital visual effect or VFX (Prince, 2011). Computer generated images, or CGI, are considered VFX. Since

the inception of the motion picture industry filmmakers have utilized these various techniques to elevate the stories they tell. This gives them the ability to introduce new, realistic worlds to their audience (Nannicelli & Taberham, 2014). It is important to learn from the past in order to understand the importance of advancing these techniques and why the creation of new technology is important.

A BRIEF HISTORY

Before diving into this section it is important to note that the history of special effects is a difficult one to describe chronologically. More specifically, the history of special effects, or any form of cinematic technology, is a difficult one to discuss in a sequential fashion. (Cook, 1985). In *The Cinema Book*, Pam Cook writes:

> …the overwhelming bias, in spite of an apparent diversity of approach, towards describing cinema history as a chronological sequence of progressions towards ever more perfect forms occludes complex relationships between social structures, institutions and forms which do not necessarily operate chronologically (p. 2)

Instead of chronologically discussing the invention of every special effect, only monumental breakthroughs are often mentioned in the writing of standard film histories.

In the book *Special Effects: the history and technique*, Richard Rickitt discusses the inquisitive life of Georges Méliès (1861 -1938), who is credited as being the father of special effects. Instead of following in his father's boot-making footsteps, Méliès sold the family business and purchased a theater. The Théâtre Robert-Houdin in Paris soon became one of the most popular magic venues in the world. There, Méliès became well-versed in magic and illusions, often inventing new tricks and artifices. On December 28,

1895, Méliès was a spectator during a cinématographe performance conducted by the Lumière brothers. Infatuated with this new piece of technology, and dismayed at the unavailability of the cinématographe for purchase, Méliès crafted and designed his own camera prototype. With the invention of his camera, Méliès developed stop-action photography, double exposure, and fast and slow motion. Méliès used these techniques in many of his films, including the infamous *A Trip to the Moon* in 1902 (Rickitt, 2000). During this same time period, another special effect pioneer was developing new cinematic tricks involving glass and oil paint.

Norman O. Dawn is often credited with inventing the visual effect of matte painting (Rickitt, 2000). The particular form of matte painting with which Dawn is credited (often called the Dawn technique) is one where an artist paints a building, object, or landscape on a pane of glass with oil paint. The glass painting is then placed in front of the camera to either hide something from the viewer, or create a scene which does not exist in reality (Rickitt, 2000). Over the decades matte painting has evolved, incorporating inventive techniques such as rear projection, bi-pack contact, optical printing, and eventually digital matte painting. Due to the versatile nature of matte painting, it continues to be one of the most utilized visual and digital effects within the realm of filmmaking (Rickitt, 2000).

During the 1920s American cinema was exploding with new special effects and special effect techniques. *What Price Glory?* was a film released in 1926 by Fox, a picture which contained the first screen credit for special effects (Rickitt, 2000). Due to the demand and new realism presented by special effects, studios were now spearheading research and development to streamline both production and infrastructure.

Orson Welles and Alfred Hitchcock were two commercially successful filmmakers notorious for employing unique cinematography and special effects in their films. In *Citizen Kane* Welles used the optical printer to illustrate the splitting of Charles Foster Kane's identity toward the end of the movie (Simmons, 2008). The optical printer allows filmmakers to produce one final image, composed of multiple images. If a filmmaker is shooting a scene with actors, the optical printer allows the filmmaker to add additional elements to the scene, or another character, to the image that was not present on set (Netzley, 2000). This is another example of a practical effect. The use of the optical printer was imperative to the meaning of the scene for which it was used in *Citizen Kane*.

Due to the commercial success of his films, at the age of 25, Welles was given free creative rein from RKO studios. This gave Welles the freedom to incorporate many different types of special effects into his films, which ultimately lead to other filmmakers incorporating these special effects into their own work.

One of those filmmakers was Alfred Hitchcock, who utilized mechanical effects during his production of *The Birds* in 1963. Instead of using hundreds of live birds on set, Hitchcock commissioned artist Albert Whitlock to paint a large picture of birds sitting on trees and a telephone line. The painting had a series of small punctures. The punctures allowed small amounts of light to pass through them. This gave the illusion of birds moving. Another effect he utilized within *The Birds* was rear projection. Using a series of projectors on set, Hitchcock had his cameramen previously shoot seagulls diving after food. The footage was then projected onto a screen the actors stood in front of. This gave the appearance that birds were diving to attack the actors (Netzley, 2000). The

combination of these techniques allowed Hitchcock to build suspense and tension within his movies. As time progressed more and more filmmakers utilized new, emerging special effect technology such as the computer.

Computers revolutionized the way special effects were created and eventually gave rise to digital effects. Originally, large corporations like General Motors and IBM privately owned the first iteration of computers and used them for their large-scale drawing programs. In 1964 the first computer images were unveiled to the public, ushering in a boom of growth within digital technology. Eventually Hollywood took notice and soon filmmakers were exploiting these new technological tools to advance their own work. In the beginning, digital effects were costly and took an enormous amount of time to produce. But the demand for digital effects was high, which caused the rise of a new type of production house (Netzley, 2000). One of the most famous, Industrial Light & Magic (ILM) was started by George Lucas in 1975. Before the creation of digital effects, ILM was well known for their creation of practical effects. Once ILM moved into the digital age, they became one of the most reputable manufactures of digital effects in the world. They were able to invent and produce new techniques and technologies which streamlined the production process. This allowed digital effects to become cheaper and be produced faster, leading to a large change within Hollywood standards. Now, audiences were used to seeing elaborate digital worlds, which created a huge demand and need for more digital effects (Netzley, 2000). However, while computers seemed to innovate and enhance special effects, the industry was not void of criticism. Some critics called for a complete restructuring of the terminology pertaining to special effects.

In his book *Digital Visual Effects in Cinema*: *The Seduction of Reality* (2011), Stephen Prince calls for a reorganization of the terms 'special effect' and 'visual effects' within the scope of computers. Prince argues that the term special effect no longer applies to effects generated by a computer (Prince, 2011). Previously, there was a separation between mechanical effects and visual effects. The digital age ushered in another separation, which would ultimately associate visual effects with practical effects. Instead of the location differentiating the effect, special effects would now be classified by analogue or digital. According to Prince, all effects created in analogue should be classified as either special effects or practical effects, while all effects generated digitally should be called digital effects or computer generated images (CGI) (Prince, 2011). As digital effects increased in popularity, other Hollywood platforms were forced into the digital age. Now, separated into its own category, digital effects were slowly seeping into all genres of Hollywood cinema.

The first CGI was used in Michael Crichton's 1973 science fiction western, *Westworld.* In this film actor Yul Brynner plays the gun slinging android, Gunslinger. Crichton wanted his audience see what the world looked like through Brynners' digital eyes. Unable to bring his vision to fruition with practical effects, Crichton turned to computers to digitally alter the point-of-view shots used to illustrate how Brynner visualized the world. This allowed his audience to see the world through the eyes of an android (Semlyen, 2010). While this example does not merge a digital effect with a real-life character, it illustrates why and when filmmakers started incorporating digital effects into their work. As time progressed, they were able to combine digital images with live action scenes.

Flash forward to the year 1989, when James Cameron had ILM develop new computer software for his movie *The Abyss*. In *Encyclopedia of Movie Special Effects* Netzley explains:

> ILM provided the most difficult special effect in the film, a water creature that communicated by forming the face of characters in the movie. To accomplish this effect, the actor's faces were scanned with a laser, digitized in a computer, and used to shape the face of the computer-generated creature. For this effect ILM had to develop new software to create realistic water and improve a morphing program that was used to make the transition from one image to the next. (p. 1).

The use of this digital effect was important when creating a bond between the water-creature and the other characters within the film. Not only does the effect allow the water-creature to appear human, it allows the audience to connect emotionally to it (Hammond, 2013).

Jurassic Park (1993) was another film in which its director, Steven Spielberg, required the invention of new special effect techniques in order for the intended emotion to be delivered to his audience. The film went on to win over 20 awards, three of which were Academy Awards for technical achievement. Originally, director Spielberg only wanted to use CGI for a few scenes involving stampeding dinosaurs. Spielberg's animation supervisor disagreed and, on his own, developed a new wireframe technique which allowed 3D imagery and rendering to be used for the first time in a movie. After viewing the wireframe Tyrannosaurus Rex, Spielberg loved the idea and went on to include 50 CGI scenes within the film. This breakthrough was not without its pitfalls. Using computers to animate dinosaurs came with a steep learning curve. To offset this,

Spielberg's animation team came up with software that would digitally track the motion of the puppeteers. This movie revolutionized the way digital effects were created and used in films. (Netzley, 2011).

While these examples give us an understanding of how filmmakers create new innovative technologies designed to enhance their viewers' experience, it is unclear if the desired effect is actually achieved. It is also unclear if the audience was able to differentiate between the practical effects used and the digital effects. It is quite possible audiences were so impressed by the animatronic dinosaurs that they looked past the digital effects. On the other hand, audience members might have been so fooled by the digital effects they simply assumed all the dinosaurs were animatronic. These unknown factors highlight why more research needs to be conducted, analyzing both practical and digital effects.

The literature above illustrates what happens when inventive minds push the constructs of technology. Georges Méliès's curious nature allowed him to develop various visual effects, inadvertently creating a new cinematic art form (Rickitt, 2000). While Norman O. Dawn did not wish to be credited with developing matte painting, his technique gave filmmakers the ability to bring realistic fictional worlds to their audiences (Rickitt, 2000). Orson Welles and Alfred Hitchcock employed the instruments developed by Méliès and Dawn, allowing them to bring emotional masterpieces to the masses through Hollywood (Netzley, 2011). Once these inventions took hold, other filmmakers, such as Steven Spielberg and James Cameron, adopted them into their work (Netzley, 2011). As more and more filmmakers utilized special effects, film theorists and social

scientists started to take notice and developed new ways of analyzing film's effects, which in turn created new theoretical constructs.

While numerous studies have been conducted on special effects, films, and their influence, more studies need to be conducted to evaluate and gauge the effectiveness of these distinctive film arts. This study hopes to aid in the creation of other studies, which will focus on analyzing audiences' emotional response to both practical effects and digital effects. In order to understand how an individual interprets visual data, which in turn creates an emotional response, it is important to discuss how other academics have tackled this inquiry in the past.

COGNITIVE MEDIA THEORY

One approach, which provides an understanding of the emotional responses to media, can be found in cognitive media theory. During the 1980s a paradigm shift occurred within the field of film and media studies. In the book *Cognitive Media Theory*, editors Ted Nannicelli and Paul Taberham discuss numerous articles employing the adoption of neuroscience in order to explain how films ultimately affect their audiences. In order to understand how an individual interprets a particular type of visual cue, it is important to understand how the brain works.

The work by scholars who have incorporated cognition into their own studies highlights why understanding the brain is imperative when analyzing whether or not a certain type of visual cue affects someone emotionally. In the case of this study, it is important to understand how an audience member's brain translates practical effects and digital effects differently, into an emotional response.

Literature presented by Warren Buckland, Christian Metz, and Murray Smith exhibits how cognitive theory can be used in tandem with film theory and psychoanalysis to broaden the understanding of how the human mind interprets visual signs, ultimately leading to an opinion and triggering an emotional response. Film theorists have often adopted methodologies from the realms of social science and cultural studies. These approaches are imperative when analyzing a film's influence on a society, but steers away from the influence a film has over one individual (Buckland, 2000). The intent of this thesis is to add to these studies by including the element of special effects. Moreover, the argument that this paper constructs relies on the notion that a society is a structure made up of multiple individuals. It is important to comprehend the understanding one individual has in order to grasp the concept of a whole society. The methodology and findings within this study add to the approaches of film theorists who wish to understand how a film affects an individual.

In the book *The Cognitive Semiotics of Film*, Warren Buckland discusses the marriage of film studies to cognitive science, which took place in the 1980s. His book combines a summary of ideas from researchers around Europe and North America, highlighting the differences of approach between the two (Buckland, 2000). Most North American film theorists adopted Marxism and psychoanalysis into their methodologies, while European scholars have returned to the roots of cognitive theory by reintroducing semiotics.

Instead of focusing exclusively on textual analysis and qualitative methods to gain insight into how a spectator experiences a film, researchers turned an analytical eye towards cognitive science for a more intrinsic explanation (Buckland, 2000). Buckland

mentions pivotal contributions presented by Christian Metz, who focused on the narrative structure of a film. Metz combined semiotics with cognitive science in order to gain a better understanding of how individuals relate to signs. Metz used the term 'signs' to categorize all visual images (Buckland, 2000). While it is inevitably difficult to explain how every individual experiences a special effect, taking a cognitive approach helps conceptualize which type of special effect is more effective at relaying a particular emotion, in this case fear or pleasure, to the viewer.

In the article "The Pit of Naturalism: neuroscience and the naturalized aesthetics of film," Murray Smith suggests that film scholars utilize neuroscience to understand the effect a film has within its viewer. In order to understand how an individual breaks down the aesthetics of a film, one must first understand how the brain works (Smith, 2001). This notion has been met with its fair share of skepticism. Jerry Fodor, a cognitive scientist, questions, "whether the mind can be illuminated by evidence about the brain" (Nannicelli & Taberham, 2014, p. 29). The field of neuroscience breaks down the physiology of the brain, while cognitive science explains the complexities of the mind. In other words, biology helps us to understand the question of what, while cognition tries to explain why. By merging these two fields, film theorists can develop a better understanding as to why certain cinematic techniques are able to create the same emotional response within different viewers. Neuroscience, aided with cognitive science, is able to explain why, for example, a popular editing technique called 'the startle effect' works (Nannicelli & Taberham, 2014).

Smith describes the startle effect as a technique used by filmmakers to jar an audience. Physiologically, a startled response, such as jumping at a loud noise, is a reflex

that happens within the brainstem, a reaction over which it is significantly hard to gain control (Smith, 2001). This evolutionary function is designed to thrust an individual into a heightened state of attention. Filmmakers will edit sequences together in order to evoke this type of response from the audience. They do this by editing and adding sudden, loud sound effects. Smith (2001) describes one particular scene from the film *Iron Man*:

> Cutting between Stark and the soldier in the back seat, and the soldier taking the shot in the front seat, the action focuses on the framing and staging of the photo. Across the thirty or so seconds that have elapsed since the scene began, then, the film has worked to focus the spectator's attention on the initially tentative, but increasingly relaxed and humorous, interaction between Stark and the soldiers. The AC/DC song, Stark's cocktail, and his irreverent jesting create a sociable atmosphere within the Humvee, an atmosphere that stands at odds with and distracts us from the treacherous environment outside the vehicle. A micro-narrative is created around the taking of the photograph, which we expect to be completed. A complex but stable overall rhythm emerges from the blending of editing, figure movement, and the AC/DC song; the auditory dynamics of the scene are similarly stable. All of these factors set up the startle response cue, a sudden and tumultuous blast as the Humvee in front of Stark's vehicle is destroyed by a rocket-propelled grenade or a missile (an explosion that resonates through every speaker in a surround system). (p. 32)

The startle effect is often utilized in horror films, thrillers, and action sequences to jolt the viewer. It is a great example of how filmmakers use manipulative techniques to create a heightened emotional response within the viewer. As explained by Smith, it is also a great example of how cognition and neuroscience can be utilized to disclose why this emotional response is triggered. Much like Smith, the main goal of this paper is to illuminate which type of special effect is more effective at generating an emotional response within the viewer. Smith's research lends itself well to the explanation of

editing, but leaves the question of special effects used within these edited sequences unanswered.

After reviewing this literature, it becomes abundantly clear why scholars have incorporated cognitive media theory into their own academic work. In order to understand why certain cinematic techniques evoke an emotion within a viewer, it is important to understand how an individual interprets these visual signals. Buckland describes the adoption of cognition into to the field of film studies as being a paradigm shift, due to cognition's ability to explain a film's effect over its audience (Buckland, 2000). Metz seamlessly merged cognition into semiotics in order to gain a better understanding of how individuals relate to signs (Buckland, 2000). Smith goes one step further, incorporating neuroscience to explain the phenomenon of the startle effect. Smith's explanation of the startle effect sheds light on why individuals are affected by this editing technique (Nannicelli & Taberham, 2014). It is research like Smith's that sparked the idea for this study. While researchers have analyzed how an entire film affects mass audiences and how certain cinematic styles are used to evoke an emotion with the viewer, this study aims to prove that different types of special effects will deliver different emotional responses within the viewer.

GAUGING EMOTIONAL STIMULI

While cognitive media theory explains how an individual interprets visual data, it does not explain what happens after the brain has evaluated the data. In the book *Sensation and Perception,* Goldstein and Brockmole explain the seven steps of the perceptual process. First a stimulus happens within the environment; in this case the

stimulus would be either a special effect or digital effect. The second and third steps pertain to light information entering the eye and being processed by receptors such as rods and cones. The fourth step is when neural processing begins; at this point the brain is converting the special effect or digital effect into a perception. The fifth step is when the perception is formed. The sixth step is recognition, and the seventh step is action (Goldstein & Brockmole, 2016).

In reference to the perceptual process, cognitive media theory explains steps one through four, but does not go into detail regarding steps five through seven. A different approach is needed to explore the reaction that happens after a perception is formed. With regard to this experiment, a survey will gauge the fifth step of the perceptual process. Some scholars have dedicated much of their lives toward researching how certain variables affect the human psyche. Adding literature written within the discipline of psychology will help to fill in the gaps after neural processing has occurred. This will give an understanding into how an emotional response is created from visual cues and certain objects, and how that emotional response can be measured.

In June of 1970 robotic engineer Masahiro Mori published an essay discussing the disconnection between human-like figures and our response to them. However, there have been numerous studies concentrated on the 'eeriness' invoked by a near human-looking animation. A recently published article in *The New Yorker* discussed Masahiro Mori's paper, titled "The Uncanny Valley." In it journalist Margaret Talbot explains:

> We will accept a synthetic human that looks and moves realistically, Mori wrote, but only up to a point; our satisfaction drops precipitately once the resemblance becomes close enough to nearly—but not quite—fool us. (para. 2).

Masahiro Mori's paper offers a detailed explanation as to why humans have an issue connecting with something that is "almost" life-like. The 'uncanny valley' effect explains the eeriness and feeling of repulsion when a person is looking at a near-human artifact. (Moore, 2012). In his paper *A Bayesian explanation of the 'Uncanny Valley' effect and related psychological phenomena* Roger Moore argues that there is no quantitative explanation, or model set forth to help predict or analyze why an individual cannot connect emotionally to a near human-like object (Moore, 2012). This research lends itself well to this study due to its elaboration on how humans form bonds with human-like objects.

As participants watch the two clips incorporated into this study, an understanding is sought of how audience members perceive and bond with both animate and inanimate objects when they are used with real-life actors. This will also broaden the scope of Masahiro Mori's research by elaborating on how individuals bond to prosthetics (practical effects) which have been applied to an actor, when compared to a digital effect applied to an actress. If an individual were to watch a digital effect applied to an actor intended to make the audience feel sorrowful, but ended up making the viewers feel awkward, then the intent of the effect is lost. Through the scope of Mori's research it would appear that practical effects applied to an actor would be more effective. However, more research needs to be conducted to analyze this response.

Research conducted by Bartsch, Appel, and Storch examined why fans of the horror and drama genres seek out films intended to produce a negative emotion. In their paper, "Predicting Emotions and Meta-Emotions at the Movies: The Role of the Need for Affect in Audiences' Experience of Horror and Drama," their research revolves around

the concept of the Need for Affect (NFA) (Bartsch, Appel & Storch, 2010). NFA is defined as a general motivation for people to approach or avoid situations and activities that are emotion-inducing for them and others (Maio & Esses, 2001). NFA is based on a 1 through 5 rating scale (Maio & Esses, 2001). Bartsch, Appel, and Storch's research concludes that individuals who seek out negative emotions through movies are in turn positively stimulated by the negative emotional response they seek (Bartsch, Appel & Storch, 2010). This study confirms that certain individuals seek out an intended emotional response from a film, which illustrates the importance of further analysis into the effectiveness of techniques such as the special effects utilized within these films.

Codispoti, Surcinelli, and Baldaro conducted a study analyzing the emotional response and heart rate of moviegoers as they watched pleasant, unpleasant and neutral films in 2007. Sixty (60) participants were fitted with electrocardiograms (ECG) and viewed the three different types of film clips. The first clip was a pleasurable film clip depicting sexual intercourse between a male and female. Next was an unpleasant film clip taken from a medical documentary illustrating a thoracic surgery, and finally a neutral clip taken from a documentary of Swedish landscapes. Their findings suggest that exposure to pleasant and unpleasant film clips cause the same response: sustained attention. When participants watched the pleasant and unpleasant clips, the ECG showed the same degree of cardiac deceleration, a trait not shared while viewing the neutral film clip. These findings are important when trying to gauge how a horror fan will respond to different types of effects as opposed to a non-horror fan. An audience member who is a fan of the horror genre will react differently when compared to an audience member who

is not a fan. The research conducted by Codispoti and his team illustrates that regardless of the audience member's preference, a viable reaction will still be generated.

Codispoti and his team wanted to clarify whether or not there was a physiological difference of heart rate between genders and scene content. Their study showed no physical difference in results across the male and female gender (Codispoti et al., 2008). While this study does not include anything inherently associated with visual effects, it illustrates how men and woman respond similarly to both pleasant and unpleasant visual cues. The study also suggests, regardless of which type of clip was pleasant or unpleasant to the viewer, that a testable response was generated (Codispoti et al., 2008). Codispoti's observations blend well with this study of special effects, highlighting the finding that regardless of the viewer's preference regarding horror films, a testable response will be generated. If an audience member is a fan of horror films, his/her response should test the same as an audience member who is not a fan of horror films. With the understanding that a pleasant clip and unpleasant clip could potentially cause the same response in both horror fans and non-fans, it is important to learn how audience members form bonds to the characters they are viewing.

An article written by Alex Neill, appearing in *American Philosophical Quarterly*, discusses how viewers form emotional responses to fictional characters and fictional scenes. Neill explains that a viewer can experience an emotional response to a fictional character due to perspective. He further explains perspective as the ability of an audience member to emotionally connect and see through the eyes of the character within a scene. If the fictional character experienced a tragic event, such as the death of a loved one, then the individual viewing the scene would feel pity for the fictional character (Neill, 1993).

However, using perspective to explain the connection established between a fictional character and audiences only works for a few emotions. Understanding the emotional response of fear is much more complex. Neill discloses that fear and jealousy are not generated by viewing a situation from a character's perspective. After all, how can you fear something or be jealous of something if you know it does not exist (Neill, 1993)? While some viewers could watch a film about ghosts and suddenly become afraid of ghosts, more often it is the shock and alarm filmmakers induce with their productions that cause viewers to feel fear. The way a filmmaker utilizes camera angles, editing, and sound can cause a reaction that feels like fear in the viewer, even though the viewer may not be afraid of the monster they see on the screen (Neill, 1993). The point Neill makes proves how important it is to understand which type of effect generates more of an emotional response within its viewer. Filmmakers often utilize special effects when producing action and horror scenes. While much of the analysis falls on editing, narrative, and sound, more research needs to be conducted on the type of effect being used.

In a 2007 article, "Politics, Performance, and Coleridge's 'Suspension of Disbelief,'" Michael Tomko discusses Samuel Taylor Coleridge's concept of the suspension of disbelief. This notion explains that viewers of a film will suspend their understanding of reality in order to immerse themselves within a work of fiction. By suspending disbelief, a viewer will not hold the work of fiction to the same rules that govern reality (Tomko, 2007). The suspension of disbelief gives additional insight as to how a viewer can be affected by a fictional scene. Other writings by Alex Neill added to this argument by discussing how a viewer can feel for a fictional character because of

perspective and experience due to the shock value of editing (Neill, 1993). Literature from Murray Smith also contributes to the argument of shock value by using neurology to explain another editing technique, the startle effect (Smith, 2001). These notions, combined with Coleridge's concept of suspension of disbelief, highlight the important relationship between the filmmaker and the audience. The filmmaker provides the visuals necessary for a belief, but the viewer must be willing to blur the line between fiction and reality in order to experience the full emotional effect of a work of fiction (Tomko, 2007).

In the article "The Willing Suspension of Disbelief: A Neuro-Psychoanalytic View," Norman N. Holland uses neurology to explain the inhibition of suspension of disbelief within the brain of a viewer. Holland breaks suspension of disbelief into four parts. While experiencing a work of fiction, a viewer or reader will first lose perception of his/her body, then lose perception of the surrounding environment, resulting in focus only on the stimuli presented; in this case the movie or book they are viewing. Next, the viewer will lose the ability to make judgments based on reality. During the fourth stage, the viewer will emotionally respond to the fictional work as if it were real (Holland, 2003).

In 1968 Holland conducted a large study, in which he asked fictional book readers how they felt while reading a work of fiction. His subjects all described being completely absorbed by the book they were reading, as if the rest of reality had melted away and only the contents of the book remained. Intrigued by this, Holland investigated further. He used psychoanalytic theory to describe this loss of surroundings as something a child experiences during infancy (Holland, 2003). During infancy the boundary between

mother and child becomes blurred, much like a viewer and the movie. Holland (2003) explains how this phenomenon works:

> Although we were looking only at the specifically aesthetic question of the suspension of disbelief, we have arrived, I think, at a neuro-psychoanalytic explanation of what the psychoanalysts call regression. In psychoanalytic terms, Coleridge's willing suspension of disbelief is a regression to an oral merger of infant and nurturing other in a potential space. In neurological terms, we could say that regression means shutting down some "higher" system that modulates "lower" systems. In the case of the willing suspension of disbelief, the prefrontal cortex inhibits action and the planning of actions so that we no longer are aware of the unreality of the fictions we are dealing with, but it does not--cannot--inhibit the corticolimbic systems that give rise to our emotions. They run freely on, busily prompting us to actions, to approaches and avoidances, we never perform, but the psychological feelings and the physical signs of emotion persist. (para. 30).

The incredible thing regarding the above literature is the question each researcher wanted to answer: How do these events make use feel? After pondering these questions, each researcher used science to break down how we physiologically digest different visual cues. While research conducted by these authors offers insight into how a viewer forms a bond with humanoid objects and fictional characters, and how we react to various scenes, it does not evaluate special or digital effects. This study hopes to fill that void.

The importance of such a study is more than simply understanding which effect, practical or digital, is more compelling at portraying realism. It also provides an understanding as to which type of effect is more successful at delivering an emotional response to its viewer. Participants of this study will view two different clips, which contain the two types of effects in question. One clip contains only practical effects and

the other contains only digital effects. After participants poll their emotional responses to these films within the survey, a statistical analysis can take place. These statistics will help to answer the research questions below:

RQ 1: Which is more effective at generating an emotional response: the practical effects contained within *An American Werewolf in London*, or the digital effects utilized within *An American Werewolf in Paris*?

RQ2: Does the emotional response to the effects used within these two film clips differ by age?

Drawing from the academic literature and reported findings of numerous contextual analysis, medical studies and peer reviewed journals, this investigation also tests the following hypotheses:

H1: The practical effects used in *An American Werewolf in London* will evoke a stronger reaction within the viewer when paired against the digital effects used in *An American Werewolf in Paris*.

H2: Individuals who identify horror films as their favorite type of film will experience a pleasurable emotional response from practical effects used in *An American Werewolf in London*.

H3: Individuals who identify horror films as their least favorite type of film will find the practical effects used in *An American Werewolf in London* to be scarier and grosser than digital effects.

H4: The digital effects in *An American Werewolf in Paris* will evoke more of an emotional response in younger age groups. The practical effects in *An American Werewolf in London* will evoke more of an emotional response from older age groups due to older generations' higher exposure to practical effects.

CHAPTER III

METHODOLOGY

An anonymous survey was conducted among 167 undergraduate and graduate students within the School Of Journalism and Communication at the University of Oregon. After the survey was distributed to several different classrooms, students were asked to view two movie clips depicting werewolf transformation scenes. The intent of this survey was to measure which type of effect, practical or digital, was more effective at generating an emotional response.

Movie clips: The two clips paired with this survey were selected based on their special effect use. Each clip contained similar content in the hope of limiting the amount of stimulus presented to the participants. Running time, shot variance, lighting and music were factors the principal investigator was unable to control. Both films were from the horror genre and showcased a human transforming into a werewolf. The first clip (clip 1) was from the film *An American Werewolf in London* (1981), which utilized practical effects, while the second clip (clip 2) *An American Werewolf in Paris* (1997) used CGI.

Experimental survey: A two-page anonymous survey was divided into four sections and asked participants a total of 17 questions. The first section asked the participants to enter their age, gender, and to name their favorite film. After filling out section one, participants were shown the first movie clip, a werewolf transformation scene from the 1981 film *An American Werewolf in London*. After the clip was over, participants were asked to rate 5 statements based on a 5-point Likert-like scale. Once completed, they

were shown a second movie clip. Clip 2 was taken from *An American Werewolf in Paris*, which also displayed a werewolf transformation scene. After the clip was over, participants were asked to rate 5 statements similar to the one proposed for clip 1. In addition, participants were asked which clip they reacted to most strongly and why. Once participants were finished with the survey, the professor of each class collected them and handed them to the principal investigator. This allowed the survey participants to remain anonymous.

Sample and data collection: The survey was distributed in seven separate lectures and labs. 29 surveys were conducted in the class Digital Video Production, which consisted of undergraduates. Seven surveys were conducted in the class Advanced Quantitative Methods, which consisted of graduate students. 11 surveys were conducted in the class Qualitative Methods, which consisted of graduate students. 16 surveys were taken from the undergraduate class Advanced Photojournalism. Six surveys were taken in the undergraduate class of Photo Editing. 54 surveys were taken in the undergraduate class of Communications Law. 15 surveys were taken in the undergraduate class Media and Society. Survey participants were pooled from the School of Journalism and Communication at the University of Oregon. Since this pool consisted mainly of media students, it is unclear if this had an impact on the survey results.

CHAPTER IV

RESULTS

Table 1

Which clip did you react to the strongest?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clip 1 (London)	101	60.5	61.6	61.6
	Clip 2 (Paris)	63	37.7	38.4	100.0
	Total	164	98.2	100.0	
Missing	System	3	1.8		
Total		167	100.0		

In Table 1 a frequency test was calculated comparing which clip participants selected as the clip they reacted to the strongest. This type of test illustrates the number of occurrences. In this case it shows how many participants selected each clip. Out of 167 participants, 60.5% selected clip 1 (*An American Werewolf in London*) and 37.7% selected clip 2 (*An American Werewolf in Paris*). To see if these findings were significant a One-Sample t-Test was conducted. This test was conducted to see if the percentages happened by chance or if they could be replicated again. If the t-Test is found to be significant (a score less than .005) the percentages can be replicated. If the test indicates a significance value greater than .005 this means the percentages happened by chance. In this case the test found a significance value of .000 ($t(163)=36.332$, $p=<.001$). The test value of the One-Sample t-Test was set to 1.5. This test confirms the first hypothesis: The practical effects used in *An American Werewolf in London* will evoke a stronger reaction within the viewer when paired against the digital effects used in *An American Werewolf in Paris*.

Table 2

Reaction by age

			Age		Total
			Young	Old	
Which clip did you react to the strongest?	Clip 1 (London)	Count	69	30	99
		% within Age	59.0%	69.8%	61.9%
		% of Total	43.1%	18.8%	61.9%
	Clip 2 (Paris)	Count	48	13	61
		% within Age	41.0%	30.2%	38.1%
		% of Total	30.0%	8.1%	38.1%
Total		Count	117	43	160
		% within Age	100.0%	100.0%	100.0%
		% of Total	73.1%	26.9%	100.0%

A Pearson chi-square test of independence was calculated comparing the frequency of age to the clip participants selected as generating the strongest reaction. The chi-square test was conducted to see if the percentages happened at random or could be replicated if tested again. Younger participants fell into the age bracket of 19 through 22, while older participants were grouped 23 through 70. Out of the younger participants, 59% selected clip 1 as generating the strongest response, while only 41% of younger participants selected clip 2. Out of older participants 69.8% selected clip 1, while 30.2% selected clip 2. The chi-square illustrates no significant difference x^2 (1) = 1.553, p>.05. Since this test indicates a significance value of .05, it means the percentages happened by chance and are not replicable. This chart confirms the first hypothesis: The practical effects used in *An American Werewolf in London* will evoke a stronger reaction within the viewer when paired against the digital effects used in *An American Werewolf in Paris*. However, this chart disproves the fourth hypothesis: The digital effects in *An*

American Werewolf in Paris will evoke more of an emotional response in younger age groups. The practical effects in *An American Werewolf in London* will evoke more of an emotional response from older age groups due to older generations' higher exposure to practical effects.

Table 3

Independent Sample t-Test

Response by horror fans and non-horror fans to clip 1

(*An American Werewolf in London*)

		N	Mean
During this clip I felt the need to look away:	Fan	61	*4.23
	Non-horror fan	105	3.51
I found this clip to be scary:	Fan	61	3.95
	Non-horror fan	105	3.56
I enjoyed this clip:	Fan	61	*2.46
	Non-horror fan	105	3.43
This clip made me laugh:	Fan	61	*2.90
	Non-horror fan	105	3.24
I found this clip to be gross:	Fan	61	3.00
	Non-horror fan	105	*2.41

1=strongly agree, 2=agree, 3=neutral, 4=disagree, 5=strongly disagree

The mean column shows the average choice selected by horror fans and non-horror fans and which question was answered. The '*' indicates numbers important to this study. An independent-sample t-Test was calculated comparing the mean score of how horror fans and non-horror fans rated clip 1. When asked, 'During this clip I felt the

need to look away,' horror fans had an average mean of 4 (disagree), whereas non-horror fans had an average mean answer of 3 (neutral). This implies horror fans did not feel the need to look away during this clip, and non-horror fans remained neutral. When asked, 'I enjoyed this clip,' horror fans had an average mean answer of 2 (agree), whereas non-fans had an average mean answer of 3 (neutral). This signifies that on average, horror fans agreed with this statement, and non-horror fans remained neutral. When asked, 'This clip made me laugh,' horror fans reported a mean average of 2 (agree), whereas non-horror fans reported a mean average of 3 (neutral). This signifies that horror fans agreed with the statement, and non-horror fans stayed neutral. When asked, 'I found this clip to be gross,' horror fans reported a mean average of 3 (neutral), whereas non-horror fans reported a mean average of 2 (agree). This suggests that horror fans remained neutral to the statement, but on average non-horror fans agreed the clip was gross. In the table below (Table 4) a significant difference was found regarding every question except 'This clip made me laugh,' for which no significant difference was reported. The significance rating is marked with a '*'.

Table 4

Significant test for response by horror fans and non-horror fans to clip 1

(An American Werewolf in London)

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
During this clip I felt the need to look away:	Equal variances assumed	4.03	164	.000	.715
I found this clip to be scary:	Equal variances assumed	2.27	164	.024	.389
I enjoyed this clip:	Equal variances assumed	-6.27	164	.000	-.970
This clip made me laugh:	Equal variances assumed	-1.80	164	*.073	-.336
I found this clip to be gross:	Equal variances assumed	3.54	164	.001	.590

The statistics within Table 3 and 4 confirm hypothesis two: Individuals who identify horror films as their favorite type of film will experience a pleasurable emotional response from practical effects used in *An American Werewolf in London*. These tables also confirm hypothesis three**:** Individuals who identify horror films as their least favorite type of film will find the practical effects used in *An American Werewolf in London* to be scarier and grosser than digital effects.

Table 5

Independent Sample t-Test

Response by horror fans and non-horror fans to clip 2

(*An American Werewolf in Paris*)

		N	Mean
During this clip I felt the need to look away:	Fan	61	*4.20
	Non-horror fan	105	3.70
I found this clip to be scary:	Fan	61	*4.02
	Non-horror fan	105	3.35
I enjoyed this clip:	Fan	61	3.07
	Non-horror fan	105	3.52
This clip made me laugh:	Fan	61	3.56
	Non-horror fan	105	3.92
I found this clip to be gross:	Fan	61	3.23
	Non-horror fan	105	*2.73

1=strongly agree, 2=agree, 3=neutral, 4=disagree, 5=strongly disagree

The mean column shows the average choice selected by horror fans and non-horror fans and which question was answered. The '*' indicates numbers important to this study. An independent-sample t-Test was calculated comparing the mean score of how horror fans and non-horror fans rated clip 2. When asked, 'During this clip I felt the need to look away,' horror fans had an average mean answer of 4 (disagree), whereas non-horror fans had an average mean answer of 3 (neutral). This signifies that horror fans did not feel the need to look away during this clip, whereas non-horror fans remained neutral. When asked, 'I found this clip to be scary,' horror fans had an average mean

answer of 4 (disagree), whereas non-fans had an average mean answer of 3 (neutral). This suggests that horror fans did not find this clip scary, and non-horror fans remained neutral. When asked, 'I enjoyed this clip,' both horror fans and non-horror fans had an average mean answer of 3 (neutral). This average suggests that both horror fans and non-horror fans were indifferent towards this clip. When asked, 'This clip made me laugh,' both horror fans and non-horror fans reported a mean average of 3 (neutral). When asked, 'I found this clip to be gross,' horror fans reported an average mean of 3 (neutral), whereas non-horror fans reported a mean average of 2 (agree). This indicates that on average horror fans remained neutral, while non-horror fans agreed this clip was gross. In the table below (Table 6) a significant difference was found regarding every question. The significance rating is marked with a '*'. The data contained within tables 5 and 6 supports hypothesis two: Individuals who identify horror films as their favorite type of film will experience a pleasurable emotional response from practical effects used in *An American Werewolf in London*. The data in tables 5 and 6 does not support hypothesis three: Individuals who identify horror films as their least favorite type of film will find the practical effects used in *An American Werewolf in London* to be scarier and grosser than digital effects.

Table 6

Significant test for response by horror fans and non-horror fans to clip 2

(An American Werewolf in Paris)

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
During this clip I felt the need to look away:	Equal variances assumed	3.135	164	.002	.501
I found this clip to be scary:	Equal variances assumed	4.164	164	.000	.664
I enjoyed this clip:	Equal variances assumed	-2.901	164	.004	-.458
This clip made me laugh:	Equal variances assumed	-2.477	164	.014	-.366
I found this clip to be gross:	Equal variances assumed	2.839	164	.005	.496

CHAPTER V

DISCUSSION

In regards to answering the first research question: Which is more effective at generating an emotional response: the practical effects contained within *An American Werewolf in London*, or the digital effects utilized within *An American Werewolf in Paris*? All data collected and analyzed within this study indicate that the practical effects in clip 1, *An American Werewolf in London*, generated the highest emotional response when paired against the digital effects used in clip 2, *An American Werewolf in Paris*. These findings also support the first hypothesis: The practical effects used in *An American Werewolf in London* will evoke a stronger reaction within the viewer when paired against the digital effects used in *An American Werewolf in Paris*.

Participants within this study had the choice of selecting either clip 1 or clip 2 when asked the question, 'Which clip did you react to the strongest?' 60.5% of participants selected clip 1, while only 37.7% selected clip 2. These results are illustrated in table 1. Table 3 exhibits the mean answer of each question relating to clip 1 among horror fans and non-horror fans. In this chart horror fans expressed that they did not feel the need to look away, and that they enjoyed this clip, while non-horror fans agreed that clip 1 was gross. These findings suggest since horror fans did not feel the need to look away and selected that they enjoyed this clip, they experienced a feeling of pleasure while watching the clip from *An American Werewolf in London.* Looking back to the literature for an explanation of this, Bartsch, Appel, and Storch's research concludes that individuals who seek out negative emotions through movies are in turn positively stimulated by the negative emotional response they seek (Bartsch, Appel & Storch,

2010). Since horror fans selected that they enjoyed this clip, it can be assumed that a feeling of pleasure, instead of fear, was generated from the practical effects employed by clip 1.

When horror fans and non-horror fans were asked the same questions in relation to clip 2 there was a noticeable difference in how participants rated this clip. Horror fans selected that they did not feel the need to look away, which was the same response they chose for clip 1. However, when asked if they enjoyed this clip horror fans remained neutral. This concludes that compared to clip 1, clip 2 did not generate the same feeling of pleasure amongst horror fans. However, the non-horror fans found clip 2 to be just as gross as clip 1.

These findings also highlight that, regardless of age, practical effects set within the horror genre are still more effective at generating an emotional response when compared to digital effects, even though this conclusion disproves hypothesis four (i.e., the digital effects in *An American Werewolf in Paris* will evoke more of an emotional response in younger age groups, while the practical effects in An American Werewolf in London will evoke more of an emotional response from older age groups due to older generations higher exposure to practical effects). The findings are rather interesting. The reasoning behind studying age as an independent variable was to see if exposure was a factor. In this case, it was determined that exposure was not a factor.

Individuals living in the ‘60s, ‘70s, ‘80s, and early ‘90s were exposed to practical effects more frequently than those who were born in the early to mid ‘90s. It wasn’t until the mid 1990s that digital effects were widely incorporated into films. Since age was found to not be a factor in effectiveness, it demonstrates that the amount of exposure to

one type of effect does not sway a participant's emotional reaction toward either effect. Younger age groups experience just as much of an emotional response to practical effects as those in older age groups. Aside from age, there were other factors that could have potentially affected the way a participant voted which were not tested in this study. While the questions incorporated into this survey were intended to gauge how viewers reacted to the special effects used, there are still numerous elements incorporated into each scene that could have influenced the audience's response to each clip.

Every scene within a film incorporates a multitude of different elements. Aside from effects, there is lighting, shot composition, running time, music, sound effects, dialogue, location, and actors. These attributes all contribute to the *mise-en-scène* of a scene, ultimately creating the theme of the finalized scene. Both of these films, *An American Werewolf in London* and *An American Werewolf in Paris*, comprise the same content. The scenes depict a real life actor/actress transitioning into a werewolf. However, it is possible the differences within these scenes could have affected the way participants polled their responses.

In clip 1, *An American Werewolf in London*, David Kessler's transformation happens within one room of a house. The room is well-lit and allows the viewer to see everything contained within each shot. The lighting does not change, nor does it interact with the actor. In clip 2, *An American Werewolf in Paris*, the lighting is completely different. Serafine's transformation happens within an underground sewage tunnel. The lighting is very dramatic and often illuminates only a portion of the actor's and actress's faces, and leaves most of the outlying areas of the shot unlit and dark. Once Serafine's transformation begins, the scene cuts to a point-of-view shot of a full moon through a

drainage grate. The scene then cuts back to Serafine's face as her transformation continues, but some of her face is obstructed by the shadow of the drainage grate. As the camera tilts down her transforming body, the shadow of the grate continues to inhibit a full view of Serafine's body. In this case the lighting is playing an intricate role and interacting with the actress. Even though the feel of the lighting in clip 2 is more dramatic and ominous, participants still selected clip 1 as generating the stronger response. Further research could be conducted to see how the lighting of these scenes affected viewers' responses. The amount of shots and shot types which make up the finalized scene also differ within the two clips.

The entire scene of clip 1, *AMWIL*, is made up of 36 shots; whereas clip 2, *AMWIP*, contains only 19. The shots used in clip 1 include a variation of close-ups, wide shots and medium shots; they also incorporate camera moves such as zooms and pans, adding to the intricacy of the scene. The camera techniques and shot variation enable the viewer to intimately connect with both the character and the practical effects, in this case prosthetics, used within this scene. The audience is shown a close-up of the hair protruding from David's skin. In another shot David stares, frightened, at his hand while the prosthetics are pulled, elongating his palm. These shots not only allow the viewer to experience the effects, but they also allow the audience to see David interacting with the practical effects. By seeing David's frightened face, the audience can see how he feels, allowing audience members to become more engaged with the emotion David's character is feeling. These elements provide both context and depth to the scene, factors not shared by clip 2.

As previously stated, clip 2, *AAWIP*, only contains 19 edited shots. These shots consist of close-ups, medium shots, and wide shots. The camera employs a style of shooting where the camera is not still and moves slightly in each shot. This technique is often used to make viewers feel as if they are present within the scene, a tactic not used in clip 1, *AAWIL*. The only other time a camera move was used is during Serafine's transitions, where the camera tilts down her body. Her transition takes place in one long shot, as opposed to David's transition, which takes place through numerous shots.

Since Serafine's transformation takes place in one shot and David's transformation utilizes numerous shots, running time is another factor, which needs further analysis. The running time of David's transformation scene in *AAWIL*, is two minutes and forty-three seconds. The running time of Serafine's transformation scene in *AAWIP* is one minute and two seconds. When trying to find clips to compare, it was difficult to find two clips with similar running time that incorporated either practical effects or digital effects. During the early 2000s, many werewolf transformation scenes started to embody both practical and digital effects within the same scene. This alteration also kept running time under two minutes and forty-three seconds. Ironically, some participants noted that the shorter running time of clip 2 caused them to have a stronger reaction, noting that the length of clip 1 felt awkward to them. They wanted the clip to be over. Other participants noted that due to Serafine's short transformation, it left them wanting more. Although the running times of these clips are drastically different, it suggests that there might be value in a more in-depth analysis of how special effects and digital effects have altered scene lengths all together.

Another factor different within the two clips are the music tracks and sound effects. The song playing during David's transformation in *AAWIL* is "Blue Moon," performed by Sam Cooke. The original song "Blue Moon" was written by Richard Rodgers and Lorenz Hart in 1934. Sam Cooke, often referred to as the king of soul, added a soulful element when covering this song. The lyrics depict a man finding his one true love under the light of a blue moon. As odd as the music 'bed' feels for this scene, the lyrics lend themselves well to David's condition. The music bed was cleverly calculated, and was used to add a bit of irony. One would expect music like that heard during Serafine's transformation in *AAWIP*, which is an ominous orchestral score. However, because the music is awkward and jarring to the viewer, it forces them to feel uncomfortable and out of place. With regard to *AAWIL,* the music is used to jar the viewer, unlike the music used in *AAWIP*. The orchestral score blends well with Serafine's transformation, which holds the viewer's attention. In *AAWIL*, the music is used to shock viewers into making them feel out of place, which allows them to identify with the out-of-place feeling David is experiencing as he transitions into a werewolf. Regarding the sound effects, both scenes utilize the same sounds. The audience can hear snapping of bones and the deepening of both characters' voices as their transformation progresses.

One last aspect that is different within these two clips is the sex of the characters transforming. David is a white male transitioning into a werewolf, while Serafine is a white female transitioning into a werewolf. In the case of this study it is unclear if gender was a factor in why participants selected the clips they did. It would be interesting to analyze whether gender did in fact play a role as to why participants selected *AAWIL* as generating the highest emotional response.

In addition to their gender, character interaction was also not analyzed within this study. During her transformation scene Serafine is seen interacting with another male actor right before she starts to transition. In *AAWIL*, David's character is alone while he transitions.

This study not only demonstrates how certain individuals respond to practical effects and digital effects, it also suggests how viewers digest and form emotional responses from visual cues. The contributions to film and media studies contained within this thesis offer an understanding of how practical effects and digital effects made their viewer's feel.

CHAPTER VI

CLOSING

After careful analysis of the survey data collected, every table demonstrates that set within the horror genre, practical effects were the most effective at generating an emotional response among horror fans and non-horror fans. These findings lend themselves well to the disciplines of media studies, film studies, and psychology. They illustrate how individuals interpret visual cues given off by practical and digital effects. It shows how audience members connect and identify with tangible objects as opposed to digital ones and offers insight as to how a viewer can form an emotional bond to effects used within a scene. These findings also add to the research conducted by Bartsch, Appel, and Storch by highlighting how horror fans experienced a pleasurable emotion when watching a horror clip. As with most academic studies, this research opens the door for other scholars to analyze additional elements contained within these scenes. However, more research needs to be conducted within the realm of special effects to gauge the complete effectiveness of both practical and digital effects. While this study discusses the horror genre, it excludes others.

Expanding upon the sample of films used, participants pooled, and analyzing other genres would provide a more thorough investigation into how practical and digital effects translate to different audiences. By combining an analysis of different genres into one study, it could suggest which type of effect is more realistic to audiences. Other potential studies could gauge an audience's reaction to the *Teenage Mutant Ninja Turtles* movie released in 1990, in comparison to the *Teenage Mutant Ninja Turtles* movie released in 2014. In the 1990s version, the *TMNT* are actors dressed in costumes, whereas

the 2014 version uses CGI characters. This would also allow an analysis set within the fantasy genre. Another analysis could compare how audiences react toward the animatronic dinosaurs in *Jurassic Park*, to the digital dinosaurs used in *Jurassic World.* By expanding the scope of movies, it would provide a better understanding of how technologies have altered the sense of realism in films. However, when trying to gain an understanding of the effectiveness of special effects, it is important to remember that other elements within a scene are also involved.

Would the scene in *An American Werewolf in Paris* have more of an effect on viewers if Serafine's character were male? Was the music track "Blue Moon" in *An American Werewolf in London* effective because it seemed out of place? Did the running time of each clip affect audiences? Or was it the abundance of shots used in *An American Werewolf in London* that horror fans connected with? Perhaps the most interesting finding not assessed within this study was the difference in running time. By turning an analytical gaze towards digital effects, future studies can illustrate why scenes containing digital effects are shorter than those containing practical effects. While every element contained within these clips shows potential for future research, the main goal of this thesis was to determine which type of effect set within the horror genre, practical or digital, was the most effective at creating an emotional response within the viewer; results reflect the answer is practical effects.

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