



A Frame Through Nature

**An exploration of 3D animation on
communicating the benefits of outdoor
play**

Hansika Tiyyagura
2024

Exegesis in support of practice-based Thesis
Master of Design
Auckland University of Technology



Abstract

New Zealand/Aotearoa children are spending less time outside than previous generations. Extensive research already underscores the many benefits of outdoor play and exposure to nature, ranging from enhanced physical and mental well-being to crucial cognitive development in children. Consequently, it is important to find engaging methods that effectively reach parents and children.

This research aimed to explore how using 3D animation and narrative techniques can enhance the accessibility and relatability of the message regarding the importance of outdoor play for both parents and children. This creative exploration resulted in a 3D animated short film that intends to communicate the benefits of outdoor play within a New Zealand context.

Table of Contents

Abstract	2
Introduction	14
<i>Positioning the Researcher</i>	15
Contextual Review	17
<i>Introduction</i>	18
<i>Case Studies</i>	27
Research Question	37
Methodology	39
<i>Introduction</i>	40
<i>Methods</i>	45
Documentation of Research	61
<i>Pre-Production</i>	62
<i>Production</i>	106
<i>Post-Production</i>	128
Discussion	135
<i>Research Outcomes</i>	136
<i>Limitations and Future Direction</i>	140
<i>Conclusion</i>	143
References	145
Appendices	153
<i>Link to the final short animation</i>	180

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor used artificial intelligence tools or generative artificial intelligence tools (unless it is clearly stated, and referenced, along with the purpose of use), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

24/04/2024

List of Figures

Figure 1. Satsuki and Mei exploring their new home. From *My Neighbour Totoro*, By H. Miyazaki, 1988, Retrieved from <https://animationscreencaps.com/my-neighbor-totoro-1988/>. Copyright 1988 by Studio Ghibli

Figure 2. Painterly style scales. From *Luca*, By E. Casarosa, 2021. Retrieved from <https://animationscreencaps.com/luca-2021-4k/>. Copyright 2021 by Walt Disney Pictures, Pixar Animation Studios

Figure 3. 2D background and 3D characters, From *Taking Flight*, By B. Oldenburg, 2015, Retrieved from <https://takingflightfilm.com/>. Copyright 2015 by Moonbot Studios

Figure 4. Methods Timeline

Figure 5. Animation pipeline with qualitative methods

Figure 6. Brainstorm of my play experiences

Figure 7. The Hero's Journey Framework. Adapted from *The Hero with a Thousand Faces*, by J. Campbell, 2017, *Yogi Impressions*. Copyright 1949 by Joseph Campbell

Figure 8. Style and mood with colour palette

Figure 9. New Zealand flora exploration

Figure 10. Environment Sketches

Figure 11. Environment Sketches

Figure 12. Thumbnails

Figure 13. Thematic analysis process of expert interviews

Figure 14. Summarised key points from expert interviews

Figure 15. Deducted shots

Figure 16. Creative block

Figure 17. Depiction of risky play through imagination.

Figure 18. Facial expressions

Figure 19. Backyard from the storyboard

Figure 20. Backyard floor plan

Figure 21. Morphing of mushroom, heart & platforms

Figure 22. Tui

Figure 23. Storyboard section showing change in mood with lighting.

Figure 24. Extreme pan

Figure 25. Extreme zoom out

Figure 26. Extreme zoom in

Figure 27. Parts of the storyboard showing benefits of outdoor play: curiosity, expression, etc

Figure 28. Parts of the storyboard showing benefits of outdoor play: risk taking and problem-solving

Figure 29. Assembly of storyboard shots, sound and music

Figure 30. Tui concept sketches

Figure 31. Tui reference. From New Zealand Birds Online. Copyright by John Flux

Figure 32. Tui character sheet

Figure 33. Tui 3D model

Figure 34. Tui topology

Figure 35. Tui rig

Figure 36. Testing rig controls

Figure 37. Zbrush sculpting

Figure 38. Texturing in Substance 3D Painter

Figure 39. Animation thumbnails

Figure 40. Animation thumbnails

Figure 41. Animation thumbnails

Figure 42. Flying thumbnails

Figure 43. Animating in Maya

Figure 44. Squash and stretch principle with child character model.

Figure 45. Arc principle

Figure 46. Blend shapes of the mushroom

Figure 47. Cutting out shots

Figure 48. Interior lighting

Figure 49. Cool undertone shadow

Figure 50. Warm undertone shadow

Figure 51. Raw lighting

Figure 52. After Effects lighting

Acknowledgements

I would first like to thank my supervisors, Dr Ivana Nakarada-Kordic and Gregory Bennett, for their guidance and considerable knowledge to this research project. Their assistance and encouragement throughout the past year have proved invaluable, especially for the time put into editing and proofreading.

Special thanks to all the experts who participated in this research. Your insights motivated and inspired me.

Thank you also to Steve and Cassie for organising workshops to help the writing of this exegesis. Their guidance proved helpful, and my writing greatly benefited from it.

I would also like to thank Hanvit Kang for her dedication to rigging the Tui to a high standard.

Finally, thank you to my family and friends for your constant support throughout this journey.



Introduction

Positioning the Researcher

When I reflect on my childhood, one of my fondest memories is playing with my sister, school friends and neighbours. There was this thrilling buzz whenever we gathered, brainstorming inventive ways to fill our time with fun, with the natural environment around us to aid our play adventures. Though my parents were protective, I was fortunate enough that they also valued our freedom to play on our terms. But as I grew older, it became apparent that the likes of my and so many other of my peers' outdoor play experiences are not as embraced today. As a result, I wanted to seek creative ways to address this.

Animation has always captivated me since I was young, shaping my artistic interests. During my undergraduate studies, I learned about valuable technical and storytelling skills and presented them in narrative and abstract ways. I discovered that through animation, stories and ideas could be communicated in ways that resonate with diverse audiences.

During the third year of my undergraduate studies, I briefly worked on a short animation as part of a Good Health Design (GHD) project at Auckland University of Technology (AUT). This was enough to instil an interest in what I could animate for in a different context. With no prior knowledge in this space, I wanted to explore how to use this medium in a health and well-being context. The inquiry into whether the creative potential of animation could lead to a better understanding of information in a more meaningful manner initiated my research. This exploration centred around employing my animation experience to foster tangible changes in attitudes regarding the importance of outdoor play.



Contextual Review

Introduction

Compelling evidence indicates a decline in children's outdoor play over the years. In New Zealand, only 7% of children aged 5-17 meet the Ministry of Health Guidelines, which recommend at least one hour of moderate to vigorous activity daily (Active NZ Survey 2019 | Sport New Zealand - Ihi Aotearoa, n.d.). Several factors contribute to this decline, including the shift from rural to urban living, the demanding work schedules of parents, concerns about child safety, the allure of unlimited content streaming, and evolving social norms (Valentine & McKendrick, 1997; Lee et al., 2021). This issue impacts not just children and their parents but our entire community.

Outdoor Play

Outdoor play is crucial for childhood development. Specifically, outdoor free play, also known as unstructured play, is when play is not organised or structured by an adult and is child-led (Haidt & Gray, 2023). The natural obstacles the outdoors presents can encourage children's curiosity and teach patience and appreciation for the world around them (Thiessen et al., 2013).

Moreover, outdoor play also embodies a sense of freedom. It is time away from a child's daily structured activities to learn the trials and errors they initiate and control (Haidt & Gray, 2023). As children explore, they expand their creativity through those individual discoveries. These personal discoveries can introduce them to challenges that help shape their imaginative capabilities (Sando et al., 2021).

These moments can involve risky play, which features more thrilling or challenging aspects – such as riding a bike, climbing trees, and tumble play (Howley-Rouse, 2020). The self-directed nature of free play, including risky play, can build a child's sense of autonomy, competence, and confidence, which are crucial attributes as children grow older. (Sando et al., 2021).

The Presence of Nature in Outdoor Play

The presence of nature can act as a creative stimulant for children that allows them to explore its possibilities and boundaries. Isis Brook highlights the importance of children's connection to nature through unsupervised play, fostering imagination and creativity (Brook, 2010). This can be as simple as the presence of fauna in an urban environment. Influenced by Gerald Durrell's "Corfu Trilogy" (Durrell, 1973), which recounts his family's experiences on a Greek Island, Brooke identifies four key elements: time, wonder, action, and freedom that shaped Gerald Durrell's relationship with nature.

In detail, time is where children experience a sense of timelessness during play, allowing them to immerse themselves in the moment fully. Wonder is another element, as children develop a deep appreciation for the wonders of nature, fostering curiosity and exploration. Action plays a significant role as children actively engage with their natural surroundings, whether it is climbing trees, building forts, or exploring their environment. Finally, freedom is essential, granting children the autonomy to play without the constraints of structured activities, enabling them to embrace spontaneity and creativity in their outdoor adventures.

According to her, these elements form the essence of outdoor play (Brook, 2010). In line with Brook's (2010) argument that simple encounters with nature also endorse creativity, this research project delves into the significance of small moments in nature, such as those found in parks, backyards, and gardens, which are readily accessible to children.

Why Animation?

Animation comes in many different forms for different purposes. From simple 2D animations to 3D and stop motion, it is a versatile medium for communicating all types of concepts to all audiences. Animation also allows the creator to visualise imaginative or impossible endeavours - something live action cannot effectively do. This makes for more creative options in animation storytelling (Wells, 1998).

However, the relevance of animation in the context of my research is the potential to explore stories and ideas that create a more meaningful impact by emphasising the positives of outdoor play. The issue of decreasing outdoor play is complex and comes with many challenges. Therefore, this research only intends to communicate and act as a catalyst to acknowledge the importance of this, especially in fostering creativity. It is important for parents to know this, but it can also allow children to resonate with the animation's intention. For these audience groups, a short, simple, narrative-driven animation was thought to be the most effective form to convey this message.

The reason for specifically using 3D animation compared to other mediums was its time efficiency and flexibility. The flexibility of 3D animation allowed me to take inspiration from different forms of animation (refer to page 27 for case studies) and apply certain elements, such as 2D style texturing, in my animation-making methods that helped to further aid the narrative of the short animation.

Narrative in Animation

The narrative plays an essential part in the creation of a story-driven animation. According to John Lasseter, chief creator officer at Pixar and Walt Disney Animation Studios, it is important to establish a story's emotional core or idea and then construct it visually (Lane, 2011, as cited in Herhuth, 2017). Narratives in animation can be aided by strategic visual direction. The choice of using specific colours, lighting ambience and shot compositions can reinforce the narrative, making it more impactful (Arnheim, 2003). For this animation, it was important to use a meaningful narrative to emphasise how outdoor play encourages creativity.

Reflecting on Brook's (2010) exploration of Durrell's growth through nature, my research aimed to investigate how incorporating elements such as time, wonder, action, and freedom through narrative and visuals could enhance the animation's effectiveness in conveying the benefits.

Animation Aesthetics

An animation's visual aesthetic and style significantly shape the audience's perception of a narrative; however, it's not solely about aesthetic appeal. As mentioned before, these visuals must align with and strengthen a narrative.

Through my research, I was inspired by Alister Swaile's analyses of the breakdowns behind Japanese animation (Swaile, 2015). He discusses the post-cinematic experience of moving images and how this allows the viewer's experience to be more immersive rather than viewing from a third-party standpoint. Part of my curiosity stems from how Japanese animation captures audiences worldwide even when we do not share the same cultural background (Swaile 2015). The imitations in animation from everyday experiences allow the audience to feel a sense of nostalgia and familiarity. The visuals could be very emphatic or romanticised, such as in Miyazaki's films (see the *My Neighbour Totoro* case study below). *My Neighbor Totoro* utilised nostalgia for older audiences through the narrative of free play and how it is presented visually. The vibrant country colours reflect how we, as children, saw the world. Like all art forms, Japanese animation performs a visually expressive scope of the imagination from our shared experiences of the real world (Swaile, 2015). It offers a lens that allows older youth or adults to romanticise everyday real-world experiences, such as taking a short walk.

Cleaver (2021) writes, "Most adults associate play with their childhood. Those of us fortunate to avoid the ills of play deprivation will fondly remember numerous ways we played; we look back on our childhoods as a time of freedom." (p. 28)

This led me to use nostalgia to reinforce the idea that children can thrive in outdoor free play when given the opportunity. This research has culminated in the creation of an animated short that strategically utilised colours and styles that can draw in both parents and children.

Animation Storytelling as an Educational Tool

Using animation as an educational tool can offer a range of benefits. It can engage learners of all ages through visually stimulating and immersive storytelling, making complex concepts more accessible and enjoyable (Islam et al., 2014). Animation can also offer creative representation of abstract ideas, facilitating a more profound understanding and retention of information (Islam et al., 2014). The reason for citing this specific case study on animation in an educational setting is because of its profound use of storytelling. While graphics and other moving visuals in animation are shown to facilitate better engagement and learning (Tambi & Awang, 2020), storytelling can further encourage learners to analyse and interpret visual narratives (Parry, 2010).

Victoria Pavlou's (2020) article discusses how art-driven technology can be used in primary school classrooms. She reports on two case studies with 11 and 12-year-olds. She focused on using stop-motion animation and digital storytelling by having children engage with drawing, sculpting, and fiddling with props to create their stop-motion film (Pavlou, 2020). The findings from this research showed that children were more engaged, motivated and better collaborated in this group activity. They also learned how to convey meanings in their films, bringing awareness to the impacts of film narratives on an audience. This opens the potential for art and digital media to be used more profoundly as an educational tool.

Building a story that reflects the imaginative liberty children can experience outdoors is key to promoting recognition of the advantages of nature-based play. As mentioned in Isis Brooke's analysis, engaging children in outdoor play can enhance their critical thinking skills through creativity (Brook, 2010). Although this study is on stop-motion animation through a more hands-on approach, I felt that I could apply the same concepts to my animation's narrative. To emphasise sensory experiences such as touch, sound, and smell that foster curiosity and engagement.

As technology advances rapidly, it is essential to take a nuanced approach to digital art media as another method in an educational context. While children naturally gravitate towards engaging with storytelling methods, educators and parents play a crucial role in effectively integrating art and digital media into learning environments. Encouraging schools to adopt creative approaches to education can foster a deeper engagement and enthusiasm for learning among children.

From this contextual research, I identified the importance of bringing in parents and children as the target audience. My aim is to shift parental attitudes towards outdoor play and allow children to view and understand this through a short and effective animation. The animation communicates the advantages of outdoor play to parents by playing with nostalgia as a meaningful element. Simultaneously, it can facilitate discussions among children in an educational setting. Overall, this introduces the idea that animation can be an effective medium in an age where people are more drawn to digital media than ever (Pacheco & Melhuish, 2019).

Case Studies

The following three case studies are examples of animations of various styles that follow and convey the ideas of outdoor play, nature, and imagination through their visual narrative.

My Neighbour Totoro (1988)

With this case study, I discuss symbolism and how nature is used as a narrative device.

My Neighbour Totoro is a Studio Ghibli 2D animated film directed by Hayao Miyazaki. It is about two young sisters (Satsuki and Mei) and their father, who move to a rural area to be closer to their sick mother, who is staying at the hospital. Though not appearing in the film too often, another central character is Totoro, a large forest spirit the sisters befriend during their countryside explorations. While many scenes and shots show the idyllic nature of children's play, the film has underlying themes of grief and hardship from their mother staying at the hospital. However, the film never conveys a sense of grimness or bitterness.

Mei, the younger sister, is seen playing by herself since her older sister, Satsuki, goes to school, and their father is busy working from home. She meets Totoro for the first time inside a giant Camphor tree. No dialogue is exchanged since Totoro and the other spirit animals do not talk. However, Mei instantly lets her guard down and naps, showing her level of trust and security with Totoro. The film is left ambiguous about whether Totoro is real or merely a coping mechanism for the children. Nevertheless, Totoro acts as a metaphor of the sister's journey through their family ordeal. The giant camphor tree symbolises strength and resilience, standing tall in many shots. A few acorns lead Mei to meet Totoro, and later in the film, Mei and Satsuki plant acorns with Totoro in their garden. The acorn symbolises hope and the promise of a better future as they grow.

The audience understands their situation despite not being stated, fostering a connection between the characters and viewers. This approach lets us empathise and bridge the gap between the characters' experiences and our understanding. This is how a compelling narrative is told visually.

Many shots in the film show the simplistic side of a rural environment - from shots of flowing streams to the overgrown vegetation, aided by the buzzing of cicadas. But what makes the film captivating is how Miyazaki portrays the beauty of nature's simplicities. Though the film targets children, it also evokes a sense of nostalgia for older viewers. It also runs the common theme of nature. Behind the ideas of environmentalism, he subtly uses nature-filled settings to imbue a sense of peacefulness.

This image has been removed by the author of this thesis for copyright reasons.

Figure 1. Satsuki and Mei exploring their new home. From *My Neighbour Totoro*, By H. Miyazaki, 1988, Retrieved from <https://animationscreencaps.com/my-neighbor-totoro-1988/>. Copyright 1988 by Studio Ghibli

Luca (2021)

In this case study, I discuss the technical elements of 3D animation, its significance and use, and how play is depicted.

Directed by Enrico Casarosa, Luca is a Pixar 3D animated film about two young sea monsters, Luca and Alberto, exploring the surface world. The film is set in an Italian port town and uses its humble seaside scenery. The landscapes express a vibrancy to the film from its rich oranges and blue skies and sea, paying homage to how the classics used to describe the Mediterranean Sea as the “wine-dark sea” (Homer, ca. 750 B.C.E./2003) and the warm golden summers we tend to long for as the audience. The film is set in the late 1950s and is inspired by Casarosa’s childhood growing up in the port city of Genoa, setting the mood for nostalgia.

While each Pixar film has its own distinct style, Luca stands out with its 2D and stop-motion style influence. The animation’s timing is greatly inspired by 2D animation through its exaggerated poses. Timing in animation refers to the time it takes for an action to occur. (Thomas & Johnston, 1981). This depends on the spacing of frames and consideration of the weight of the inanimate or animate object. While timing can vary with different animations due to style choices, the timing must still be grounded in realism for the actions to be believable. The stylisation of the characters and buildings down to the textures of fabrics and exteriors of buildings and objects were purposefully made imperfect. One example is how the artists hand-painted the scales on Luca and Alberto to add a subtle painterly style to feel the artist’s touch throughout the film (Moltenbrey, 2021). This adapted style choice is most notable in stop-motion animation since all the assets used in those scenes are intricately hand-made. As a result, the audience feels a sense of familiarity and authenticity with the animated objects on screen. This film’s intricate use of 3D elements inspired me to explore how I create my own 3D models to enhance the narrative.

This image has been removed by the author of this thesis for copyright reasons.

Figure 2. Painterly style scales. From Luca, By E. Casarosa, 2021. Retrieved from <https://animationscreencaps.com/luca-2021-4k/>. Copyright 2021 by Walt Disney Pictures, Pixar Animation Studios

I found that the narrative structure of Luca bears a resemblance to Miyazaki's films. While the primary plot revolves around Luca and Alberto's quest to win a Vespa/scooter, scenes are filled with playful moments. When Luca first meets Alberto, they bond over Alberto's life on the surface. Their fascination for Vespas leads them to build one out of scraps. A montage follows of the characters collecting scraps and test riding their vespas. While there is a goal, the montage has shots of the children playing by jumping off cliffs and imitating fishermen. There are also a number of shots of Luca daydreaming. Luca is riding a Vespa with Alberto, running around Saturn's rings, and sky-gliding above the Colosseum when his passion for school ignites. The film has a straightforward narrative, but unlike other animated Disney films, the story is not presented linearly and is filled with imaginative and playful moments. This portrays a sense of light-heartedness and evokes nostalgia for older viewers. The film's style resonates with play and nature's imperfect yet captivating essence. It reflects the boundaries and opportunities children encounter through free play as they expand their imaginative horizons.

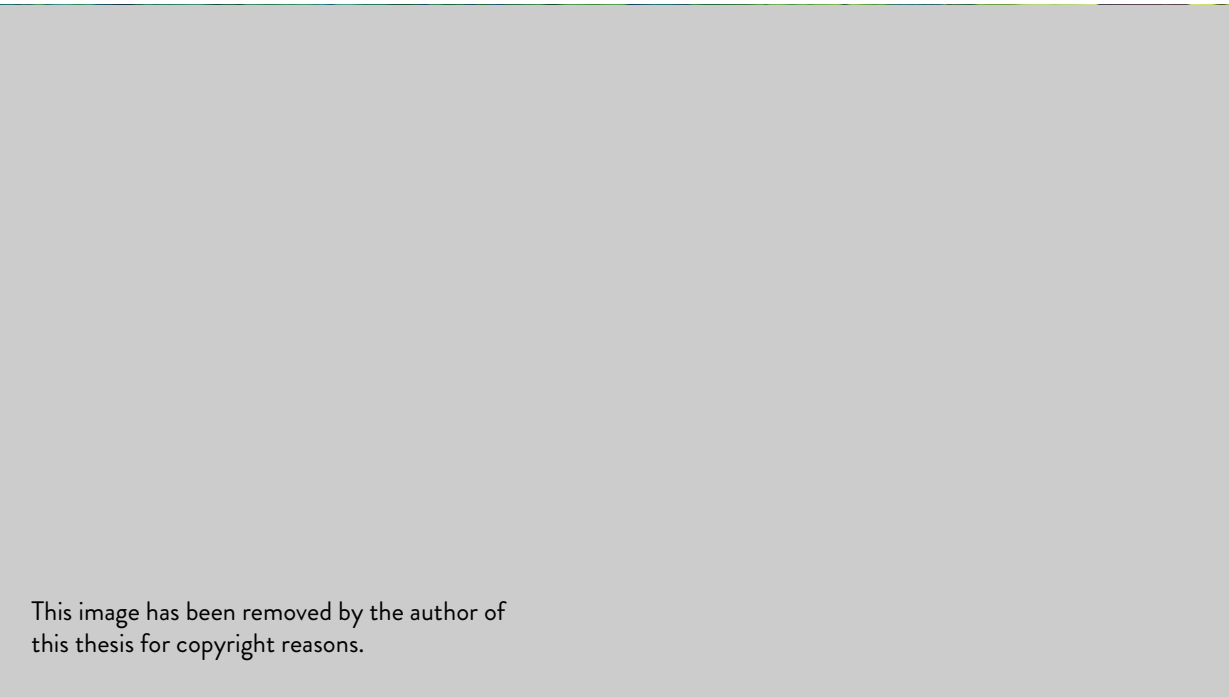
Taking Flight (2015)

This 3D animated short film directed by Brandon Oldenburg is a tribute to Antonio Pasin, the inventor of the radio flyer wagon. The film begins when a small boy is left with his grandfather for the day. When the boy is dropped off by his father, he sits in the garage. The boy's boredom catalyses his curiosity when he sees an old photograph inside a radio flyer wagon on the top of a shelf. The boy climbs the shelves to reach it, only to tumble down and alert his grandfather. What starts as a dull day becomes an imaginative adventure with his grandfather. This short film carries a shared imagination between the grandfather and boy, leading them to lose track of time - one of the key aspects of outdoor play, according to Isis Brooke (2010). In his director's statement, Oldenburg writes:

“As a parent, I struggle constantly with balancing what the modern world says I need to do with my children versus my inclination to let them play and discover the world...For me, Taking Flight speaks to our need to embrace simple moments where play collides with imagination.” (‘Taking Flight by Moonbot Studios – Animated Short Film’, 2015)

As the grandfather pulls the radio flyer wagon with the boy, subtle environmental changes occur. The film seamlessly integrates 2D painted backgrounds with 3D characters, transitioning from reality to an imaginative world through the characters' perspective. Every aspect of the visuals, including colour and lighting, serves as a visual script for the animation. At the film's start, mellow and hazy greens depict the boy's calm and bored demeanour, yet these colours are not dull, anticipating what happens next. As they enter the imaginative world, the colours become vibrant and sharp, symbolising the boundless nature of an active imagination.

The short narrative is explored through the characters' actions and visual style. Creating films with little to no dialogue challenges the creator to express the story visually and the viewer to make meaning, making it more impactful.



This image has been removed by the author of this thesis for copyright reasons.

Figure 3. 2D background and 3D characters, From Taking Flight, By B. Oldenburg, 2015, Retrieved from <https://takingflightfilm.com/>. Copyright 2015 by Moonbot Studios

A common occurrence from these case studies is the depiction of play in different settings. “My Neighbour Totoro” focuses on the healing aspect of nature as the children play. “Luca” utilised a creative outlook on its 3D elements to reinforce the humbleness of childhood and play. Furthermore, “Taking Flight” aimed to explore the vast limitlessness of imagination. These have given me ideas and inspiration for incorporating nature into the play narrative and the 3D style of my animation.

Conclusion

As outdoor play is slowly decreasing, it is crucial to understand the reasons behind this and find solutions that can lead to recognising the significant benefits it can have for children’s health and well-being. Animation is a versatile medium used in various industries to educate, inform, and entertain audiences of all ages. Its ability to tell stories uniquely and engagingly makes it a valuable tool for communicating ideas. This contextual review suggests that storytelling through animation can catalyse positive changes to foster better decisions and encourage children to engage in outdoor free play.

Aims

- Identify important outdoor play experiences that foster mental benefits for children.
- Investigate the use of narrative for better learning engagement for parents and children in a health and well-being context.
- Explore how visual direction can further enhance narrative in animation and in turn, further aid in communicating outdoor play benefits.

Research Question

How might 3D animation and narrative, focused on positive play experiences in nature, build awareness and encourage parents and their children on the benefits of exposure to the outdoors on mental and physical well-being?



Introduction

This research project explored the use of narrative through 3D animation to communicate the benefits of outdoor play. Throughout this exploration, I was guided by three methodological approaches: narratology, ecopsychology, and human-centred design. Narratology was used as a framework to understand how narrative structure shapes the audience's perception of the story. Ecopsychology studies the relationship between humans and the natural environment and, in turn, how it benefits our health. These two approaches informed the use of exploration methods to understand how to develop a narrative considering the innate human connection to nature from the ecopsychological standpoint. To increase the likelihood that my animation resonates with the intended audiences, I also used a human-centred design approach to better understand the needs, behaviours and preferences of parents – the intended 'end-users' of the animation.

Narratology

Narratology analyses the different elements of a narrative, such as plot, characterisation, point of view, and themes, to understand how they work together to create meaning (Bal, 2017). This also extends to how a narrative structure can shape the viewer's perception of a story (Bal, 2017). Narratives have been present throughout human history in poems, songs, plays, myths and more. It is one of the main ways humans construct and communicate meaning and understanding of the world around them (Dray, 1988).

Different elements influence how the audience understands a narrative. Being a single animator conducting this research, the scope of this animated project had to be small. Therefore, I only concentrated on a few essential narrative elements. One of these key concepts in narratology is the use of a "plot," which refers to the sequence of events that make up the narrative, including the exposition, rising action, climax, falling action, and resolution (Özdemir, 2019). How a plot is structured can significantly impact how the story is perceived and understood. The "style" can also set the tone and imagery, contributing to the narrative's overall mood and aesthetic.

The narrative structure, specifically in animation, relies on how it is executed visually (Wells, 1998). It often expands what is achievable in animation that live-action cannot. This includes the use of symbolism and metaphors to show meaning visually. Symbols use objects to hold and convey meaning, while metaphors embody a system of ideas and, as a result, can often make these ideas ambiguous to the viewer and lead to their own interpretation (Wells, 1998). Using narratology in animation is valuable for analysing and understanding how narratives function. As a result, these concepts can be applied to communicate ideas and stories.

Ecopsychology

While psychology delves into the human mind and ecology focuses on studying living organisms and their relationship with their environment, ecopsychology merges these disciplines to explore the human psyche through its relationship with the natural environment (Roszak, 1995). By integrating both principles, ecopsychology seeks to foster a more profound sense of environmental awareness and its benefits on human health (Nemeth et al., 2015). In the context of this research, I chose to specifically focus on children's health and well-being from the presence of nature through outdoor play.

Ecopsychology often entails a personalised interpretation and subjective approach based on a person's aspirations, ranging from mental well-being to sustainability and environmentalism (Roszak, 1995). Referring to the case study of Totoro discussed in the contextual review chapter, Miyazaki's construction of the character's goal is notably abstract. While the plot may not have been presented in a linear format, his films are filled with tranquil moments—a breeze swaying the grass, water trickling down a stream, or a bee landing on a flower. His films are imbued with nature and embrace an ecopsychological standpoint. These small moments in nature gave me inspiration on how I want to tackle presenting nature-based free play in my animation. I believe this methodology paired well with producing a narrative-driven animation to communicate the benefits of outdoor play.

Human-Centred Design

Human-centred design (HCD) is a framework that places the preferences of its user group at the forefront of the design process (Ku & Lupton, 2020). This approach fosters empathy and understanding, allowing designers to gain valuable insights into the user group's needs (Ku & Lupton, 2020). As a result, designs through HCD are more likely to be embraced and successfully implemented, leading to tangible improvements in people's lives.

This research used HCD to bridge the gap between the knowledge and ideas needed to create an animation for its target audience (Steen, 2011). This was done through engaging subject-matter experts (i.e., people with expert knowledge about outdoor play) and intended end users (i.e., primarily parents) to gain insights into children's and parent's needs, behaviours, and preferences. These, in turn, shaped how I used my animation-making methods to create an animation more likely to resonate with its target audience.

Ethical Considerations

Parents are part of this research project's intended end users and target audience. While I initially thought it would be interesting to seek children's opinions, I realised that the ethical process would be rigorous as children are considered a potentially vulnerable group. Going through a process of seeking ethical approval to engage children as participants in my research would have added more pressure to the limited time during this research journey. The decision was therefore made to engage with experts on outdoor play and parents/caregivers as participants in this research, as the latter were the primary intended audience for this animation and given the straightforward ethical process.

Ethics approval was sought from and granted by the AUT Ethics Committee (AUTEK) (Reference number 23/230) to conduct expert interviews and an anonymous parent survey (Appendix A).

Methods

This research employed qualitative research methods (expert interviews and parent survey) and design research methods. The research methods are separated into three phases: pre-production, production and post-production (see Figure 5 for the full pipeline/all methods). This chapter only describes the methods that were primarily influenced by the methodological frameworks outlined above. However, I do detail all the methods in the documentation chapter. While some methods were employed simultaneously and were revisited as part of an iterative process, they were still conducted in chronological order, as outlined in this chapter.

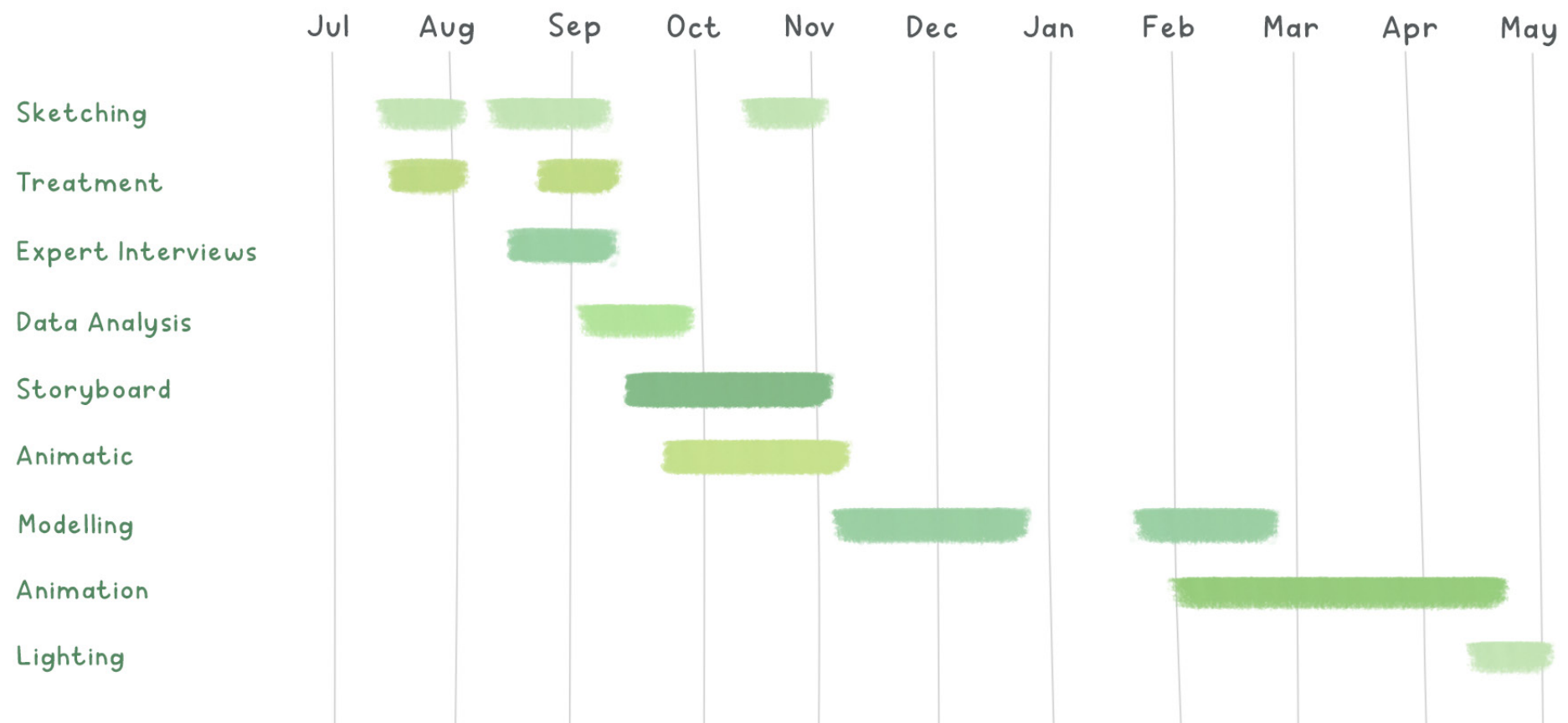


Figure 4. Methods Timeline

Animation Pipeline

The animation pipeline is a structured workflow that guides the various stages of producing an animated short (Dunlop, 2014). From conceptualisation to final rendering, I scoped out each step needed to produce a 3D short animated film as a single animator (Figure 5). Designing a pipeline ensured that I knew what needed to be completed within the short time of this master's research.

I tailored my pipeline to incorporate qualitative methods, specifically during the pre-production phase, encompassing research and planning. Production involved the creation of the visual elements of the animation, while post-production was dedicated to assembling all the scenes and applying final touches.

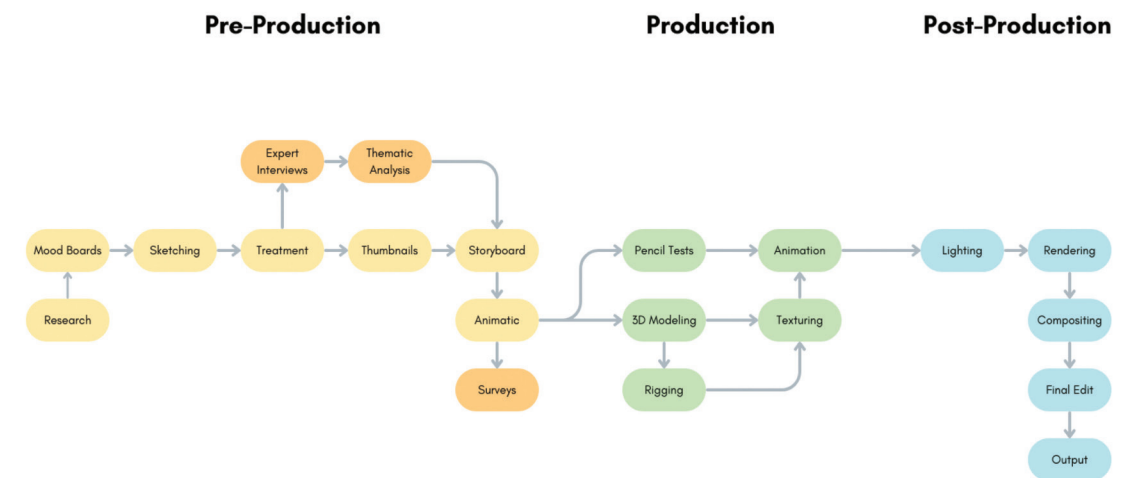


Figure 5. Animation pipeline with qualitative methods

Pre-Production Phase

Sketching

Sketching as a design method involves the process of iterative testing through rough drawings. This research used this method in a range of processes, including sketching a character, objects and environment designs to generate ideas. I also used sketching to draw out potential storyboard shots, known as “thumbnailing”, and explored compositions and shot angles before creating a robust storyboard. The rough nature of sketching allows the freedom to explore creative choices in a perpetual, iterative manner to conceptualise ideas (Hua, 2019). By interpreting insights from expert interviews, I sketched my ideas by exploring stylistic directions. Given that play and nature are fundamental elements that drive my research project, I explored a few stylistic approaches to flora and fauna that reflected these themes.

I used Clip Studio Paint and a Wacom drawing tablet to sketch digitally. In animation, anything can be conceptualised and drawn. The exploration potential of this method presents animation as a flexible medium because of its diverse nature.

Treatment

The foundation of any good narrative starts with a treatment, which is a written description of what takes place in a story (Rall, 2017). This is the initial stage to settle on an idea before designing the storyboard.

Contextual research, case studies, and my own childhood experiences of outdoor play influenced the writing of the treatment. This was the initial stage in exploring the narrative structure in animation based on what the intended audience (parents and children) would understand from the benefits of outdoor play. This included incorporating symbolism where appropriate and other elements such as point of view, pacing and mood. I brought together positive elements that made up outdoor play and the role of nature and worked this into a short plot.

Expert Interviews

Being an animator delving into a research project that intends to make nature-based play more visible, and not an expert in either child development or outdoor play, I conducted semi-structured interviews with experts in the field to better understand children's behaviour with nature and outdoor play, as consistent with the human-centred design approach (see Appendix B for interview questions). The learnings from these interviews informed the short narrative by revising the draft treatment. This made it more authentic and reflected positive children's outdoor play experiences.

Experts who had conducted research or have expertise in outdoor play for children were contacted through their public-facing email addresses (see Appendix C for the invitational email). Purposive sampling was also used to find experts on public domains. Snowball sampling was used after interviewing the initial experts (Parker et al., 2019). Those who expressed interest were emailed the participant information sheet describing the research details (see Appendix D) and the consent form agreeing to participate (see Appendix E). The interviews were conducted online via Zoom and lasted thirty to forty-five minutes.

Thematic Analysis of Expert Interview Data

Thematic analysis was used to interpret and analyse the transcribed expert interviews (Guest et al., 2012). This method was only used as a building block that would inform the revision of the treatment rather than leading to a new creation (Lin, 2019; Rosala, 2022).

As part of this analysis, I constructed codes from each written transcript. From these codes, I identified common themes and highlighted the codes to categorise them by these themes. I searched for any similarities and compared these with other themes from other experts. Doing this led me to construct additional themes. The findings from thematic analysis helped generate new ideas and affirmed previous assumptions about children's outdoor play behaviours.

Storyboard

A storyboard serves as a visual interpretation of a written script (Rall, 2017). This method is essential during the pre-production phase of the pipeline as it allows for the refinement of thumbnails to ensure the coherence of a story. Breaking down the sequence shot by shot ensures that no beats are missing. This process takes time because it involves constant revision to understand the visual story before production begins.

This method facilitated the exploration of narrative within animation through its visual elements. Storyboarding serves as a crucial tool for fleshing out ideas from the treatment. It enabled me to delve into a range of visual possibilities. It delineated the animation's style and set the tone and mood by considering shot compositions. This process ensured that every frame aligned with the intended narrative direction.

Using Clip Studio Paint, I digitally sketched brief thumbnails from the treatment and later cleaned and drew more shots into a robust storyboard.

Animatic

An animatic is a video version of a storyboard. It combines all the storyboard shots, incorporating timing, sound, and music to represent the intended finished animation sequence (Dunlop 2014). This visualisation allowed me to assess the narrative's pacing, flow, and overall coherence before proceeding to the production phase. By incorporating elements such as timing, sound effects, and music, the animatic helped convey the intended mood and atmosphere of the final animation, ensuring that it aligns with my creative vision and can resonate effectively with the audience.

I used Premiere Pro to import and arrange each storyboard shot. Time was adjusted accordingly, and sound effects and music were tested and added.

Parent Survey

As animation is not always well understood by all audiences, in line with the HCD approach followed in this research, I decided to seek parent's (i.e., end-users) feedback on the animatic to increase the likelihood that the finished animation would have the intended impact. A semi-structured anonymous online survey designed using Qualtrics was used to gather user feedback on the animatic. The survey consisted of six quantitative (multichoice) and one qualitative (open-ended) question. It was kept intentionally short and mainly multichoice to maximise the likelihood of participation and make it easier to complete. The multichoice questions asked participants what they understood from the animatics themes. These questions were informed by the expert interviews and the themes I conveyed through the animatic (see Appendix F for the survey questions).

Prospective parents were recruited via an advertisement poster containing a URL and QR code to a Wix website that contained the participant information sheet, animatic and survey (see Appendix G for the advertisement) (see Appendix H for the participant information sheet). The physical copy of the poster was put up in two public libraries, and a digital version was sent to three primary schools across Auckland to be displayed in weekly newsletters sent out to parents.

Production Phase

3D Modelling

3D modelling is the process of creating digital geometry to be used in animation (Dunlop, 2014). This method realised the elements I had established in the treatment and storyboard. This method gave me the freedom to create models in the particular style I envisioned as a way to strengthen the narrative.

The models were created using Maya, and finer details were sculpted using Zbrush. After I made the models, they were brought into Substance 3D Painter to be textured.

3D animation

Animation mimics real-life movements and creates interesting characterisations, giving it the illusion of life (Frank Thomas and Ollie Johnston, 1981). This method made my story a reality by animating objects and characters as part of a narrative that communicated the benefits of outdoor play. Unlike live action, animation allows for creating movements and scenarios that are not feasible otherwise, offering boundless possibilities for creating animations.

This method involved animating the models in Autodesk Maya by keying in poses of an action. After the poses were keyed, the next step automatically interpolated the keyed poses, giving the illusion of movement (Dunlop, 2014). This was followed by assessing the timing and cleaning up the animation so it would flow smoothly.

Post-Production Phase

Lighting

Creating specific lights in a 3D space adds a particular mood and tone to the animated scene. This important method allowed me to create lighting that guided the viewer's focus and ambience, further enhancing the animation and the narrative.

In-scene lights were created and adjusted in Maya. After the shots were rendered out, additional lighting was added in After Effects to enhance the colour and tone of the existing lit shot.



Documentation of Research

Pre-Production

Research and Ideation

As presented in the contextual review chapter, time, wonder, action and freedom were identified from the literature as the key elements that make up the outdoor free-play experience to focus on in the animation.

What did outdoor play mean for me?

Outdoor play is a broad term, and free play experiences are limitless; therefore, I needed to narrow down the elements I could use when drafting a narrative for the treatment. While awaiting approval for expert interviews, I began brainstorming my outdoor play experiences based on Isis Brook's analysis of the four key elements. Starting with a blank slate, I conceptualised the animation's narrative by reflecting on what outdoor play meant to me as a child growing up in the late 2000s.

When I drew upon my childhood memories, one of the most positive aspects that stood out was the warm evenings, particularly the time after school when playing outside felt the most satisfying and exciting. The outdoor space where we played was typical of Auckland's suburban areas: concrete driveways, grassy backyards dotted with plants and trees. A blend of nature and man-made structures characteristic of suburban living. Even this small exposure to nature is shown to be beneficial to health and well-being, as noted by Brook (2010). We utilised the natural environment for our play, engaging in activities like roleplaying, survivor games, and tag. Aligning with Durell's notions of wonder, we found fascination in the ordinary—leaves, branches, and insects. Our senses were stimulated by experiences such as feeling the grass between our toes and tasting the honey in lavender. These moments of discovery enhanced our ability to perceive and comprehend the world around us.

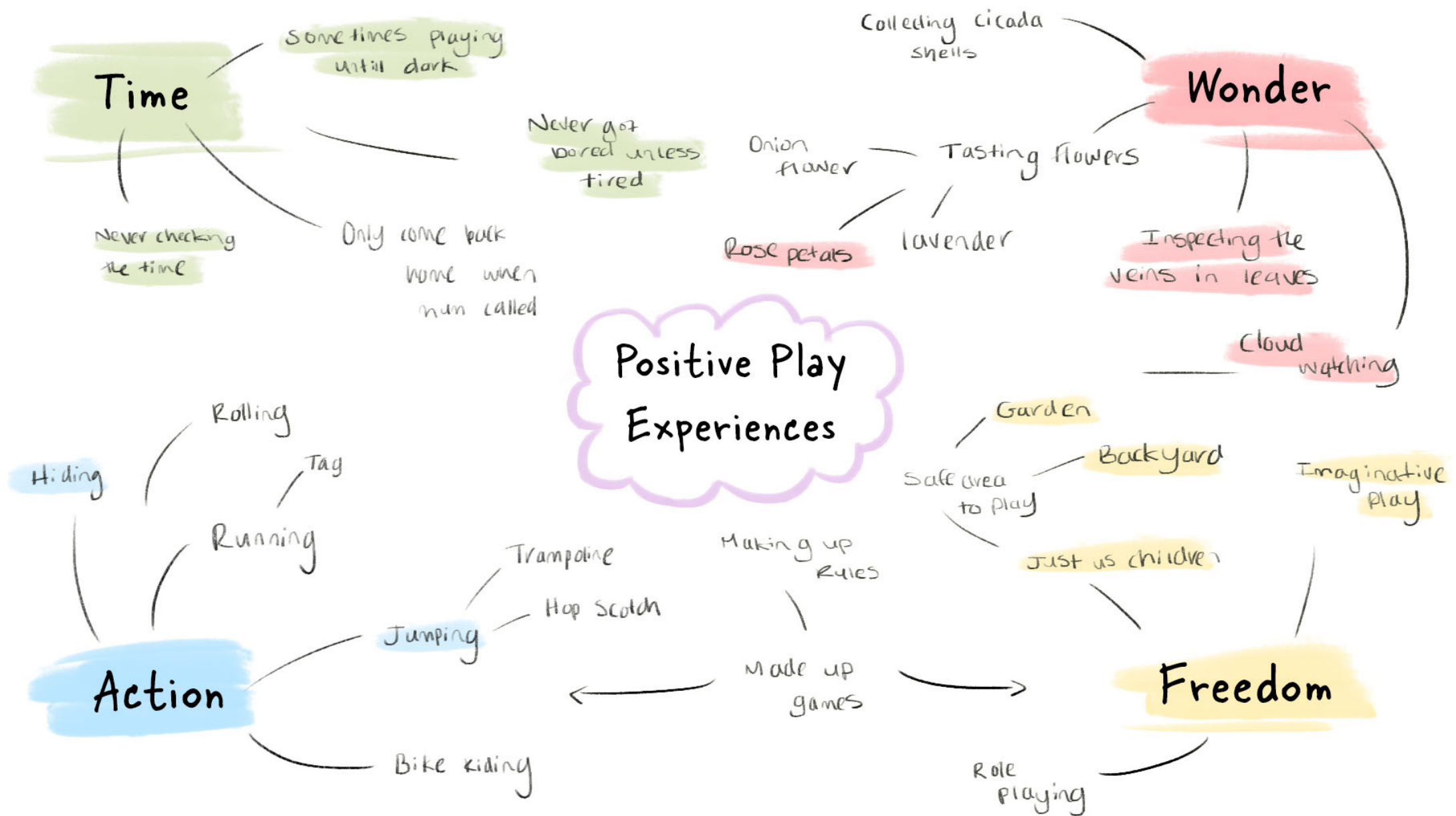


Figure 6. Brainstorm of my play experiences

After brainstorming ideas, I highlighted the elements that I brought forward into writing the draft treatment of the animation's story (Figure 6). The rationale behind this was partly on what was achievable to animate and create the assets for these scenes as a sole animator.

Writing the Draft Treatment

As part of using a narrative approach in this research, I recognised the need for a central character, a child, to serve as the focal point. To structure the narrative effectively, I loosely followed the hero's journey framework as a guide (Campbell, 2017). By incorporating this framework into the plot, my aim was to signify the journey of change and transformation experienced by the child/protagonist within the constraints of a short narrative (See Appendix I for draft treatment).

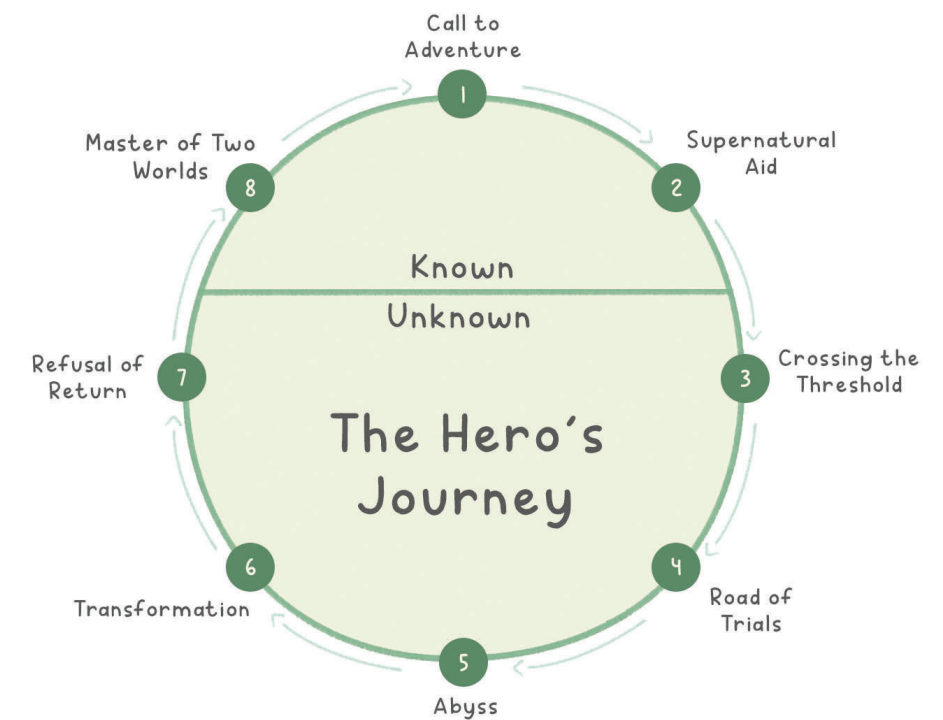


Figure 7. The Hero's Journey Framework. Adapted from *The Hero with a Thousand Faces*, by J. Campbell, 2017, Yogi Impressions. Copyright 1949 by Joseph Campbell

Throughout this framework, I carefully integrated small, intimate moments in nature. These included scenes of the child meticulously observing a trail of ants, playfully wielding a stick like a wand, and joyfully sprawling across the grass. These quiet, serene moments showcased nature's soothing and rejuvenating aspects while nurturing the child's innate curiosity and appreciation for life and using her natural surroundings to seek play.

During this time, balancing animation elements in a literal and metaphorical format was challenging. If I used too many metaphors, the message might have been too abstract, while being too literal might make it boring. To mitigate this, I ensured that the premise stands strong in showing a child engaging in outdoor play (literal) and weaving in objects and short actions represented as symbols and metaphors. An instance of symbol use is the stick. I aimed for this object to symbolise the child's bond with nature while also catalysing her imagination.

Mood boards

Using mood boards as part of the pre-production phase was an iterative process to discover what colours, styles, and textures would coexist harmoniously. This involved visualising the style, colours, and mood I envisioned for the animation, drawing inspiration from contextual research and personal childhood memories and emotions. I gathered a variety of visual references, including concept art, stills from both 2D and 3D animations, and real-life photos. This allowed me to explore different artistic approaches that would influence the visual development and making of my 3D assets (Blazer, 2020). I created a mood board showcasing the colour palette for use throughout the animation's development (Figure 8). I aimed to employ vibrant, saturated tones rather than muted ones to authentically capture the lively spirit of free play.

In alignment with the treatment of the animation, the initial setting would feature warm greens indicative of the late afternoon, gradually transitioning to cooler blues as dusk approaches. This shift in time serves to illustrate how children can become immersed in play, often losing track of time, as noted by Brook (2010).

Style + Colour

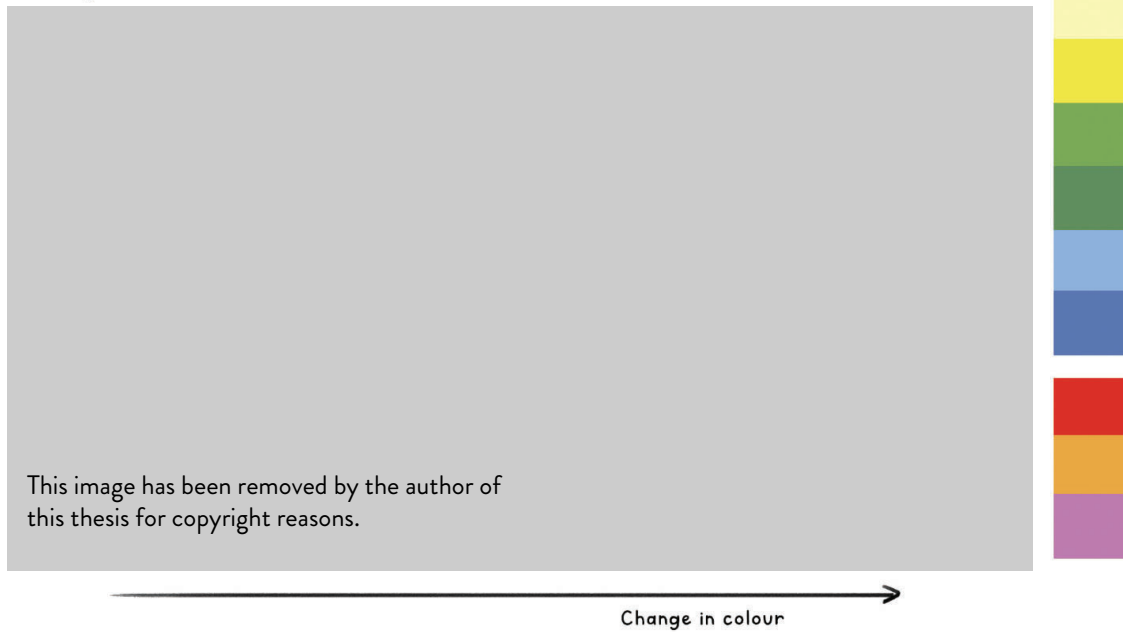


Figure 8. Style and mood with colour palette

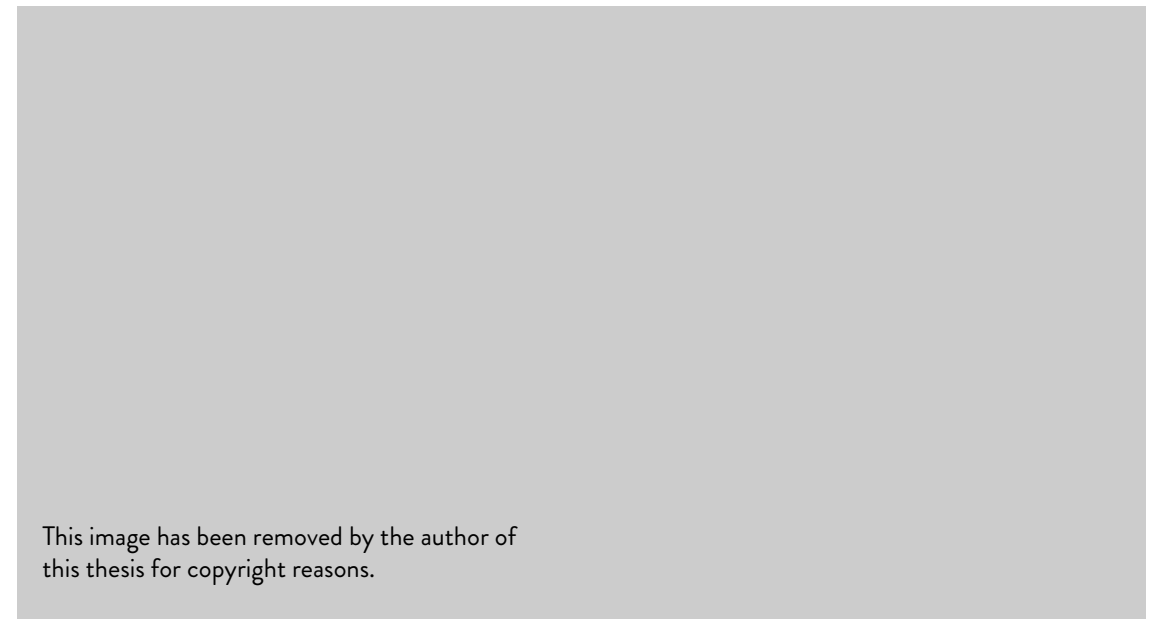


Figure 9. New Zealand flora exploration

Initial Sketching

I sketched various stylistic approaches as I conceptualised the animation's outdoor assets (Figures 10, 11). This exploration prompted me to contemplate how shapes could be utilised to enhance the mood and narrative. By closely observing trees and plants, I realised the profound impact an environment's shapes could have, evoking feelings of either warmth and invitation or coldness and hostility. This insight inspired me to consider how the visual elements could contribute to the overall emotional resonance of the animation.



Figure 10. Environment Sketches

I observed the shape of the trees and investigated how I could translate this more stylistically. This exploration led me to experiment with exaggerating the silhouettes of the trees in order to find key shapes. I found that emphasising rounder shapes contributed to a sense of tranquillity and calm energy, aligning with my desire for the environment to evoke this.



Figure 11. Environment Sketches

Sketching (Thumbnails)

Another important phase during the iterative sketching process involves thumbnailing scenes derived from the treatment. Initially, the thumbnails depicted the child exploring various natural elements within her backyard, observing bugs or following trails of ants. Her fascination drives her to reach out and touch the insects, but she hesitantly recoils her hand. These moments highlight how free play fosters patience, social awareness, and a deeper appreciation for the outdoors. Additionally, I aimed to explore how the child shows more expression as she engages in play (Figure 12).

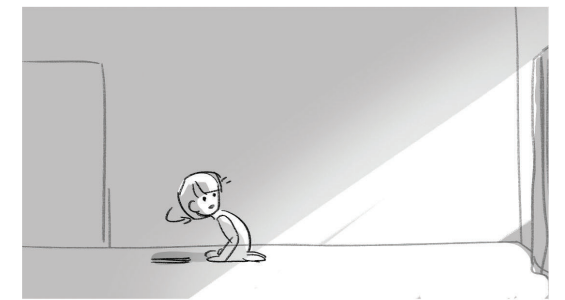
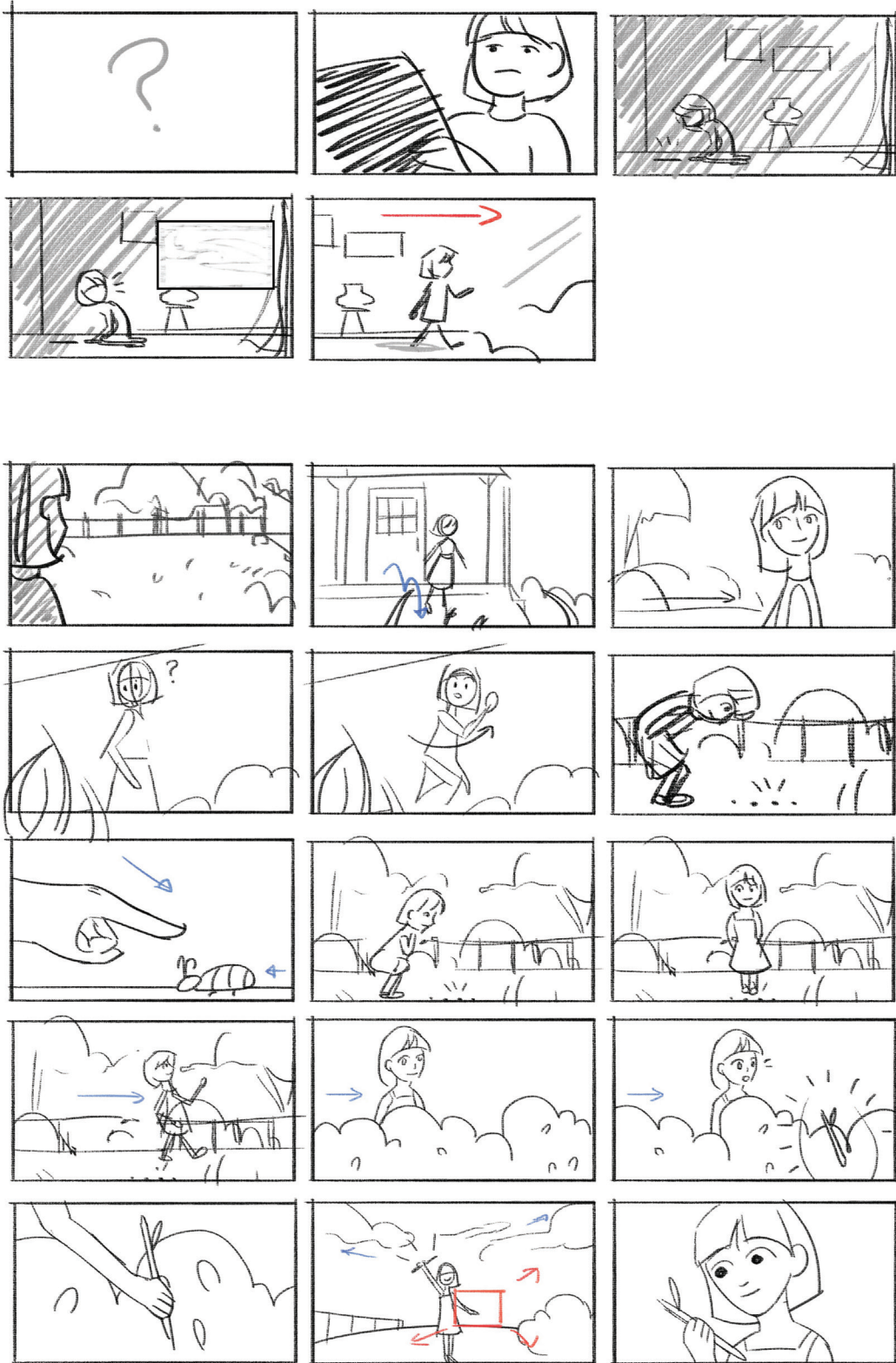


Figure 12. Thumbnails

Expert Interviews

To gain deeper insights into the significance of outdoor nature-based play for children, I interviewed five experts who have experience or have conducted research in this field (see Appendix J for details; all experts consented to be named in the exegesis). These interviews were used to better understand what aspects of the outdoors children are drawn to through play and how these elements could be used in creating a short narrative in my animation.

One of the key themes from the interviews that affirmed my initial assumptions about sensory experiences was the value everyday things can bring to children's play - materials and objects you can find around the house, such as string, sheets, chairs and so on. These objects offer different textures and shapes. They are open-ended compared to marketed toys, which are more structured and limited, such as a toy ukulele. A child would strum its strings and most likely only use it as it is. While toys are a great way for children to be entertained and learn, the addition of children having to use surrounding objects and materials challenges them to use their imagination:

“if children have that freedom just to find stuff around, ‘knickknacks’...”
– Adele Cleaver

Multiple experts highlighted boredom as a crucial factor that fosters free play among children. They stressed the significance of allowing children to experience boredom, as it catalyses creativity. While some parents may initially feel guilty when their children express boredom or act up, it is essential to recognise boredom as a valuable opportunity for growth and exploration. Rather than parents suppressing this with devices, allowing children to navigate moments of boredom encourages resourcefulness. Viewing boredom as a privilege rather than a problem can allow children to develop resilience, independence, and creativity:

“for a child to be bored, they have nothing to do. That's where the creativity happens.” – Scott Duncan

In response to my intention to use narrative and animation as a method to engage with parents and children, a few experts suggested having a short narrative that is quick and gets right to the point, as adults are more likely to continue watching something when there is a hook.

Gaining these insights was especially important as I did not initially anticipate this when writing the draft treatment. While I had anticipated that ‘the child gets bored first and then seeks new play’, I only saw this from the hero's journey perspective – as a contrast between being bored inside and how happy and expressive she gets as she plays outside. However, for free play to be successful, boredom leads to children challenging themselves to be creative. The same should apply to the part of the narrative where the child uses the stick as a catalyst for her imaginative play. Initially, I only viewed this as a symbolic tool to showcase her connection with nature. However, this made me realise it could also serve to illustrate how children can be creative when playing with the simplest of objects.

By following the deductive approach to analyse these interviews, I found a balance between gaining new insights and affirming my initial assumptions. These insights helped me better understand the factors necessary for depicting positive outdoor play experiences and reaffirmed that my research project was headed in the right direction. This iterative process ensured that the research remained relevant and was likely to resonate with the intended audience.



Figure 13. Thematic analysis process of expert interviews

Based on the analysis of the expert interviews, I summarised key points that are important and should be considered in the revision of the treatment (Figure 14):

SUMMARISED KEY POINTS

- Include a form of risky play and show its benefits.
- Show how free play fosters creativity compared to structured activities or toys.
- A more parent-focused animation might lead to more tangible outcomes.
- Show enjoyment when children have the freedom to explore.
- Show grit and resilience from exposure to unknown situations through nature-based play.
- Bring movements such as speed that exhibit exhilaration as part of risky play.
- Emphasise how simple spaces can still allow children to play freely.

Figure 14. Summarised key points from expert interviews

Revising the Treatment

A more parent-focused animation might lead to more tangible outcomes.

I revised the draft treatment based on the key insights from expert interviews. One adjustment was to shorten the narrative for a more direct approach. This was influenced from the key point to make it more parent-focused. I removed the scene involving the child inspecting ants, focusing instead solely on her interaction with the stick. This brought greater focus to the main storyline (Figure 15).



Figure 15. Deducted shots



Figure 16. Creative block

Include a form of risky play and show its benefits.

Bring movements such as speed that exhibit exhilaration as part of risky play.

Another area I addressed was a gap identified between the treatment and the thumbnails (Figure 16). I felt that this would be a good area to show risky play, which would align with stages four and five (Road of Trails and the Abyss) of the hero's journey. However, I recognised the time constraints to complete this animation and that it should be short and faster-paced to hook the target audience. Therefore, I combined the concepts of imagination and risky play into a single montage scene (Figure 17). Rather than directly showing risk consequences through play, which could be harsh, I conveyed this idea metaphorically. By doing so, I aimed to soften the portrayal of risk in play while adding depth to the narrative.



Figure 17. Depiction of risky play through imagination.

Show how free play fosters creativity compared with structured activities.

I felt I already partly showed this when the child was on the tablet, but as discussed with the previous key insight, I incorporated imagination through a simple object (stick) through risky play.

Show grit and resilience from exposure to unknown situations through nature-based play.

I demonstrated this through the montage of risky play, as her challenge to jump on the platform presented an unknown challenge. I showcased her quick grit and resilience when she summons a parachute (Figure 17).

Show enjoyment when children have the freedom to explore

I showcased the child's enjoyment unfolding across the narrative, briefly including other expressions to illustrate the range of exhilarating emotions through free play (Figure 18).

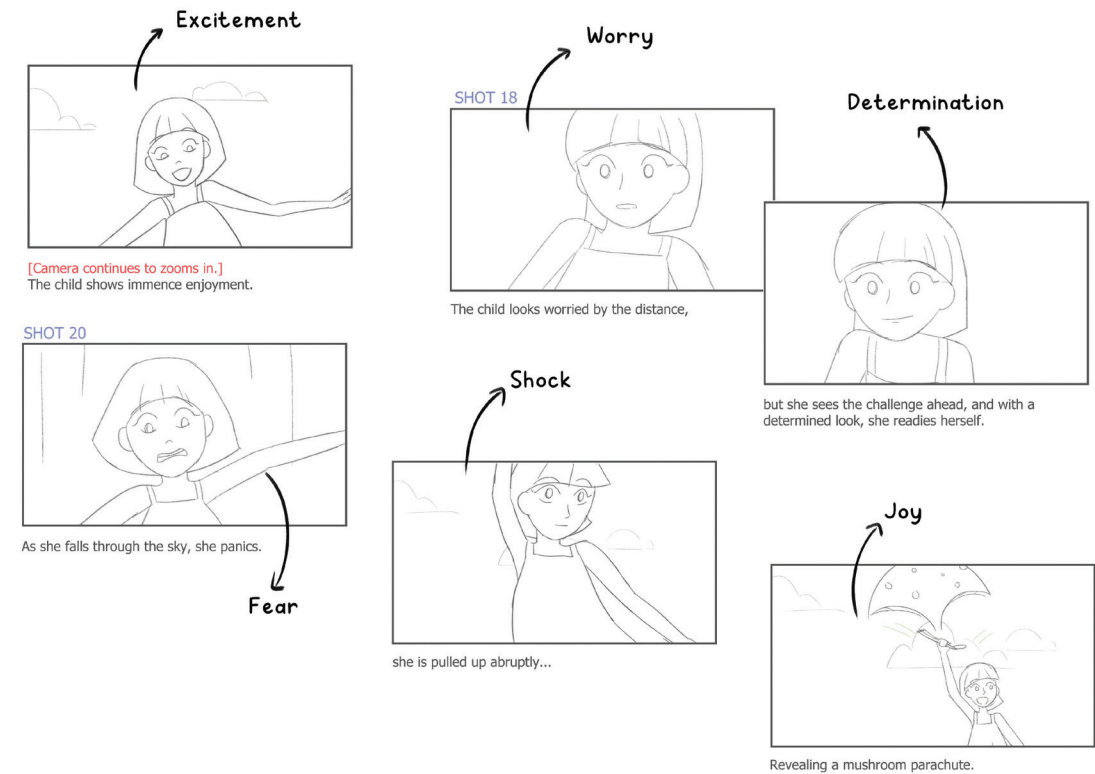


Figure 18. Facial expressions

Storyboard

Emphasise how simple spaces can still allow children to play freely.

While I had loosely drawn a nature-filled backyard in the storyboard (Figure 19), I had to adhere to a simpler spatial design in line with the summarised key points from expert interviews (refer to Appendix K for the full storyboard). It was crucial not to overcrowd the scene with excessive objects, so I only included flora where necessary. This approach ensured that the focus remained clear, and the visual elements served to enhance the narrative rather than distract from it (Figure 20).



Figure 19. Backyard from the storyboard

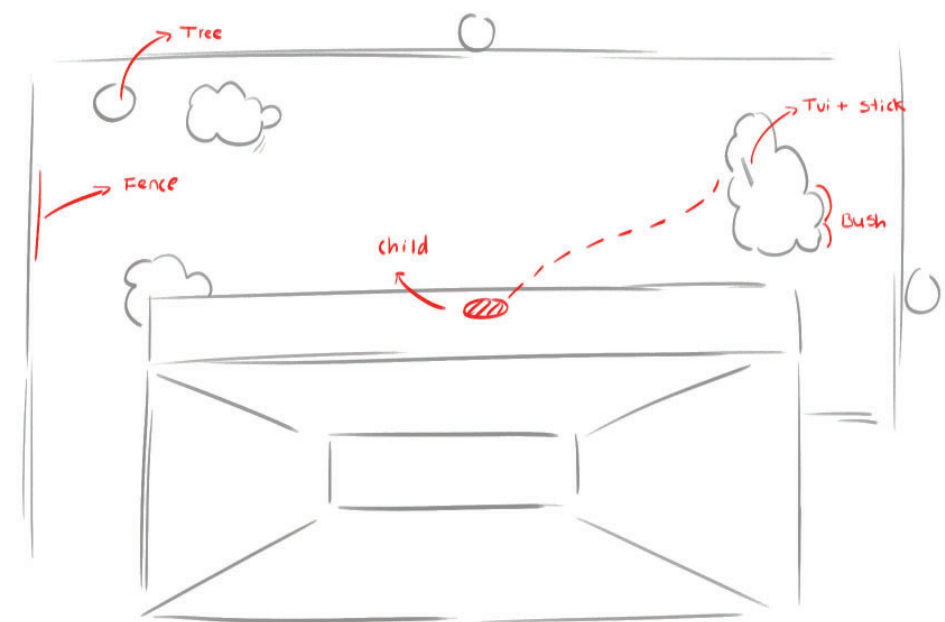
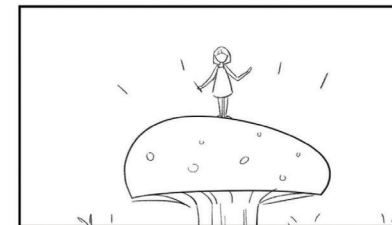
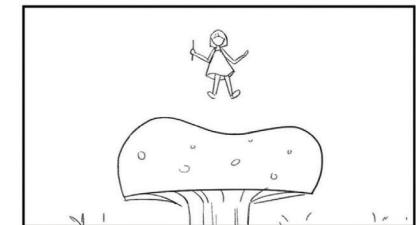


Figure 20. Backyard floor plan

I also decided to use metamorphosis - the ability of shapes to morph into another shape (Wells, 1998) - to represent the idea of risky play in a short montage to show the limitlessness of the child's animation. However, developing ideas to depict this and understand how this metamorphosis served the narrative and portrayal of outdoor play benefits grew to be a challenge. Consequently, instead of an object ultimately morphing into another, I had the child summon a mushroom that would morph out of the ground (Figure 21). Another example is when her heart appears, and the Tui summons platforms (Figure 21).



In an instant, a giant mushroom is summoned.



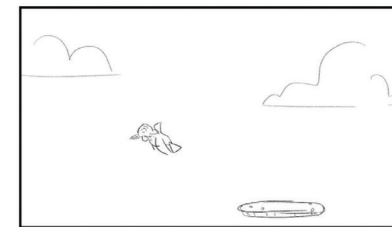
She starts bouncing on it...



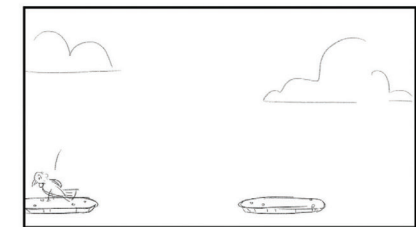
[Camera continues to zooms in.]
The child shows immense enjoyment.



Her heart appears to be pumping from exhilaration.



spawning a mushroom platform before hopping again.



The tui spawns another and flies out of shot.

Figure 21. Morphing of mushroom, heart & platforms

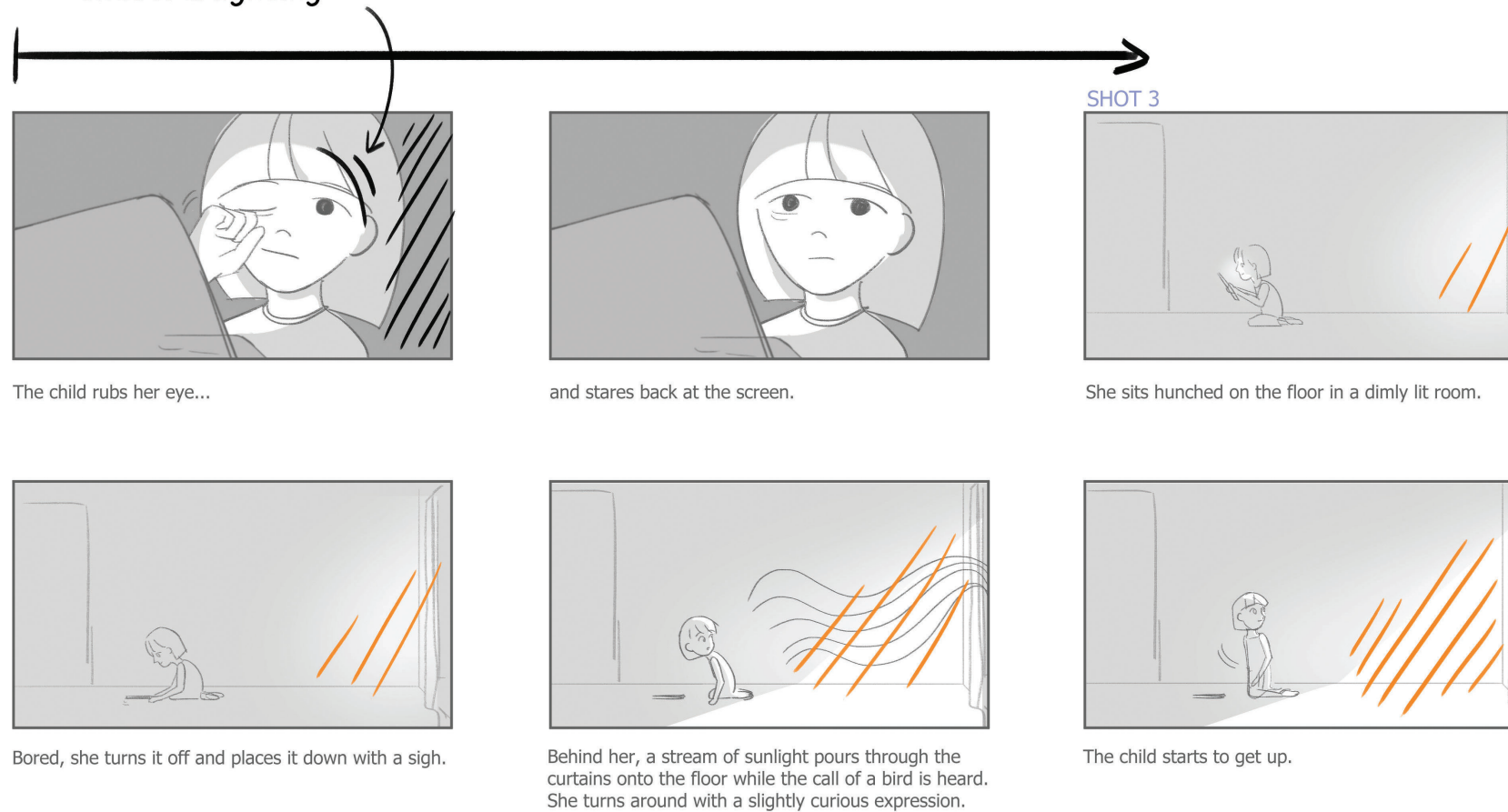
At this stage of development, I made the decision to introduce a character to serve as a mentor to the child. To deepen her connection with nature, I opted for a bird, specifically a Tui, which is distinctly a NZ bird (Tūi, n.d.). This choice was influenced by an ecopsychological perspective, where I included the Tui to symbolise the interconnectedness between humans and other living organisms. The Tui encourages the child to explore and follow, enhancing the narrative and reinforcing the theme of fostering a deeper bond with the natural world.

To further show the connection between the tui and the child, I decided to add anthropomorphism to show more human-like qualities, such as the tui's mannerisms and eyes. I felt that this would also play on the blurred line between the child's vivid imagination and reality.



Figure 22. Tui

Dark shadows with illumination of unnatural lighting



Introduction of natural lighting

Figure 23. Storyboard section showing change in mood with lighting.

I expanded from the initial thumbnails to create a storyboard layout, further breaking down the scenes by adding more detailed shots. To enhance the narrative flow and convey shifts in tone and mood, I shaded certain shots accordingly. For instance, when the child is indoors, the atmosphere is depicted as darker and bleaker, with her face illuminated solely by the artificial light emitted from the tablet. Contrastingly, as she steps outside, the outdoor lighting is portrayed as bright and vibrant, contrasting with the preceding indoor scene. This visual contrast not only serves to highlight the transition from indoor to outdoor environments but also adds depth to the narrative by visually representing the shift in atmosphere (Figure 23).

This is where I also refined the camera movements in the storyboard. I concentrated on where I could use creative camera movements to heighten an action or reaction, a capability unique to animation, as noted by Wells (1998). This allowed me to enhance the storytelling experience in ways that live action cannot achieve.

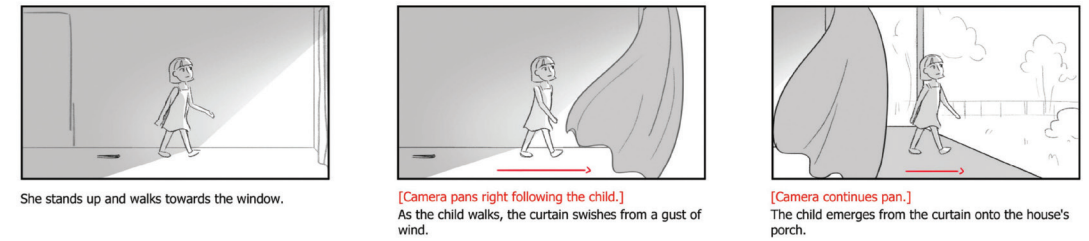


Figure 24. Extreme pan

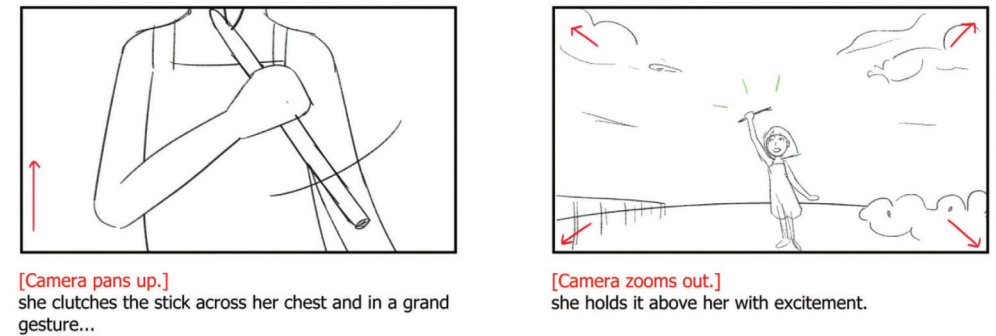


Figure 25. Extreme zoom out

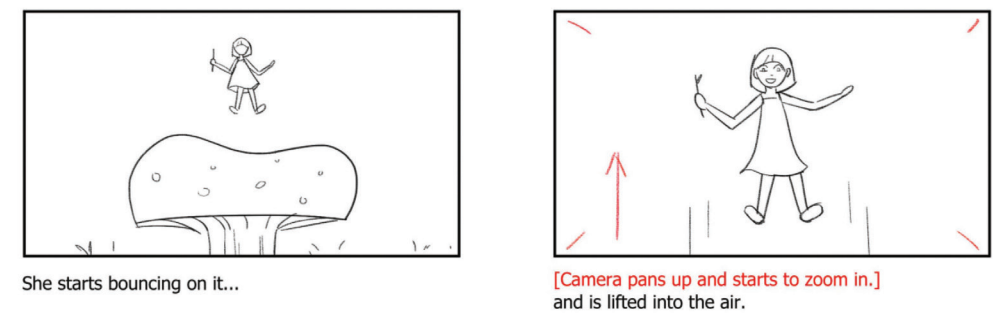


Figure 26. Extreme zoom in

As part of the intention to focus on the multifaceted benefits of outdoor play that extend beyond just the physical activity aspect, from this storyboard, I carried forward the benefits I intended to communicate - i.e., creativity, imagination, competence from risk-taking, problem-solving, curiosity, content, and expression (Figures 27 & 28).

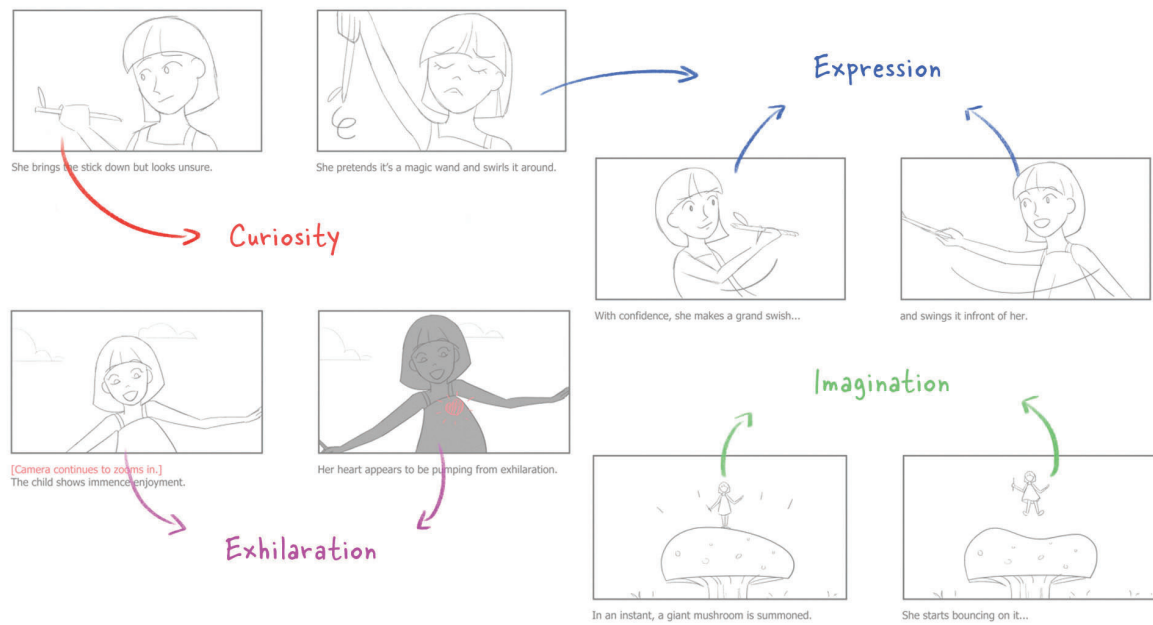


Figure 27. Parts of the storyboard showing benefits of outdoor play: curiosity, expression, etc

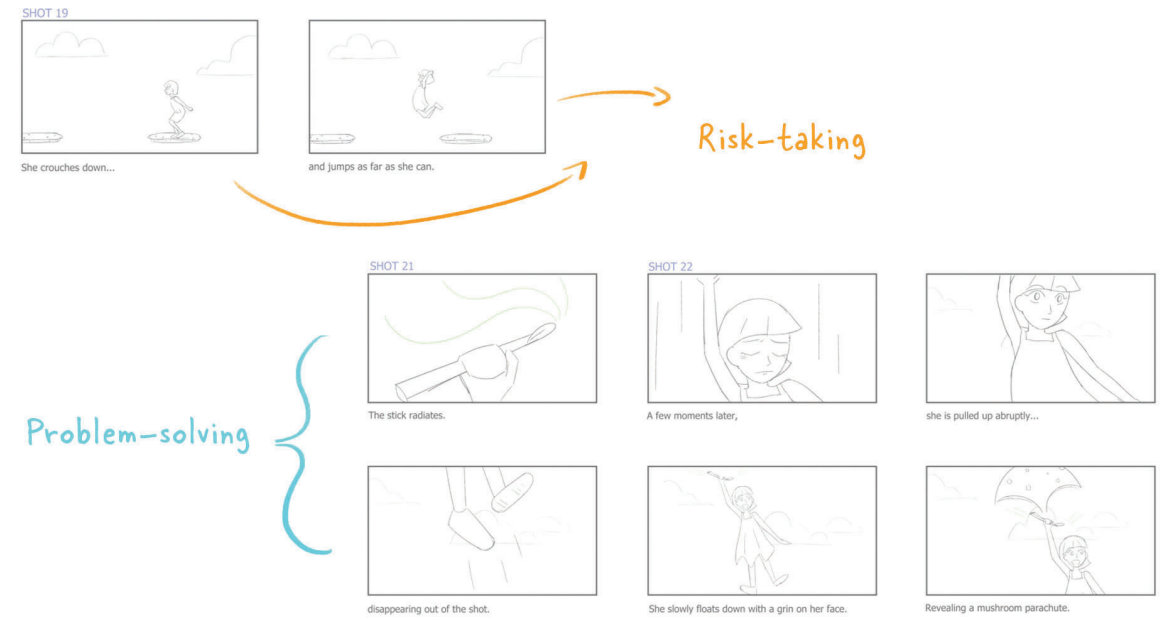


Figure 28. Parts of the storyboard showing benefits of outdoor play: risk taking and problem-solving

Animatic

After completing the drawings for each shot in the storyboard, I organised them into a sequence for the animatic (Figure 29). This stage involved timing appropriately by adjusting the duration of each shot, mainly when timing actions such as the child swinging the stick. It was crucial to ensure that the motion appeared realistic and believable. Additionally, I had to incorporate extra drawings between shots to clarify movement and maintain smooth transitions.

I recognised the need for minor refinements in the child's actions throughout this stage. This included adjusting the pacing of movements, such as altering the speed at which the child walks or runs. These adjustments were aimed at enhancing the overall flow and coherence of the animatic, ensuring that the narrative unfolds seamlessly and effectively communicates the intended story beats.

I also realised that both diegetic and non-diegetic sounds will play a crucial role in setting the mood of the animation, helping to enhance the viewer's sensory experience and evoke a sense of tranquillity and connection with nature. To reinforce the calming and immersive nature of the outdoor environment, I included sounds such as cicadas chirping, bushes and grass rustling, and the gentle rustle of wind where appropriate.

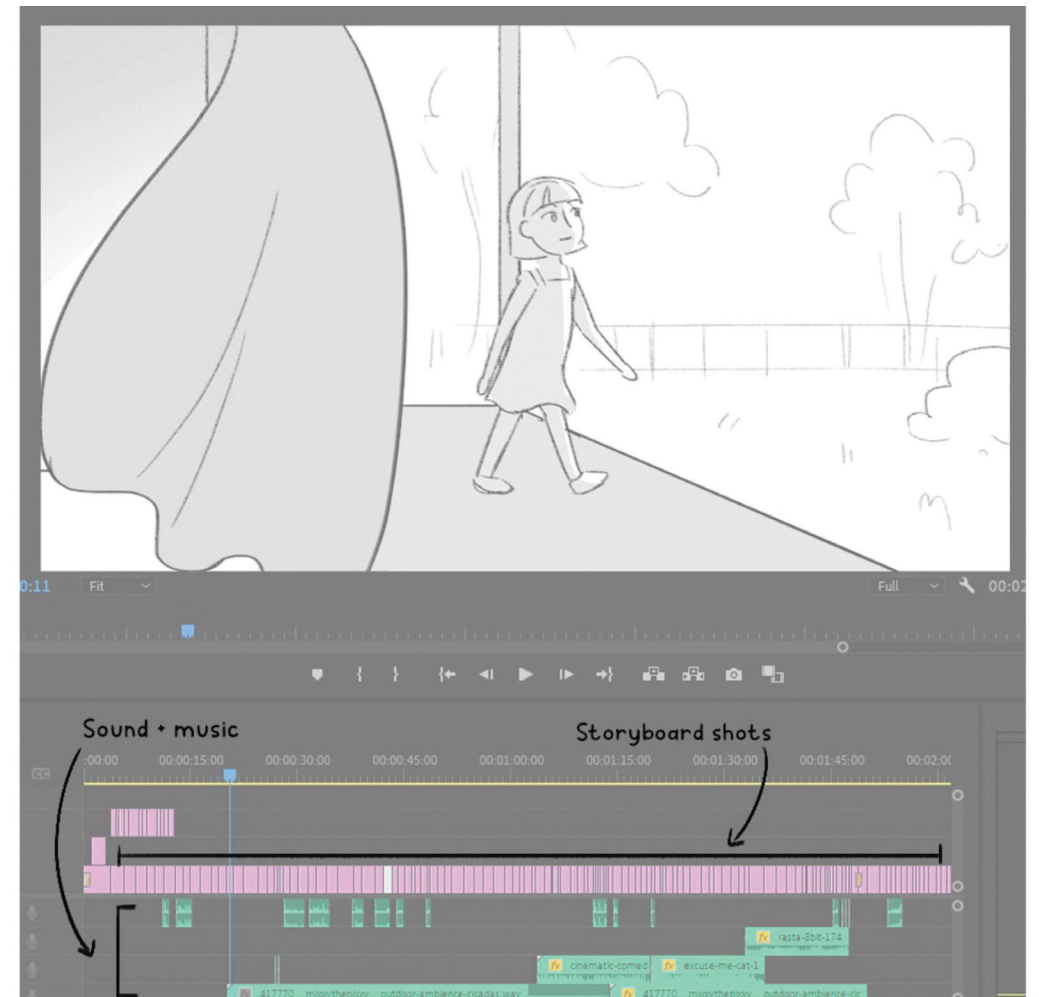


Figure 29. Assembly of storyboard shots, sound and music

Parent Survey

Only two responses to the survey were received. These were incomplete and could, therefore, not be used to inform the direction of the animation.

Instead, critique sessions with my master's peers and regular supervision meetings with my supervisors proved to be invaluable in receiving feedback on the animatic from individuals with varying levels of animation expertise. The range of perspectives helped pinpoint areas where clarity between shots was lacking and identify opportunities for refining the sound design.

Designing the Tui

To ensure the anthropomorphic traits are depicted well. As eyes are pivotal in conveying emotion and expression, I opted for more human-like eyes for the Tui to establish a relatable connection with the audience, especially with the child protagonist.

I sketched out possible designs for the Tui (Figure 30). I focused on the shape of its head, face and wings. I found it quite challenging to see how anthropomorphic I should go, but I decided to first focus on simplicity - less detailed feathers and exaggerated shapes. Given the Tui's role as a manifestation of the child's imagination, I aimed for its design to embody this concept.

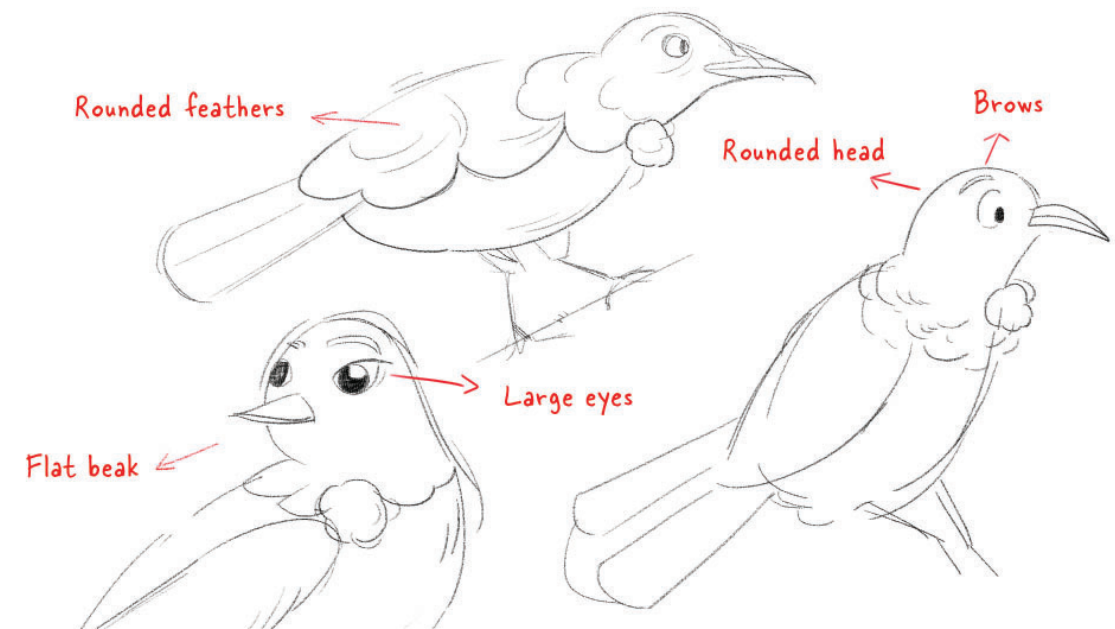


Figure 30. Tui concept sketches



Figure 31. Tui character sheet

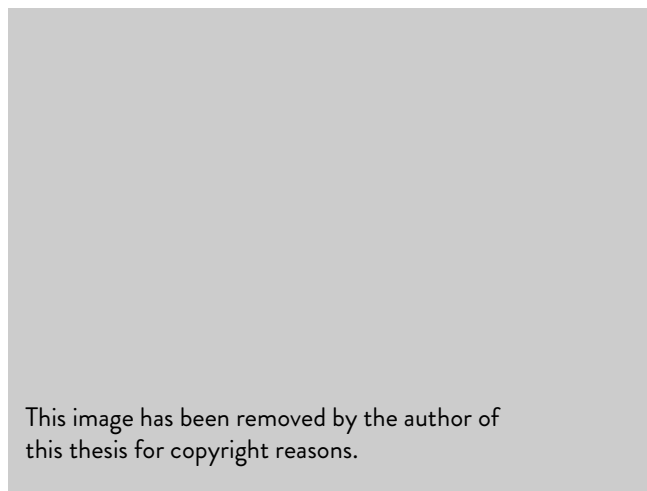


Figure 32. Tui reference. From New Zealand Birds Online. Copyright by John Flux

Above is the final character sheet for the Tui (Figure 31). I imported both the front and side views of the Tui into Maya and utilised them as reference planes to facilitate the modelling process. Considering the constraints of time and my capabilities, I have opted for a simpler design, particularly regarding the wings. However, I have ensured that anthropomorphic expressions are still prominent through the design of the beak, eyes, and eyebrows.

For texturing, I have chosen a more stylised approach, employing hand-painted techniques to convey that the Tui plays off the child's imagination. I also saturated the colours to play off of that theme but still stayed true to the colour palette of the Tui (Figure 32).

Production

Creating 3D assets

One of the things I wanted to emphasise through my animation was that children can create wild imaginations. I wanted to show the blurred line between imagination and reality through the story. While I had many ideas for creating 3D assets, it was challenging to create everything due to time constraints.

I decided to externally source the child from an early point as I did not think I would have enough time to model and rig a complex human. I procured the model from CGtrader, ensuring it fell within the desired age range (7-10 years old) and had a well-rigged body, face, and hair components.

Tui

I modelled the base mesh using Maya and then sculpted finer details in Zbrush. Referring to Figure 34, one of the modelling rules I had to remember was modelling with a clean mesh (Dunlop, 2014).

During the modelling process of the Tui, a few minor challenges arose. Initially, I contemplated placing the Tui's eyes along the curve of its head. However, discrepancies between the side and front views in the character sheet (Figure 31) complicated this plan. The side view depicted the eyes slightly outward, while the front view showed them facing forward. This misalignment made it difficult to model the eye sockets accurately to fit perfectly with the eyeballs. Consequently, I decided to flatten the front of the face and make it slightly wider to alleviate this issue.

Although the character sheets provided a blueprint for the shapes and style I aimed to achieve, I found it necessary to make some minor adjustments during the modelling process. This was particularly evident in areas where the head, bust, or legs appeared odd in the 3D view.

Maintaining proper topology was another crucial aspect of modelling the Tui (Figure 34). I had to ensure that the polygon faces conformed uniformly to the model's shape, with an even and smooth quad topology (Dunlop 2014). This guaranteed that the texture maps would display accurately and prevented any undesirable deformations during animation.

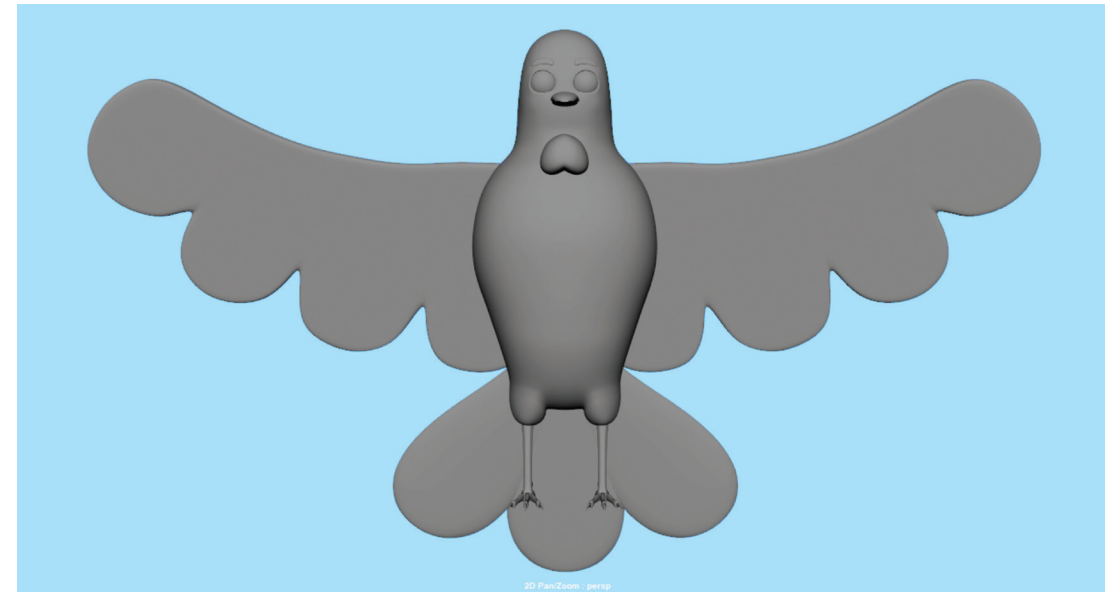


Figure 33. Tui 3D model

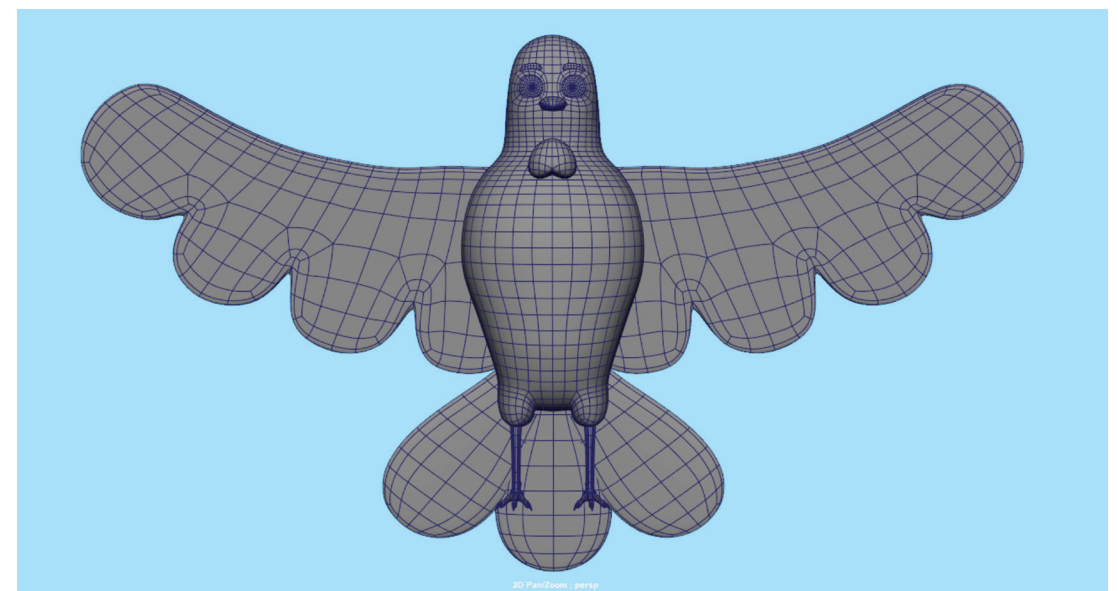


Figure 34. Tui topology

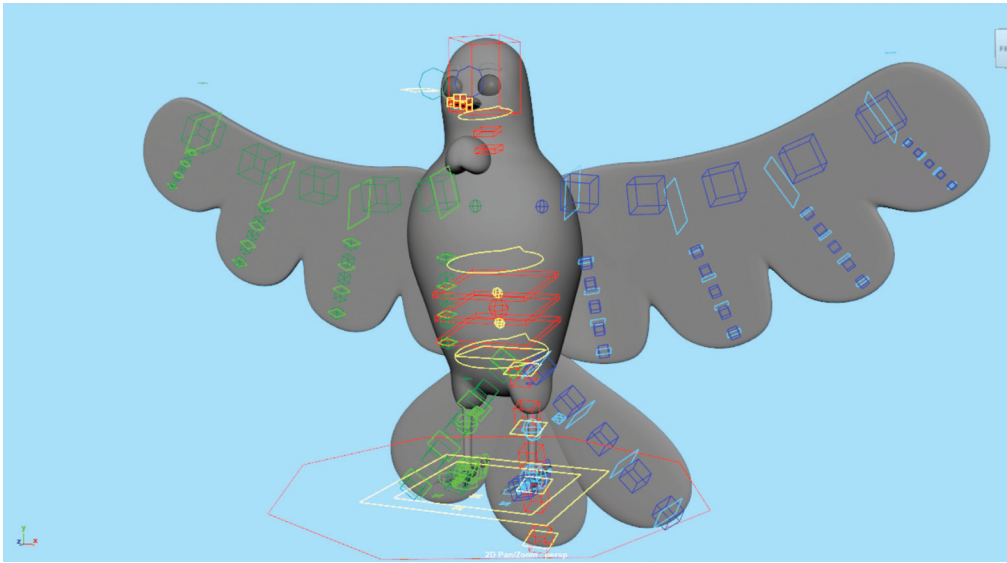


Figure 35. Tui rig

After modelling the Tui, the next stage was to rig. This is the “skeleton” of a character and a set of controls which allows the animator to move the limbs (Dunlop, 2014). Due to time limitations, I outsourced the rigging process and closely monitored the progress. This ensured that my specific requests were met, such as a malleable beak to smile and a change in brow shapes (Figures 36 & 37).

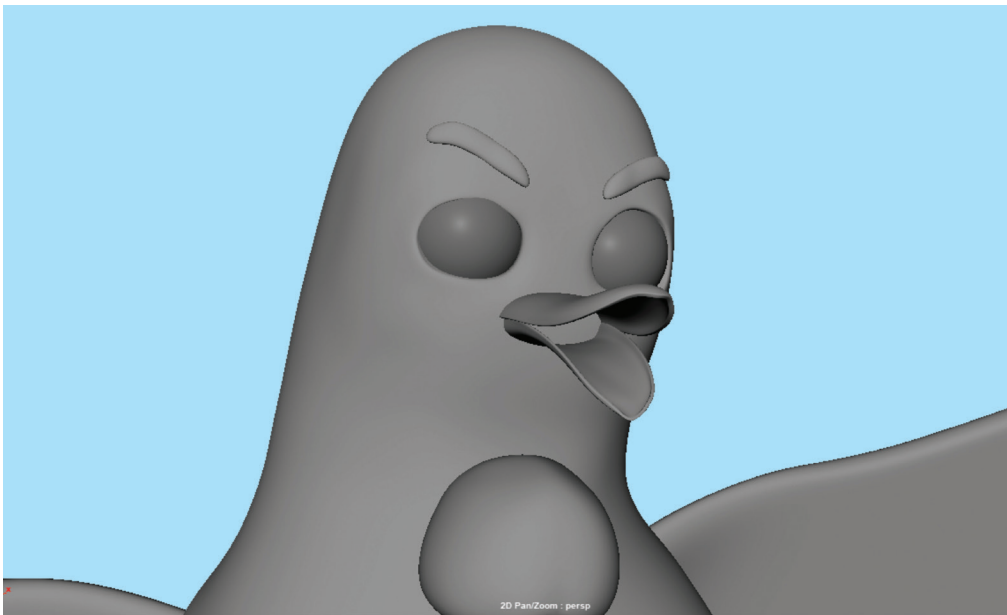


Figure 36. Testing rigg controls

Sculpting Details and Texturing

For specific models I created in Maya, I sculpted higher details in Zbrush. The stick is an important symbol in the animation, so I wanted to focus on creating stylistic details that were still based on realism, such as dents and ridges. Though the stick was meant to be simple, the added details elevated its appeal. When I applied textures using Substance 3D Painter, the high details acted as a map. This facilitated the seamless integration of texture materials onto the stick, utilising the already sculpted details with a “wear and tear” appearance.

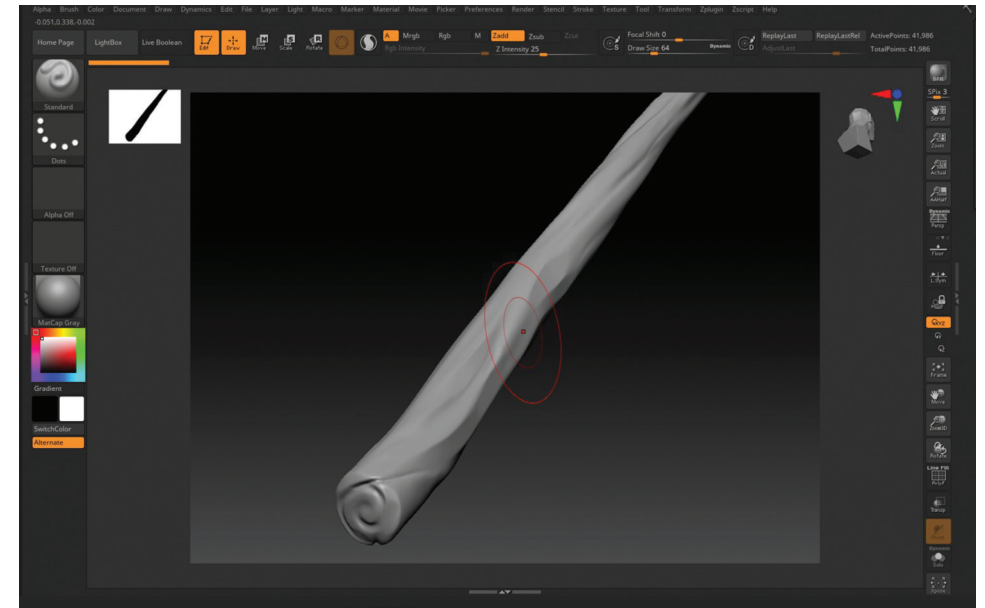


Figure 37. Zbrush sculpting

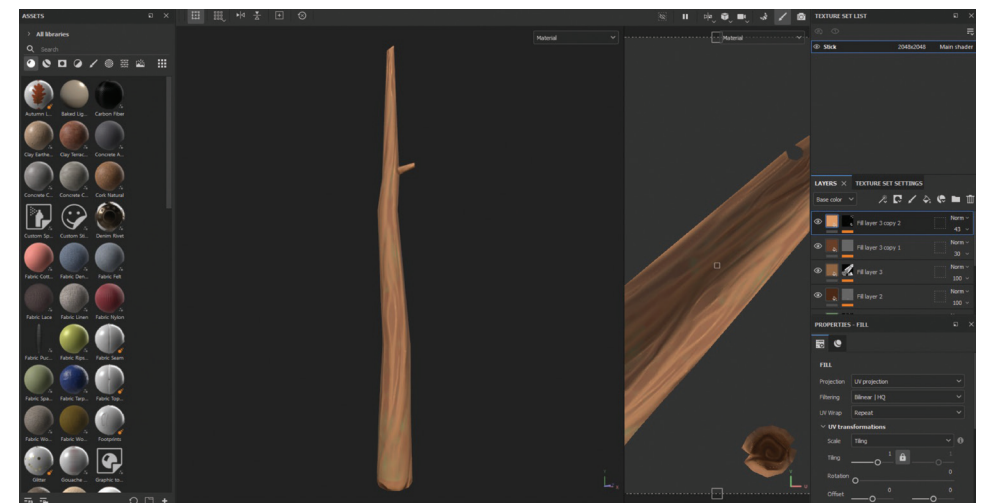


Figure 38. Texturing in Substance 3D Painter

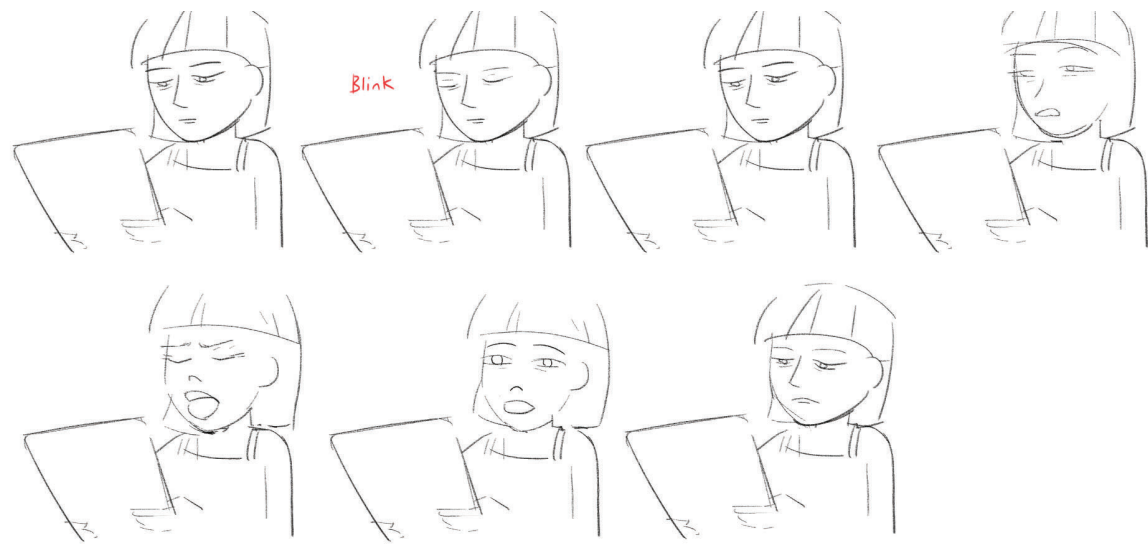


Figure 39. Animation thumbnails

Planning the Animation

In order to animate realistically, I needed to record reference footage of the exact actions I wanted to animate. Recording reference footage allows for analysing subtleties in the action that I may not have thought to include in the animation. I broke down the action from the reference footage by sketching thumbnails of key action poses, considering the line of action and arcs (Figures 39, 40, 41). Drawing these out helped to establish the poses I wanted to block out when animating.

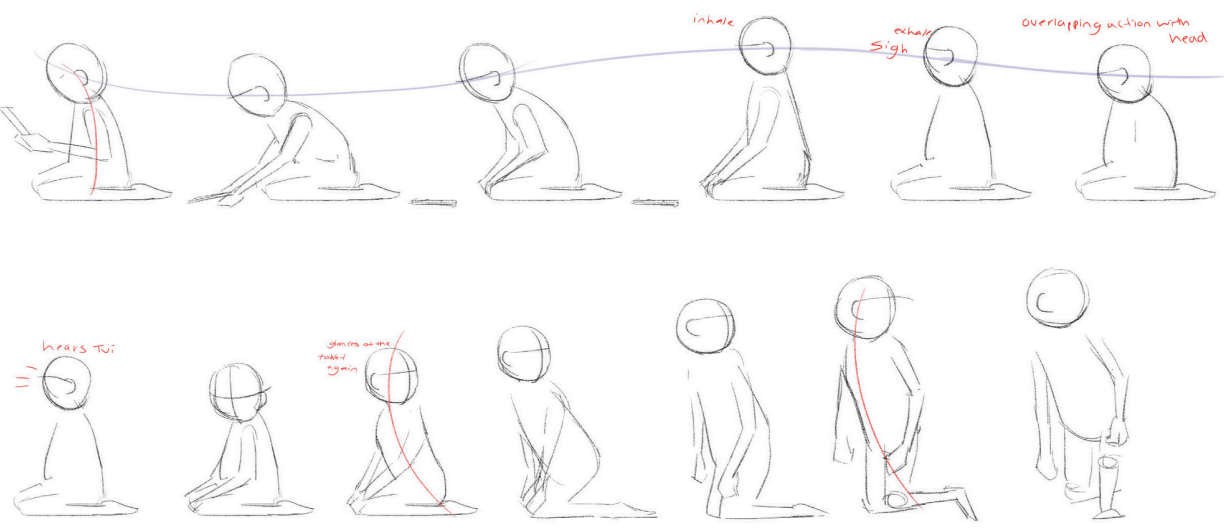


Figure 40. Animation thumbnails

SHOT_3



Figure 41. Animation thumbnails

SHOT_4

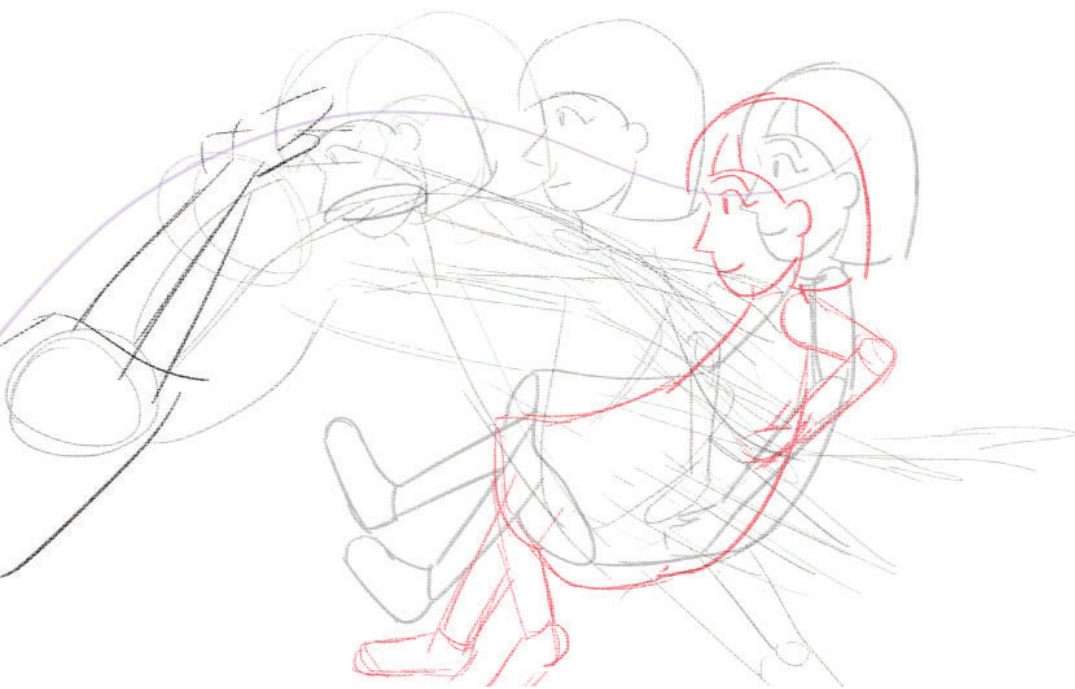


Figure 42. Flying thumbnails

Once I completed sketching out these thumbnails, I imported each drawing into Premiere Pro to generate a rough 2D animation, commonly known as a pencil test. This step was important in assessing how the scenes would appear in motion. Based on this preliminary animation, I made necessary timing adjustments and identified areas where I wanted to enhance pose and facial expressions for added impact.

In instances where I could not capture footage, particularly for the Tui animations and the montage featuring the child jumping and flying, I relied on a combination of references to inform my animation. Drawing inspiration from films like *Rio* (2011) and studying various animation cycles on platforms like YouTube provided valuable insights into crafting dynamic and engaging movements for the Tui.

For animating the child, I turned to animations from *Peter Pan* (1953, 2002) and swimming references on YouTube. These references were valuable guides in conceptualising and executing animations that defied physical limitations, helping me visualise and articulate these impossible movements with clarity and creativity (Figure 42).

Animating in 3D

During this pipeline phase, my primary objective was to ensure that the actions depicted were smooth and comprehensible to the audience. Animating is a distinct skill that involves believably portraying a character's actions. Therefore, obtaining feedback on the technical execution of animations from my supervisors and fellow master's students was essential to ensure that the final product effectively conveyed the intended narrative and emotional beats to the audience.

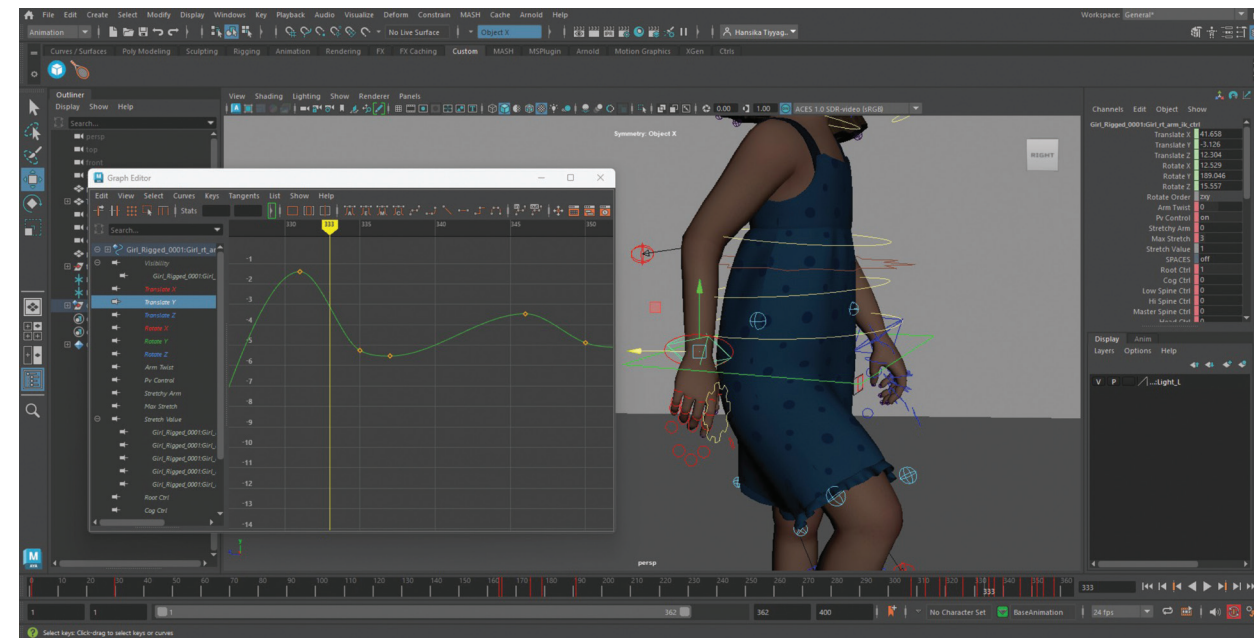


Figure 43. Animating in Maya

A portion of the workload went into animating the child and Tui. This was a long process, so I needed to break the animation up into four stages: the blocking, linear, spline, and polishing of the animation (White, 2022). The blocking involves posing the character and keying this in. This creates the groundwork for the rest of the animation. Linear automatically interpolated the poses, making the movement fluid but at a constant speed. This stage allowed me to clean up any irregularities and off movements. This is where I offset some of the action so it did not look like the character was doing the motion simultaneously. During the spline stage of the animation, movements are interpolated to achieve smoother transitions between key poses. This interpolation process also automatically adjusted the speed of the animation, gradually slowing down or speeding up near the beginning and end of a motion. This helped to create more natural and fluid movements but required a lot of clean up. Finally, polishing the animation required adding imperfections. An example is making one eye blink slightly slower than the other when the character is tired. These minor tweaks added more realism to the animation.

Two animators from Disney published a book revealing the 12 principles used by Disney animators that make their animations successful (Thomas & Johnston, 1981). These principles are what make the core of creating compelling and life-like animations. Some of these included adding squash and stretch. When I was animating the character jumping on the mushroom, I made sure to squash her when she was crouched down for the jump and then stretched her right when she jumped (Figure 44). This added more flexibility to the animation. Squash and stretch occur in real life, such as in human facial expressions, but this is often exaggerated when animating to add more appeal. The same is said for arcs. When humans move their limbs, they typically follow a smooth curve. Therefore, when I animated the character's body and limbs, it was important to check that they were smooth (Figure 45).

These principles were fundamental when animating the character in impossible ways, such as flying and jumping to great heights. While it was essential to maintain a sense of believability, I also needed to exaggerate the actions to convey their imaginative nature effectively.

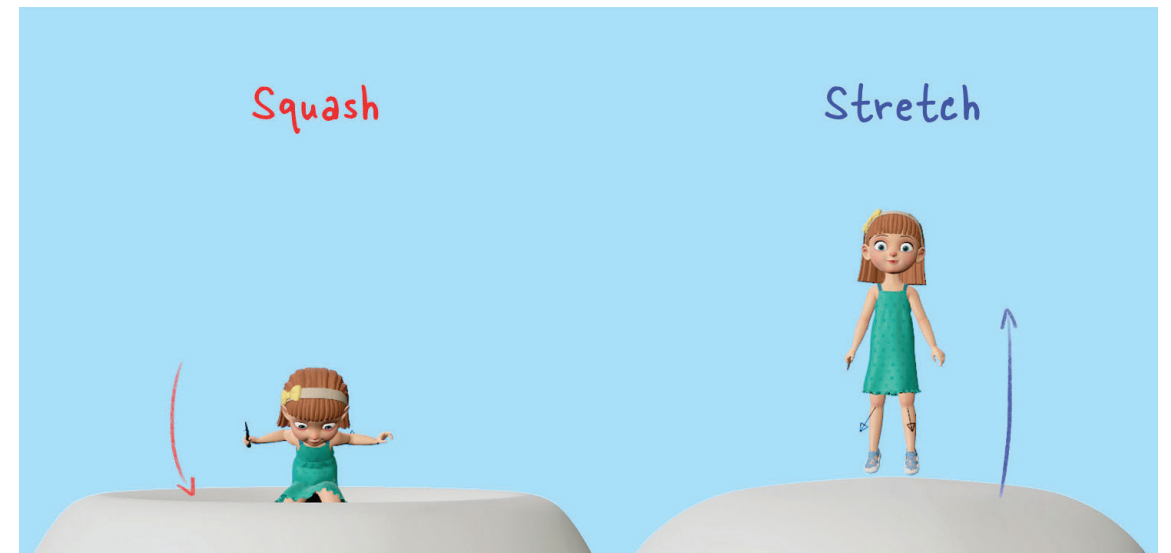


Figure 44. Squash and stretch principle with child character model.

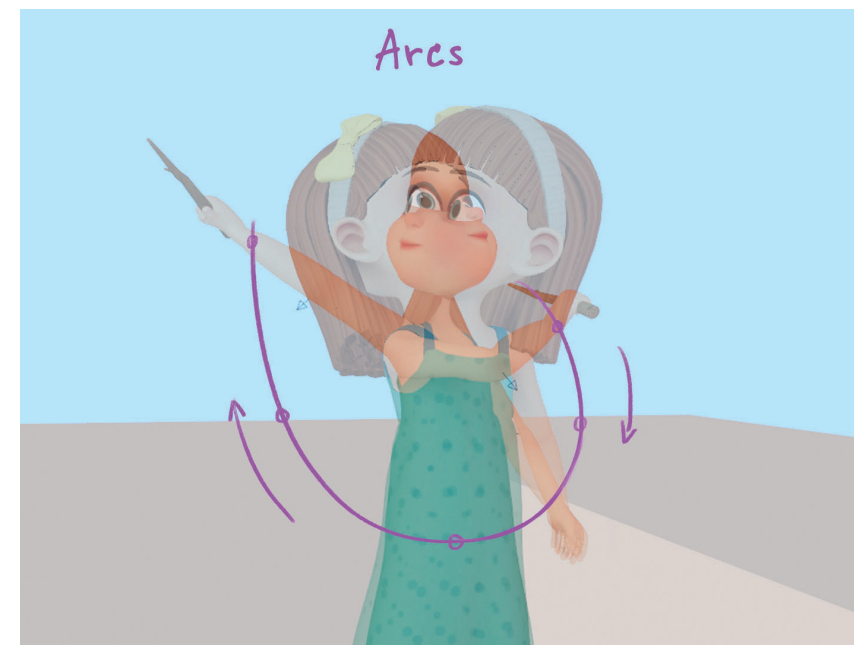


Figure 45. Arc principle

I created a model for animating objects and shapes and used blend shapes to animate them morphing. This was done by modelling the model's different squash and stretch positions and then adding a blend shape feature that interpolated between the morphing models for animation (Figure 46).

As I began animating camera movements, I realised that the movements I intended in the storyboard did not translate well in 3D. Particularly, the zoom-ins and zoom-outs appeared abrupt and jarring. To remedy this, I had to tone down movements to ensure they aligned with the overall pace of the animation.



Figure 46. Blend shapes of the mushroom

Due to time constraints, I decided to trim certain shots from the storyboard that I deemed less essential, such as the child walking to the stick. As long as the story's flow remained coherent and understandable to the audience, any intermediary shots were omitted (Figure 47). Additionally, I adjusted shot placements in the 3D view to simplify more complex animations, such as reducing full-body walks. I made only minor tweaks to avoid drastically altering the overall vision while accommodating the research project's time limitations.



Figure 47. Cutting out shots

Post-Production

Lighting the Scenes

Lighting a 3D scene required adding multiple lights to achieve the desired setting and mood. This required adjusting the colour, intensity, exposure and temperature to achieve the desired effect. When the child was inside, I had to consider the colour of the shadows.



Figure 48. Interior lighting

Less lighting was used for interior scenes to accentuate the contour and shadows of the child and mimic an interior with closed curtains (Figure 48). I tinted the neon blue and pink lights to act as unnatural lighting, illuminating the table. This also contrasts when she goes outside, where the lighting is brighter and warmer.



Figure 49. Green undertone shadow



Figure 50. Warm undertone shadow

The lighting test in (Figure 49) shows daytime lighting, but the shadows appear to have a green undertone. This indicates that the temperature of the lighting is neutral to cool. This was an attempt at how I did not want my lighting to express a dimmer mood. Therefore, the next test (Figure 50) shows the shadows in a warmer tone, closer to the colour saturation envisioned in my mood-board (Figure 8).

Compositing

To achieve the vibrancy I wanted in my mood-board, I could not solely rely on the lights and colours in Maya. After rendering the shots, I imported the individual frames into After Effects. Here, I adjusted the colour settings and added additional lighting. Figure 51 shows the raw rendered image, whereas Figure 52 has additional warm lighting, highlighting the golden undertones of her hair using After Effects. Only after this, I dropped the rendered shots into the existing animatic file that contained the music and sound.

The refinement of the remaining animation and lighting took place in the period leading up to the examination. (Refer to Appendix L for the link to the final short animation.)

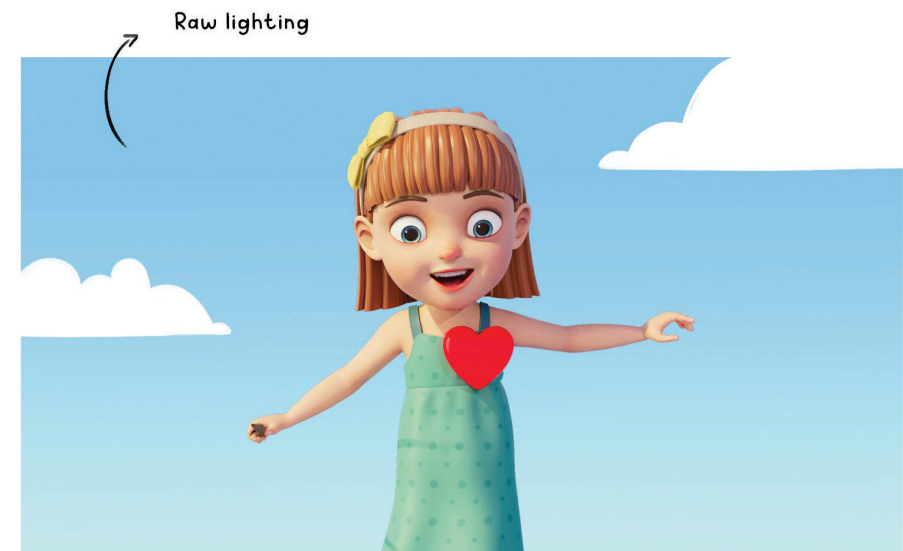


Figure 51. Raw lighting



Figure 52. After Effects lighting



Discussion

Research Outcomes

This research project's aim was to explore how narrative can assist in communicating the benefits of outdoor play through 3D animation. The final design outcome is a 3D animated short film that integrates the benefits of engagement through nature-based play. The animation created through this research process was largely informed by literature on free play and nature's role in enhancing play experiences (Brooke, 2010; Sando et al., 2021), especially the findings that nature-based play fosters exploration, imagination, and the development of critical thinking skills (Thiessen et al., 2013).

The findings from expert interviews emphasised the importance of risk-taking and boredom leading to creativity in play. These insights proved significant in shaping and defining the main point of how outdoor free play can foster creativity and risk taking.

The use of narrative for better learning engagement

My contextual review shows that adopting animation within educational settings can significantly benefit children's learning experiences (Islam et al., 2014; Parry, 2010; Pavlou, 2020; Tambi & Awang, 2020). Additionally, by also incorporating nostalgic elements for older audiences, particularly parents, the message about the importance of outdoor play becomes more relatable and impactful. By adopting this approach in my research, the hope was that an animation narrative that resonates with parents would enhance children's understanding and foster greater engagement and support from parents, ultimately promoting a more holistic approach to childhood development through play.

I adopted the hero's journey framework that embodied the academic literature above into the animation-making process (Campbell, 2017). This universal storytelling method allowed me to explore how I could weave in these benefits and show character growth expressively through play. This framework enabled me to showcase the contrast between what takes place when the child is passing the time with the structured use of a digital device – a common (excessive) and often passive activity for children in today's world - and the challenge of being active and creative without this.

Paul Wells (1998) explains how animation narrative enables audiences to engage with ideas and information in a manner that prompts them to perceive things differently. Therefore, as an outcome of this research journey, this animation serves as a means for the target audience to gain the emotive perception that a consumer may draw from the animation.

The role of visual direction to enhance the narrative in animation

The exploration of the visual direction of the narrative in this research project was largely focused on the use of colour and lighting. In accordance with Itten (1970) who suggested that the strategic use of colour can further express a scene through mood, I paid close attention to the colours when lighting the scenes. This resulted in creating a powerful tool for conveying mood and atmosphere, enhancing the storytelling experience, with the intention of deepening the audience's immersion in the narrative. This is in line with how the short film *Taking Flight* (2015), used atmosphere and lighting to further convey boredom to imagination through play.

Bringing this narrative to life allowed me to explore creative ways to execute this through the limitless nature of animation. It led me to explore the narrative's imaginative capabilities and how to utilise metamorphosis with objects and anthropomorphism with the Tui. This added more emotive language with the nature elements of the animation.

Adopting a human-centred design approach

I opted for a Human-Centred Design (HCD) approach in this research because my aim was for the animation to benefit the community. Unpacking expert interviews gave me valuable insights into the considerations necessary for creating an animation intended to inform an audience. While the surveys did not prove successful, the practice of designing a survey, participant information sheet, website and navigating the ethics procedures guided me towards a design that could benefit parents and children. I put this audience at the forefront when going through my animation methods. Producing a 3D animation from an artistic standpoint required a lot of subjective design-making, which could have hindered its effective communication. However, incorporating a HCD approach led me to consider more audience-centric choices and find a balance in developing an animation that conveyed its purpose through the narrative that would resonate with the intended audience. Consequently, I believe this research can serve as a resource for other designers and animators aiming to adopt a HCD approach when creating purely visual or narrative animations intended to communicate topics that benefit their audience.

Animation as a teaching/learning medium

I think there is a certain potential in integrating animation into a learning environment. Visuals themselves have proved to be more engaging than text alone when teaching more complex topics (Tambi & Awang, 2020). Additionally, the integration of studying narratives in school allows learners to interpret these narratives and apply this knowledge in their own lives (Parry, 2010). By combining these elements, I aimed to increase the effectiveness of animation in promoting outdoor play. While there are numerous methods for engaging children with outdoor play, such as play spaces and programs (Big Blue Play, n.d.; Everyone Out Nature School & Holiday Programme | Wellington, n.d.; International Play Association Aotearoa New Zealand, n.d.), the intention for this research project was to act as a catalyst to acknowledge the benefits of outdoor play. Given its ubiquity, I believe digital media can be an effective method of endorsing important health information. This approach can empower the audience to reflect on the animation's narrative, potentially influencing attitudes to encourage depicted behaviours.

Limitations and Future Direction

End-user Input

Having taken on a HCD approach to my research, it would have been beneficial to, as intended, have received feedback on the animatic from the intended users during the pre-production phase of my research project. The survey was intended for parents; however, it did not attract enough responses. One reason the survey did not gain enough participants could have been that individuals may have found the online process too complicated - from scanning the QR code to locating the participant information sheet, the survey, and the animatic on the website. Despite my revisions to make this the most optimal experience on both computer and mobile screens, there may have been too many steps for participants to complete the survey voluntarily. To increase the likelihood of gaining online survey responses, future researchers should consider various advertising methods and avoid underestimating the need for this. Though this could potentially result in many responses, it is preferable to a few or none.

Another factor that might have contributed to the survey not being successful is the timing. Due to the lengthy ethical process, the survey was only advertised to the prospective participants (mostly via school newsletters) close to the end of the year (end of November). Although the logistics of organising a different method to gather user input within the limited time of this master's research would have been challenging, future researchers should consider methods other than a survey to collect feedback from the target audience, such as a focus group. This would also allow for deeper, first-hand insights into parents' opinions, habits, and attitudes regarding outdoor play and the potential for parents to have creative input into the design outcome.

3D Production

When I started the production phase, it was normal for me to come across a few technical issues. While some were straightforward, others were more complex, and I either had to find a way around it or mitigate the issue. One instance was the slightly limiting ability to animate the facial expressions of the child model. Due to this, I could not achieve all the desired exaggerated facial expressions. I relieved this by focusing on the body movements to communicate clear emotional expressions. In the future, researchers and animators may find it beneficial to create their own rigged models, depending on time constraints and their own abilities. However, third-party sourced models can still be very effective, even if any issues encountered are minor, as I have experienced.

Due to the time limitations of this research project, I had to cut out shots from the storyboard and reduce animations where fit. For future researchers who intend on producing an animation, it would be beneficial to prioritise starting with a small animation's scope during the conceptualisation stage. This can save time and ensure a more thorough follow-through during production.

Conclusion

While animation typically follows a technical route, the difference of this research lies in its adoption of the human-centred design approach to increase the likelihood that the design outcome would be well received by the intended audience. For animators to better understand the topics they wish to portray in their work and to be able to convey impactful stories and messages through this medium, I believe it is important to develop an empathetic understanding of the people affected by their creative works. Adopting HCD principles in animation and other forms of moving imagery has the potential to foster richer and more meaningful viewer experiences in communicating information beneficial for children's health.



References

- Active NZ survey 2019 | Sport New Zealand—Ihi Aotearoa. (n.d.). Sport New Zealand | Ihi Aotearoa. Retrieved 19 April 2023, from <https://sportnz.org.nz/resources/active-nz-survey-2019/>
- Arnheim, R. (2003). *Art and Visual Perception: A Psychology of the Creative...* University of California Press. https://www.goodreads.com/book/show/1294306.Art_and_Visual_Perception
- Bal, M. (2017). *Narratology: Introduction to the theory of narrative*. University of Toronto Press. https://edisciplinas.usp.br/pluginfile.php/7950949/mod_resource/content/1/Mieke%20Bal-Narratology_%20Introduction%20to%20the%20Theory%20of%20Narrative-University%20of%20Toronto%20Press%20%282017%29.pdf
- Big Blue Play. (n.d.). Retrieved 20 February 2024, from <https://bigblueplay.wordpress.com/>
- Blazer, L. (2020). *Animated storytelling: Simple steps for creating animation & motion graphics (Second Edition)*. Peachpit Press.
- Brook, I. (2010). The Importance of Nature, Green Spaces, and Gardens in Human Well-Being. *Ethics, Place & Environment*, 13(3), 295.
- Campbell, J. (2017). *The Hero with a Thousand Faces*. Yogi Impressions.
- Charlotte Jolleyman Profile | Auckland University of Technology. (n.d.). Retrieved 20 February 2024, from <https://academics.aut.ac.nz/charlotte.jolleyman/about>
- Cleaver, A. (2021). *Children Don't Dissolve in the Rain: A Story about Parenthood and Playwork*. Meynell Games Publications. <https://www.goodreads.com/book/show/58943539-children-don-t-dissolve-in-the-rain>
- DisneyLover. (2013, June 14). *My Neighbor Totoro (1988)*. Animation Screen caps.Com. <https://animationscreenscaps.com/my-neighbor-totoro-1988/>
- DisneyLover. (2023, May 8). *Luca (2021) [4K]*. Animation Screenscaps.Com. <https://animationscreenscaps.com/luca-2021-4k/>
- Dray, W. H. (1988). Review of *The Content of the Form: Narrative Discourse and Historical Representation (Vol. 27)*. [Wesleyan University, Wiley]. <https://www.jstor.org/stable/2504922>
- Dunlop, R. (2014). *Production Pipeline Fundamentals for Film and Games*. Routledge. <https://doi.org/10.4324/9781315858272>
- Durrell, G. (1956). *My family and other animals*. Rupert Hart-Davis Ltd.
- Everyone Out Nature School & Holiday Programme | Wellington. (n.d.). Retrieved 20 February 2024, from <https://www.everyoneout.co.nz/>
- Flux, J. (2012). Tūi | Tui. Adult male at feeder. Nzbirdsonline. <https://www.nzbirdsonline.org.nz/species/tui>
- Guest, G., M. MacQueen, K., & E. Namey, E. (2012). *Applied Thematic Analysis*. SAGE Publications, Inc. <https://doi.org/10.4135/9781483384436>
- Haidt, J., & Gray, P. (2023, July 28). Play Deprivation Is A Major Cause of the Teen Mental Health Crisis [Substack newsletter]. After Babel. <https://jonathanhaidt.substack.com/p/the-play-deficit>
- Herhuth, E. (2017). *Pixar and the Aesthetic Imagination: Animation, Storytelling, and Digital Culture*. University of California Press. <http://ebookcentral.proquest.com/lib/aut/detail.action?docID=4456492>
- Homer, H. (April 29 2003). *The Odyssey*. Penguin Classics. <http://classics.mit.edu/Homer/odyssey.1.i.html>
- Howley-Rouse, A. (2020, December 1). Promoting children's risky play in outdoor learning environments. THE EDUCATION HUB. <https://theeducationhub.org.nz/promoting-childrens-risky-play-in-outdoor-learning-environments/>
- Hua, M. (2019). The Roles of Sketching in Supporting Creative Design. *The Design Journal*, 22(6), 895–904. <https://doi.org/10.1080/14606925.2019.1655187>
- International Play Association Aotearoa New Zealand. (n.d.). IPA Aotearoa New Zealand. Retrieved 20 February 2024, from <https://playaotearoa.org.nz/>
- Islam, M. B., Ahmed, A., Islam, M. K., & Shamsuddin, A. K. (2014). *Child Education Through Animation: An Experimental Study*. <https://doi.org/10.48550/arXiv.1411.1897>
- Itten, J. (1970). *The Elements of Color*. Van Nostrand Reinhold. https://monoskop.org/images/4/46/Itten_Johannes_The_Elements_of_Color.pdf
- Jacobson. (2023, December 16). *The Tui of New Zealand* | BirdNote. <https://www.birdnote.org/listen/shows/tui-new-zealand>
- Jimenez, M. P., DeVille, N. V., Elliott, E. G., Schiff, J. E., Wilt, G. E., Hart, J. E., & James, P. (2021). Associations between Nature Exposure and Health: A Review of the Evidence. *International Journal of Environmental Research and Public Health*, 18(9), 4790. <https://doi.org/10.3390/ijerph18094790>
- Ku, B., & Lupton, E. (2020). *Health Design Thinking: Creating products and services for better health*. Cooper Hewitt, Smithsonian Design Museum. https://edisciplinas.usp.br/pluginfile.php/7721798/mod_resource/content/1/Health%20Design%20Thinking%20Creating%20Products%20and%20Services%20for%20Better%20Health%20%28The%20MIT%20Press%29%20%282%29.pdf

- Lee, E.-Y., Bains, A., Hunter, S., Ament, A., Brazo-Sayavera, J., Carson, V., Hakimi, S., Huang, W. Y., Janssen, I., Lee, M., Lim, H., Silva, D. A. S., & Tremblay, M. S. (2021). Systematic review of the correlates of outdoor play and time among children aged 3-12 years. *International Journal of Behavioral Nutrition and Physical Activity*, 18(1), 41. <https://doi.org/10.1186/s12966-021-01097-9>
- Lin, F. L.-Y. (2019). Using Thematic Analysis to Facilitate Meaning-Making in Practice-Led Art and Design Research. *International Journal of Art & Design Education*, 38(1), 153–167. <https://doi.org/10.1111/jade.12177>
- Miyazaki, H. (Director). (1988). *My Neighbour Totoro*. Studio Ghibli.
- Moltenbrey, K. (2021). Transformative: Pixar's Luca Creates a 2d Aesthetic Using Its Robust 3d Pipeline. *Computer Graphics World*, 44(3), 18–22.
- My Neighbor Totoro Screenshot. (n.d.). Retrieved 21 August 2023, from <https://fancaps.net/movies/Image.php?imageid=2553870>
- Nemeth, D. G., Hamilton, R. B., & Kuriansky, J. (2015). *Ecopsychology [2 Volumes]: Advances from the Intersection of Psychology and Environmental Protection [2 Volumes]*. Bloomsbury Publishing USA. <http://ebookcentral.proquest.com/lib/aut/detail.action?docID=2176618>
- New Zealand Birds Online. (n.d.). <https://nzbirdsonline.org.nz/species/tui>
- Özdemir, B. G. (2019). An Examination of Characters and Spaces in Film Narratives in the Context of Panopticon and Chronotope within the Framework of Narratology Theory. Peter Lang GmbH, Internationaler Verlag der Wissenschaften. <https://ebookcentral.proquest.com/lib/aut/reader.action?docID=5755680&ppg=25>
- Pacheco, E., & Melhuish, N. (2019). Exploring New Zealand children's internet access, skills and opportunities. Evidence from Ngā taiohi matihiko o Aotearoa—New Zealand Kids Online. <https://netsafe.org.nz/wp-content/uploads/2019/09/NZ-childrens-technology-access-use-skills-opportunities-2019-3.pdf>
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health*, 42(5), 533–544. <https://doi.org/10.1007/s10488-013-0528-y>
- Parker, C., Scott, S., & Geddes, A. (2019). Snowball Sampling. SAGE Research Methods Foundations. <http://methods.sagepub.com/foundations/snowball-sampling>
- Parry, B. (2010). Moving stories: Exploring children's uses of media in their story telling and the implications for teaching about narrative in schools. *English Teaching: Practice and Critique*, 9, 58–72.
- Pavlou, V. (2020). Art Technology Integration: Digital Storytelling as a Transformative Pedagogy in Primary Education. *International Journal of Art & Design Education*, 39(1), 195–210. <https://doi.org/10.1111/jade.12254>
- Rall, H. (2017). *Animation: From Concepts and Production*. Taylor & Francis Group. <http://ebookcentral.proquest.com/lib/aut/detail.action?docID=5178400>
- Rosala, M. (2022). How to Analyze Qualitative Data from UX Research: Thematic Analysis. Nielsen Norman Group. <https://www.nngroup.com/articles/thematic-analysis/>
- Rozzak, T. (1995). *Ecopsychology: Restoring the earth, healing the mind*. San Francisco : Sierra Club Books. <http://archive.org/details/ecopsychologyres0000unse>
- Sando, O. J., Kleppe, R., & Sandseter, E. B. H. (2021). Risky Play and Children's Well-Being, Involvement and Physical Activity. *Child Indicators Research*, 14(4), 1435–1451. <https://doi.org/10.1007/s12187-021-09804-5>
- Scott Duncan Profile | Auckland University of Technology. (n.d.). Retrieved 20 February 2024, from <https://academics.aut.ac.nz/scott.duncan/about>
- Steen, M. (2011). Tensions in human-centred design. *CoDesign*, 7(1), 45–60. <https://doi.org/10.1080/15710882.2011.563314>
- Swale, A. D. (2015). *Anime Aesthetics: Japanese Animation and the 'Post-Cinematic' Imagination*. Springer.
- Taking Flight. (n.d.). Retrieved 20 August 2023, from <https://takingflightfilm.com/#story>
- Taking Flight by Moonbot Studios—Animated Short Film. (n.d.). Short of the Week. Retrieved 21 August 2023, from <https://www.shortoftheweek.com/2016/09/16/taking-flight>
- Tambi, L., & Awang, M. M. (2020). Use of animation to improve motivation and achievement levels among primary school students. 4(2).
- Teng, P.-S., Cai, D., & Yu, T.-K. (2014). The relationship between individual characteristics and ideation behavior: An empirical study of storyboards. *International Journal of Technology and Design Education*, 24(4), 459–471. <https://doi.org/10.1007/s10798-014-9264-1>
- Tenny, S., Brannan, J. M., & Brannan, G. D. (2023). Qualitative Study. In *Stat Pearls*. StatPearls Publishing. <http://www.ncbi.nlm.nih.gov/books/NBK470395/>

- Teplá, M., Teplý, P., & Šmejkal, P. (2022). Influence of 3D models and animations on students in natural subjects. *International Journal of STEM Education*, 9(1), 65. <https://doi.org/10.1186/s40594-022-00382-8>
- Terry, G., & Hayfield, N. (2021). *Essentials of Thematic Analysis*. American Psychological Association. <https://doi.org/10.1037/0000238-001>
- Thiessen, M., Gluth, S., & Corso, R. (2013). Unstructured Play and Creative Development in the Classroom. *International Journal for Cross-Disciplinary Subjects in Education*, 4, 1341–1348. <https://doi.org/10.20533/ijcdse.2042.6364.2013.0187>
- Thomas, F., & Johnston, O. (1981). *The Illusion Of Life Disney Animation*. <http://archive.org/details/TheIllusionOfLifeDisneyAnimation>
- Tucan, G. (2013). The Reader's Mind Beyond the Text – The Science of Cognitive Narratology. *Romanian Journal of English Studies*, 10. <https://doi.org/10.2478/rjes-2013-0029>
- Tūi. (n.d.). Retrieved 21 April 2024, from <https://www.doc.govt.nz/nature/native-animals/birds/birds-a-z/tui/>
- Valentine, G., & McKendrick, J. (1997). Children's outdoor play: Exploring parental concerns about children's safety and the changing nature of childhood. *Geoforum*, 28(2), 219–235. [https://doi.org/10.1016/S0016-7185\(97\)00010-9](https://doi.org/10.1016/S0016-7185(97)00010-9)
- Wells, P. (1998). *Understanding Animation*. Taylor & Francis Group. <http://ebookcentral.proquest.com/lib/aut/detail.action?docID=1562841>
- White, T. (2022). *Animation Masterclasses: From Pencils to Pixels: A Complete Course in Animation and Production*. Taylor & Francis Group. <http://ebookcentral.proquest.com/lib/aut/detail.action?docID=7099132>
- Whitley, D., & Nelson, P. C. (2012). *The Idea of Nature in Disney Animation: From Snow White to WALL-E*. Taylor & Francis Group. <http://ebookcentral.proquest.com/lib/aut/detail.action?docID=906957>



Appendices

Appendix A | Ethics Approval



Auckland University of Technology Ethics Committee (AUTEC)

TE WĀNANGA ARONUI
O TĀMAKI MAKĀU RAU

17 August 2023

Ivana Nakarada-Kordic
Faculty of Design and Creative Technologies

Dear Ivana

Re Ethics Application: **23/230 A Frame Through Nature: An exploration of 3D animation on communicating the benefits of outdoor play.**

Thank you for your responses to AUTEC's conditions.

Your ethics application has been approved for three years until 17 August 2026.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTEC.
2. All public facing documents must have the AUTEC approval number and be of a high standard of spelling and grammar. Dates on the Information Sheet(s) and Consent Form(s) must be consistent.
3. Any amendments to the project must be approved by AUTEC prior to being implemented.
4. A progress report is due annually on the anniversary of the approval date.
5. A final report is due at the expiration of the approval period, or, upon completion of project.
6. Any serious or adverse events must be reported to AUTEC, this includes unforeseen issues that might affect continued ethical acceptability of the project.
7. AUTEC grants ethical approval only. You are responsible for obtaining management permission for access from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

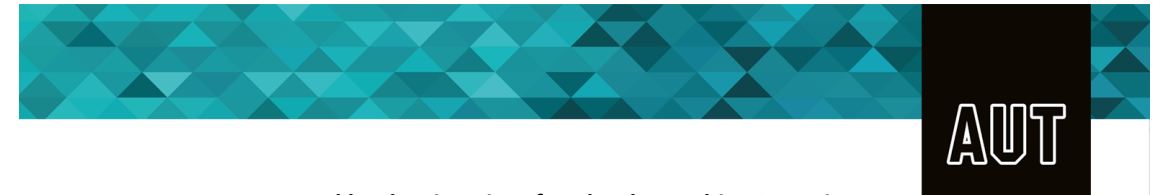
The application number and title need to be referenced on all correspondence related to this project.

All forms are available online <http://www.aut.ac.nz/research/researchethics>

For any enquiries, please contact ethics@aut.ac.nz
(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: hansikatiyyagura@gmail.com; Gregory Bennett



Auckland University of Technology Ethics Committee (AUTEC)

23 November 2023

Ivana Nakarada-Kordic
Faculty of Design and Creative Technologies

Dear Ivana

Re: Ethics Application: **23/230 A Frame Through Nature: An exploration of 3D animation on communicating the benefits of outdoor play.**

Thank you for your responses to the conditions for the amendment to your ethics application.

The amendment to the data collection protocol (to include an online survey) has been approved.

Non-Standard Conditions of Approval

1. Please revise "Why am I being identified?" to "How was I identified?" and include how the person came to receive the survey link.

Non-standard conditions do not need to be submitted to or reviewed by AUTEC unless requested but must be completed before commencing your study.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTEC.
2. All public facing documents must have the AUTEC approval number and be of a high standard of spelling and grammar. Dates on the Information Sheet(s) and Consent Form(s) must be consistent.
3. Any amendments to the project must be approved by AUTEC prior to being implemented.
4. A progress report is due annually on the anniversary of the approval date.
5. A final report is due at the expiration of the approval period, or, upon completion of project.
6. Any serious or adverse events must be reported to AUTEC, this includes unforeseen issues that might affect continued ethical acceptability of the project.
7. AUTEC grants ethical approval only. You are responsible for obtaining management permission for access from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

The application number and title need to be referenced on all correspondence related to this project.

All forms are available online <http://www.aut.ac.nz/research/researchethics>

For any enquiries, please contact ethics@aut.ac.nz

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: hansikatiyyagura@gmail.com; Gregory Bennett

Appendix B | Indicative Expert Questions

1. Could you please tell me a little bit about your research that involved children?
 - What sort of age groups does your research focus on?
 - What are some of the key findings of your research?
2. What does research in general say about the relationship between children's well-being and outdoor play?
3. Throughout your research, have you found that children are drawn to some outdoor activities more so than others?
 - If so, why might that be?
4. How effective would it be to use a narrative-based approach to better engage children with outdoor play? E.g., creating a scenario, roleplaying, etc, compared to instructing children to do an activity.
 - What are your thoughts on this, and how beneficial is this for children's mental development?
5. How important is it for children to be creative when playing outside?
 - Do you have any suggestions for ways to encourage children to be creative outside?

Appendix C | Invitational Email

The screenshot shows an email interface. At the top, the subject line is "Interview Invitation - Experts in Community Child Health". Below this, the "To" field is empty, and the "Cc Bcc" field is also empty. The main body of the email contains the following text:

Kia ora,

My name is Hansika Tiyyagura. I'm an animator studying for a Master of Design at Auckland University of Technology (AUT). My research involves creating narrative-based 3D animation to communicate the benefits of nature-based outdoor play.

I am looking to interview experts who have conducted research in the community child health field to gain information on children's engagement with outdoor education and play.

Interviews will take approximately 30-45 minutes and be held remotely through Zoom. Your participation is completely voluntary. Please read the participation information sheet I have attached to this email, which includes details on the verbal consent process. If you are interested in participating, please contact me directly so we can arrange a time.

My details are as follows.
Hansika Tiyyagura
Email: hansikatyyagura@gmail.com

Thank you!

Ngā mihi
Hansika Tiyyagura

At the bottom of the email, there is a rich text editor toolbar with various icons for undo, redo, font style, bold, italic, underline, text color, background color, bulleted list, numbered list, link, unlink, quote, insert link, and delete. Below the toolbar is a "Send" button and a row of icons for attachments, links, emojis, images, and a menu.

Appendix D | Expert Interview Participation Information Sheet

Information Sheet Produced: 10 August 2023

A Frame Through Nature

An exploration of 3D animation on communicating the benefits of outdoor play.

Participant Information Sheet

My name is Hansika Tiyyagura. I'm a Master of Design student at Auckland University of Technology (AUT). I am researching how 3D animation can be used to raise awareness around the benefits outdoor play. I would like to invite you to participate in an interview to discuss your views and expertise on children's engagement with outdoor play.

What is the purpose of this research?

This research aims to determine how 3D animation can utilise aesthetics and narrative to effectively engage parents and children.

Data from this research will be used to inform the creation of a narrative for a short 3D animated video communicating the benefits of nature-based outdoor play. The findings of this research may be used for academic publications and presentations.

You have been identified as an expert that has or is conducting research in the community child health field and can provide valuable insight into the engagement of children with nature and outdoor play.

How do I agree to participate in this research?

Please email me confirmation that you would like to participate in this research. A date and time that suits you will be arranged, and a Zoom meeting link will be sent. You will need to give **verbal consent** at the start of the Zoom interview.



Your participation in this research is voluntary (it is your choice), and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

What will happen?

You will be invited to a Zoom interview that should last **30-45** minutes.

1. At the start of the Zoom meeting, a verbal consent process will take place, which should only take a few minutes.
2. The interview will follow. I will ask questions about your knowledge of approaches to engaging children with the outdoors.

The interview will be recorded, and notes will be taken.

What are the discomforts and risks?

There should be no discomfort or risks involved with this research. However, if you are uncomfortable with any of the questions you may skip or withdraw at any time.

What are the benefits?

Your insight can inform the narrative choices in creating an animated short intended to showcase the benefits of nature-based outdoor play. The intended target audience are children and parents. Therefore, participating in this research will help me gain valuable insight into engaging with a young audience.

Protecting your privacy

While you may be known to me and the supervisors of this research, the outcome of the research (findings) does not require you to be identified and will remain confidential. If you would like to be credited by name with the outcomes of the research, you will have the opportunity to indicate this during the verbal consent process.

Cost to participate

There are no costs for participating in this research except for a time contribution of **30-45** minutes.

Considering the invitation

You will have up to **three weeks** upon receiving this information sheet to consider the invitation.

Results of this research

During the verbal consent process, you will have the chance to indicate whether you would like a summary of the findings. If you have indicated so, I will send a copy via email once the findings have been produced.

Whom do I contact for further information about this research?

Please keep this Information Sheet for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Hansika Tiyyagura
hansikatiyyagura@gmail.com

Project Supervisor Contact Details:

Ivana Nakarada-Kordic
Ivana.nk@aut.ac.nz

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK:

ethics@aut.ac.nz, (+649) 921 9999 ext 6038.

Approved by the Auckland University of Technology Ethics Committee on 10 August 2023, AUTEK Reference number 23/230.



Oral Consent Protocol

Project title: **A Frame Through Nature: An exploration of 3D animation on communicating the benefits of outdoor play.**
Project Supervisor: **Ivana Nakarada-Kordic, Gregory Bennett**
Researcher: **Hansika Tiyyagura**

The participant joins the videoconference.

Do you agree to my recording your consent to participate?

If they agree, then the record function will be activated, and they will be asked the following:

- Have you read and understood the information provided about this research project in the Information Sheet dated 10 August 2023?
- Do you have any questions about the research?
- Do you understand that notes will be taken during the interviews and that the interview will also be audio-recorded and transcribed?
- Do you understand that taking part in this study is voluntary (your choice) and that you may withdraw from the study at any time without being disadvantaged in any way.?
- Do you understand that if you withdraw from the study then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used? However, once the findings have been produced, removal of your data may not be possible.
- Do you agree to take part in this research?
- Do you wish to be named in the outputs from this research? Yes No
- Do you wish to receive a summary of the research findings? Yes No
- Do you want me to send you a copy of the audio recording for this consent? Yes No
- Please confirm you name and contact details

Participant's name:

Participant's Contact Details (if appropriate) :

.....

I will now turn off the recording of the Consent and then will start a separate recording for the interview.

Approved by the Auckland University of Technology Ethics Committee on 10 August 2023 AUTEK Reference number 20/230

Note: The Participant should retain a copy of this form

Animatic Survey

Start of Block: Block 5

Q1 Are you a parent/caregiver of at least one child between the age of 7-10?

- Yes
- No

End of Block: Block 5

Start of Block: Block 5

Q2 If you have a child/children, how old are they?

End of Block: Block 5

Start of Block: Block 2

Q3 How important do you think unstructured outdoor play is for children?

- Very unimportant
- Unimportant
- Important
- Very important

End of Block: Block 2

Start of Block: Block 3

Q4 How apparent is it that the child in the animatic is displaying the characteristics below?

	Not at all apparent	Not apparent	Apparent	Very apparent
Curiosity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Open to exploring ideas through play	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Block 3

Start of Block: Block 4

Q5 How easy was it to understand the overall message of the benefits of outdoor play in the animatic?


- Not at all easy
- Not that easy
- Easy
- Very easy

End of Block: Block 4

Start of Block: Block 5

Q6 Do you have any suggestions on how the story could be more clear about the benefits of outdoor play? (Optional)

End of Block: Block 5



A Frame Through Nature

Anonymous Survey


Hi! My name is Hansika. I'm a Master of Design student at Auckland University of Technology (AUT).

I would like to get your feedback on an animation prototype (animatic) that communicates the benefits of outdoor play.

I am looking for parents/guardians of children between the ages of 7-10.

An animatic is a collection of rough drawings that fit into a running sequence. All you need to do is view the animatic and complete a short survey online. This should take no more than 15 minutes.

For more information, please scan the QR code or visit the URL link.



<https://hansikat.wixsite.com/play/home>

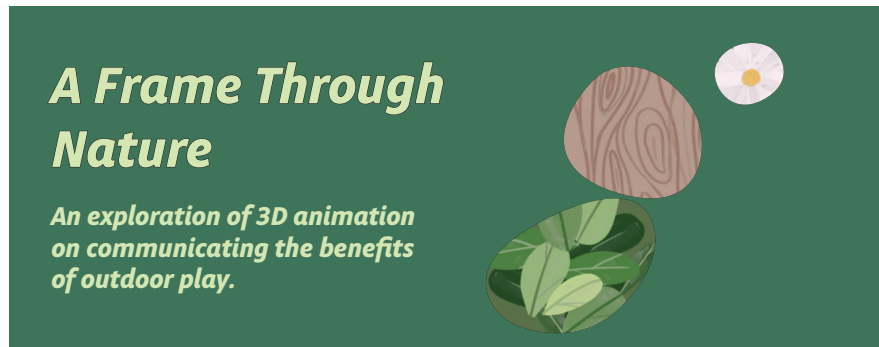
For any questions, contact us

<p>Researcher Contact Details: Hansika Tiyyagura hansika.tiyy@gmail.com</p>	<p>Project Supervisor Contact Details: Ivana Nakarada-Kordic ivana.nk@aut.ac.nz</p>
--------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------

Appendix H | Survey Participant Information Sheet



Participant Information Sheet



My name is Hansika Tiyyagura. I'm a Master of Design student at Auckland University of Technology (AUT).

I'm researching how 3D animation can be used to raise more awareness of the mental benefits of unstructured outdoor play. This includes promoting creativity, problem-solving skills and confidence.

What will happen in this research?

I would like to invite you to participate in this research by viewing an **animatic** and answering a few questions on an **anonymous online survey** to gain your feedback.

An animatic is a collection of rough drawings that fit into a running sequence. This stage is done before starting the production to get a sense of what the finished animation would look like. Think of it as a visual script!

What are the costs of participating in this research?

There will be no cost – just **10-15** minutes of your time.

What is the purpose of this research?

Outdoor play is vital to a child's mental and physical development journey. To be able to communicate appealingly, I believe that 3D animation can be utilised through its unique form of visual storytelling.

The responses from the surveys will help with the revision process of the animatic to effectively create a 3D animated short. The findings of this research may be used for academic publications and presentations.

Why am I being identified?

I am seeking parents and guardians of children between the age of 7-10. Parents/guardians and children are the intended target audience for this animated short. Therefore, regardless of whether you have any knowledge of animation, your participation in completing the survey will provide me valuable feedback for the direction of the animatic.

How do I agree to participate in this research?

If you agree to take part in this survey, please click the yes button above this information sheet.

Completion of the survey will be taken as indicating your consent to participate.

Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. **You are able to withdraw from the survey at any time by closing the browser.** However, once the survey is submitted, your data cannot be withdrawn due to the survey being anonymous.

Benefits/Risks

The outcome of this research is aimed to benefit parents and children by spreading awareness of outdoor play through a creative and engaging medium.

Participation in this research will help inform revising the animatic for effective communication of outdoor play benefits. Therefore, it will lead me to produce a 3D animated short through this research for a Master of Design degree. This will help me as an animator aiming to build on my visual storytelling skills.

What are the discomforts and risks?

There should be no discomforts or risks involved with participation. The nature of this research is light, as I am only asking for your feedback on the narrative and visual communication of outdoor play.

How will my privacy be protected

This survey is anonymous, so there is no requirement for you to identify yourself in this research.

What opportunity do I have to consider this invitation?

You will have until 5.00pm 30th of November to submit the survey.

Will I receive feedback on the results of this research?

The final animation will be available from June 2024 under the results tab and through this URL link.

<https://hansikat.wixsite.com/play/results>

Please keep this Information Sheet for your future reference.

What do I do if I have concerns about this research?

You are also able to contact the research team as follows:

Researcher Contact Details:

Hansika Tiyyagura
hansika.tiyy@gmail.com

Project Supervisor Contact Details:

Ivana Nakarada-Kordic
ivana.nk@aut.ac.nz

Concerns regarding the conduct of the research should be notified to:

The Executive Secretary of AUTEK

ethics@aut.ac.nz
(+649) 921 9999 ext 6038.

Approved by the Auckland University of Technology Ethics Committee on type the date final ethics approval was granted, AUTEK Reference number type the reference number.

Appendix I | Draft Treatment

"A Frame Through Nature"

In a dimly lit room, the screen of a tablet illuminates a child's face. Hunched over on the floor, the child stares back at the screen, blinking once. Bored, she turns it off and places it down with a sigh. Behind her, a stream of sunlight washes through the window's curtains onto the floor. As the light hits her, she turns around with a slightly curious expression. She stands up, and the room transitions to the lush outdoors as she walks.

The backyard is filled with warm sunshine with the chorus of cicadas. The child wanders around, inspecting her surroundings. But as she glances down, she makes a sudden sidestep and intently leans down to look closer. A trail of ants moves in a uniform manner. Her finger stretches out towards the ants but stops with hesitancy. She pulls back her hand and skips out of the way for the ants. In a cheerful mood, the child skips along a row of bushes and notices a sting poking out of the leaves. The child's face lights up, and she pulls the stick out, marvelling at it. She pretends it's a magic wand and swirls it around. Coincidentally a gush of wind swoops in and swirls up around her. The child looks at the stick in awe. In her excitement, she skips around. The child throws the stick up, and it spins in the air before falling out of frame.

As the colour of the sky starts to deepen to a purple hue, the child lies sprawled on the grass, enjoying the cool shade, still clenching the stick. She perks up to the sound of her mum calling and waving from the back door. She sits up and shakes her head furiously, not wanting to go back. The camera pans up to a kowhai tree in bloom, waving its flowers from the wind.

Notes:

- By not interacting with the ants, shows restraint and common sense.
- Gradually becomes more expressive through play.
- Idea - making potions, collecting leaves.
- Observation through nature
- Challenging the child's creative scope through the stick
- Kowhai symbolises personal growth.

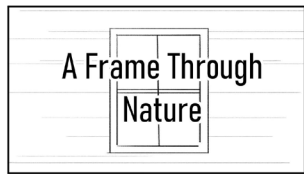
Appendix J | Interviewed Experts

- Scott Duncan and Charlotte Jelleyman are lecturers at the Auckland University of Technology (AUT) who have done research on parental perception of risky play for children.
- Rachel Prier is the founder and programme manager of Everyone Out Limited, which runs events, holiday programmes and a nature school to help children develop through play, learning and nature (Everyone Out Nature School & Holiday Programme | Wellington, n.d.).
- Shyrel Burt is the Chairperson of Play Aotearoa New Zealand and a planning specialist who oversees the development of public play spaces, which includes bringing children's perspectives and choices into the design (International Play Association Aotearoa New Zealand, n.d.).
- Adele Cleaver is also an International Play Association (IPA) member from England who creates pop-up playgrounds across London for children (Big Blue Play, n.d.).

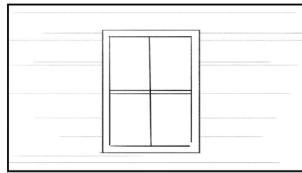
Appendix K | Storyboard

A Frame Through Nature

pg 1



[Title: A Frame through Nature]



[Establishing shot]
The scene begins with a shot of a house window from the outside.



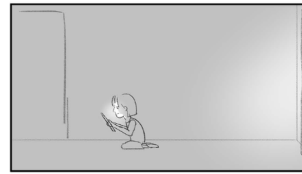
The screen of a tablet illuminates a child's face.



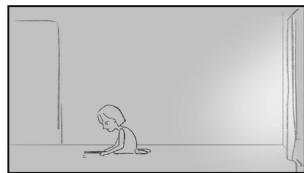
The child rubs her eye...



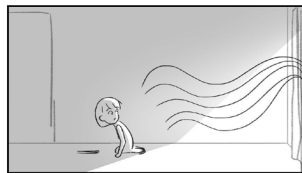
and stares back at the screen.



She sits hunched on the floor in a dimly lit room.



Bored, she turns it off and places it down with a sigh.



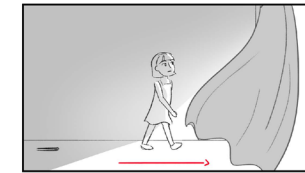
Behind her, a stream of sunlight pours through the curtains onto the floor while the call of a bird is heard. She turns around with a slightly curious expression.



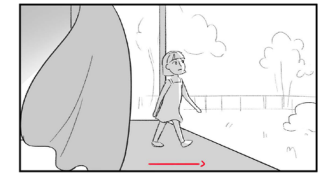
The child starts to get up.



She stands up and walks towards the window.



[Camera pans right following the child.]
As the child walks, the curtain swishes from a gust of wind.



[Camera continues pan.]
The child emerges from the curtain onto the house's porch.



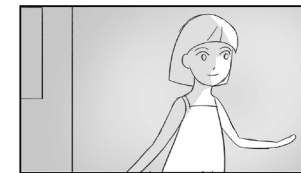
She stops to look in front of her.



[Point of view shot.]
The child sees the backyard covered with sunshine alongside hearing the hum of cicadas.



With a curious expression,



the child jogs down the few steps,



and the sunshine washes over her.



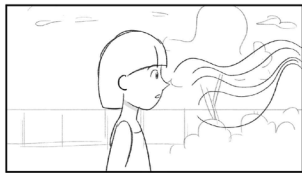
The child wanders around, inspecting her surroundings.

pg 2

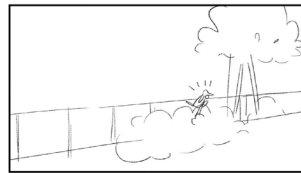
A Frame Through Nature

A Frame Through Nature

pg 3



Suddenly, she hears the bird call again and looks towards the direction it's coming from.



[Point of view shot.]
She sees a tui perched on a stick poking out of a row of bushes.



The tui looks at her, its expression beckoning her to come closer...



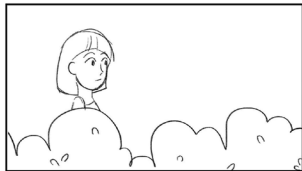
before flying off.



With a curious expression, she walks over...



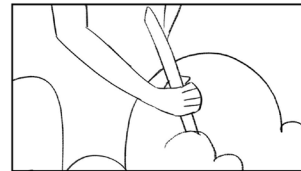
to where it was.



As she walks along the row of bushes,



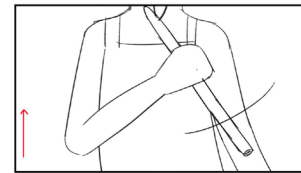
she spots the stick.



As she pulls the stick out,

A Frame Through Nature

pg 4



[Camera pans up.]
she clutches the stick across her chest and in a grand gesture...



[Camera zooms out.]
she holds it above her with excitement.



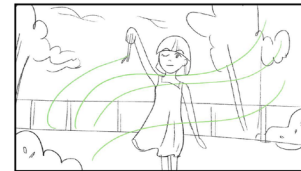
She brings the stick down but looks unsure.



She pretends it's a magic wand and swirls it around.



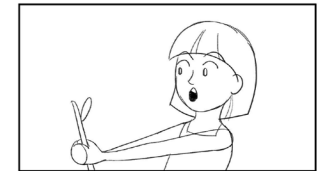
For a brief moment nothing happens.



But coincidentally a gush of wind swoops in and swirls up around her.



For a second she's in disbelief.



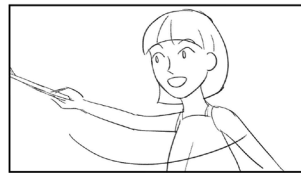
Her face lights up, marvelling at it.

A Frame Through Nature

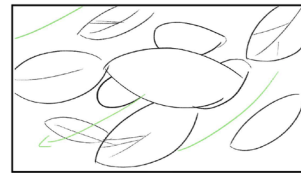
pg 5



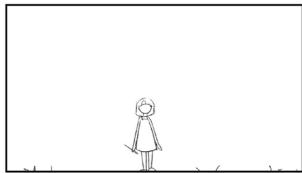
With confidence, she makes a grand swish...



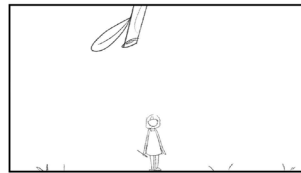
and swings it in front of her.



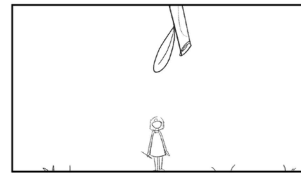
A gust of leaves takes over the shot and moves downward.



The child stands in the middle.



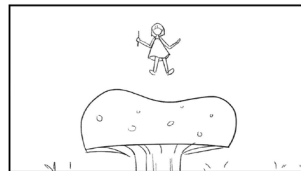
The stick appears above her...



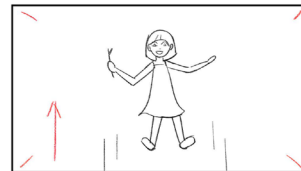
and swishes right.



In an instant, a giant mushroom is summoned.



She starts bouncing on it...



[Camera pans up and starts to zoom in.]
and is lifted into the air.

A Frame Through Nature

pg 6



[Camera continues to zooms in.]
The child shows immense enjoyment.



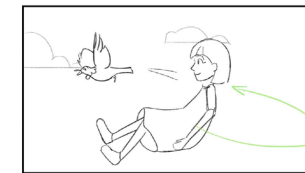
Her heart appears to be pumping from exhilaration.



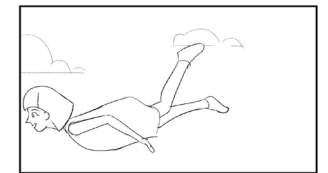
Suddenly, the tui flies into the shot...



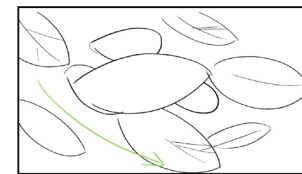
and swoops in around the child as she floats.



It beckons her to follow.



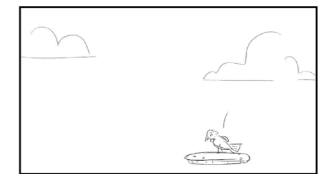
And the child follows in a flying motion.



The gust of leaves swoops in from the left and down towards the right.



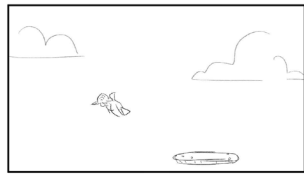
As the leaves disappear, The tui is shown flying ahead.



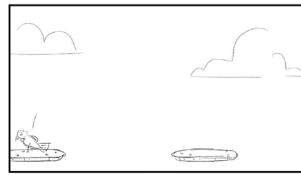
It hops in the air...

A Frame Through Nature

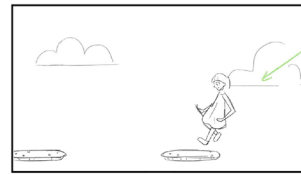
pg 7



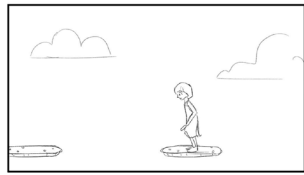
spawning a mushroom platform before hopping again.



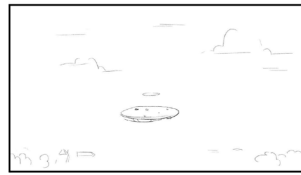
The tui spawns another and flies out of shot.



A moment later, the child flies in...



and lands on one of the platforms.



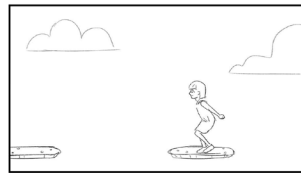
[Point of view shot showing the mushroom platforms ahead.]



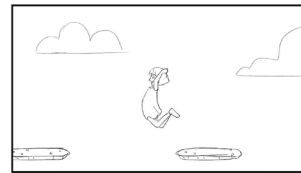
The child looks worried by the distance,



but she sees the challenge ahead, and with a determined look, she readies herself.



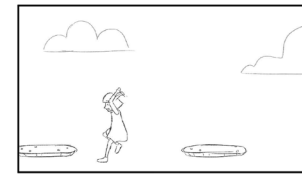
She crouches down...



and jumps as far as she can.

A Frame Through Nature

pg 8



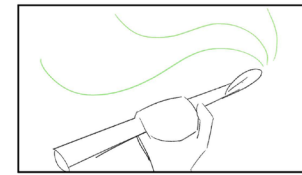
But unfortunately falls.



As she falls through the sky, she panics.



As a miracle attempt, she raises her arm.



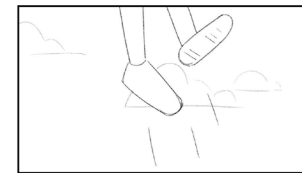
The stick radiates.



A few moments later,



she is pulled up abruptly...



disappearing out of the shot.



She slowly floats down with a grin on her face.



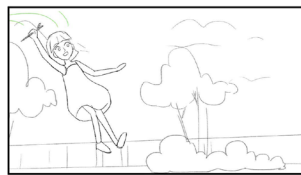
Revealing a mushroom parachute.

A Frame Through Nature

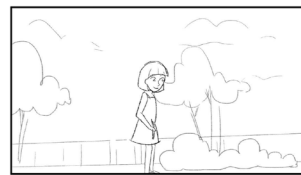
pg 9



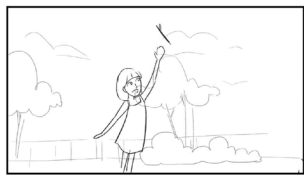
After she floats down,



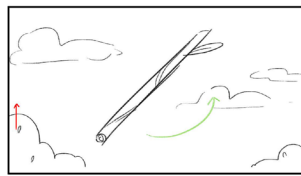
she reaches her backyard again.



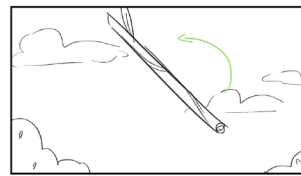
Successfully landing,



she throws the stick up in triumph.



[Camera slightly pans up.]
The sticks spins in the air,



before dropping down and...



falling out of frame.



[Timeskip]
As the sky deepens, the sound of cicadas turns to crickets.



The child lies sprawled on the grass, enjoying the cool late afternoon.

A Frame Through Nature

pg 10



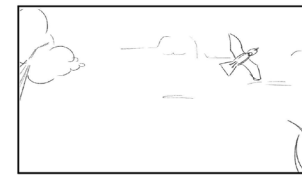
In her relaxed state,



she hears the tui's call and opens her eyes.



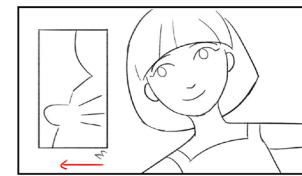
[Point of view shot.]



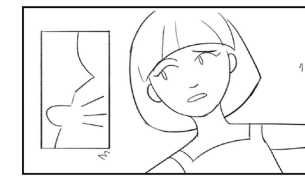
The tui flies over her.



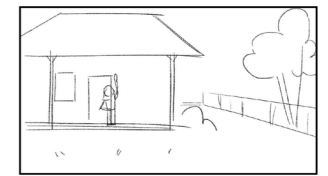
She watches as it passes along.



[Camera slightly pans left.]
She suddenly gets interrupted by the sound of someone calling her.



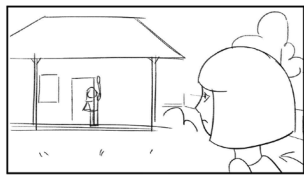
She looks to her side.



Her mum waves from the porch, beckoning her to come home.

A Frame Through Nature

pg 11



She sits up...



and, in reluctance,



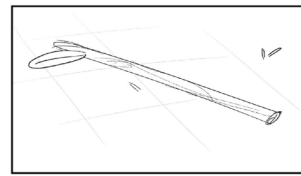
pouts, not wanting to go back.



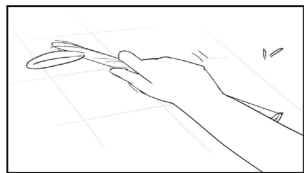
As she sighs...



she looks beside her.



[Point of view shot showing the stick resting on the grass.]



She grabs the stick...



and holds it with a smile.



She waves back with the stick in hand.

A Frame Through Nature

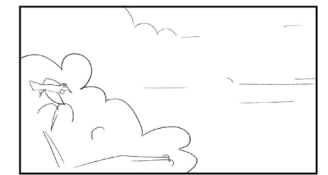
pg 12



As she gets up to go home,



[Camera pans up to show a tree.]



[Pan stops.]
the tui flies into the shot.



After it lands on the tree's branch, the tui sings one last time...



[Camera slightly pans up.]
and flies off...



into the sunset.

Screen Fades

Credits

Appendix L | Link to the final short animation

<https://vimeo.com/958034251>