An investigation on how to simulate emotion
Through an inanimate object:
Stop motion animation in non-vocal narrative.

By

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Abstract

An investigation on how to simulate emotion through an inanimate object:

Stop motion animation in non-vocal narrative.

Stop motion animation is an extremely creative animation art form that implements different mediums and techniques into one final artwork. The aim of this study is to explore and investigate how to simulate emotion through inanimate objects using stop motion animation with a non-vocal narrative as the medium. This is achieved through different types of studies. The literature review and theoretical writings mainly focus on the various methods of simulation, and on how and why the human mind perceives the way it does in relation to stop motion. Through this study, well renowned professional stop motion animated movies and their behind-the-scenes footage were referred to, so as to strengthen the art practice component. Furthermore, research was gathered through interviews and feedback exercises to analyse and improve this study.

All the artistic practice involved in producing the stop motion animation was executed by myself through hands-on experimentation.
Author’s Declaration

I hereby confirm that this dissertation is my own work and that I have not plagiarised other works. All of the sources that I have used are properly and clearly referenced. I further confirm that all ideas and words from other authors have been either quoted or paraphrased. Clear and appropriate documentation of the source of this material has been provided.

I hereby declare that the presented dissertation, “An investigation on how to simulate emotion through an inanimate object: Stop motion animation in non-vocal narrative” is my authentic and original work.

____________________
Ezekiel Vassallo
Dedication

I dedicate this study and all the intricate time spent working on the stop motion animation project to my fiancée and better half, Anne Marie Debono, for all her support and encouragement. Only through her persevering faith in me was this possible.

I am also grateful to my loving and patient parents who have continuously supported me throughout the process. I also wish to dedicate my dissertation to them. I will always appreciate what they have done for me, especially my dad, Charles Vassallo.
Acknowledgements

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I would like to thank and acknowledge Ruth Frendo and Charlo C. Bonnici for hiring me to be part of their crew on their stop motion animation production based in Malta named ‘Teddyland’ and for providing me with much needed equipment and hands-on practice in the field of stop motion animation. I would also like to thank and show my appreciation to my fiancée and my family for all their support.
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1. Introduction

1.1 Research Background

From an early age I seemed to have a passion for the creative arts. More specifically, the concept of three-dimensionality was definitely my passion, and later on became my strength. It seemed that conceptualising in a three-dimensional manner came naturally to me. This passion for creating three-dimensional objects started when I was a kid, creating little wooden abstract sculptures and continued to develop until today, where I find myself reading for my fine arts degree creating sculptures and miniature sets.

For every present there is a past. It is crucial to mention my previous studies in 2014, at MCAST Art and Design, where I graduated with a bachelor degree in Fine Arts. For my dissertation I had focused on ‘The Art of Deception through Miniature Models and Digital Photography’. I had built and photographed a number of miniature models of interior rooms which resembled real rooms. This dissertation was a study on the illusion created through two-dimensional digital media, perceived through the human eye. As I worked on this project, my desire to film these miniature models and giving them life, rather than just photographing the models, progressively grew. I now intend on taking this static artwork and transforming it to an artwork which involves movement and action, by using the power of moving pictures and stop motion animation.

Through this practice-based Master’s Degree in Digital Arts (MFA), my main intention is to take my previous study a step further to enrich my skills. This MFA course has inspired me tremendously and I have certainly gained more knowledge about the philosophy and theory of visual arts. Such lectures at this academic level have been very fruitful and have led me to obtain a solid theoretical foundation. I have discovered numerous philosophers, writers, critics and concepts which have helped me accomplish my desire – that of creating a stop motion animation.
1.2 Research Aim, Objectives and Structure

The most fundamental researched subjects are Simulation, Manipulation and the Narrative. This artistic practice mainly focuses on simulating emotions through inanimate objects. To establish an exceptional stop motion animation short film, I researched the aspect of simulation and deeply delved into the merits of what makes a simulation, applying it to this artistic practice. Ultimately, my objective is to create a character which tricks the audience into forgetting that it is an inanimate lifeless puppet.

The contemporary writings and theoretical contexts found in the literature review have served as an inspiration and a backbone to the creation of my work. Interviews were carried out to gather more practical information while feedback was received to analyse the successes and failures of the project.

1.3 What is Stop Motion?

Stop motion animation is an old cinematographic technique that involves the repeat movement of an object by millimetre increments, for which each time a camera photographs the moment to give the inanimate figure the impression of movement. To create a smooth and good quality animation, I took twenty-four photographs per second of footage. This short film, ‘The Odyssey’, is six minutes of pure animation, consisting of around 6,500 photographs which were then manipulated and sometimes duplicated to simulate the life of an adventure-seeking anthropomorphic turtle. To create ambiance and emotion, the adventure takes place in eight different miniature sets which I purposely built in order to drive the narrative forward.
2. Literature Review

2.1 History of Stop Motion Animation

“Today our modern world is dominated by pictures in ways our ancient ancestors could never have begun to imagine. What would they have made of images that move, that are beamed across the globe and that are seen by millions?

Yet none of this could have happen[ed] without people thousands of years ago having had a revelation. The revelation that with lines, shapes and colours they could capture the world.” (Dachwood & Mark, 2005)

Around 35,000 BCE, for the very first time, humans started to draw and paint lines, dots, shapes and animals on cave walls. Archaeologists call this period in time ‘The Creative Explosion’. Several caves have been discovered in Europe, India, South Africa, Namibia, Australia, Argentina and Southeast Asia containing prehistoric artworks with extraordinary similarities (ENCYCLOPEDIA OF ART, 2016).

According to the BBC documentary film ‘How Art Made the World 2: The Day Pictures Were Born’, Henri Breuil, a French Catholic priest who was the foremost expert on cave art in the 20th century was the first to come up with the valid question about cave art. It was not a question of WHY they created cave art but HOW. Henri Breuil asks how one can paint a picture if one does not know what a picture is and has never even seen one before. Therefore, how could our ancestors ever come up with two-dimensional (2D) pictures? (Dachwood & Mark, 2005)

Professor David Lewis Williams from the University of Witwatersrand believes that ‘Drakensberg Bushman Rock Art’ holds the answers. Williams discovered that “the paintings were not pictures of everyday life, but they were about spiritual experiences in a trance state”. The grace and power of animals in real life captured the imagination of the caveman while in trance, giving the animal that magical power. Our ancestors were not
creating paintings about hunting but rather a representation of the animals they saw in their hallucinations and in their altered state of consciousness.

Dr Dominic Ffytche (2005) from the Institute of Psychiatry explains that such trance hallucinations could be easily stimulated using excessive light to irritate parts of the visual cortex of the brain which seems to code and create patterns, lines and grids. On the other hand, the same phenomenon could also be simulated in total darkness. If too little information enters the visual cortex, after some time, patterns would also start to appear. This would explain the strange patterns deep within the darkness of the caves. Prehistoric artists experienced sensory deprivation, which induced hallucinations of abstract shapes and patterns that they then painted (Dachwood & Mark, 2005).

Furthermore, in the BBC Documentary film ‘How Art Made the World 2: The Day Pictures Were Born’, Professor Williams also suggests that if our ancient ancestors spent a longer time in trances, the animal that captured their imagination while hallucinating took the form of great emotional importance. Animals appearing in multiple images are seen as blurred – as if the animals are in motion; running, leaping and coming to life, as depicted in Figures 2 and 3 (Dachwood & Mark, 2005).
The study of the history of cave art and its makers is considered to be crucial to this dissertation as it is above all else the birth of drawing. The fascinating thing about cave art in general is that although living in different parts of the world, thousands of miles apart, humans (cavemen) still represented two-dimensional images as a mental projection, and depicted them on walls as two-dimensional drawings. Cave drawings eventually became the foundation of any artwork that was ever and will ever be created. Thus, it can be said that cave art is also the precursor of 2D animation.

Cave art was not the only form of art to depict motion. Other artistry dating back to 1600 BCE found in Egypt adopted the same concept. Remains of the temple dedicated to the goddess Isis, built by Pharaoh Ramesses, a magnificent architecture standing on 101 columns, portray motion through the stone-carved drawings depicting the goddess Isis in different progressively changing positions (shown in Figure 4). Among others, we find stone carved paintings depicting horsemen appearing to pass in front of the goddess.

Moreover, around 1000 to 700 BCE, Ancient Greeks also experimented with depicting motion. Many clay pots were found with intricate and extraordinary drawings of human figures displaying different stages of body actions. When one spins the pot around, the different body actions depicted at various stages on the pot create a story through motion (Williams, 2009, p. 12). Figure 5 is an example of this depiction.

Figure 4: Drawing on Columns of the Goddess Isis in Motion  
Figure 5: Ancient Greek Clay Pot Depicting an Olympic Run
From the era of Ancient Greece to the 1500s, an extraordinary invention revolutionised the history of the image. The very first pinhole camera was created to display a scene or motion. It is also known as *camera obscura*, and was invented by Alhazen. Throughout the following years, hundreds of improved cameras were produced to capture a picture in motion. Today, cameras have improved to perfection and are capable of freezing an image as well as recording a moving image at exceptionally high quality.

History recalls that the ancient Greeks were already experimenting with the concept of projection by means of light and lenses. We also know that in the sixteenth century Leonardo Da Vinci had ventured with similar principles of projection. However, there is no evidence that he managed to create some sort of functioning projector (Lennart, 2016). It was around 1650 that the first working projector was created. The device was built by Athanasius Kircher and was known as the ‘Magic Lantern’. It projected drawings that created an illusion. He drew different drawings on a number of pieces of glass and by placing a light source behind them, inside the ‘Magic Lantern’, he managed to project the depicted images onto walls, thus creating the first image projection. However, due to the limitations of this device in projecting its image, only one individual viewing at a time was possible (Corcoran Gallery of Art, 2010).

The foundation of animation, which is also known as the ‘art of movement’, is the production of different artistic techniques and different formats of paintings and drawings. Rather than through the process of photography which was discovered in the late 1820s, it was the practices of painting and sketching that eventually led to the illusion of motion. The physiological phenomenon of the illusion of movement in animation is known as the ‘persistence of vision’. Once the human eye is imprinted with an image, the brain senses the image far longer than the retina can record. The effect of movement is created by a series of variant continuous images, frame by frame, flashed in a swift sequence before the human eye. This principle was discovered by Peter Mark Roget in 1824. “This principle rests on the fact that our eyes temporarily retain the image of anything they’ve just seen. If this wasn’t so, we would never get the illusion of an unbroken connection in a series of images, and neither movies nor animation would be possible” (Williams, 2009, p. 13).
The famous Eadweard Muybridge, born in the 1830s, is well-known for proving that a horse lifts all four hooves off the ground while galloping. He proved this theory by letting a horse gallop across a manually triggered row of cameras capturing several photographs at different moments in time. Muybridge was the most influential photographer of his time, and is known to have pushed the limitations of the camera (Corcoran Gallery of Art, 2010). Very similar works to Eadweard Muybridge’s photographs are the works of the physiologist Etienne-Jules Marey, who was also born in 1830. Although Marey was not a photographer but a polymorphic scientist, his interest in the physiology of the human being drove him into capturing moving subjects and gestures posed by men during the practice of sports (Vaillat, 2016). Muybridge and Marey inspired numerous artists to work with motion pictures, laying the foundation for the film industry and the birth of cinema as we know it today.

As mentioned above, cave art, Ancient Greek and Egyptian artistry, and the magic of cameras and projectors are all milestones, leading to the creation and progression of animation.

Below is a brief timeline relating to the development of animation arts:

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thaumatrope</td>
<td>1824</td>
</tr>
<tr>
<td>Phenakistoscope</td>
<td>1831</td>
</tr>
<tr>
<td>Zoetrope</td>
<td>1834</td>
</tr>
<tr>
<td>Flip Book</td>
<td>1868</td>
</tr>
<tr>
<td>Praxinoscope</td>
<td>1877</td>
</tr>
<tr>
<td>Kinetoscope</td>
<td>1889</td>
</tr>
<tr>
<td>Cinematograph</td>
<td>1865</td>
</tr>
<tr>
<td>Stop Animation</td>
<td>1899</td>
</tr>
<tr>
<td>Cell Animation</td>
<td>1914</td>
</tr>
<tr>
<td>Rotoscopying</td>
<td>1915</td>
</tr>
<tr>
<td>Live Action &amp; Animation</td>
<td>1923</td>
</tr>
<tr>
<td>Multi-Plane Camera</td>
<td>1934</td>
</tr>
<tr>
<td>Drawing Onto Film</td>
<td>1945</td>
</tr>
<tr>
<td>Invention of CGI</td>
<td>1982</td>
</tr>
<tr>
<td>Morphing</td>
<td>1988</td>
</tr>
</tbody>
</table>
| Computer Animation    | 20th Century | (Todd, 2016)
The animation industry is still evolving to this day. New technologies and techniques are constantly being created, facilitating animators with unlimited means and flexibility to express this art form.

Stop motion, for the past century, was only used for special effects and short formats of a duration of seven to twelve minutes. The first stop motion film, ‘The Automatic Moving Company’, appeared in 1912 followed by ‘Bewitched Matches’ in 1913. Stop motion animation eventually began to lengthen throughout the years. Nowadays, formats of seventy to a hundred and twenty minutes of animation is known as the long format.

Ken A. Priebe stated that “it would be company branches owned by Disney that would help to bring the animated feature back in vogue, through landmarks like Who Framed Roger Rabbit (1988), Pixar’s Toy Story (1995), and even Tim Burton’s The Nightmare Before Christmas (1993)” (Priebe, 2011, p. 2). However, through the different technique used, ‘The Nightmare Before Christmas’ was a major turning point for stop motion animation.

Within the same two weeks in 2005, two main stop motion films were launched: Wallace & Gromit: The Curse of the Were-Rabbit by Nick Park and Steve Box, and Corpse Bride by Tim Burton. Four years later many more stop motion animation films in long format were produced: Coraline in 2009 by Henry Selick, Fantastic Mr. Fox in 2009 by Wes Anderson, The Pirates! Band of Misfits in 2012 by Peter Lord and Jeff Newitt, ParaNorman in 2012 by Chris Butler and Sam Fell, The Boxtrolls in 2014 by Graham Annabel and Anthony Stacchi, and finally Shaun the Sheep Movie in 2015 by Mark Burton and Richard Starzak.

Viewing these stop motion animated films was essential to this dissertation. The material and work implemented in such films is rich and full of artistic expression in its own manner. It is of crucial importance to learn from the works of professionals and pioneers by observing their techniques and approach, and studying their work behind the scenes. I tried to absorb as much as possible to the slightest detail in order to gather information that might help me arrive to successfully produce my stop motion picture.
2.2 Simulation and the Believability of Emotion, Body Language and Miniature Sets

2.2.1 Introduction to Simulation

“If you want to make great animation, you need to know how to control a whole world: how to make a character, how to make that character live and be happy or sad. You need to create four walls around them, a landscape, the sun and moon – a whole life for them. But it’s not just playing dolls – it’s more like playing God. You have to get inside that puppet and first make it live, then make it perform.” (Shaw, 2004, p. 1)

As mentioned earlier, the artistic practice of this dissertation focuses on simulating emotions through inanimate objects, sound effects, digital cinematography and animation techniques to the extent that when all are combined together, a believable result is created. It is crucial to grasp the very essence of what simulation consists of in order to perform and create such a believable production. The book ‘Simulacra and Simulation’, written by the philosopher Jean Baudrillard, starts by defining simulation. He states that “to simulate is to feign to have what one doesn’t have. One implies a presence, the other an absence. But it is more complicated than that because simulating is not pretending”, as pretending leaves reality untouched, however, “simulation threatens the difference between the ‘true’ and the ‘false’, the ‘real’ and the ‘imaginary’” (Baudrillard, 1981, p. 3).

In a world of stop motion animation every single item and detail is a simulation; from miniature sets and environments to lighting, puppets, characters and expressions, movement and sounds, and so on. The animation is ultimately based on simulation as the aforementioned features project a true image of the respective matter. The imaginary created could appear very real and physical, yet in fact, it is only a representation.

Jean Baudrillard describes Disneyland as the perfect simulacrum. He explains that this imaginary world that attracts various crowds is an illusion; the “social microcosm, the religious, miniaturized pleasure of real America, of its constraints and joys” (Baudrillard, 1981, p. 12). Simulation reaches a point where it leads into a realm of utopia and ideology. It presents itself as imaginary while making us believe that all of it is real and the other
surroundings are unreal. Baudrillard continues that it “belong[s] to the hyperreal order and to the order of simulation”. Therefore, simulation could never be a false representation of reality, rather admitting that the real is no longer real, henceforth saving the principle of reality (Baudrillard, 1981, p. 13). Associating this to the artistic practice of this dissertation, the models and puppet are neither real nor fake, but a fictional interpretation of reality built in tangible materials presented through the two-dimensional medium of film. Although this may seem as if a whole new reality is created, Baudrillard states that it is as impossible to rediscover an absolute level of the ‘real’ as it is to stage illusion, “as Illusion is no longer possible, because the real is no longer possible” (Baudrillard, 1981, p. 21). Michael H. Brackett defines illusion as “the state or fact of being intellectually deceived or misled” where we are presented with a deluding image which misleads our “perception of something objectively that deceives in such a way as to cause misinterpretation of its actual nature” (Brackett, 2012, p. 3).

This work’s fulcrum ‘simulating inanimate object’ is all about the creation of illusion and artificiality. It is the artificial physical world which is professionally produced in the studio that creates this illusion. Ultimately, it is the numerous digital photographs of this creation combined into a film which delivers the illusion. Therefore, all the above would be meaningless and the illusion would be destroyed if one factor is deprived from the other.

For this reason it is essential to thoroughly research the behaviour of the human being in relationship with the artifice. In the essay ‘The Artifice of Human Nature: Rousseau and Herder’, Jean-Jacques Rousseau invokes the concept “that human nature is incomplete and naturally shapes itself by effectively engaging with the artifices around which our existence as humans revolves” (Waldow, 2014, p. 2). Rousseau suggested that from the eighteenth century onwards it is implied that the artifice is our second nature (Waldow, 2014, pp. 9-10). This is why Jean Baudrillard had previously described Disneyland as the perfect simulacrum of how fantasy and the magical world of stories had come to life, and how it is perfect for those who wish to escape from the real world to the artificial one. Thus, knowing that humans seek this artificiality, creating a detailed artificial world would unify the artwork and consequently present the viewer with what the human nature desires.
2.2.2 Emotion and Body Language in Believable Characters

“You want to captivate people. It doesn’t come with just technique, it’s about putting yourself inside that character. It’s like slowing down your brain and all of a sudden you are that puppet and you move how that puppet moves.”

Guionne Leroy – animator on Chicken Run, Toy Story, James and the Giant Peach

It is important that character is believable. The character itself need not be a true image of a living being or a living creature. Though of course, it is critical to transmit the illusion of living beings enough to concede the audience’s suspension of disbelief. Moreover, it is the emotions given to the character that ultimately create the illusion of life. The paper ‘The Role of Emotion in Believable Agents’ written by Joseph Bates argues that what engages us and makes us care for a character is what the character itself desires and feels in the world it lives in. Joseph Bates explains that “if the character does not react emotionally to events, if they don’t care, then neither will we” (Bates, 1994, p. 2). He also quotes Chuck Jones regarding how an animator must look at his inanimate object. “‘Believability’ – that is what we were striving for, […] belief in the life of the characters. That, after all, is the dictionary definition and meaning of the word ‘animation’ [is] to invoke life.” (Jones, 1989)

According to Thomas and Johnston, two of Disney’s ‘Nine Old Men’, one of the two most important keys for the animator to give emotions to a character is that “the emotional state of the character must be clearly defined”, meaning that it is of imperative importance that the animator knows the character’s emotional state as equal to the viewer when watching the animation. The other key factor Thomas and Johnston point out is that it is “the thought process that reveals the feelings” as Disney techniques claim that the character’s actions display emotions which are perceived from what the character is thinking and how it is being influenced (Bates, 1994, p. 2).

“When we consider a new project, we really study it…not just the surface idea, but everything about it.” - Walt Disney
To achieve a believable emotion and a believable character, one needs to look into and study the twelve basic principles of animation. These twelve principles of animation were developed by the ‘Nine Old Men’ of the Walt Disney studios during the 1930s. However, these principles were first introduced by two of the old men known as Frank Thomas and Ollie Johnston in the book ‘Disney Animation: The Illusion of Life’ published in 1981. ‘The Illusion of Life’ is based upon the practice that they had learned through their experiences working at the Walt Disney studios.

Animators were always looking for better methods to animate their figures in such a way as to produce a good motion, however, they only “found a few ways that seemed to produce a predictable result. [However] they could not expect success every time, but these special techniques of drawing character in motion did offer some security” (Frank Thomas, 1981, p. 48). After each of these techniques was individually named, analysed and perfected, artists could follow these twelve principles and apply them as the rules of the trade.

These twelve basic principles of animation are:

1. Squash and stretch
2. Anticipation
3. Staging
4. Straight ahead action and pose to pose
5. Follow through and overlapping action
6. Slow in and slow out
7. Arcs
8. Secondary action
9. Timing
10. Exaggeration
11. Solid drawing
12. Appeal
Frank Thomas and Ollie Johnston claim that some of these principles are far more important than others. However, having all principles applied to an animation would simply give it better motion and make it look alive. The ‘Nine Old Men’ originally created these twelve principles for two dimensional animation, so that they could use them for their Walt Disney animated cartoons. Fortunately, there are only minor differences when applying these rules to a three-dimensional animation such as stop motion animation. All of the above principles could easily be applied and adjusted to stop motion and possibly also for three-dimension rendered animation. From the twelve principles, the only technique which does not apply to the three-dimensional animation is number eleven, ‘Solid Drawing’, which nonetheless, would still be beneficial if applied in the first proses of stop motion; storyboarding.

Aside from the importance of body language, in the book ‘The Animator’s Survival Kit’ by Richard Williams, the importance of the facial expressions is also highlighted. Williams points out the importance of the head’s anatomy and that one should familiarise themselves with the anatomy of the skull and the elasticity of the muscles. He also illustrates several examples of different moods and expressions that could help the animator to achieve a good expression. It makes it even harder as the stop motion produced for the purposes of this study is a non-vocal animation and certain vocal expressions cannot be addressed by words. Therefore, it is more crucial that these expressions be communicated excellently through body language and facial expression (Williams, 2009, pp. 246-250).

To simulate life and emotion through an inanimate object, it is important for one to scrutinise stop motion animated films created by professionals such as Tim Burton's ‘Nightmare Before Christmas’. In this stop motion animation Tim Burton expresses the character’s feeling and emotions through several facial expressions, mainly through the eyes and mouth. The characters also portray feelings and expression by means of their postures and movement. Furthermore, Burton uses the help of vocal narrative to communicate expression (Burton, 1993). My art project, however, does not include vocalisation that help and represents emotions and vocal tones. This is why I also refer to the animated film ‘WALL-E’ by director Andrew Stanton. The director uses a non-vocal narrative for the main characters by means of sound effects that create an understanding of expression. Stanton focuses mainly on simulating human behaviour in these lifeless robots (Stanton, 2008).
2.2.3 Miniature Sets and Scenery

In the book ‘The Nature of Modeling’, Jeff Rothenberg claims that “modelling is one of the most fundamental processes of the human mind. Yet it is often misunderstood in ways that seriously limit our ability to function coherently and effectively in the world” (Rothenberg, 1989, p. 1). He describes how modelling is a vital human conceptual tool, as through models humans discuss motivations, advantages and also limitations, as well as the fact that it places simulation into context. Moreover, Rothenberg states that we are “creatures that build and use models routinely, habitually - sometimes even compulsively - to face, understand and interact with reality” (Rothenberg, 1989, p. 2). Furthermore, Rothenberg points out that through models, the human mind could also express meaning, purpose and manipulate things. He claims that all of these are activities of the human mind, making it the foundation that we know as intelligent behaviour.

Jean Baudrillard also tackles the implosion of the meaning in the media where he starts his writing with the bold sentence: “We live in a world where there is more and more information, and less and less meaning” (Baudrillard, 1981, p. 79). Analysing this sentence made me think on how this could relate to the special effects created by miniature models. I figured that if I had to create an object in miniature size, it is critical that the object projects all the information necessary. This means that it needs to resemble or simulate its proper function in order for the viewer not to question its behaviour. Simulating emotions on lifeless objects by means of miniature sets in stop motion animation is no ordinary task as the miniatures are neither real nor fake but a fictional interpretation of reality built from tangible materials presented through film. Baudrillard finally states that “fundamentally, it is still the message that lends credibility to the medium that gives the medium its determined, distinct status as the intermediary of communication” (Baudrillard, 1981, p. 79).

Although the making of stop motion animation is a very vast subject which delves into a number of different areas, techniques and media, it is ultimately constructed out of three-dimensional matter. The two most important three-dimensional elements (in a stop motion animation) are the character, otherwise known as the puppet, and the scenery known as the miniature set. This leads to the whole three-dimensional concept of stop motion being conclusively achieved through modelling. Fortunately, to the advantage of stop motion, not only is model making very cost effective but Rothenberg says that “it allows us to use
something that is simpler, safer, or cheaper than reality instead of reality for some purpose. A model represents reality for the given purpose: the model is an abstraction of reality in the sense that it cannot represents all aspects of reality. [But] it allows us to deal with the world in a simplified manner, avoiding the complexity, danger, and irreversibility of reality” (Rothenberg, 1989, p. 1).

This particular stop motion short film demands the use of sceneries and backgrounds. In other words, the story must have a world for the character to roam in. Tim Hillebrant, a member of an online writing community, states that “in many ways, the world you build for your tale will be a character in itself”. Hillebrant gives instructions on how to create a believable world for a character. He starts off by pointing out that one should start world-building by first getting inspiration from others’ works and writings, as the tiniest element could be the inspiration to another’s world making. He also suggests analysing movies and assessing details that make the movie’s world come alive. It is important that one keeps an open mind, and to mix and match ideas from different worlds and twist them to make a unique creation. He suggests that one should also look into establishing the history of the world one wishes to build. Hillebrant recommends to consider details such as the type of flora and fauna which live in this imaginary world, or the type of landscape or unexplored territory one wishes to have. Last but not least, he finishes by pointing out the final major instruction to outline the world’s background: “What kind of technology does your world have? What is the government like — or is there one? What is the culture like? Do its inhabitants have fads and styles?” (Hillebrant, 2014). In stop motion animation, a world created through Hillebrant’s aforementioned strategies has the potential of coming alive. All of the above points are equally important when it comes to building the physical world and surroundings in miniatures, operating as sets for the stop motion animation.

In the paper ‘Space, Place and Atmosphere. Emotion and Peripheral Perception in Architectural Experience’ written by Juhani Pallasmaa from the University of Helsinki, it is stated that “the quality of a space or place is not merely a visual perceptual quality as it is usually assumed. The judgement of environmental character is a complex multi-sensory fusion of countless factors which are immediately and synthetically grasped as an overall atmosphere, ambience, feeling or mood” (Pallasmaa, p. 230). Through the sceneries and the miniature structures, I intend to stimulate feelings and moods which allow the viewers to comprehend its believability as they watch the stop motion short film. These
architectural atmospheres impact our mind without our knowledge. When we enter a space, we immediately feel something, as it embodies us and motivates our subconscious to experience the surroundings (Pallasmaa, pp. 230-231). This is called the “simultaneous perception – the system we use to experience our surroundings” (Hiss, 2010). This is how we normally observe our surroundings in our daily lives; using all of our senses at once.

To create the perfect atmosphere and mood according to one’s desires, it is vital to first know and follow the principles of the visual elements. In his website, John Lovett states that “the elements and principles of design are the building blocks used to create a work of art. […] The principles of design can be thought of as what we do to the elements of design. How we apply the principles of design determines how successful we are in creating a work of art” (Lovett, 2016). He explains the seven elements and principles of design. The seven elements are: line, shape, direction, size, texture, colour and value. The principles are: balance, gradation, repletion, contrast, harmony, dominance and unity. It is vital that these painting techniques are implemented to the scenery and miniature sets of this production in order to create a believable illusion and generate feelings in the viewer.

‘Illusion: The Art and Craft of Special Effects for Still Photographers’ is a book that guides you in creating a reality from something unreal, and explains how one can create an impossible scenario and make it look real. Paul Fuqua emphasises how things that are not real need to look genuine and real, and how fake things need to simulate and resemble real life. He also sheds light on the idea that it is up to the artist to decide which clues will destroy the illusion and which clues need to be given more attention and more refining (Fuqua, Introduction to Special Effects, 1992, pp. 1-11).
To conclude on the significance of simulation through miniature model and props, I would like to mention that during my research I came across the original film ‘Dogville’ which was released in 2003 and directed by Lars von Trier. This drama/thriller film has something rather different from other films. It is as though the whole film had no backgrounds, only chalk markings on the floor showing the perimeter of the rooms with few props and furniture (Figure 6). This allows the audience to focus all its attention on to the characters and not the backgrounds, making it even harder for the characters to give a believable performance. On the contrary to the above, when it comes to stop motion animation, this would not work in favour of the production. Since the animated character is an artificial and inhuman being - to such a degree that it is more likely for the audience to pick up mistakes and artificiality - the background now plays an important role. The background needs to hold enough detail to distract the viewer from fully focusing on the artificial character to enhance the animated character and help it look more realistic.
2.4 Perception of the Human Mind

“It would be hard to overestimate the value of cerebral space. Each part of the brain is the result of millions of years of selective pruning, random mutations, and growth, just as the neural circuitry of each part of the brain is the result of lifetime learning and memory formation.” (Solso, 2003, p. 148)

From the day we are born, we grow to adapt to our different surroundings and start getting accustomed to our actions and reactions. We become capable of observing and absorbing information and then we start simulating the knowledge collected. It is essential for me to know how the human mind behaves in order to tackle this production so that the final short film triggers certain aspects and stimulates the brain.

Do we ever stop and wonder about the things we take for granted? Do we stop to reflect on the senses that help us distinguish and evaluate information that has been provided? Do we ever question what makes us see, what is shown to us, or how we perceive colour, shapes, forms and patterns? How is the sight in front of the audience’s eyes influencing what they perceive?

According to Semir Zeki, the relationship between art and its function, and the visual brain is surprisingly stronger than we think as “the overall function of art is an extension of the function of the brain” (Zeki, 2011, p. 76) and as Eugene Lonesco also states: “A work of art is above all an adventure of the mind”. Robert L. Solso explains how both art and the mind are a piece of the same real physical universe and are constructed from the same base. If these are to be analysed separately it would lead to the misunderstanding of both elements (Solso, 2003, p. 21). The main purpose of the brain is to obtain knowledge, which through the five senses; sight, hearing, touch, smell and vision, is the most efficient way of obtaining knowledge and information (Zeki, 2011, p. 77). Reflection of art not only allows the inspection of the physical aspect but also allows a person to experience ‘noise’ which is genetically introduced by the sensory system (Solso, 2003, p. 172).

As light bounces off from the screen, it reflects into the audience’s eyes. The light rays first penetrate the lens of the eye and then focus onto the sensory neurons in the retina. This “nativistic perception (also known as ‘bottom-up’ processing to cognitive scientists
because it begins with basic physical stimuli) deals with the way the eye and the brain work in matched synchrony” (Solso, 2003, p. 2). Solso also describes that the composition of the nativistic perception is determined differently from the direct perception, for example, by shape, colour, and patterns. In contrast, the direct perception (also known as ‘top-down processing’) is influenced by history, proficiency, prediction and one’s own interests. These “mixed impulses from both eyes pass through the optic tracts to the striate cortex at the back of the brain and end in the temporal lobe area so that [the] right and left halves of the visual field merge” (Weisenberger, 2015). This explains how the primary visual cortex of the viewer’s brain is able to translate these mixed electrical impulses of data into formulating what they see on screen.

At the back of our eyes a layer covered with receptor cells known as rods and cones is found. These receptor cells are very light sensitive as they are stimulated by light. Within our retina one can find three microscopically thin layers of nerve cells. These layers consist of a top layer made from ganglion cells, a second layer of bipolar cells and a third layer consisting of photoreceptors. Light has to pass from the ganglion cells to the bipolar cells until it finally reaches the photoreceptors where the main process happens. The rods and cones mentioned previously are found in the ‘photoreceptor layer’ and are named after their shape. These receptor cells perform different roles. The rods perform optimally in dark environments because they are extremely sensitive to light and create crude grey images. Cones on the other hand are not that sufficient in daylight as they require much more light than the rods to perform. However, the function of the cones enables the viewer to see all the fine detail and colour projected through the screen (Weisenberger, 2015). Solso states that each eye “has about 125 million rods and 6-7 million cones, and they are bunched together in an area about the size of an American silver dollar” (Solso, 2003, p. 89). Nonetheless, these receptor cells are well-managed and thus provide the audience with the right vision at all times.

In the context of this short film, it is considered beneficial if the audience has a basic knowledge of adventure movies, as viewers would have a background to the genre. The audience would be influenced by previous adventure movies and stories. The audience would view the short film with a directed perception or top-down processing as viewers retrieve their permanent record of information from the brain’s storage area. In order to remember certain information, knowledge must have been stored as long-term memory.
Moreover, the audience’s long-term memory is divided in two: the explicit/declarative memory and the implicit memory. The explicit memory is further divided into episodic memory and semantic memory. Hence, this knowledge would have been stored in the semantic memory which consist of intentional recollection such as facts, memories and recognition. Solso explains that when viewers watch the short film animation certain cues provided them to access information from their long-term memory.

The story of this stop motion animation is based on an animal character with human behaviour, this is also known as anthropomorphic. It is important that the character possess human behaviour so that the viewer can relate to it and can be influenced in an effective way. Therefore, it is beneficial to know how and why we behave in a certain way.

According to John Williams, the amygdala, which is a section of nervous tissue situated in our temporal side lobe of the brain is responsible for recognising emotions as well as creating emotions and controlling aggression. Williams states that “the amygdala [also] helps to store memories of events and emotions so that an individual may be able to recognise similar events in the future” (Williams, 2015).

There has been an extensive study focusing on the function of the brain when perceiving facial expressions. The study shows that the visual system consists of multiple interactive neural circuits within the streams. This demonstrates that:

“One stream decomposes visual signals into elementary lines and angles and then processes the signal at a higher level, such as colors and faces, while another stream is dedicated to locating an object in space. The gyri in the brain are the ridges of a hilly cortical topography, with valleys (or sulci) separating the higher ridges. The fusiform gyrus is one of these outcroppings located in the regions called the occipital and occipitotemporal cortex, on the underside of the brain near the back. That area ‘lights up’ in most people when they look at faces, and that little hill is a leading candidate for the location of the ‘facial cells’.” (Solso, 2003, p. 145)
Solso states that we view the three-dimensional world with eyes that record in two-dimensions, but it is certain that the our brain renders in a three-dimensional manner permitting us to view our surroundings in three-dimension (Solso, 2003, p. 198). Our visual system consists of two sets of depth cues known as oculomotor cues which consist of two other cues known as accommodation and convergence. The second set which perceives depth is made up of visual cues which also consists of two other cues known as binocular cues and monocular cues. However, the audience will not perceive depth by using oculomotor cues as they will only be seeing a flat image displayed on screen. Therefore, it is up to the visual cues to perceive depth and from the two cues the audience then uses monocular cues to measure depths according to: relative size, occlusion, shadows, orientation, elevation, texture gradients, atmospheric perspective, linear perspective and colour.

Although the character is displayed flat on a screen, the viewer’s brain perceives the animation to be three-dimensional due to various reasons such as perspective, atmospheric perspective and change in colour. Shadows also help to create three-dimensions as the human brain is wired to interpret a shadow and lighting as if light is literally shining onto a three-dimensional object.

This artwork would be unaffected without an audience. It was essential to research what makes the human behaviour believe the film he/she is watching. The French film theorist Jean Louis Baudry talks about the ‘Apparatus Theory’ where he compares the cinema experience to Plato’s Cave.

Basically the “Apparatus Theory is a model of spectatorship and institutions. It argues that cinema is ideological (based on ideas) because the films are created to represent reality. This means that because film is created to illustrate different ideas, everything has meaning – from the camerawork to the editing. It argues that ideology is not imposed on cinema, but is part of its nature (through the viewer) and it shapes how we think” (Ponsford, 2012).

Jean Louis Baudry compares the physical space of the cinema to that of the Cave that Plato mentions in his analogy. Baudry then compares the screen of the cinema to the wall of the cave that the images were projected on. As for the projections, they are compared to the shadows as the film itself is a false reality as the shadows projected in the cave. He also
compares the spectators with the prisoners, as in the total darkness of the cinema the spectators stay motionless in their seats watching the film, while the prisoners were chained in the cave seeing their shadows. Jean Louis Baudry then compares the projector with the flame, as the function of the projector is to project the film on the screen, just like the fire projects shadows on the wall. The final comparison is that of the actors and props to the fake objects. Baudry says that the hyper real objects must mimic reality for the prisoner or audience to believe that what he or she sees is the true reality. If this would somehow appear to be fake, the prisoner/audience would become conscious of which state he or she is and the ‘dream’ state would come to stop.

Baudry discusses that while the human being dreams, he believes that the dream is real, but in a cinema, the viewer is aware that the film is not real. He explains that just like the physical apparatus, the cinematic apparatus creates a simulation of the dream state which makes the film seem real. For this reason it makes the viewer return to the dream state where the unconscious increases, and starts believing what he/she sees.
2.5 Timing and Spacing

“The dominant, all-powerful factor of the film image is rhythm, expressing the course of time within the frame. The actual passage of time is also made clear in the characters' behaviour, the visual treatment and the sound—but these are all accompanying features, the absence of which, theoretically, would in no way affect the existence of the film. One cannot conceive of a cinematic work with no sense of time passing through the shot… the distinctive time running through the shots makes the rhythm of the picture; and rhythm is determined not by the length of the edited pieces, but by the pressure of the time that runs through them.” (Tarkovsky, 1987, p. 113)

Stop motion animation is a fascinating concept of film creation both for the animator and the viewers. Throughout the film, the animation could be interpreted and accepted as obvious and as a normal animation like any other, however, at a point in time one ceases to accept the obvious and wonders about the intricate concept behind the whole idea. Ken A. Priebe, the author of the book ‘The Advanced Art of Stop-Motion Animation’, explains that when one gazes at a puppet being animated on a set, one instantly notices the pure stillness between frames. This of course is only visible if one had to be present while shooting the subject on that set. Priebe claims that “in our dimension of time, under those hot lights and in that stuffy air, the puppet is merely a figure that sits there until an animator touches it. Once it is touched, and when the playback button is pressed, a whole new life is created in that other dimension of time on the monitor. All of a sudden, this tiny being of earthbound materials appears to have its own thoughts, fears and speech [...] a complete life of its own, living in its own world” (Priebe, 2011, p. 203). To sum it all up in a playful metaphor, Priebe compares it to “Walt Disney’s ‘Pinocchio’ where the wooden puppet, crafted by Geppetto and given life by the blue Fairy, finds out, “I can move! I can talk!” and then goes out to explore his new world” (Priebe, 2011, p. 203).

In stop motion animation, timing is particularly essential. One needs to consider the distance to animate the puppet or the object from one point to the desired position and work out the exact time duration of how to move or animate the puppet or the particular object within the allocated time duration according to the story line sequence and the depiction of the storyboards. Therefore, the animator needs to know certain principles and
Priebe states that “the essential principle [is] slowing in and slowing out and the fact that movements closer together will slow down the action, and movements farther apart will speed up the action.”

The concept of time is immensely perplexing, not only for the viewer but also for the animator. It is crucial that the animator grasps the concept of time as it is through him that the perception of time is displayed throughout the stop motion animated film. Apart from this, the animator also needs to know about the perception of the human eye and its limitations. Animators shoot stop motion films at 24 frames per second. In his book ‘Psychedelic Information Theory: Shamanism in the Age of Reason, Chapter 05 Limits of Human Perception’, James L. Kent claims that “humans can render changes in reality at roughly 13-15 frames per second (fps, or Hz), which means that human reality fully refreshes itself roughly once every 77 milliseconds (ms) and open-eye saturation of peripheral filling fully fades at around 10-20 seconds. Human frame perception is exploited by animation and film, which updates at 24 fps, and television, which updates near 30 fps. Computer monitors and high-definition televisions refresh at 60 Hz or higher, and at this rate human perception of motion is entirely seamless” (L.Kent, 2010, p. 40). Therefore, it is essential that the animator shoots 24 (or in some cases more) frames per second so that the human eye and brain can watch a smooth, good quality footage.

On the other hand, an animator also has general rules to follow in order to execute a proper frame animation which is received by the audience in its full meaning. The animator is to determine the poses to seen by the audience and which actions are needed to be successfully communicated. For example, Priebe claims that in order to do so the animator needs to take “six frames to feel something, eight frames to see it, and 12 frames for it to really soak into your brain” (Priebe, 2011, p. 206).

If the puppet stops moving and stays still, the duration should not exceed the maximum of two or three seconds as it would appear as if the puppet has lost its breath of life. Priebe suggests that if so this is done, one needs to break the stillness with a blink or a subtle movement to make the puppet look alive. He goes further on to say that “if a character turns its head to look at something and holds before reacting to what it sees, holding for six to eight frames would be a very quick glance, while holding for 16 to 24 frames would be a more intent look. A longer hold would indicate a slower reaction and a denser character,
whereas a shorter hold would indicate an immediate reaction from the character who is more alert” (Priebe, 2011, p. 207). Priebe also implies the importance of having a minimum of eight-frame hold and if possible even 24 frame hold at the beginning of the take, as this would allow the audience’s eye and brain to acknowledge the puppet before the action takes place. If there is only a two or three frame hold, the audience’s mind would get confused trying to catch up. Furthermore, one other generic rule is that all holds should not be less than six frames which is already very short. Shorter than six frames, for instance ‘four frames’, would only look as a camera mistake or a jerk in the animation sequence (L.Kent, 2010, pp. 207-208).

To break down the above information, in stop motion animation each frame represents a fraction in time. Therefore in order for a puppet to move, an amount of frames needs to be shot to complete the duration of the passing of time. However, these animated physical actions need to be extremely smooth, sharp and constant throughout the shooting. Richard Williams, author of the book ‘The Animation Survival Kit’, mentions that one day during the ‘Golden Age’ of animation a friend and a Disney animator Grim Natwick found him working on a drawing similar to Figure 1. Grim Natwick was not only displaying the arc of the action but also showing the different spacing on the drawing. This was probably the origin of charts which animators still use to this day (Williams, 2009).
This gradually kept on evolving and improving but this time Dick Huemer, one of the top animators in New York invented the ‘inbetweener’ (*illustrated in Figure 2*) where “the main drawings or extreme position came to be called *extremes* and the drawings in between the extremes were called the *inbetweens*” (Williams, 2009, p. 48).

Both these techniques were originally meant for two-dimensional animation yet the same principles also apply to stop motion animation which is in a three-dimensional form making it more challenging and trickier. Nonetheless, the three-dimensional animation will be eventually recorded as a two-dimensional animation by means of computer software. Ken A. Priebe suggests that “you can draw this arc on your monitor or use markers in the software to establish where the points along the arc should be” (L.Kent, 2010, p. 209).
2.6 Narrative and Storytelling

One of the main features of stop motion animation is the narrative. Eventually, a good story will determine the animated film from being interesting and exciting, to being boring and meaningless. That is why it is important to establish a universal concept using universal emotions so that viewers could engage easier to the moving images. On the other hand, according to the book “Narrative Dynamics: Essays on Time, Plot, Closure, and Frames” by Brian Richardson, “time, plot, openings, endings and frames are among the most important aspects of the study of narrative” (Richardson, 1953, p. 1). One can never take the narrative lightly as it is as important as the entire work.

The Emmy-winning filmmaker Paul Atkins gave a talk about ‘Cinematic Storytelling: The Heart vs The Head’ at TEDxMaui. In his introduction, he claims that “we pride ourselves as being thinking rational beings, in fact we even gave ourselves the name Homo sapiens which means the wise human” (Atkins, 2013). Atkins tries to identify whether the human being is in fact rational or a storyteller. To do so, Atkins compares two species between each other; the shark and the human being. He pose the question: which is most fearful and dangerous from the two? If we look at this in a rational way, the facts are that on average it is estimated that sharks kill four people a year worldwide and people kill seventy million sharks a year.

Moreover, the filmmaker Paul Atkins says that when filming sharks under water, sharks are not interested in attacking humans, and in fact, he adds that humans need to lure them with bait for them to come near enough to be filmed. However, this is not what we perceive through the media as we are bombarded with images of the horrific moment when the shark attacks to feed itself, presenting to us a mouth full of razor sharp teeth tearing through flesh. The very reason for filming this moment is because the more dramatic and fearful it is, the more it impacts the emotions of the audience, hence the more viewing it gets. Through his experience in filmmaking, he learned that if one wants to change something and leave an impact, one needs to appeal to the heart rather than the mind, as he states that “emotions are far more powerful than any factual argument but if you want to reach the mind you do it through the heart, you do it through the limbic system” (Atkins, 2013).
Through this example Atkins concludes that the human being is more of a story teller than a rational one. We love to create fictional stories, we narrate about our daily lives and use stories just to start a conversation with friends. We share our adventures and experiences, we gossip and tell jokes to one another, and even when we sleep our minds keeps on creating stories and dreams. Ultimately, we live inside a story through our whole life. To strengthen this point, Lisa Cron, a writer whose aim is to help writers master the unparalleled power of story, also claims that human beings “think in story, because story provides a context for the facts, so we can make sense of them. It’s this very subjective process that gives them meaning, triggering the emotion, the feeling, that it silently guides our every action” (Cron, 2014).

We ultimately communicate with each other through emotions, and without emotion we are nothing. Cron refers to Daniel Gilbert, a Harvard psychology professor who states that “indeed, feelings don’t just matter – they are what mattering means”. She then explains that “emotion isn’t the monkey wrench in this system, emotion is the system, which brings us right back to story, because the brain doesn’t learn by thinking about things, objectively. The brain learns by feeling things subjectively and story is the language of experience – whether yours, someone else’s or that of a fictional character” (Cron, 2014).

Thomas Wartenberg, the author of ‘Philosophy of Film’, talks about the difference between a novel and a film. He points out that fictional films tell stories through the medium of images and sound, including both words and music. Some films have narrators to tell us the film’s story and explain what we see, however, some films do not have narrators. Wartenberg mentions that, initially the idea of a film without a narrator did not make any sense in theory, as narration requires an agent to lead the audience to the fictional world. However, “opponents responded that the narrator in the sense of the agent who gave film audiences access to a film's fictional world could be the filmmaker(s), so there was no need to posit such a dubious entity as an implicit narrator of a film” (Wartenberg, 2015). This deeply applies to my non-vocal stop motion animation project, as not only does the character not talk, but there is also no narrator telling a story. Therefore, the narration is only transmitted through images, sound effects and music.
To create an interesting effective narrative, I intended to incorporate suspense within the story. The three cognitive psychologists Andrew Ortony, Gerald L. Clore and Allan Collins, are the authors of the book ‘The Cognitive Structure of Emotions’. They discuss that suspense is a combination of hope and fear, quoting: “We view suspense as involving a hope emotion and a fear emotion coupled with the cognitive state of uncertainty” (Andrew Ortony, Gerald L. Clore, Allan Collins, 1988, p. 131). These three psychologist argue that the feeling of fear is the feeling of displeasure and of an unwanted event, while on the contrary, hope is the feeling of pleasure and that of a promising fascinating event. On that account, the viewers feel suspense when they “fear a bad outcome, hope for a good outcome, and are uncertain about which outcome will come to pass” (Smuts, 2009). It is important that throughout the narrative of this animation this theory is carried out in order to emphasise the emotion of the character itself and trigger emotion in the audience to react.

To conclude this chapter, I thought it was fitting to quote one of the most outstanding comic book writers, Stan Lee, a man who created numerous renowned cartoon characters.

“As a writer it’s always great to have a story where you have a great way for your hero to get into trouble, because if everything works well for him, there is no excitement, there is no interest.” - Stan Lee
2.9 Digital Cinematography

We are living in a digital world where we are surrounded and continually relying on computer-based digital technology. Images, text, sounds and numbers are all digitally encoded and processed in a similar manner. There are many ways by which computer-based art can be digitally produced. In one of the papers from the Stanford Encyclopaedia of Philosophy, ‘The Philosophy of Digital Art’, Katherine Thomson-Jones mentions a few examples such as that

“… a digital photograph may be the product of a manipulated sample of visual information captured with a digital camera from a ‘live’ scene, or captured with a scanner from a traditional celluloid photograph. Music can be recorded and then manipulated digitally or created digitally with specialized computer software. And a movie is now the product of an extremely complex sequence of choices between analog and digital processes at the stages of image and sound capture or composition, image and sound editing, color correction or sound mastering, special effects production, and display or projection” (Thomson-Jones, 2015).

According to Thomas Wartenberg, philosophers were among the first to start publishing studies on the new art form about the philosophy of film, as they foresaw the importance and power that film held. Nowadays, film has become one of the most powerful media to express emotions and feelings, to portray messages and to tell stories. There are a number of issues that apply to the philosophy of film, but one major issue that I would like to tackle and can benefit from, is that of emotional engagement.

Wartenberg starts by asking an intriguing question: “Why should we care what happens to fictional characters?” The reality is, that since this is all produced for a film and is fictional, the character’s fate should not matter to the audience like it would in real life. However, we still get involved in the character’s life and destiny.
One film theory states that the reason why we feel the way we feel for a character is because we identify ourselves with the fictional character. It might also be because the character would be highly idealised more than a normal human being could be such as brave, resourceful, intelligent and so on. In doing so, the audience connects to and desires these ideal characters. As the audience becomes one with the fictional character, magic happens, and the fictional character’s fate is the audience’s fate (Wartenberg, 2015).

Wartenberg mentions that the above film theory, where viewers identify themselves with a character, is not that simple. Philosophers have argued that there are many varieties of attitudes that a fictional character could have and it does not justify why we react emotionally to the characters that we do not identify ourselves with. Nonetheless we still feel the same emotions that we would normally feel in real life, only with the difference that we would not respond emotionally the same way as we would in real life. For example, if there is someone yelling, the viewer will not respond by yelling back. Wartenberg also claims “that we seem to enjoy watching things on the screen that we would hate seeing in real life” (Wartenberg, 2015). He explains that the viewer enjoys seeing hard and dangerous events but would defiantly refuse to be in such an event in real life. The viewer is only comfortable to experience such emotions as long as he or she knows that it is safe, otherwise known as the off-line situation (Wartenberg, 2015).

All of what is mentioned above could only be demonstrated through videography. Camera angles and filming techniques could enhance and create the effect of emotion respectively on the character and the surroundings. In the ‘Journal of Nonverbal Behavior,’ a paper on “Angle of regard: The effect of vertical viewing angle on the perception of facial expressions” by Arvid Kappas, Ursula Hess, Carol L.Barr, and Robert E. Kleck, explains that our natural instinct drives us to read a human face and expressions since it contains loads of information. We could recognise someone, we comprehend moods and feelings. Among other explanations he describes that if a face is seen from above, it “will be perceived as expressing more happiness than faces seen from below. Conversely, the same face seen from below will be perceived as expressing more sadness than when seen above” (Arvid Kappas, Ursula Hess, Carol L.Barr, Robert E. Kleck, 2015, p. 264). Information like this will help transmit emotions easier as they are captured through camera.
3. Project

The project could only start off after compiling extensive research on the previously mentioned aspects of animation which ultimately helped in creating a satisfying stop motion animation. This chapter discusses the initial ideas of the story and the story itself, the making of the miniature sets and the techniques used, the making of the puppet, as well as the process of setting up, animating a lifeless puppet, editing the short film, sound effects and music, and any challenges that presented themselves along the way.

3.1 The Story

The story I chose to produce was one that had been on my mind for a long time. As mentioned earlier in the introduction, my Bachelor’s Degree in Fine Arts project and dissertation was about the illusion of miniature sets. This time round I wanted to create mystical places where life dwells, using miniature sets as the medium. As these ideas started to develop I soon came to realise that stop motion animation was the perfect technique to combine my ideas with these mystical sets.

I dreamed of having an adventurous Indiana Jones type of character, who is an anthropomorphic turtle who goes on a journey inside a temple full of booby-traps. With this idea, I could not only project life in an inanimate object, but also movement within the miniature sets. After various sketches and online research on how the chambers of the temple would look like, I then played around with how the puppet could interact with the models and all the actions that the puppet could make to arrive from point A to point B. This resulted in that the turtle would go through seven different chambers and finally sleep in a bedroom.

The turtle’s name is never mentioned in the short film, however as a reference for this writing I gave the turtle the name Sheldon. I chose to call him Sheldon for the simple reason that within the name it obtains the word ‘Shel’ referring to the turtle’s shell. I intended that the story (excluding the bedroom scene) starts and finishes in blackouts. I chose to do so with the intention to make the audience think for a few moments that Sheldon’s adventure was possibly a dream. Just like in dreams, we never know and remember how they start and end. This also allowed me to create a story with a subtle start.
and finish; subtle enough not to create suspicion in the audience’s mind. Furthermore, this also helped me to reduce other models and work, such as models illustrating entering the chamber and finding his way in, and ultimately escaping the treasure room with all the treasure.

As Sheldon smells the potion, he instantly blacks out. He then wakes up to find himself in his bedroom thinking that all of what he went through was just a dream. Sadly regretting his realisation, he goes back to sleep. It is then when the camera pans from one side of the room to the other, showing us the potion lying on the carpet and the floor filled with treasures.

This twist at the end of the story is intended to surprise the audience in order to engage with the story till the last second of the short film animation.
3.2 The Making of the Miniature Sets

The eight miniature sets were basically built with the same media using similar techniques. However, each model had a distinctive feature that allowed for exploration and experimentation with particular methods typically used in stop motion animation. After the design of each model was established through sketches and the research of several images was applied to the desired idea, it was then taken to the construction studio where the concept could be developed into a three-dimensional set.

The first step of building the sets was to build the base. It took a long time to figure out how to build the miniature sets while still being able to animate the puppet inside. One must remember that the puppet needs support in order for it to say upright on two legs. Most animation productions use rigs that are attached to the puppet to help it perform any action that is not physically possible to be performed by an inanimate object. However, it is very time consuming work to mask away the rigging devises from the final picture. The approach was to use a similar method called a ‘tie-down’ system which is commonly used by professional stop motion companies. Instead of drilling the model’s floor and using a bolt and a nut fastened through the floor of the model, powerful magnets were used. This works by having an earth magnet installed in each of the puppet’s feet and when the puppet is placed on the floor of the model, another two powerful earth magnets are placed beneath the floor. It was important for the floor to be made out of thin material as there would be more attraction between the magnets, hence, a stronger clamping grip. A three millimetre wooden board was nailed on wooden beams enabling the magnets to be placed beneath the suspended base.

Figure 9: Construction of the Model’s Base
To construct the walls of the miniature sets, the plans were first plotted down on the wooden base. The walls were then erected out of polystyrene blocks or slices, and in some cases expansion foam was also used. The polystyrene was first positioned in the desired place, then the walls were sketched with a permanent marker according to the desired shape, layout and special features. The next step was to carve the polystyrene with various tools such as hot wire to cut straight lines and remove any access parts, soldering iron to carve details such as all the pointing features of the walls and other details, and sharp blades and cutters to roughly shape the polystyrene.

When all the shaping was done and all the pieces were glued to each other and to the base, the next step was the plastering phase. The reason for using the plaster is to create the illusion that the polystyrene walls and structures are made out of solid stone. To achieve this effect, water was mixed with plaster of Paris and applied rapidly to the polystyrene structures before it hardened.
After the miniature set was covered in plaster, it was then time to paint the model and make it look real. The technique that was used to paint the miniature sets was inspired from a behind the scenes footage of the film ‘The Hobbit: The Desolation of Smaug’. In the footage, they are seen painting a forest in bright violets, blues and yellows. The reason for doing this was because when the set is filmed, those colours would come out looking even nicer than if it was a forest painted in natural colours. When it is recorded digitally, it would produce a better effect and have a nicer outcome with digital colour correction and manipulation. Firstly, the base was painted with an acrylic yellow and was later layered with blacks, greens and browns. To create the effect of humid, damp chambers, green colours were emphasised in places where mould usually grows. Paint was applied mainly by airbrushing the models as well as through splattering and dripping techniques to create a mysterious ambience.

When the paint job was finished it was then time to work on the floor. Keeping in mind that the base was a thin sheet of wood which cannot be carved into, a mixture of sand, white glue and black paint was created. This mixture was then plastered on the pre-primed black floor and before it hardened, marks were made to create tiles. This technique achieved to simulate stone tiles, keeping the base thin enough for a strong attraction between the magnets. To make the floor look well worn, small stones were mixed with glue and scattered along the floor.
As mentioned earlier, each model had a unique feature. It is best to discuss and explain all eight models individually due to the intricate and complicated work employed in creating each one. The major techniques and special effects will also be pointed out in the following paragraphs.

The story starts off in pitch darkness where the only thing that is heard are footsteps coming closer and closer. While still in total darkness, the viewer can hear someone struggling to light a match. The match is lit on the second attempt and the light from an old oil lamp becomes visible. The sound effects of the footsteps and the match hitting the striking surface are effects from an online website for freely downloadable sound effects. The squeaking lantern sound effect and all of the turtle’s voice-over were created and recorded by myself and edited in post-production.

As the protagonist pulls up the oil lamp to his face for him to see his surroundings, the viewer gets a glimpse of the mysterious figure – an anthropomorphic turtle named Sheldon with a yellow bandana wrapped around his head. As he looks around, he decides to explore further. He walks up to a statue of a knight and as he turns his head he notices something strange about the wall. He examines it and then looks back to the sword that the knight was holding, as if the sword might be the key to a secret passage. Sheldon the turtle musters up the courage to touch the sword with his index finger. All of a sudden the rigged sword drops creating a noisy rambling background as a secret wall opens, leading to another chamber.

The model was built using a technique called forced perspective. This technique was purposely used to create the illusion that the corridor looks longer than it actually is. This required that the two walls of the corridor are not built in parallel to each other but positioned in a single point perspective where the farthest part of the walls are much closer to each other than the nearest end (as shown in the figure).

![Figure 15: Model 1 Forced Perspective](image)
To film the animation, the whole wall on the left was designed to be removable in two sections in order for the camera to film the character walking along the corridor from the side. On the other hand, the secret wall that moves inwards and slides was simply attached to a block of metal that helped it stand upright and gave it the ability to slide easily.

To achieve the effect of the light given off from the lantern, an LED and two cell batteries were originally wired inside the small lantern to emit light. Unfortunately, the LED was not powering enough light to create the desired effect. The solution was to create the emitting light in post-production. A motion tracking technique was used and a circular mask acting as the light radiating from the lantern was created in Adobe After Effects. The effect of the dust when the secret wall opens was established through a green screen technique. However, the green screen dust effect was taken from a royalty ready-made footage, which was then edited and manipulated to the short film animation.

The second model appears to be a cave filled with huge coloured diamonds and crystals. These crystals were ordinary decorative, clear plastic glued to the model. In order for them to glow, a small hole was first drilled and coloured Christmas lights were installed all around the back of the model lighting each crystals with a different colour. The sparkle effects on the crystals were done in post-production using a PNG image. The sparkle image was transformed to different sizes, changed to different opacities and animated in various ways so that all the sparkle effects would seem different from each other.
The third model was one of the most challenging sets to build. As Sheldon enters the next chamber he walks to the middle of the hall where he looks at two sculptures, one on each side. As he moves he soon realises that he walked on a pressure plate which goes down. The pressure plate was made from a recycled Maltese souvenir. The mechanics to animate the pressure plate were constructed from a wooden dowel and an off-centre wooden circle. When the wooden dowel is turned, thus also turning the off-centre wooden circle, the tile on top goes up and down through a whole revolution of the wooden dowel. This ensures that the animator has total control over the animation of the pressure plate.

As Sheldon triggers the pressure plate, it sets off three huge swinging sharp blades. For the blades to swing, a particular technique commonly used in stop motion called ‘animatronic’ was adopted. This technique is mainly used for an animation that is repeated, without the possibility of looping. It also ensures that the movement is constant, the same and efficient. One needs to know that to animate the puppet, it is important to move at least five individual body parts for each photograph. These include the head, left leg, right leg, left hand, right hand as well as facial expressions such as the eyes and mouth. Therefore, having three more blades would definitely be more time consuming and would make the process more prone to mistakes and sloppy animation.
The animatronic puppet created was based on a camshaft. With the slightest movement of the outer disc, the three inner discs move the three metal bars each set at different yet precise intervals, which in turn move the blades from one side to the other. The model also had four removable walls so that it could be filmed from different sides. As shown in Figure 19, blocks A, B, C, D could be removed to shoot the scene where Sheldon tries to cross through the blades unharmed.

Something which might go unnoticed unless stated by the animator is the amount of work done on the model’s base. Considering that this model is large and heavy, the floor could not be made out of the same thin material as the other models. A one centimetre thick plywood sheet was used in order to support the model’s weight and scale. This resulted in routeing a passage from beneath the floor to still achieve a thin layer for maximum magnet attraction.
The fourth model was built in such a way as to be connected with the fifth, to create a flowing animated shot. However, these two models were built separately due to their large scale as well as to make it more convenient to handle and set up. The story in model four starts by filming a skeleton in a deep pit, panning up to Sheldon’s face. To create this pit, the floor level of the model had to be raised higher so that the pit seems deep within the bedrock.

Sheldon then crosses over to the other side on a wooden plank which was glued down to prevent it from moving. Sheldon is animated as if he was about to trip over as he loses balance. This was done with the help of magnets placed under the wooden plank and then masked in Adobe After Effects. When he makes it to the other side, one of the doors slams shut. This flap door was only rigged by a simple technique using a string and weights, calibrated just to hold its position as the animator sets it.

As that door closes another starts to close trapping him inside model five. Sheldon rushes through and tries to hold the heavy door. This door was rigged differently from the first one, as this door drops down vertically. For it to close down, two narrow grooves were routed on each side of the wall and pins were inserted inside the sides of the door to act as a track or a slider, allowing the door to drop vertically. The mechanics to close the door were based on a ratchet system, hand cut in wood. A wooden gear and a spring-loaded wooden finger called a pawl which engages the gears teeth were also created. This was attached to a wooden dowel that winches up and down the door according to the amount of clicks one releases the ratchet.
Sheldon gives up on holding the heavy door and then retreats backwards triggering another booby trap without knowing it. Suddenly a wall full of spikes protruding out from a number of stone sculptures representing dragons’ mouths starts to move and slide towards him. In addition to all this, another door starts to draw downwards, closing in, trapping Sheldon to his death. Thanks to his quick thinking he slides his way out, managing to stay alive.

Although this scene is only a few seconds long, there is by far much more time and work invested in it than in any other scene. To start with, the sliding door maintained a sliding mechanism from behind as shown in the figure 22. This was built entirely out of wood and functioned through the principles of friction. To make it slide easily, the contact surface was smooth and polished, but to stay in its animated position the gravitational force was doing its job, creating friction in order for it not to move.

The mechanisms of the last closing door were identical to the second door. Planning ahead and using storyboards is very important as it avoids unnecessary work and provides useful insight, such as knowing that the two doors can never function at the same time. Therefore, the ratchet mechanism system could be transferred to the last door, avoiding the extra work of creating another one. The storyboards can be found in the appendices below.

Regarding the post-production work, model five included dust effects which were created by the same technique mentioned previously. To create a shake effect as if it were caused by the moving wall, a wiggle effect was applied to the footage in post-production.
Nearing the end of the journey, Sheldon enters the final hall leading to the ultimate treasure room. This model was constructed with inward leaning walls to create the illusion of a higher chamber. To further glorify this hall, six bronze pots were arranged at the side of the walls using the same principle of forced perspective. These were originally part of an old bronze chandelier which resemble pots serving as fire pits. As Sheldon enters this hall, these pots magically catch fire creating a mysterious ambience to amplify the dynamism of this room. The fire and fire explosions were taken from stock footages from YouTube. These were green screened and merged together and edited in the post-production phase.

The three skeletons encaged in handmade cages represent death as a sign of what happens to those who cross over, creating an obscure threatening ambience. Moving on, the leavers that Sheldon interacts with to open the door are made from found objects, assembled and rigged to function as leavers.

The huge face-like façade is made using the same techniques as those used to make the walls, however, it was sculpted and shaped to resemble a face. Its mouth is the only entrance to the treasure room which appears to be sealed with a large heavy door. This door is constructed out of balsa wood and transformed to look like old wood. Imitation jewellery was used to create the door knobs and decoration, and black painted cardboard was used to simulate huge door hinges. To animate to opening of the door, the door was rigged from behind with strings and weights to hold its location. The simulated locks that show through the decorative metal work of the door were purposely created to build suspense and let the audience feel that they are close to discovering what lies behind the door with each latch that retracts sideward.
The long awaited treasure room is finally revealed with the climaxed grand opening of the huge door. This model was also planned with two removable walls to be filmed according to the storyboards. One could see a chamber filled with gold, silver, diamonds and priceless objects that one could only dream of. These treasures were made from toys painted in gold and silver, plastic diamonds, crystals and glass jewels, fake jewellery and miniature model church related items. It was important to have a mixture of real shiny metals mixed with the fake plastic ones, in order to create the realistic shine and value of the treasure. It took several weeks to collect a sufficient amount of toys and jewellery with a total estimated investment of one hundred and twenty euros in treasure props alone.

The final model illustrates a totally different scenario from all the previous models. It is Sheldon’s bedroom. Model eight was also constructed differently as it served a different purpose. The walls were made out of cardboard and printed wallpaper. The floor was made out of popsicle sticks and varnished simulating a parquet flooring. All of the furniture was inspired from real furniture designs and built out of balsa wood and hardwood. The books where made from down-scaled book covers, printed and glued onto cardboard and foam to simulate the book’s thickness. On the other hand, the jars on the desk were bought from a hobby store and filled with miscellaneous objects to simulate heads, snakes and herbs, creating an obscure ambient. The bedroom’s window was made out of wooden beams and clear plastic sheeting. During filming, light was shone from behind the window exposing the wallpaper set as the scenery.
3.3 The puppet

The project necessitated that I invest in a ninety-one euro beginner’s, armature kit made for stop motion puppets. It was essential that after all the work done and all the time dedicated to this project, the animation of the puppet itself is capable to simulate and pose in any position it is set. This armature contains thin threaded studs, plain and threaded side plates, threaded metal ball bearings, eight millimetre screws, magnets and aluminium wire. Having these type of joins built in a stop motion armature puppet is a ‘life changer’, so to speak, when it comes to animate the puppet.

Before assembling the armature, research was carried out on the anatomy of the head and skeleton and ultimately on what the character will look like. It was important to keep in mind that not only must the character look pleasing to the eye, but more importantly it needed to be structured in a way that does not hinder or limit any actions or poses during the animation.

It took three intense weeks to build Sheldon. The first step was to dry fit assemble the armature kit to the desired length. The armature was then tested to extreme positions. After satisfactory results, it was reassembled fixing all the screws, bearings and threaded studs with ‘Lock Bond’ in place to prevent the puppet from loosening up during filming. The armature was then taped using floral tape to protect the joints from being obstructed by any material.

To get a good body proportion, it is best for one to start from the head and then move to the body. My initial step was to find plastic eyeballs as they determine the size of the head. After days of searching for tiny eyeballs, I finally found a small doll containing almost everything that I desired. However, I ended up using only the clear blue irises which were repainted green. Apart from the eyes, I also used the doll’s head as the main base for the head of the turtle.
As shown in the images above, the first thing that I had done was to plot and dissect the head in different parts. The jaw of the doll’s face was completely removed and instead, two aluminium wires were attached to function as the mouth’s muscles. However, this was not achieved on the first try. Only after several attempts did I managed to make it work. The nose and the eyebrows were made using the same technique. The back scalp of the head was removed in order for me to work and insert the eye mechanism as shown in figure 29. The mechanism of the eyes was no easy job as the mechanism in Figure 29 was the second attempt. I wanted to create a mechanism that when the eyes needed to be animated, one only needs to animate a single eye and the other follows. This would not only save me time but would also ensure that both eyes move in synchronicity with each other avoiding the puppet becoming cross-eyed. I was inspired by the steering system of a car, and in fact, the first mechanism constructed involved small parts of a toy car. However, this did not work out, so I sanded down and fixed the two white plastic pearls on hinges. Then I drilled the pearls, glued in the clear iris and joined the eyes together with a piece of wire from the inside. The teeth and gums of the puppet were sculpted in polymer clay and then baked to harden.

To create the superficial components of the puppet, several techniques were used to produce the appropriate effects. To start with, I first sculpted the head on top of the plastic doll’s face with Plastelina as shown in Figure 30. Being pleased with the outcome, I then proceeded to make a mould out of plaster of Paris. This consisted of casting the mould in two halves with key indentation to lock in place as shown in Figure 31.
For the turtle’s skin, I used liquid latex mixed with acrylic paint. This was brushed in the mould in thin layers, as liquid latex takes a long time to dry. When the turtle’s latex mask was ready, it was glued back onto the head using contact glue, and more latex was used to fill in the seams.

After completing the head I could work on the remaining body of the turtle. I started working on the shell of the turtle leaving enough space between the crevices where the hands and legs would eventually be attached. After sculpting the shell I then disassembled it and created a mother mould made from a layer of latex to record all the detail worked in the sculpture and then covered it in plaster of Paris to hold the shape in place. The mould was then filled with paper pulp made from shredded newspapers, and as it dried I painted the shell with acrylic paints.
I then proceeded to work on the feet, hands and tail due to the solid state of the shell, making it far better to work around the shell. Both feet, hands and tail were sculpted, moulded and finished in the same process as that of the turtle’s head. After finishing all of the body parts, I could assemble the puppet together. The insides of the feet and hands were stuffed with cotton to fill the empty space between the armature and the thin layer of latex skin.

All that was left to be done was to colour the turtle for a more fitting look. Painting the puppet was challenging. It was important for the puppet to be painted with latex, otherwise the paint would peel right off when it is animated. Throughout the building process of the puppet I learned that to paint on latex, one has to mix latex and acrylic paint. However, it is not as easy as it sounds because when paint and latex are mixed, the colour tone lightens drastically. However, when it dries up, the colour reverts back into the original colour. It was only at the end of the project that I learned this and got the hang of it. The original acrylic paint before being mixed with liquid latex is the final colour outcome.
3.4 Animation

“Pantomime is the basic art of animation. Body language is the root and fortunately it is universal.” - Ken Anderson

To shoot stop motion animation one needs to set up a studio. It is important for this studio to be blocked from all natural light in order to have total control over the lighting of the animation. Every window of my studio had to be blocked out from light and the door was closed at all times during the shooting of the film.

The lighting and some other grip equipment that was used on this production was rented from a company that I was previously working with. I was part of the team to create a professional stop motion animation pilot episode with the aim of present it for review to BBC. This 1000 W professional lighting was set up with the help of a friend at the very back of the studio facing the opposite direction from where I was filming to disperse and soften the light in the room. I also had another light source which was continuously moved alongside the camera to create shadows and depth of field to the image.

To shoot the stop motion film I used a Canon DSLR 650D. Since to film stop motion animation one needs to capture numerous individual photos, I made sure to place the camera on a tripod and made use of a track/dolly to gain stability during moving shots. The camera was connected to my computer where I used a

Figure 37: Studio Light Set Up according to the individual model

Figure 38: Dragonframe
professional stop motion program called ‘Dragonframe’ to shoot the animation. This program is capable of taking photos from a computer to avoid camera shake when shooting a picture. However, the most beneficial function of ‘Dragonframe’ is that it has an onion skin effect that allows you to see the previously taken photo. The onion skin helps you compare and lets you know the difference between the actions made. Another slick trick is that ‘Dragonframe’ compiles all the photos taken in a ‘take’ and separates folders so that one can preview the animation compiled up to that point.

It took me three weeks to animate the puppet alongside the digital editing using Adobe After Effects. I worked in this manner to eliminate possible waste of time in case of any changes to the script or due to accidents or problems that might arise during the editorial process. Throughout the animation, I made it a point that all the research done, particularly in the literature review, was being applied.

The tools that I used most during the animation to make the puppet look alive were the twelve principles discussed earlier. From the twelve principles I mainly made use of arcs, anticipation, staging, timing and exaggeration. The other principles were also applied appropriately when needed, as is evident from the footage. From the start to the finish of the adventure, Sheldon does not stop walking. The book ‘The Animator’s Survival Kit’ was of great help when it came to the walking cycles, as I referred a lot to its techniques and explanations. However, it was still challenging because walking cycles are very difficult to accomplish.
3.5 The Digital Editing

It has already been mentioned that the program I used to edit the short film was Adobe After Effects. Using this program was a challenge that I was willing to overcome, as I had only started using After Effects the very same year in one class of the Masters course. Even though I feel like I have not mastered the program yet, I tackled every problem that arose by watching tutorial videos on YouTube, and overcame every obstacle through self-directed learning.

The layers and compositions created in Adobe After Effect can be found in the appendix at the end of this dissertation. I personally performed all the video and sound editing in this project.

Even though I created five hundred and twenty-one layers of video and audio in post-production to achieve this short film, the common process was to first import take by take, the files holding the images. These were then placed in a separate numbered composition according to the model it was shot from, (for example, Model 1 – Composition 1). After all the shots of the particular model were taken and arranged accordingly, the special effects were added, and the sound effects and Foley were introduced. The next step was to select the composition and place it in the main composition. After having all the compositions in a single main project, I then imported the music composition that I had composed separately, made from five different sound tracks.

![Figure 39: After Effects](image-url)
3.6 Foley and Music

It is impossible not to mention the importance of sound and music, and the effect they have on the visual element in film and on the audience. Sound is the very glue of the whole film that complements the video, giving it meaning, dynamism and power of feeling. It is sound that creates the mood and atmosphere, and builds tension in a movie. It also strengthens and emphasises the emotion felt and transmitted by the characters. Ultimately, it is music that helps set the scene and indicates a change in time and location.

For the sound composition of this short film, I included ambience sounds for a psychological cue for space, hence creating a more realistic ambience of the surroundings, Library effects which are pre-recorded sound effects that might be dangerous for me to record such as explosions or falling rocks, and part of the film’s Foley which I recorded myself. The final product is a non-verbal animation, but Sheldon does make use of some sort of vocal expressions. I vocally recorded all of Sheldon’s rumbling, gulping, chewing, breathing, frowning and other effects.

For the purpose of the research project, the music of this short film was taken from a film called ‘Tad, The Lost Explorer’, composed by Zacarias M. de la Riva. If the film would be shown to an audience or uploaded online, I would have a specifically composed music score. From the original album, I chose the most appropriate tracks which matched and enhanced certain moments in time according to the timeline of the visual recording. The track names are: The Legend of Paititi, Inside the Lost City, The Chamber of Quipus, The Treasure of the Incas and Sara’s Theme.
Since all the sets and props are made out of wood and plastic, the sound they create does not resemble the sound made by the real objects they are mimicking. Therefore, Foley and sound effects replaced and enhanced the natural sound, for example, a resin sword in reality would sound like a metal sword in film. Most of the sound effects in this short film were taken from a royalty free pre-recorded sound effects website known as ‘Sound Bible’. However, some of the intricate Foley was recorded from scratch to be composed according to the timing of the visual. Although recording Foley is advised to be done in synchronisation with the visual, it could easily be manipulated after in the editing process. In my case it was much more important that Foley captured the feel of the sound effect in the most natural way.

Ultimately the quality of the sound helps elevates the picture from an amateur home movie production to a cinematic piece.
4. Methodology

4.1 The Research Development

For this section of this study, professional people were interviewed for a better understanding of the technical and philosophical aspects of film atmosphere and the relationship with sequential art, and narrative development in film. The interview questions were sent by email to the interviewees to prepare them for the interview. All the interviews were carried out separately on campus and were recorded by a digital recording device. These recordings can be found on a CD as an appendix to this dissertation.

4.2 Interviews

4.2.1 Interview with Mr Anthony Catania

My first interviewee was Mr Anthony Catania, an assistant lecturer at the University of Malta. His artworks and artistic comic background are related to sequential art which illustrates atmospheres to express his narrative.

Mr Catania was first asked to discuss the relationship between film atmosphere and sequential art. This question was purposely asked to determine the relationship between the final product being film, and sequential art, referring to storyboards. Having a background in comics, Mr Catania immediately referred to sequential art in comics, he stated Will Eisner as the person defining comics to be sequential art. He continues to discuss that according to the book ‘Understanding Comics’ by McCloud, an animated film is in fact visual art in sequence. Ultimately, the only difference between a film and a comic book is in the viewing of the product. In film, the viewer just fixes his or her eyes on a screen while when it comes to comics the viewer’s eyes are in constant movement, from one page to the next. This made me more aware that the focus on the sequential narrative in storyboards is equivalent to that in a film.

Mr Catania then brought up the argument of the social receptions or consuming mood of an individual in a comic versus the group cinema experience. He mentioned that it makes a huge difference viewing a film in a group of people as opposed to watching it alone, as
people in a group can share emotions like laughter or crying and can influence each other. He stated that film demands an audience’s attention due to the dark atmosphere of the room with the only light coming from the screen. However, he added that this helps the audience to get attuned to the action on the screen. The audience’s perception is definitely affected by the atmosphere in the room when viewing a film. This inspired me to create a similar atmosphere for my project.

Since I had a person who specialises in sequential art in front of me, it was mandatory to ask for his opinion regarding the different aspects of structuring a story. He replied with a direct answer explaining that everything is recycled from something else. This holds true to my work as it looks like something out of an Indiana Jones movie. Nonetheless, Mr Catania claims that it is important for a story to be based on universal thoughts and to hold true to reality. He then inspired me to name the short film ‘The Odyssey’, after mentioning Homer’s ‘Odyssey’, explaining the voyage and struggles of the Greek hero Odysseus on his journey. It was through this conversation that I made the satisfying connection between my story and Homer’s.

Moving on to the next question, Mr Catania was asked how he suggests to create a suitable atmosphere and a good sequential artwork that takes place in the depth of ancient vaults and caves. He made a reference to Plato’s allegory of the cave, and compares the atmosphere of the cave to what I can simulate to my work. I was very intrigued about his answer as I did not see Plato’s allegory of the cave to inspire the atmosphere but I only perceived Plato’s allegory of the cave as a comparison to the cinema experience discussed by the French film theorist Jean Louis Baudry. Following Mr Catania’s comparison, not only did I try to include aspects of this allegory into the film itself, but I also tried to implement it in the viewing of the film by means of how the exhibition space is set up, that will be held at St. James Cavalier in Valletta.

From this interview I intended to acquire some sort of rules and regulations to follow, with the aim of establishing a good atmosphere and sequential art that eventually would help me throughout the project. To my dismay, Mr Catania did not mention any particular rules as there is no fixed rule to create expressions and atmospheres, and his response was that rules are made to be broken. However, he mentioned that it is important for one to first know the rules before breaking them. I was hoping that I could gather certain rules that
would make the project easier and flawless, but it was up to me to discover and apply them.

When asked about what techniques could be used to express emotions and expressions, Mr Catania referred to the expressionism of earlier cinema. He argued that they had indeed succeeded in creating anxiousness in their work and successfully transmitted it to the viewer. He gave a fitting example of the stop motion animation, ‘The Pied Piper’, that was directed by Jiří Barta in 1986. After watching this highly expressive stop motion animation and its behind-the-scenes, I became more aware of this different expression that I was not aiming to express. Although I intended to create expressive emotion, I planned on achieving a more subtle perception.

On the other hand, I made it a point to follow this technique in the short film. Mr Catania referred to the extreme close-up technique that director Sergei Eisenstein uses in the Soviet Silent film ‘Battleship Potemkin’ in 1925. Eisenstein uses extreme close-ups to capture the anxiousness and terror of the people. This technique would directly affect the viewers watching as they are being absorbed and drawn to the person on screen, automatically empathising with them. This technique was applied to the shot where Sheldon triggers the pressure plate and sees the swinging blades in action. The camera shot was purposely established as a close-up with a zoom in effect to draw the audience to the character.

Colour is one of the most effective elements to create atmosphere. Mr Catania’s first preference is black. He quoted Adorno who defined the colour black as radical art’s primary colour. He continued to argue that this does not mean that other artists have not created effective atmospheres using other colours. I agree with Mr Catania’s argument and reasoning mostly because I think that black would be very effective in my work as it would create a darker, mysterious effect with a sense of abandonment.

One of the most important questions in this interview was about the ending of a narrative and its importance. He replied with a simple and effective answer highlighting that an ending should always be connected with the start. He continued on to saying that an ending should remind you of the very start, creating a circular effect. Fortunately, my story does precisely this, and it is the blackouts that tie the start and the finish. According to Mr Catania, my story establishes a good plot due to the fact that it starts and finishes with a
black screen to create the possibility that the journey might all have been a dream. Mr Catania pointed out that the more options the audience has to think about, the better it is for the story. I fully agree with Mr Catania’s reasoning and it is exactly what I wanted to achieve from the blackouts and the twist.

4.2.2 Interview with Mr Kenneth Scicluna

The next interviewee was Mr Kenneth Scicluna, a local Maltese film director. I started the interview off by showing Mr Scicluna the storyboard of the short film in order for him to have a general idea of the story before discussing the narrative development.

After Mr Scicluna was given a good idea of the story, he was questioned on how to structure a story in order to have a good narrative. His answer to this question made a very significant change to the animation as I made it a point to follow his guidance. He explained that it is very important to clearly show who the protagonist is. In this case, it is a turtle who is trying to overcome a number of obstacles. He stated that if this is clear from the start, it should be clear all along, irrespective of whether he succeeds or not. The film still needs work, with or without the end’s plot.

He added that the fact that this is a short film with a limited amount of time for the story to develop and with non-verbal narrative makes it even harder to communicate the story; hence the importance of a straightforward narrative. Mr Scicluna mentioned that a basic story usually has a character that needs something which he cannot get and the story follows his struggle to obtain that thing. Although I agree with his reasoning of portraying a straightforward narrative, I also wanted to make it interesting for the audience. This information, however, made me focus more on the story than I originally intended. I made it a point not to let the character solve his problems right away and instead made it difficult for him to overcome them, making the story more interesting.

Another beneficial point that came out of this interview was when Mr Scicluna mentioned that the audience would only get to know the final treasure which is a glass jar filled with potion at the end of the story. This is because there is no indication of the urge or need for the turtle to get his glass jar at the beginning of the story. The audience will only follow the story to find out what is coming ahead out of curiosity, and not for the turtle’s goal. He
continues by pointing out a major flaw in my story, which is, that I am relying on the cultural experience of the audience, assuming that they had already seen a similar plot in other movies, such as Indian Jones, so they know that there is ultimately a goal. In this case, there is no goal but rather a number of problems that need to be solved in order to move forward. I totally agree with his argument, admitting a weakness in the narrative. However, I thought of constructing the narrative in this way for the sake of creating the dream like effect of not being granted certain knowledge.

Just like Mr Catania, Mr Scicluna was also asked to share his knowledge on any rules in respect to the storytelling narrative in cinematography. Both Mr Catania and Mr Scicluna gave similar answers. Mr Scicluna claims that one should definitely obey the rules, however, these rules should be broken occasionally in order to create something new and different from what has already been done. He points out one particular rule which he insists should not be broken. This is the famous rule of 180°. He then goes on to say that even this can be slightly broken, just like professional film directors have done many times. He mentioned that rules also apply to the narrative and they could help create a stronger story as mentioned earlier. Whilst gathering this information, I confirmed that I do in fact have to follow certain rules, but ultimately it is up to me to decide what is best for a coherent narrative.

Moreover, Mr Scicluna was also asked how to achieve a good narrative through camera angles and cinematography. His insight was very helpful to this artistic practice as it allowed me to learn how to film better. He mentioned that camera angles and lighting set-ups have to be a reaction driven out of the narrative projecting what is in the script. It has to be capable of transforming the plot narrative into a cinematic narrative. This could amplify certain things that were never meant to appear so or thought of in the first place. This was indeed experienced during the filming of the animation, as I discovered that being on location and having everything set up provides a better picture of the final outcome. One can thus improvise and make the best out of what is available on set.

Another practical point that Mr Scicluna provided me with was to give out as little detail as possible to draw in the audience more. He explained that if the set is all lit up and the audience is able see everything, it would not create a curious atmosphere. If a scene is dark with only a specific area lit, the ambience created would look more mysterious and a more
focused effect is produced to capture the attention of the audience. I agreed with this argument and applied it to my artistic practice.

One of the questions asked was about how to tackle emotions and expressions. This question was asked before showing him the finished puppet so that he would judge and criticise it before actually seeing it in front of him. Mr Scicluna observed that the puppet’s face seemed to be a bit hard to control, limiting facial expressions. Unfortunately he was right, as it was intended for the puppet’s face to be more expressive. However, he encouraged me that there are a lot of ways in which expressions can be transmitted. Body language can create powerful emotions and expressions. Knowing my puppet’s limitations forced me to manipulate its body language in order to transmit particular expressions.

This interview helped improve the final product as the story was amended to make it more effective and satisfying. Mr Scicluna pointed out that the original story did not end with a plot twist because he explained that a twist involves a 180° change in the plot. In the original story, after the adventure that the turtle went through, it was made to seem as if he was tired and went to sleep. Hence, there was no twist. Mr Scicluna suggested a radical change which I ended up adopting in my story as it made much more sense to the narrative and to what I was hoping to achieve. He described how he would end the story, stating that after the whole adventure, the turtle finally finds his treasure jar immediately followed by a dream blur effect to insinuate that it was just a dream. He would then appear in bed, concerned and relieved that it was only a dream. When he gets out of bed and walks out of the room, the camera reveals the treasure under the bed. Mr Scicluna explained that this would work much better as it is first established that it was in fact a dream, yet shortly after, serious doubts are introduced. By tweaking parts of this idea and adjusting them to fit the concept of this story, the final version of the short film was produced.

This interview also helped to improve the narrative. Mr Scicluna came up with an idea that would take the story on a course of ‘buts’ not ‘ands’. He explained that in order to create a more interesting narrative one should tackle the story not from an idea which seeks to provide information in an ‘and then’ manner, but rather a ‘but then’ progression. For example: ‘and then he finds the trigger to open the door’ vs ‘but then he moves back and accidentally triggers the door to open’. The narrative should be a continuous stream of
solutions followed by new problems. The solution of scene ‘A’ is the problem of scene ‘B’. I therefore incorporated this thinking to the narrative and it made a large difference.

According to Mr Scicluna, a strong ending should show a total change in the character and pull together the different parts of the story. However, it was impossible in this case to have a total change in character because the animation is too short to pull it off effectively. The main thing was to have a good ending that makes the audience feel satisfied and relieved. I feel that the audience will be satisfied and relieved with the improved story and the implemented suggestions.
4.3 Feedback

Apart from the interviews with the two professionals, I also had the opportunity to bring in university students for a studio visit. During this visit I gave the students a basic explanation of the process involved in creating a stop motion animation. As I was explaining the various techniques and all the work I did, I became more aware of what I had created and achieved. Knowing that all this was created in seven short months with a very low budget of around five hundred euros, and knowing that work like this is normally created by several people allocated to their specialisation gave me a sense of pride. I started to appreciate my work and I realised that I should not take it for granted. Through their questions and interest in the project, the students highlighted certain aspects of the set creation and the animation of this short film. Their questions were an indication of what the ‘making-of’ of the short film should focus on. Unfortunately, the university students were not able to see the finished product as it was still in the editing phase. Despite this, I still wanted to gather information from different people and the expert opinion of professionals.

I also showed the short film to a group of friends with a minimal amount of artistic background. I wanted to get the opinion of people who do not study or work in this field, relying on their response and comments as a representative sample of the greater general audience who would be seeing my short film. During the viewing, I observed their facial expressions, and to my surprise, I had achieved what I had desired from the very start. In those moments where I wanted the audience to react to certain feelings, most of the viewers had the reaction I hoped for. When I planned a scene to be mysterious or funny or sad, the audience reacted as I had anticipated. I was even more intrigued when towards the end of the short, a particular friend of mine shouted out: ‘Oh look, it was just a dream… oh wait it’s not!’ Hearing her assured me that the message I tried to portray was realised. Another comment worth mentioning is that a member of the audience wanted to see the models and the behind-the-scenes footage after viewing the short film animation. While I was showing him around, he suddenly looked at the puppet and for a second thought that it moved. Of course it was as still as ever. Funnily enough, this also happened to me a couple of times during the shooting. Our minds were playing tricks on us due to the fact that during the animation the puppet appeared as though it was alive, forgetting that it was me who was animating it. This made the encounter with the inanimate puppet somehow magically awkward.
Besides ordinary people, I also showed the short film to two professionals who are the creators and the directors of a pilot which is currently under negotiation with the BBC. Their critique was very solid and their feedback and suggested corrections were taken into consideration. They also remarked on the good work I had done, knowing that it was all produced by one person. They also mentioned that the walking cycle should have been better for the puppet to look more alive, however, they acknowledged that a walking cycle is the hardest aspect to animate. I agree that the walking cycle of the puppet in certain shots could have been better.

All in all, the interviews were helpful in creating the short film and also in specific writings. The audience’s perception after viewing the short film helped me to analyse mistakes I had done and to achieve my goal.
5. Reflective Discussion

5.1 Introduction

Creating a short stop motion animation is no easy task. For a single person to create all the aspects of the production under time constraints and a very limited budget is even more challenging. However, I recognise that there is always room for improvement. Through this artistic practice, I challenged myself several times over, dealing with problems that occurred during all stages of production. This project was an ongoing experiment with various mediums and techniques, some of which I had never used before while others I had already mastered.

5.2 The Application of Theory and Techniques

Had it not been for the theory and philosophy research which constructed the literature review, the artistic practice would have definitely had a different outcome. An effort was made to apply this theory into practice so as to create a good simulation through body language, emotions and atmosphere. Some of the researched theories were straightforward and easily applied to the short film as they dealt the practical side of simulation. However, others were more challenging as they only gave a rough indication of how a simulation works. Their application to practical simulations was only possible through the process of learning and trial and error.

Understanding how the human mind works also affected the way I perceived the entire production. Knowing what the human mind is after and how emotions are triggered made it possible to implement certain material to communicate with the audience.

Aside from the theories and philosophies, the interviews were a tremendous benefit to the artistic practice as Mr Anthony Catania and Mr Kenneth Scicluna exposed me to different ideas and new ways of thinking, thus improving my perception to achieve a better result.
5.3 Art Work Analysis

In a perfect scenario I would have had all time in the world and a high budget, however, this was not the case. With more time, I would have been able to perfect the short film even further, and any mistakes and errors could have been corrected. At the same time, the whole project was realised on a five hundred euro budget, which is a very small amount when put in perspective. A larger budget would have been ideal as a larger investment in the sets and the puppet would have improved the animation. I would have also invested in an original composed music piece for the animation.

The thing I am disappointed about the most in this artistic practice is the turtle’s facial expressions. If more time and money were invested in the puppet’s head, the animation would have been much better and the puppet would have exhibited greater emotions and expressions. The mechanics of the head had all the features needed to perform good expressions such as an articulated jaw, teeth, eyes, flexible nose, eyebrows, lips and tongue. However, not all of the facial features worked as planned. Some worked excellently such as the eyes and the teeth, while others like the jaw and the lips did not deliver a satisfying result. The nose, eyebrows and tongue failed completely. I was highly relying on the expression of the eyebrows but the latex skin of the turtle was too thick to be affected by the mechanism inside. I also expected that the jaw and lips would work better than they did but this would have require a more sophisticated mechanism to make all the parts of the puppet’s head more malleable and professionally animated. Despite all this, I am very pleased with the puppet’s finish and performance.

On the whole, I am quite satisfied with the animation of the puppet, as through the animation one seems to forget that the puppet is an inanimate object which is hand animated. However, there are some issues which could have been tackled better. For instance some of the walk cycles could have been animated more realistically and fluently as some parts of the animation look a bit rugged. Achieving a good walk cycle comes with years of experience – something which I lack. Nonetheless, a well-built armature allowed me to animate the puppet far better than I expected.
There are always things to correct and learn from when producing a short film. Something that I regret doing in the miniature sets is including the tiny gravel scattered on the ground. Although I took precautions to glue the gravel down to the ground, it still moved during filming. It is not so visible in the final product because I tried to amend the mistake in the post-production by making the ground darker. This involved a lot of work and some of it was still visible.

I am very pleased with the outcome with regards to the music because the selected music fits perfectly to the ambience and the narrative of the story. In fact, the selected music enhanced the short film and took it from an amateur home movie production to a more cinematic piece. Ideally, a professional composer would be hired to compose a particular piece for the film. Due to the small budget and time constraints and for the purposes of this study, I had to use previously composed music. I was aware that I have to own the royalty of the music in order to make use of it and to upload the short film online.
5.4 The Set Exhibition Set Up

This artistic practice can be viewed anywhere and at any time considering that it is a digital short film. Nonetheless, my plan from the very start was that this artistic practice would be exhibited with the final product; the short film animation and the behind-the-scenes, which consists of the miniature sets. Although everything would be shown to the audience, the audience would first watch the short film in a room, and then move to the next room, where they see and explore the miniature sets. Signs would guide the viewers towards the entry and exit points.

The room where Odyssey will be shown is meant to recreate the environment of a cinema to implement the ‘apparatus theory’ mentioned above in the literature review. This dark room would be nicely finished with black walls, a bench and an 85” flat screen. The second room would be the complete opposite of the first as I plan on having this room resemble a studio. All the models will be exhibited in sequence accordingly to the narrative. I also intend to exhibit the moulds and casts used in the creation of the puppet and everything used in the production of this stop motion short.

The walls are to be built from wooden beams and black cloth. Firstly, the frame of the partition needs to be constructed and painted black for a better finish. After the construction of the frame, fifteen metres by two metres of black cloth would be stapled on the wooden beams completing the walls. Black curtains from the same textile material would be used as doors at each entry to block off light and conceal each room.
6. Conclusions

This artistic project was very ambitious and throughout the production of the short film, I faced several challenges and obstacles. I could have chosen something much easier and less demanding making the whole experience much safer. However, I am always up for a challenge. All of the accomplishments, downfalls, disappointments and long hours spent on this projects were ultimately all worth it, as for me it was a journey of experiences and new discoveries that fulfilled my passion in arts.

During the Master’s Degree course and the execution of this project, I also had the privilege and opportunity to be part of a professional team working on a professional stop motion animation production based in Malta for a short while. I did not only provide my services and knowledge, but I also learnt a lot from this experience. Everything that I learned, I applied into this production.

This artistic practice makes a fine addition to my portfolio as I experimented and worked with different media and techniques. I envision myself taking my involvement in animation further to a more professional level, and possibly work with professional stop motion companies in Malta or abroad.

I would like to conclude with a quote by the artistic director Robert Smythe, to explain the art of this production and simulation in a few succinct words:

“If a magician reveals his tricks to us, his adversaries, our delight turns to dismay as we realize we have been deceived. When a puppeteers reveals [his] backstage world, [he] shares [his] illusion with willing accomplices. Amazement turns to true wonder as we find that there really are no secrets in puppetry: the true magic lies within those who create so much from so little, and in those who are willing to believe us when we do.”

(Smythe, 2016)
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Appendix

Due to the nature of this artistic practice, most of the documentation process may be found in the attached disks. These include:

- Interview recordings
- Inspirational photos
- Building the miniature sets – Models 1, 2, 3, 4, 5, 6, 7, and 8.
- The Odyssey poster
- Making the puppet
- The studio setup
- The final render of ‘Odyssey’ – Stop motion animation short film

Furthermore, this section also lists the storyboard and the interview questions.
After Effects
Interview Questions

Interview - Mr. Anthony Catania
‘Film atmosphere and the relationship with sequential art’
(Start by describing the storyline and show images of the miniature sets and puppet)

1. What connotation do you see between film atmosphere and the relationship with sequential art?

2. In a narrative there is the beginning, middle and an end. How would you structure a story in order to have a solid sequential artwork?

3. Do you imply any philosophical theories in your work? If yes, how does it help to create the suitable atmosphere and sequential art?

4. This story takes place in the depth of ancient vaults and caves, do you have any particular suggestions or rules:

   A) To achieve a perfect and suitable atmosphere?
   B) To achieve a good sequential artwork?

5. Are there any rules in the creation of atmosphere in film and sequential art that one should never break?

6. This story also tackles emotions and expressions. What techniques would you recommend to capture the most of these values through atmosphere and sequential art?

7. How do you decide on which colours to use in order to create certain moods and atmosphere? Do you have any examples?

8. The ending of a narrative is always important and crucial, how do you land a strong ending using sequential art techniques and theories?

9. From your previous works and experience, what have you learnt mostly from any mistakes that one should be aware of?

10. Overall, taking in consideration what we have just discussed and the material you have seen, in your opinion, what would the audiences’ reaction be?
Interview – Kenneth Scicluna

‘Narrative Development’
(Start by describing the storyline and show images of the miniature sets and puppet)

1. In a narrative there is the beginning, middle and an end. How would you structure a story in order to have a good narrative?

2. Do you imply any philosophical theories in your work? If yes, how do you see that they help the narrative? Any philosophical theories in particular?

3. Are there any rules in narrative storytelling and in cinematography that one should never break?

4. How can you achieve a good narrative through camera angles and cinematography? Are there any main points that one needs to follow?

5. This story also tackles emotions and expressions, what would you recommend to capture the most of these values?

6. My story implies a plot twist at the end. What is your perception on such twist and how can one obtain the maximum potential?

7. The ending of a narrative is always important and crucial, how do you land a strong ending? What is the best way to portray the message?

8. From your previous works and experience, what have you learnt from any mistakes that one should be aware of?

9. Overall, taking in consideration what we have just discussed and the material you have seen, in your opinion, what would the audiences’ reaction be?