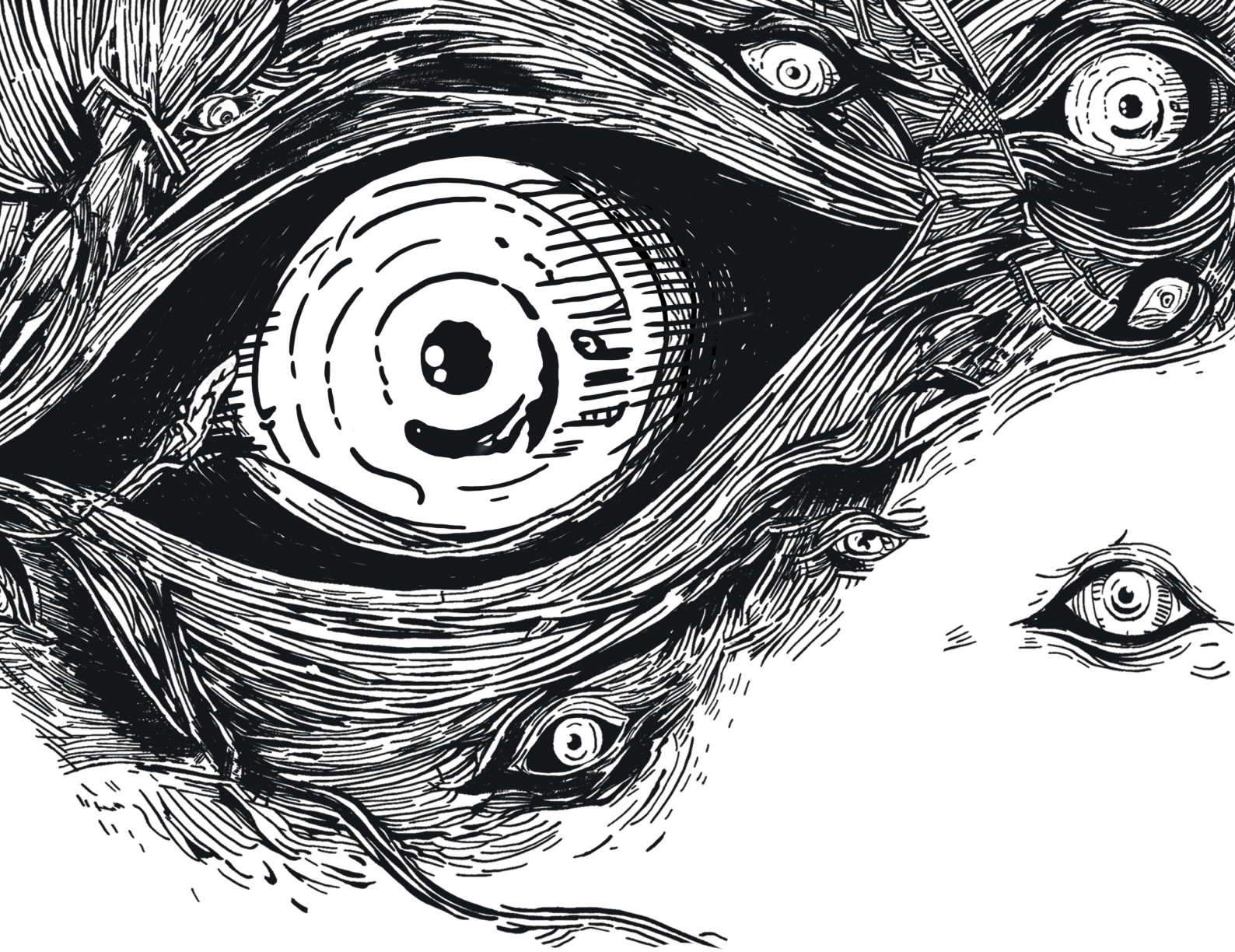




INVISIBLE STRINGS

Visual Storytelling as a Method for Revealing Algorithmic Influence on Social Media

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ABSTRACT

Invisible Strings is a digitally illustrated picture book that explores how visual storytelling can make algorithmic influence on social media more visible. Focusing on Generation Z¹ members of the Chinese diaspora, this project attempts to reveal how digital platforms shape attention, emotion and repeated online behaviour through familiar interfaces, personalised content and everyday habits.

The final work uses metaphor, atmosphere, character design and restrained interaction to translate hidden systems into a visual and reflective reading experience. It draws on techniques used in algorithms, data structures, digital systems and in part on a Chinese diasporic cultural perspective through selected symbolic elements that support recognition and gradual awakening.

Methodologically, the project utilises a practice-led and reflective approach to assess personal experience through a series of methods, including sketching, storyboarding, character development and prototyping.

¹ Generation Z, often shortened to Gen Z, refers here to those born between 1997 and 2012 (Dimock, 2019).

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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.

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1 INTRODUCTION

In contemporary digital environments, mainstream social media platforms increasingly rely on algorithmic systems to curate and recommend content to users (Oeldorf-Hirsch et al., 2025, p. 1). These systems play a significant role in shaping what becomes visible online; however, their influence is often difficult to detect, as algorithmic curation operates largely through opaque, indirect mechanisms (Tufekci, 2015, p. 209). Frequently presented as neutral or beneficial, such processes can nonetheless exert a cumulative effect, gradually shaping what users notice, prioritise, and engage with over time (Schuster & Lazar, 2025, p. 176).

For Gen Z users, especially those in the Chinese diaspora who move between different cultural and digital contexts, this influence can become part of daily life without being clearly noticed. This matters because Tufekci (2015, p. 209) argues that algorithmic gatekeeping often operates without transparency or visibility. For many young users, social media is part of everyday communication, entertainment, and identity. When algorithmic influence remains hidden inside these ordinary habits, it becomes harder to recognise how attention, emotion, and behaviour are being directed over time.

This project explores how visual storytelling can make these hidden mechanisms more visible and encourage critical digital awareness. I use visual storytelling because algorithmic influence is often experienced through screens, images, interface rhythms, and repeated digital habits rather than through theory or technical language. For this reason, a visual and narrative form can make abstract systems feel more immediate, personal, and easier to reflect on. This research asks, **how can visual storytelling reveal hidden mechanisms of algorithmic manipulation and encourage critical digital awareness among Gen Z members of the Chinese diaspora?** *Invisible Strings* responds to this question through a digitally illustrated story that uses metaphor, atmosphere, colour, and restrained interaction to show how platform influence can be felt in everyday experience.

This exegesis is organised into six chapters that document the conceptual, reflective, and creative processes that shaped the project. Chapter One introduces the research context, the research question, and the project's overall direction. Chapter Two positions me as the researcher and explains how my personal background, life experience, and movement between China and Aotearoa New Zealand shaped this inquiry. Chapter Three reviews the contextual knowledge that informs the project, including theories of algorithmic influence, emotional design, narrative structure, and visual storytelling. Chapter Four explains the research design and practice-led process, showing how storyboarding, drawing, material experimentation, and digital prototyping were used to develop the work through reflection and iteration. Chapter Five presents a critical commentary on the final artefact, analysing how metaphor, character design, colour, and interaction work together to communicate the project's argument. Chapter Six concludes the exegesis by returning to the research question, summarising the main outcomes of the project, and reflecting on its contributions and limitations.

2 POSITIONING THE RESEARCHER

2.1 Background and Personal Experience

My initial understanding of digital platforms and algorithms began with my undergraduate studies in Computer Science and Technology in China. During this time, I learned how algorithms, data structures, and digital systems operate. I was interested in their logic and efficiency, but I also began to feel that this way of understanding technology was limited. It explained how systems worked, but not how they affected people emotionally or socially. This tension became an early starting point for my interest in hidden digital influence.

When I reflect on my childhood, everyday life in China felt very different from how it is now. The internet was not yet deeply embedded in daily routines, and life felt slower and more connected to the physical world. Children spent more time outdoors, and entertainment was often shared face-to-face. As I grew older, this began to change. Smartphones, short videos, and mobile games quickly became part of daily life. I noticed that many ordinary routines were gradually moving onto screens. Time that had once been spent in physical space was increasingly replaced by digital habits. This shift made me curious and concerned about how technology was reshaping attention, relationships, and daily behaviour.

In October 2024, I moved to Aotearoa New Zealand to begin my Master of Design studies. This was an important transition in my life. Living in a new country and adapting to a new academic environment made me more aware of how cultural context shapes everyday experience. Here, I entered a learning environment that encouraged discussion, experimentation, and critical reflection. This was different from my earlier academic experiences in China, where learning was often more strongly shaped by structure, grades, and performance. This contrast helped me see design not only as a way of making outcomes, but also as a way of questioning systems and making hidden influences more visible.

2.2 Digital Encounters and Critical Reflection

My interest in this topic is also shaped by everyday digital experience. One moment that stayed with me came from my own experience online. I remember opening *Douyin*, the Chinese version of TikTok, just to relax for a few minutes, but I soon found myself being drawn into a stream of repetitive, emotionally charged, and sometimes unsettling content. What disturbed me was not only the content itself, but also the feeling that the platform seemed to know exactly how to keep me watching. The shift was gradual, and that made it feel even more powerful. I began to realise that what appeared on my screen was not simply a neutral reflection of my interests. It was being shaped by recommendation systems, platform design, and my previous behaviour. This moment made me think more seriously about how algorithmic influence works through familiarity, repetition, and emotional pull.

In recent years, I have also noticed similar habitual patterns emerging among friends and family. People often open social media for a short break and then spend long periods scrolling through negative or emotionally heavy content. This behaviour can be understood as doomscrolling, in which users continue to consume distressing online content and become caught in a cycle of anxiety, uncertainty, and emotional strain (Anand et al., 2022, p. 170). These observations helped me understand that algorithmic influence is not abstract. It affects the emotions and behaviour of people around me, and it can quietly shape the atmosphere of everyday life.

I later realised that this was not an isolated experience, but part of a broader pattern across digital platforms. Reading about surveillance capitalism helped me understand this more clearly. Zuboff describes it as a new economic order built on the extraction of behavioural data and the prediction of future action (2019, p. 8). Her work helped me see why platform design can feel so persuasive and difficult to resist. It also made me realise that many digital habits are not just personal weaknesses or failures of self-control, but, more specifically, are closely tied to systems designed to optimise for engagement, which recommend content based on users' past interactions and their predicted likelihood of engagement (Schuster & Lazar, 2025, p. 159). These experiences gradually changed the way I understood digital media. I began to see algorithms not only as technical tools, but also as structures that shape attention and digital experience in everyday life.

2.3 Positioning Myself in This Research

As a designer, this research approaches the topic through visual and experiential means, with a focus on making invisible systems perceptible and communicating the emotional effects they produce.

My position between China and Aotearoa New Zealand is central to this research. Living across these contexts heightened my awareness that what users encounter online is shaped not only by personal choice, but by systems of filtering, regulation, and platform design. After moving to New Zealand, these contrasts became more apparent and prompted critical reflection on how digital environments shape visibility, attention, and behaviour. This perspective led me to focus on Gen Z members of the Chinese diaspora, whose shared experience of navigating different platform systems across cultural contexts offers a valuable position from which to reflect on algorithmic influence.

I position myself in this research as someone whose personal, cultural, and design experiences are closely connected to the topic. My aim is not to speak for all members of the Chinese diaspora. Instead, I use my own position to explore how visual storytelling, shaped in part by a Chinese cultural perspective and selected symbolic devices, can reveal hidden forms of algorithmic influence and encourage critical digital awareness.

3 REVIEW OF CONTEXTUAL KNOWLEDGE

This chapter reviews the contextual knowledge that informs *Invisible Strings*. It outlines the theoretical, narrative, and visual frameworks that support the project's investigation of algorithmic influence. The chapter is organised into three sections: theoretical frameworks for algorithmic influence, narrative translation, and visual approaches to atmosphere and perception.

3.1 Theoretical Frameworks for Algorithmic Influence

3.1.1 Surveillance Capitalism and Instrumental Power

Zuboff is a social theorist whose work examines how digital platforms turn everyday life into an economic system based on data extraction and behavioural prediction. In *The Age of Surveillance Capitalism*, she describes surveillance capitalism as a new economic order built on the extraction of behavioural data and the prediction of future action (Zuboff, 2019, p. 8). She later develops this further through the concept of “instrumentarian power,” which works through behavioural modification, prediction, and the shaping of human action rather than through direct coercion (2019, p. 13).

This framework is important to my project because it challenges the idea that digital platforms are simply neutral tools. Instead, it shows that they operate as systems that learn from users and shape behaviour over time. This perspective directly shaped my project's interest in making influence visible. In *Invisible Strings*, algorithmic power is not represented as a dramatic external force. Instead, it appears through routine, familiarity, repeated return, and subtle forms of guidance that shape what the main character of *Invisible Strings*, Kai, notices, follows, and comes back to. This idea also influenced how I used atmosphere, recurring motifs, and restrained interaction in the storybook's design.

3.1.2 Programmed Sociality and Algorithmic Governance

Bucher is a media scholar whose research focuses on algorithmic power, digital infrastructures, and the ways platforms shape visibility and everyday social experience. Her concept of “programmed sociality” is useful to this project because it explains how online sociality is assembled and organised through computational means rather than open choice alone (Bucher, 2018, p. 4). In *If... Then: Algorithmic Power and Politics*, Bucher shows that users do not simply interact freely online. Social media platforms recommend, suggest, and organise what becomes visible in ways shaped by algorithmic systems (2018, p. 1). She also argues that friendships and other forms of online connection are programmatically organised and shaped through the platform's underlying software and infrastructure (2018, p. 5).

I find this idea helpful because it explains how online behaviour becomes patterned through repetition. What appears on screen is not simply the result of free choice but is also shaped by the platform's ongoing adjustment to previous activity. This framework directly influenced the structure of my project by provoking me to think about how narrative form could reflect algorithmic repetition. Instead of using a simple linear story, I developed a loop-based structure in which Kai repeatedly returns to familiar digital spaces that become slightly narrower, denser, and more controlling over time.

3.1.3 Algorithmic Harms, Feedback Loops and Echo Chambers

Tufekci is a sociologist whose work examines how digital platforms shape public attention, information flows, and contemporary political and social life. Her writing is important to this research because it highlights how harm can emerge through amplification, repetition, and reduced visibility of alternatives. She argues that platforms often act as opaque gatekeepers, shaping visibility without transparency (2015, p. 209). In this context, harm does not need to appear as direct censorship or dramatic manipulation. It can also take the form of quieter systemic effects, such as repeated exposure, narrowing perspectives, and the reinforcement of behavioural loops.

This framework is important to *Invisible Strings* because it helps explain why algorithmic influence can be subtle at first but become restrictive over time. It also helped shape my decision to avoid presenting manipulation as a single event but as an accumulative condition built through repetition and familiarity. This idea supports the development of the character Echo, the thread motif, and the increasingly restricted digital spaces in the story.

3.1.4 Emotional Design and Interface Influence

Kramer is a social psychologist whose research examines how large-scale digital systems and interface conditions can influence users' emotions. His work is useful to this project because it shows that changes in content exposure can affect users' emotional states, suggesting that digital platforms shape both mood and information (2014, p. 8788).

This perspective is strengthened by research on persuasive and manipulative interface design. Fogg defines persuasive technology as "interactive computing systems designed to change people's attitudes and behaviours" (2003, p. 1). Gray et al. use the term dark patterns to describe interface designs that steer users through misleading or deceptive choices that do not serve their best interests (2018, p. 1). These ideas are important to my project because they shift the discussion from algorithmic ranking alone to the wider design of digital environments. In *Invisible Strings*, influence is not only represented through what content appears, but also through atmosphere, visual rhythm, repetition, and the gentle pressure of interface-like cues. These references helped me think of digital platforms not just as channels of information, but as environments that shape attention through emotional and visual design.

3.2 Translating Algorithmic Influence into Narrative

This project analyses algorithmic influence through both theory and practice. It also asks how invisible systems can be translated into a story form that is emotionally understandable. Visual storytelling and graphic narrative provide useful ways to communicate complex ideas through sequence, image, repetition, metaphor, and pacing.

McCloud argues that meaning in comics emerges through the relation between images and the reader's act of closure across panels, rather than through isolated frames alone (1994, p. 67). Cohn similarly asserts that comics are understood through the interaction of narrative structure and page layout (2014, p. 1). Furthermore, Chute suggests that graphic narrative can communicate layered experience through visual form, fragmentation, and the combination of words and images (2010, p. 136). These ideas are important to my project in that algorithmic influence is difficult to explain directly; experienced gradually, graphic narrative offers a way to translate these conditions into story form. In *Invisible Strings*, this influenced my decision to use recurring motifs, gradual visual change, and a continuous chapter structure so that influence could be felt through repetition and accumulation rather than explained all at once.

3.2.1 Algorithmic Feedback Loop as Narrative Structure

An algorithmic feedback loop is a process by which a system learns from a user's previous choices and then offers content that is similar, so reinforcing those preferences over time (Trilling, 2024, p. 9). This concept helps explain how digital influence often develops through repetition rather than through a single dramatic event. The narrative structure of *Invisible Strings* is also informed by Bucher's discussion of programmed sociality, in which platforms organise social experience through computational means of assembling and organising (2018, e.g., pp. 1, 4), while also recommending and suggesting what becomes visible. Tufekci also argues that algorithmic systems act as gatekeepers, shaping selective exposure through filtering, hidden influence, and reduced visibility (2015, p. 209). The feedback loop is not only a theoretical concept in this project, but also a narrative device that helps translate algorithmic influence into story form.

Repetition can make a digital environment feel familiar and normal, even while it becomes more restrictive over time. In this project, this process is reflected through Kai's repeated return to similar digital spaces, visual cues, and emotional patterns. Each return feels familiar, but the space becomes slightly narrower, denser, and more controlling over time. In this way, the story does not simply describe algorithmic influence as a topic. It also performs its rhythm through repetition, accumulation, and subtle change.

3.2.2 Echo as a Digital Double

The character Echo in *Invisible Strings* is developed as Kai's digital double. This idea is informed by the way platform systems build increasingly detailed

user profiles through repeated data capture, prediction, and feedback. Lee and Chen (2021), in *AI 2041*, describe a related idea through the figure of an intelligent companion that gradually becomes a predictive twin. This model is useful because it shows how digital systems can appear intimate and helpful while also becoming deeply involved in shaping behaviour.

I translate this idea into a narrative relationship between Kai and Echo. Echo does not appear as a villain or an outside force. Instead, he grows out of Kai's repeated actions and becomes a self-copy shaped through behavioural traces. This approach was important to me because I did not want the system to feel distant or abstract. By personifying it as a double, I make algorithmic profiling more emotionally legible. Echo becomes a narrative way of showing how the system learns from Kai until it begins to resemble him more closely than he would recognise himself.

3.2.3 Mirror Encounters and Recognition

In Chinese culture, the bronze mirror (铜镜, *tóngjìng*) is often associated with truth, self-examination, and moral reflection, while the motif of the “demon-revealing mirror” suggests the exposure of what lies beneath appearances (Wang, 1994; Varsano, 2013). This cultural symbolism informs the mirror motif in *Invisible Strings*, where the mirror is used not simply as an object of reflection, but as a narrative device linked to hidden truth, self-recognition, and the possibility of seeing beyond surface appearances.

In the story, the mirror functions as a device of partial recognition through Kai's encounter with Echo as a digital double. It does not initiate a full awakening but instead creates an early disturbance in Kai's immersion. Echo appears as something both familiar and unfamiliar, reflecting not Kai's full self, but a version shaped by data and prediction. The mirror represents the transitional point between immersion and awareness, allowing recognition to emerge gradually through resemblance but unease.

3.2.4 From Confusion to Awakening

The movement from confusion to awakening is an important part of Kai's narrative arc. Awakening is not a single dramatic breakthrough, instead, it develops gradually through uncertainty, hesitation, and partial recognition. Because Kai repeatedly returns to familiar digital spaces, recognition is not immediate, but builds through repetition, disturbance, and interruption. Daoist and Buddhist ideas are useful here because they also frame awareness as a cyclical and reflective process rather than a purely linear one.

In Daoist thought, confusion can emerge when a person becomes caught in sensory desire and loses sight of inner clarity, while awakening suggests a return to stillness, source, and reflection (Lao Tzu, 2012, chs. 12, 16). Suzuki's discussion of Zen similarly presents awakening as something grounded in direct inner experience rather than in solely listening and thinking (Suzuki, 1938, p. 49). These ideas support the project's slower narrative arc, in which recognition grows through repeated noticing. This framework also supports my decision not to end the story with total escape, but instead suggests a modest, more realistic form of critical awareness.

3.3 Visual Approaches to Atmosphere and Perception

3.3.1 Atmosphere, Layering, and Rhythmic Pacing

Atmosphere, layering, and pacing are central to *Invisible Strings* because algorithmic influence is often felt through attraction, repetition and gradual pressure. In visual storytelling, meaning emerges not only through plot but also through the relationship between image, pacing, and reader interpretation (Male, 2017; Salisbury & Styles, 2012). This supported my decision to use full spreads, restrained text, and gradual visual change rather than fast panel-based action.

Tomer Hanuka's *Overkill* (2012) is an important reference because of its strong colour contrast, dramatic lighting, and compressed spatial composition. In his work, the figure often appears immersed in or overwhelmed by the surrounding environment, influencing my interest in showing digital pressure through atmosphere and spatial control rather than literal explanation. However, *Invisible Strings* differs from *Overkill* in that it develops tension gradually across a sequence of chapters rather than relying on the impact of a single intense image.

Tillie Walden's *On a Sunbeam* (2018) is also an important reference because of its quiet pacing, emotional stillness, and careful use of space. Walden shows how visual storytelling can sustain mood, and guide readers through atmosphere rather than rapid action. This influenced my interest in slower reading, full-page composition, and moments of hesitation and reflection. At the same time, my project moves away from Walden's softer emotional focus by using atmosphere to communicate entanglement, digital pressure, and the narrowing of attention.

Together, these references helped me shape a visual language that is atmospheric, reflective, and psychologically charged, while remaining distinct from both sources. Rather than directly adopting their styles, I used them to think through how to adapt pacing, spatial pressure, and visual mood to a project algorithmic influence.

3.3.2 Chinese Gen Z Digital Practices and Visual Metaphor

Chinese Gen Z social media use in New Zealand is shaped by transnational digital practices that involve navigating platform systems governed by different cultural, regulatory, and algorithmic logics. While Instagram, TikTok, and YouTube are widely used among users aged 18–24 in New Zealand, many Chinese users also continue to engage with Chinese platforms, especially WeChat (DataReportal, 2024). Research on Chinese migrants in New Zealand shows that the use of Chinese and local platforms is positively correlated, reflecting hybrid media practices rather than digital assimilation (Du & Lin, 2019). WeChat functions as an integrated digital infrastructure for communication, information, and social organisation within the Chinese diaspora, a role reinforced in New Zealand through official WeChat-based services for Chinese students (Sun & Yu, 2020; Education New Zealand,

2020). Moving between these environments makes differences in visibility and recommendation more noticeable, foregrounding how algorithmic influence operates gradually through everyday habits. This subtle and accumulative influence informs the use of visual metaphor as a means of representing algorithmic systems that are felt experientially rather than directly observed.

In this project, a Chinese diasporic cultural perspective informs how algorithmic influence is understood and translated into a visual metaphor. Rather than relying on overt cultural display, *Invisible Strings* uses threads, mirrors, and shadows to express influence as something layered, indirect, and often difficult to perceive clearly (Figure 3.1). Threads suggest persistent but partly hidden forms of pull that guide attention and behaviour over time. Mirrors create moments of reflection, distortion, and recognition, while shadows visualise algorithmic influence as an intangible but continual presence; motifs which make influence perceptible and shape a symbolic language that reflects a diasporic way of seeing digital life.

Figure 3.1

Mirror, Thread, and Shadow Motifs, Invisible Strings

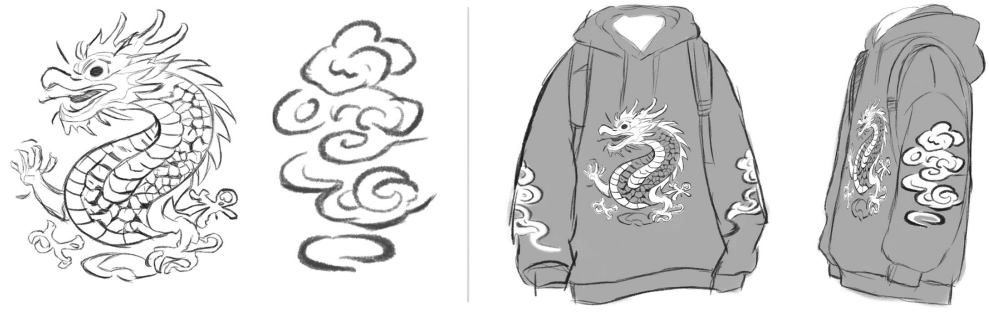


Note. Three recurring visual motifs: the mirror, the thread, and the shadow; narrative devices to support themes of reflection, connection, and hidden presence. Duan, Y. (2026).

This approach also shapes how I represent Kai. As a Chinese international student living in Aotearoa New Zealand, Kai is grounded in a specific cultural position. To reflect this, I use dragon and cloud motifs on his hoodie as visual cues of identity — details which help situate Kai culturally without shifting the project's focus away from digital influence and platform design (Figure 3.2). In this way, the work is shaped by a young Chinese diasporic perspective, not through overt cultural display, but through the way the story sees, frames, and translates the problem.

Figure 3.2

Dragon and Auspicious Cloud Motifs, Invisible Strings



Note. This figure shows the development of the dragon and auspicious cloud motifs used in Kai's hoodie design. Duan, Y. (2025).

Conclusion

Together, these theoretical, narrative, and visual frameworks support the development of *Invisible Strings* as a project that makes algorithmic influence perceptible through story and image. Informed by theories of surveillance capitalism, programmed sociality, algorithmic harm, interface influence, and also by graphic narrative, visual storytelling, and symbolic metaphor, these references helped me move from abstract theory to design decisions about narrative structure, character, atmosphere, and recurring motifs.

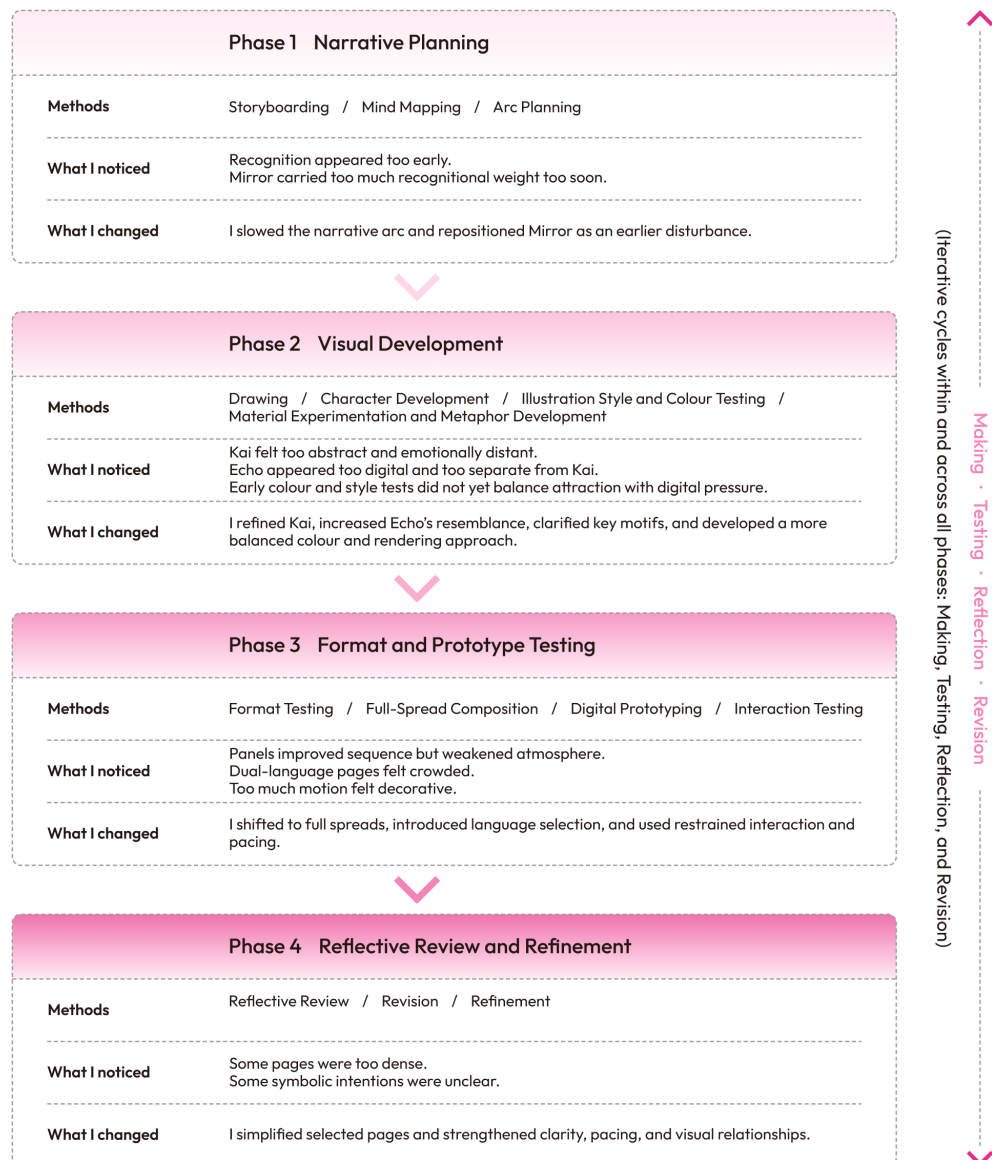
This review clarifies that *Invisible Strings* uses visual storytelling to translate hidden systems into a form readers can gradually see, feel, and question. The chapter establishes the contextual foundation for the next stage of the project, where these ideas are tested and developed through practice-led research.

4 RESEARCH DESIGN

This segment explains how *Invisible Strings* was developed through a practice-led and reflective inquiry. The research design is organised into four phases: narrative planning, visual development, format and prototype testing, and reflective review and refinement (Figure 4.1). Across these phases, storyboarding, drawing, material experimentation, digital prototyping, and reflective review were used to explore how algorithmic influence could be translated into narrative, image, and reader experience.

Figure 4.1

Four-phase Research Design, Invisible Strings



Note. Four connected phases that structured the development of *Invisible Strings*. The phases are presented as an organising framework, but each involved repeated cycles of making, testing, reflection, and revision. Duan, Y. (2026).

This iterative approach suited the project because the research asks how hidden algorithmic influence can be translated into visual and narrative form. Design decisions emerged through cycles of making, testing, reflection, and revision. For example, as discussed later in Section 4.2, visual development revealed issues around Kai's emotional legibility, which led me to refine his appearance. The process was primarily shaped by Schön's concept of reflection-in-action, in which design develops through a reflective conversation with the situation as the designer responds to materials, unintended consequences, and the changing work (1983, p. 78). It also included later moments of reflection-on-action, when I reviewed the work after completing a stage and reconsidered earlier decisions from a broader perspective. Smith and Dean are also relevant because they describe creative practice and research as overlapping, and frame creative development as an iterative, cyclic web involving repetition, variation, and movement between stages (2009, p. 19). In *Invisible Strings*, many decisions about pacing, metaphor, character, atmosphere, and interaction only became clear through practice; making became both a way to develop the work and to think through the problem.

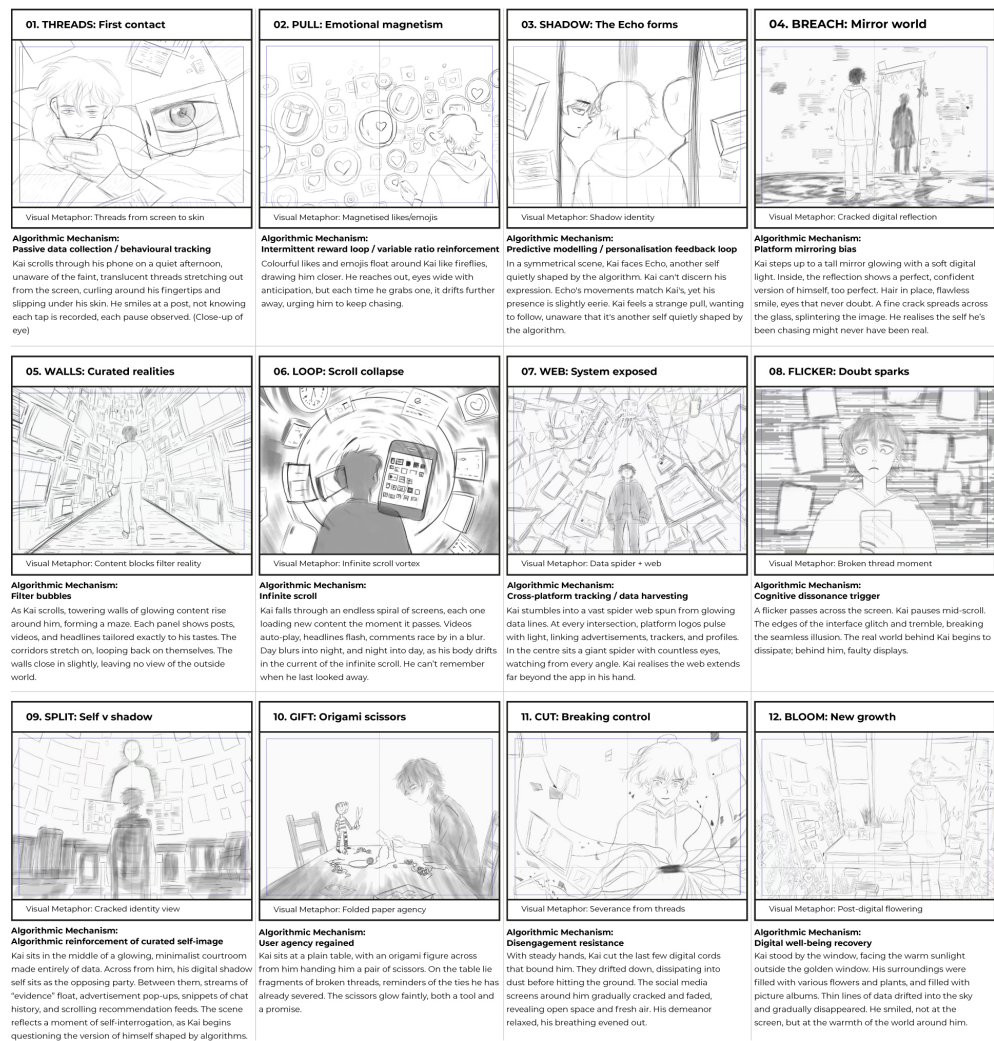
A limitation of this approach is that it can become overly intuitive or too shaped by the maker's preferences. To address this, I combined making, with comparison, reflective review, and studio discussion. This also resonates with Daoist ideas of attentiveness, adjustment, and responsiveness, in which learning develops through being attuned to the situation rather than rigid control (Tan, 2020, p. 692). From a Daoist perspective, this is not about arriving at a final fixed solution, but about reaching a more balanced and responsive relation to the work. I knew the revisions were sufficient when the pacing, symbolism, and visual relationships felt clearer, less forced, and connected to the overall narrative. Unlike algorithmic repetition, which reinforces prediction and habit, this reflective repetition created space to pause, question, and revise. It helped me test whether my intentions were clear and whether the work communicated what I had hoped. Practice-led inquiry in *Invisible Strings* was therefore both exploratory and self-critical.

4.1 Narrative Planning

4.1.1 Storyboarding as Narrative Inquiry

Asgari and Hurtut describe storyboarding as a visual framework for organising and rethinking ideas, while Liang et al. identify it as an important tool for visualising the user journey and supporting empathy with users (2024, p. 9, 2025, p. 136). In *Invisible Strings*, storyboarding made it possible to test sequence, pacing, chapter order, and the development of Kai's relationship with Echo. I used it to explore how key moments of attraction, recognition, restriction, and confrontation should unfold across the twelve chapters. In the early stage, rough plans of sequences helped me compare different narrative structures and identify key problems in pacing and progression (Figure 4.2). They showed that Echo's role was too limited and that his transformation needed to develop more gradually to support the overall arc.

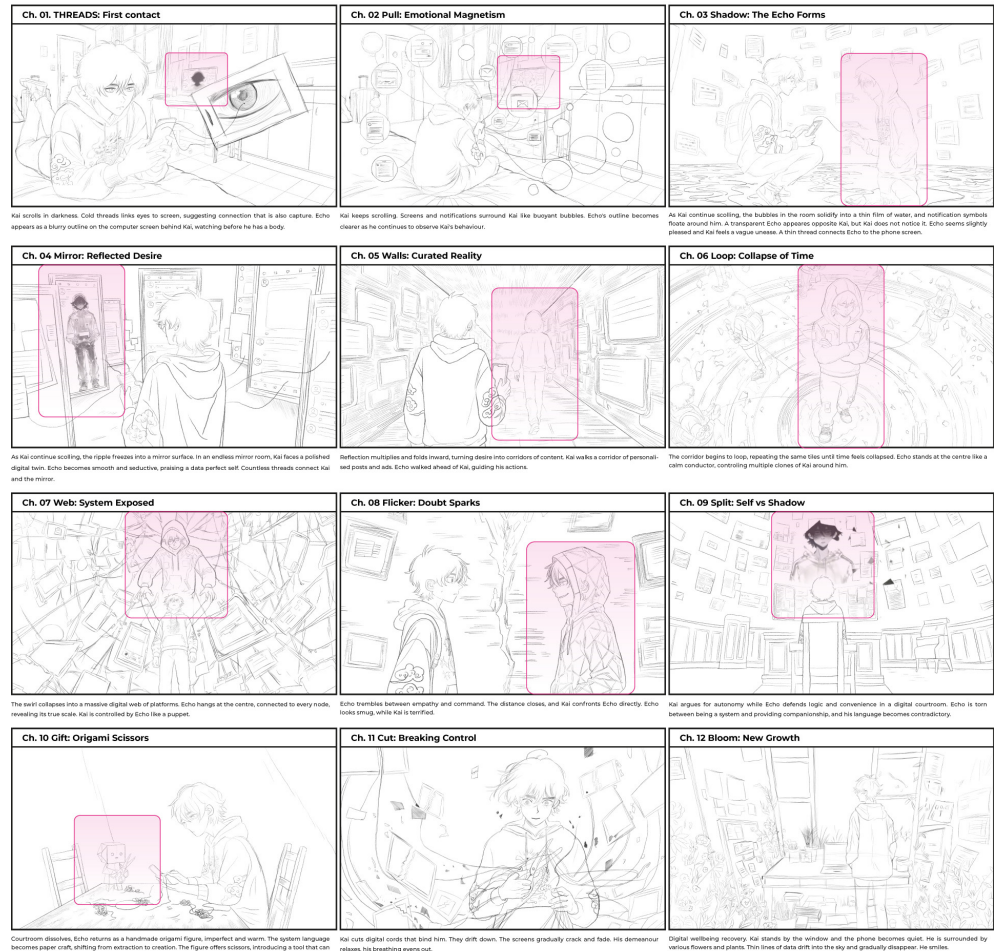
Figure 4.2
Early Storyboard, Invisible Strings



Based on an early storyboard, I also tested how familiar spaces could return with gradual changes in thread density, Echo's visibility, interface clutter, and Kai's body language (Figure 4.3). This slowed the narrative rhythm and made recognition more gradual.

Figure 4.3

Final Storyboard and Chapter Progression, Invisible Strings



Note. In this figure, the red boxes mark where Echo's form and presence were further developed from the initial storyboard. Most scene compositions were also refined to clarify the story flow, strengthen moments of pause and reveal, and support a more coherent narrative progression. Duan, Y. (2026).

Although storyboarding can flatten atmosphere and make the narrative feel fixed, I treated it as a work in progress that kept evolving as I drew and tested later prototypes.

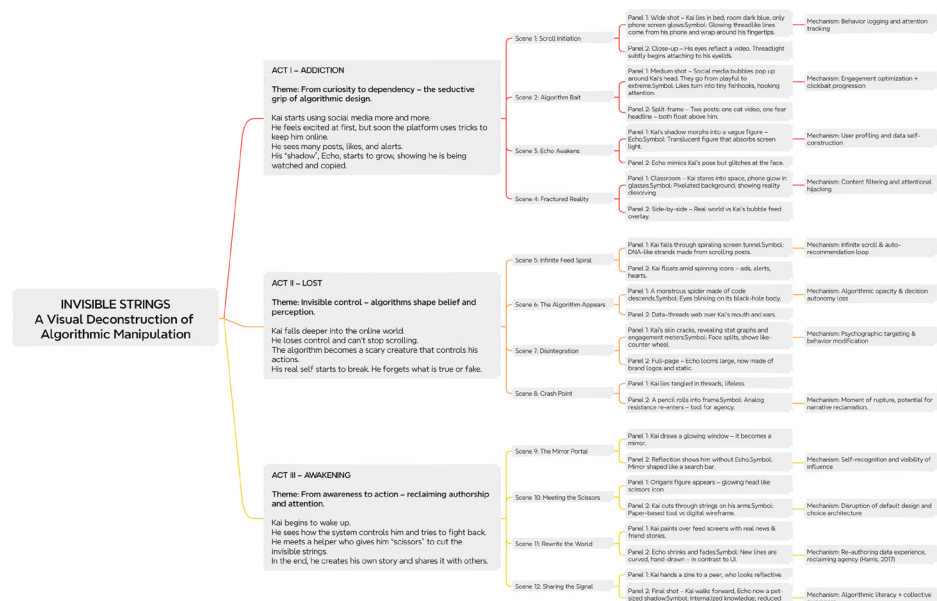
4.1.2 Mind Mapping and Narrative Arc Planning

Mind mapping and arc planning were utilised to evaluate the project at a broader structural level. While storyboarding helped test scene sequence, chapter transitions, and interaction rhythm, mind mapping allowed me to examine how tension, recognition, and emotional progression were distributed across the whole narrative. This was important because the project depends not only on what happens in each chapter, but also on how attraction, restriction, doubt, confrontation, and release accumulate over time. Shaw and Nickpour suggest that narrative frameworks can be integrated across design processes, while Errey et al. show that structure and reader experience are important in the development of narrative visualisation (2024, p. 41; 2025, p. 646). In this project, iteration allowed me to repeatedly test and adjust the larger emotional and structural arc, so that key moments were not introduced too early and the narrative could unfold more gradually across the twelve chapters.

An early narrative map helped me organise acts, scenes, symbolic motifs, and algorithmic mechanisms before the storyboard was fully refined (Figure 4.4). This made it easier to identify gaps, repetition, and weak structural links between chapters.

Figure 4.4

Narrative Structure and Algorithmic Mechanism Map, Invisible Strings

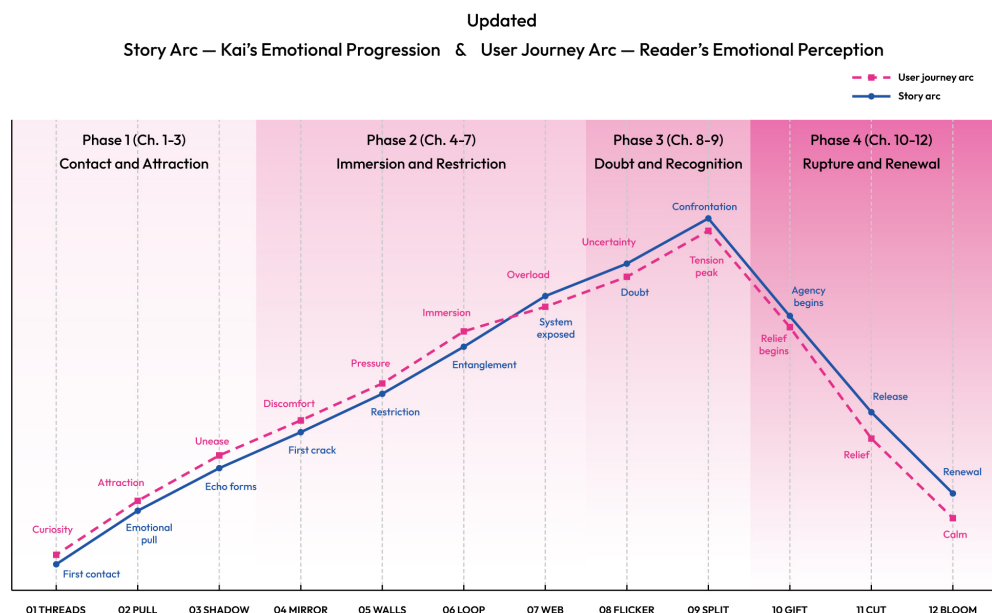
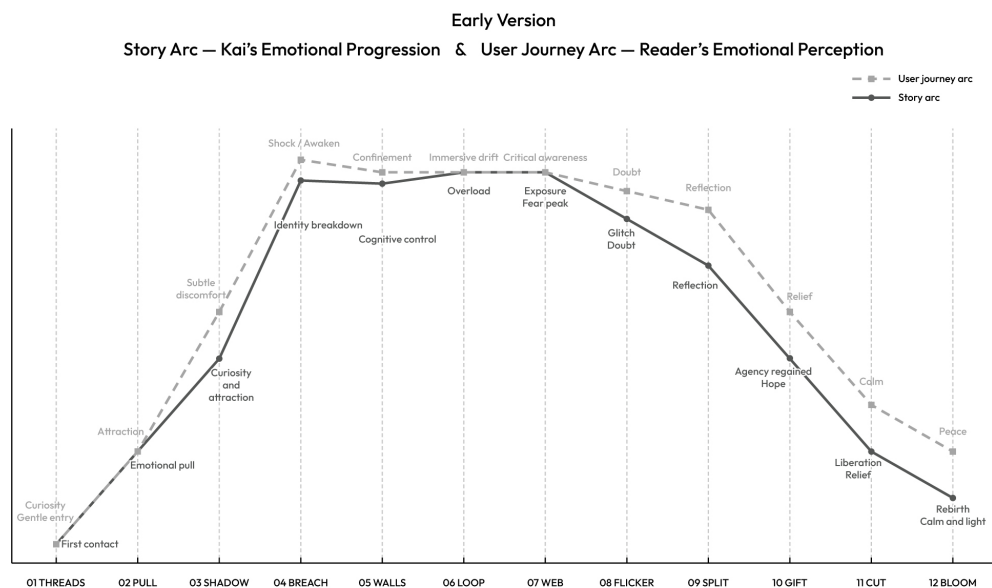


Note. Narrative map to test relationships between acts, scenes, symbolic motifs, and algorithmic mechanisms before the structure was revised. Duan, Y. (2026).

Mapping was important in the Mirror chapter, which in the early arc carried too much recognitional weight and pushed the emotional peak too far forward. Arc mapping helped me reposition Mirror as an earlier disturbance rather than a full awakening scene. This created a clearer progression across the twelve chapters and allowed recognition and confrontation to emerge after a longer period of attraction, immersion, and restriction (Figure 4.5). Although arc mapping can flatten emotional complexity into overly neat diagrams, I addressed this by moving back and forth between mapping, storyboarding, and later visual testing. In this way, mind mapping became a reflective tool for testing the project's larger emotional and structural logic.

Figure 4.5

Story Arc and Reader Journey Arc, Invisible Strings



Note. Early story arc and reader journey arc, with revised version. The updated structure redistributes tension more effectively by delaying full recognition and moving the stronger stages of doubt, split, and confrontation into the sequence later. Duan, Y. (2026).

4.2 Visual Development

4.2.1 Drawing as Reflective Experimentation

Drawing was necessary for the development of *Invisible Strings* because it helped me test how character, mood, and metaphor could support the narrative. Rather than using drawing only to produce images, I used it to think through visual problems. This relates to Goldschmidt's view that sketching is a mode of design thinking rather than a simple act of image production and that it develops through iterative visual transformation (1991, pp. 130, 138). The questions of visibility, emotional legibility, and metaphor needed to be explored visually rather than just described conceptually.

A limitation of drawing is that it can become too shaped by the maker's own stylistic preferences and may not always communicate clearly to others. To address this, I repeated drawing experiments and used reflective review to compare different versions of Kai and Echo. One key area of testing was Kai's design. Early versions explored a faceless or minimally featured character, which increased abstraction but also created emotional distance. Feedback from peers during studio discussion suggested that this version felt unsettling and made Kai harder to connect with. Because the project needed algorithmic influence to feel familiar rather than distant, I developed a more refined facial design to support clearer expression and stronger reader empathy (Figure 4.6).

Figure 4.6

Kai, Facial Detail, Invisible Strings

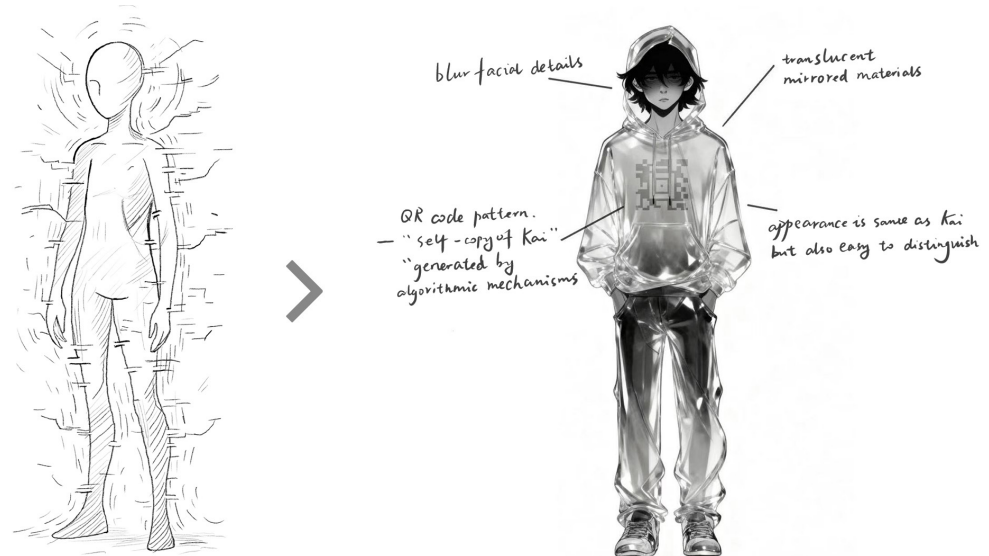


Note. Kai's development from faceless, to a more refined self. The change was made to reduce emotional distance and support clearer expression and stronger reader empathy. Duan, Y. (2026).

Drawing was also central to Echo's development. Early versions felt too abstract or too separate from Kai, so I increased their visual resemblance while keeping Echo distinct. This helped him read as an unsettling self-copy rather than an outsider villain (Figure 4.7). I also tested his changing appearance through variations in form and opacity, which helped me make his presence gradual but still clear across the narrative (Figure 4.8). In this way, drawing supported empathy, symbolic clarity, and the gradual visibility of algorithmic influence.

Figure 4.7

Echo, Character Refinement, Invisible Strings



Note. Echo's transition from an abstract digital figure to one that more clearly relates to Kai; developed so that Echo appears both like Kai and not like Kai, making him readable as a self-copy rather than a separate digital character. Duan, Y. (2026).

Figure 4.8

Echo's Visibility, Intensification, and Dissolution, Invisible Strings



Note. Testing how Echo could change in form and visibility across the narrative. The experiments helped determine how his presence could gradually intensify or recede in relation to Kai's engagement, making algorithmic influence feel unstable, accumulative, and increasingly legible. Duan, Y. (2026).

4.2.2 Illustration Style and Colour Testing

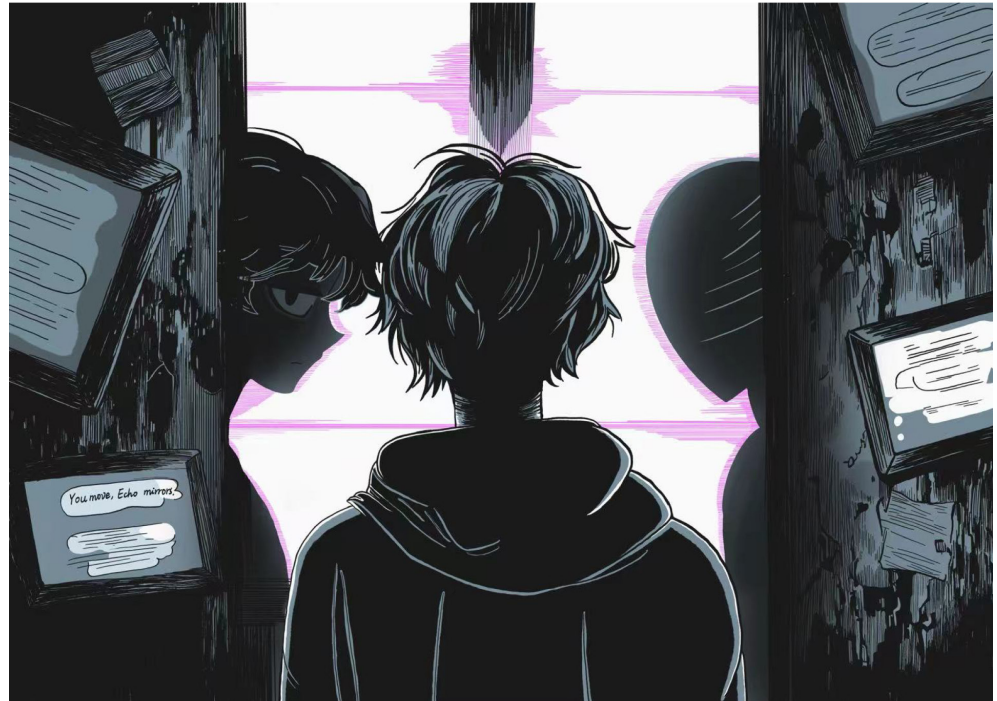
Invisible Strings explores algorithmic influence through atmosphere, attraction, and gradual psychological pressure; I needed a visual treatment that could hold these qualities together. Early experiments focused on two directions: dark monochromatic treatment and watercolour-based rendering.

The dark monochromatic direction introduced firmer brushwork and a stronger sense of control and unease, but it pushed the project too quickly towards a uniformly dark emotional tone (Figure 4.9). If the digital world appeared threatening from the beginning, it became harder to show how algorithmic influence often starts through comfort, familiarity, and visual appeal. Watercolour-based rendering, by contrast, helped explore softness, emotional flow, and instability (Figure 4.10). However, its fluid edges and softer structure weakened the clarity of interface elements and reduced the sense of digital control needed in the final work.

Comparing these experiments clarified the final visual direction. Rather than adopting either directly, I combined strengths from both: firmer brushwork and stronger structure from the darker experiments, and blue-red contrast and a softer atmospheric transition from the watercolour tests. This led to a refined digital painting approach that could maintain atmosphere, interface clarity, and symbolic detail at the same time. In this way, colour and style testing helped show how visual treatment could support the project's argument that algorithmic influence is often appealing before it becomes restrictive.

Figure 4.9

Dark Tonal Style, Invisible Strings



Note. Developed to test a harder visual structure and a stronger sense of control and unease in the digital environment, the experiments were useful in strengthening pressure and visual intensity, but also pushed the project too strongly towards an emotionally dark tone.
Duan, Y. (2026).

Figure 4.10

Watercolour, Invisible Strings



Note. Watercolour-based paintings developed to test softness, emotional flow, and blue-red contrast. While introducing atmospheric transition and cultural resonance, they also softened the clarity of interface elements and weakened the sense of digital control needed in the final work. Duan, Y. (2026).

4.2.3 Material Experimentation Leading to Metaphor Development

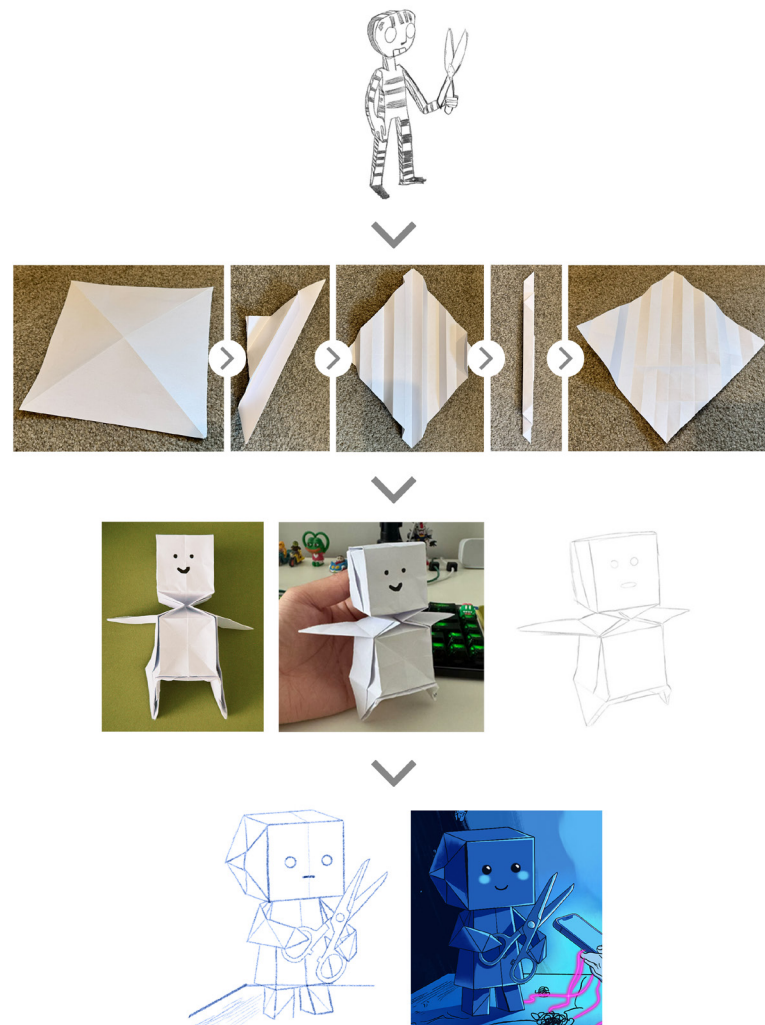
Material experimentation helped me develop the project's metaphors through physical making rather than purely drawing. It allowed me to explore a more indirect way of building meaning, so that transformation could be felt through material change, accumulation, and tension.

A limitation of this method is that it can produce visually interesting forms that feel detached from the narrative. To address this, I treated the experiments as part of metaphor development and considered how each material action could connect back to Echo, Kai, and the project's wider symbolic structure.

The origami experiments were primarily inspired by the logic of folding. *Kubo and the Two Strings* (2016) also show how folded forms can support transformation, concealment, and indirect narrative development. Each fold introduced concealment, pressure, and partial formation, making change appear gradual rather than sudden. This helped connect the origami figure more closely to Echo's role as a self-copy shaped through repeated engagement and adjustment, while also supporting a more indirect narrative logic (Figure 4.11).

Figure 4.11

Echo's Transformation, Origami Figure, Invisible Strings

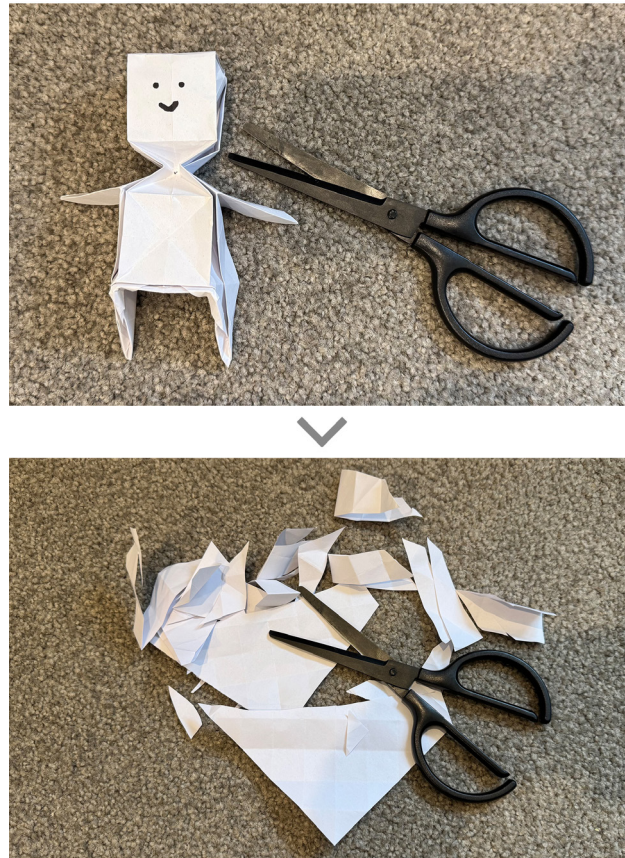


Note. This figure shows the development of the origami figure from an early drawn version to a later experiment with paper. The change helped connect the figure more closely to Echo and to the idea of transformation as a gradual structural process. Duan, Y. (2026).

Experimenting with a material, paper, also changed how I understood the role of scissors in the project. Rather than symbolising total escape, cutting came to suggest interruption, release, and selective change from within an existing system. This shifted the project's metaphor of resistance away from absolute rupture towards a quieter, more reflective act of change (Figure 4.12).

Figure 4.12

Cutting the Origami Figure, Invisible Strings



Note. This figure shows cutting as part of the origami figure process. The experiment reframed scissors from a symbol of resistance to imply a selective modification and release. Duan, Y. (2026).

It helped me understand transformation as structural, gradual, and materially felt, contributing directly to the project's metaphors of concealment, interruption, release, and partial change.

4.3 Format and Prototype Testing

4.3.1 Format Testing and Full-Spread Composition

I tested different page formats to decide how the story should be visually experienced. I explored both panel-based layouts and full-spread compositions to assess how each structure shaped sequence, transition, atmosphere, and reading pace.

Panel-based layouts were useful because they organised the sequence clearly and made transitions easier to control (Figure 4.13). However, they also divided the visual space too sharply, encouraging a faster, more segmented mode of reading which became a limitation because the panel format disrupted atmospheric continuity and reduced the slower build-up of pressure central to the narrative logic.

Figure 4.13

Kai, Panel Layouts and Full-spread Compositions, Invisible Strings

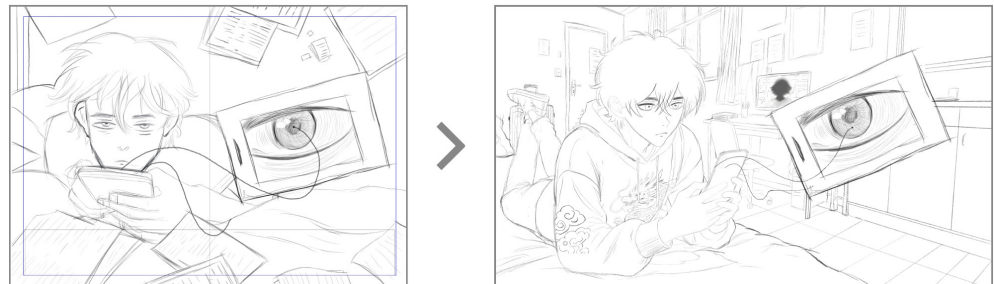


Note. This figure shows format testing carried out with the early faceless version of Kai. By comparing panel-based layouts with full-spread compositions, the experiment helped assess how visual structure affected pacing, transition, and atmospheric continuity in the story. Duan, Y. (2026).

Full-spread composition proved more effective because it allowed the reader to stay within a continuous space for longer, supporting atmosphere, symbolic detail, and gradual visual change. After deciding that the full-spread format better suited the project, I continued testing how much visual information each page needed to sustain immersion and psychological pressure. An early full-page sketch for Chapter 1 evoked the desired atmosphere, but the space remained too open and visually light to carry the level of tension I wanted, proving that using a full-spread alone was not enough. The composition also needed stronger spatial organisation, denser detail, and more carefully layered interface elements (Figure 4.14).

Figure 4.14

Chapter 1, Early and Refined Versions, Invisible Strings



Note. This figure compares an early Chapter 1 full-page sketch with a later refined version. The revision strengthened spatial organisation, visual density, and atmospheric layering to create a more immersive sense of pressure and digital presence. Duan, Y. (2026).

This process helped me understand that format was not simply a visual preference. In narrative visualisation, structure and reader experience are closely connected, and design decisions can shape how a narrative is encountered and interpreted by readers (Errey et al., 2025, p. 646). In *Invisible Strings*, format therefore directly shaped how the story would be read, how quickly the reader would move, and how pressure and immersion could be sustained across the book.

4.3.2 Digital Prototyping and Interaction Testing

Digital prototyping introduced another form of testing into the project. I chose it over print-only testing because *Invisible Strings* critiques digital influence within a digital reading environment. Using Figma, I explored how pacing, attention, and restrained interaction could shape the reading experience. Interactions were intentionally kept simple — tapping, page movement, and overlays rather than complex behaviour — with the aim of encouraging slow reading and reflection rather than fast response or game-like immersion.

I began by testing basic navigation patterns, including tapping, swiping, page transitions, and the contents overlay (Figure 4.15). These tests helped me decide how readers would move through the story, where to place pauses, and how to reveal visual information. When movement between pages was too quick, or when too many interactive options were introduced, the reading experience became fragmented and less reflective. In response, I simplified navigation and reduced unnecessary interaction so that pauses between scenes felt more deliberate.

Figure 4.15

Navigation and Contents Overlay, Invisible Strings



Note. This figure shows early testing of navigation patterns in the digital prototype, including tap areas, page transitions, and the contents overlay. The test helped refine reading flow, pause points, and interface clarity. Duan, Y. (2026).

I also tested a bilingual presentation. In an early version, Chinese and English appeared on the same page, which made the layout feel crowded and divided attention between the two blocks of text. Instead of working with the image and atmosphere, each language competed for space, interrupting the visual flow of the page, prompting the reader to compare and choose between, weakening the sense of narrative continuity. I therefore changed the structure so readers could select their preferred language at the beginning, creating a cleaner layout and a more focused reading experience (Figure 4.16).

Figure 4.16

Bilingual Layout, Invisible Strings

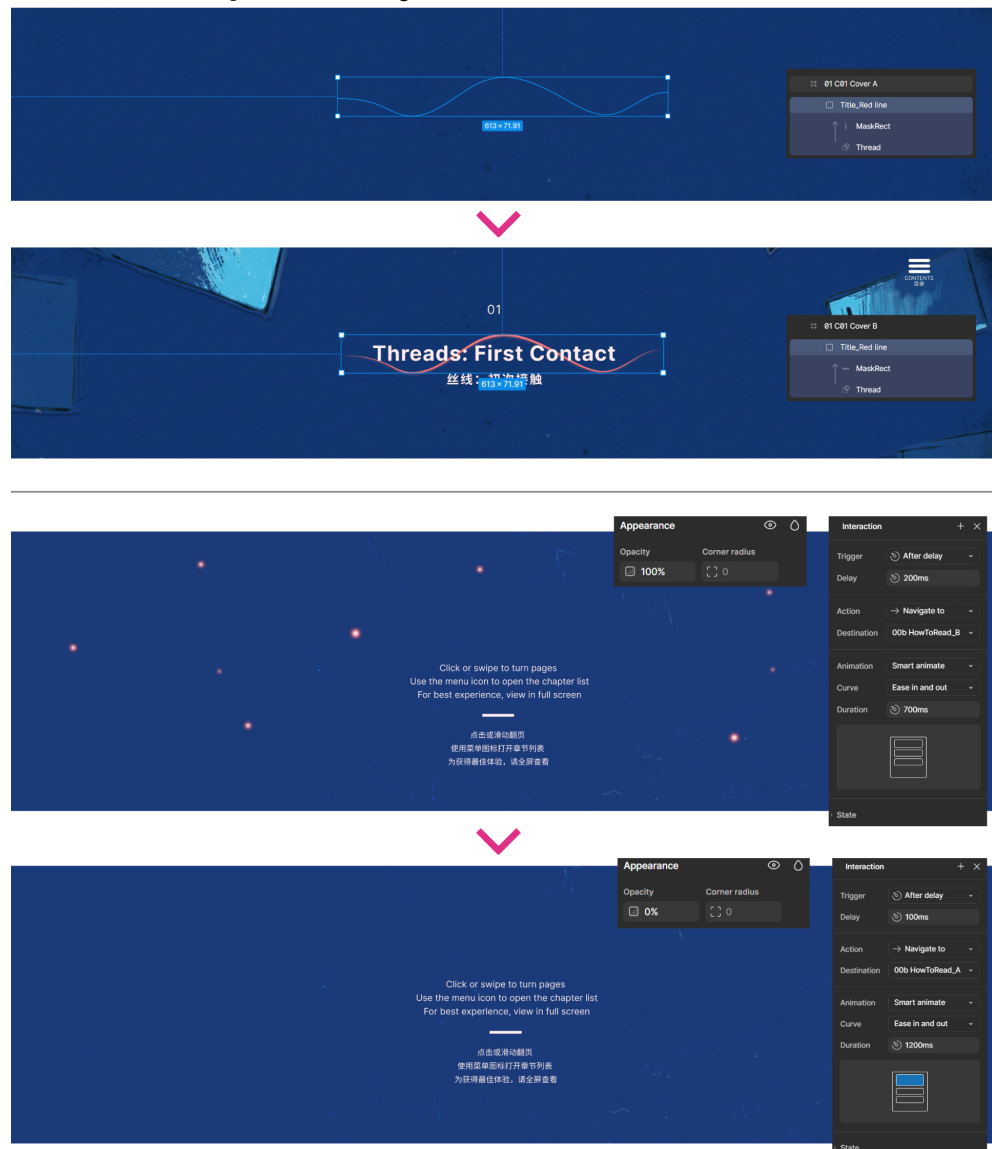


Note. This figure shows the shift from an early version with Chinese and English appearing on the same page, to a revised structure with language selection at the beginning of the prototype, thus reducing visual crowding and resulting in a cleaner, more immersive reading experience. Duan, Y. (2026).

Subtle motion was another important area of testing. I experimented with recurring interface elements, especially the red thread-like form and the small red dot, to see how minimal animation could suggest continuity, invisible connection, and unease without becoming distracting (Figure 4.17). These tests showed that motion worked best when it remained restrained. Furthermore, when animation became too noticeable, it read as decoration, interrupting the slow rhythm of reading.

Figure 4.17

Subtle Motion Testing, Invisible Strings



Note. This figure shows motion testing for the red thread and the small red dot in the prototype. The tests helped refine how subtle movement could support atmosphere, continuity, and narrative clarity without becoming overly decorative. Duan, Y. (2026).

Through this process, prototyping helped me understand how interaction could function as part of the narrative structure itself. Navigation, language selection, and subtle motion all shaped how the reader encountered time, attention, and atmosphere, supporting the project's critique of algorithmic influence through a slower and more controlled digital reading experience.

4.4 Reflective Review and Refinement

Alongside making, I used studio discussion and supervisory conversation to identify points where visual intention, symbolic clarity, and narrative pacing did not yet align. I used them as part of an ongoing reflective process around the work. Feedback was valuable not simply because it offered advice, but because it revealed how the project was being read by peers and supervisors. This helped expose problems that were less visible during making and guided more targeted refinement.

One issue concerned emotional clarity. For example, an earlier version of Kai with reduced facial detail was intended to create openness, but in discussion, it was read as emotional distance. This helped me recognise that reader identification needed to be strengthened before additional, later stages of distortion and manipulation. I therefore refined Kai's facial features and expressions to strengthen empathy and early reader connection. Another issue concerned narrative buildup. Feedback on the storyboard showed that Echo's presence needed to emerge gradually to make algorithmic influence feel cumulative rather than sudden, therefore I restructured the storyboard so that he was developed through subtle, visual hints. This clarified the importance of pacing as part of the project's critical effect. It also aligns with Schön's concept of reflection-in-action, in which design develops through a reflective conversation with the situation, and the practitioner responds to the "back-talk" of that situation through further moves and revision (1983, pp. 78, 79). In *Invisible Strings*, that "back-talk" appeared when parts of the work were read differently from what I had intended. For example, an early bilingual layout was meant to support accessibility, but it divided attention and disrupted narrative flow, which led me to move the language choice to the beginning of the prototype. Reflective review shaped concrete design decisions by revealing where the work was not yet communicating as intended. Reflective review became part of the project's method for recognising misalignment, refining intention, and strengthening the relationship between concept, image, and reader experience.

Conclusion

The final form of *Invisible Strings* emerged through decisions about pacing, atmosphere, symbolic clarity, and digital restraint. Testing and reflection demonstrated that full-spread digital composition worked more effectively than panel-based layout because it allowed algorithmic influence to be experienced as immersive, gradual, and cumulative rather than segmented into discrete narrative units. Prototyping also showed that restrained interaction, subtle motion, and early language selection supported a slower and more focused reading experience, while more complex interaction or bilingual text on the same page weakened narrative flow and visual concentration. Reflective review further showed that the project needed clearer points of recognition and more controlled scene transitions so that algorithmic influence could emerge more gradually. Taken together, these decisions shaped *Invisible Strings* as a digitally situated picture book. The following chapter turns from process to artefact by examining how these decisions operate in the final work.

5 CRITICAL COMMENTARY

This chapter examines the final artefact *Invisible Strings* and considers how its central metaphors are developed through narrative, visual, and interactive design decisions in response to the research question. Moving from process to outcome, it analyses how metaphor is carried through character, colour, space, and intentionally limited interaction to reveal hidden mechanisms of algorithmic manipulation and encourage critical digital awareness.

Rather than framing algorithmic manipulation solely as a technical issue, *Invisible Strings* renders it as a lived and perceptual experience. Through repetition, environmental pressure, symbolic encounter, and the evolving relationship between Kai and Echo, the artefact makes algorithmic influence in digital platforms more visible and emotionally legible. The chapter focuses on four main areas: the thread as metaphor and structure, Echo as an algorithmic double, colour and space as sources of psychological pressure, and restrained interaction as part of the reader's reflective experience.

5.1 The Thread as Metaphor and Structure

The thread is the central visual metaphor in *Invisible Strings*. It is shaped by a Chinese visual understanding of line as something structural, expressive, and relational rather than merely descriptive (Escande, 2026, sec. 1.3). At the beginning of the story, the thread appears light and almost harmless. It suggests connection, attention, and the small links formed through everyday digital activity.

As the story progresses, the meaning of the thread changes. It becomes more present, more tangled, and more difficult to ignore (Figure 5.1). What first appears as a line of connection gradually becomes a structure that shapes space, movement, and choice. This reflects how repeated engagement and covert recommendation can slowly organise behaviour over time.

Figure 5.1

Light Connection to Dense Entanglement, Invisible Strings



Note. This figure compares an earlier stage of the narrative, in which the thread appears light and relatively open, with a later stage, in which it becomes denser and more entangled. The contrast shows how the thread shifts from suggesting connection and attention to expressing restriction, accumulation, and algorithmic control. Duan, Y. (2026).

The thread also works as a structural device across the twelve chapters. In the early chapters, it is light, it supports attraction and first contact. In the middle chapters, it becomes denser, contributing to restriction and pressure, but by the later chapters it has become part of the conflict itself, showing how deeply its control has penetrated Kai's environment.

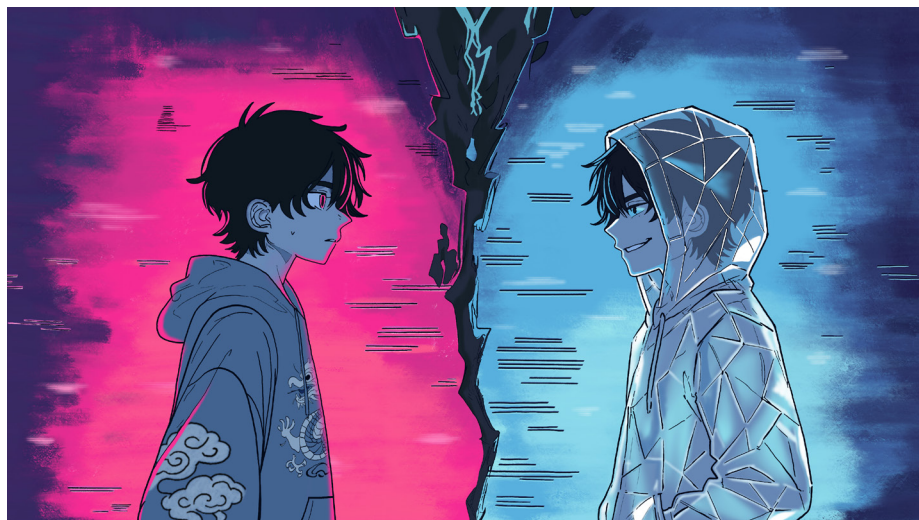
5.2 Echo as Algorithmic Double

Echo is the project's personification of algorithmic influence. His significance lies not in functioning as an external villain but in being constructed as a reflected and derivative double. He can also be understood through Daoist ideas of bodily division and transformation. In a Daoist context, Robinet describes *fen-hsing*² as the power to divide the body into many parts and to appear in more than one place at once (1979, p. 49). Her description helps frame Echo as a derivative double rather than a separate external villain — in this way, Echo extends the presence of the mirror as a device of disclosure into the form of a character.

This character construction is also informed by the way digital systems continuously build predictive profiles from users' actions. Zuboff explains how behavioural data is translated into predictive products that can then be used to shape future action (2019, pp. 8,13). Bucher shows that algorithmic systems organise sociality through computational means and govern visibility through ongoing "if...then" conditional adjustment (2018, pp. 4, 159). In narrative terms, Echo personifies this process in a more emotionally legible form. He appears as a single figure because the project is concerned less with fragmentation into many separate selves than with the gradual convergence of behavioural traces into one increasingly persuasive predictive double. His silhouette, posture, and facial structure move closer to Kai's, but his presence remains slightly unnatural, creating a sense of unease because he feels both familiar and distorted (Figure 5.2). As a result, Echo reads as part of Kai's world while still suggesting that he has been shaped by forces beyond Kai's control.

Figure 5.2

Kai and Echo, Invisible Strings



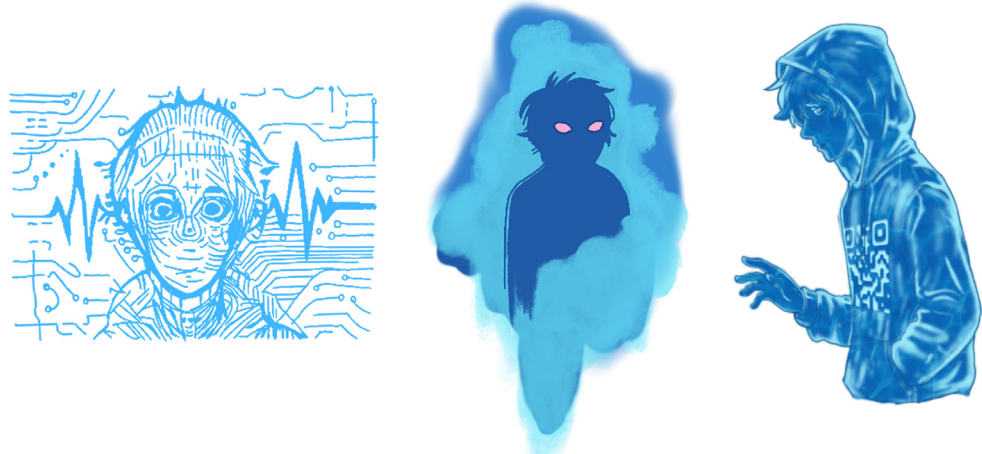
Note. This figure shows the final Chapter 8 illustration, in which Echo and Kai appear visually close while remaining distinct. Their shared silhouette, posture, and facial structure suggest Echo's role as a self-copy, shaped through profiling and repetition, while the remaining differences prevent him from being simply read as a duplicate. This tension supports the chapter's exploration of doubt, recognition, and unstable self-reflection. Duan, Y. (2026).

² *Fen-hsing* refers here to "body division", meaning the splitting of one body into multiple manifestations (Robinet, 1979, p. 49).

Echo's role changes throughout. His presence is initially faint and ill-defined, but as the story develops, he becomes more visible and embodied, in parallel with Kai's deepening entrapment in the system (Figure 5.3). By the later chapters Echo becomes a direct manifestation of the system's hold over Kai's attention and self-perception.

Figure 5.3

Echo's Changing Form, Invisible Strings



Note. This figure shows selected stages of Echo's visual transformation. As his form becomes clearer, closer to Kai, and more visually present, the changes support his role as an algorithmic double shaped through repetition, profiling, and growing influence. Duan, Y. (2026).

In this way, Echo is central to the project's argument — he demonstrates that algorithmic power is not experienced only as a technical system, but as a relational and affective force that becomes persuasive through familiarity, repetition, and gradual attachment appearing as something intimate, adaptive, and increasingly difficult to separate from Kai's own desires.

5.3 Colour, Space, and Psychological Pressure

Colour and space are central to how *Invisible Strings* communicates algorithmic influence. The final artefact uses limited colour and a spatial progression that moves from recognisable reality into abstract digital immersion, returning to a more grounded reality.

The colours were chosen because the project needed algorithmic influence to feel attractive before it became oppressive. Earlier colour tests showed that darker, more heavily contrasted palettes introduced tension too early, while softer palettes made the digital space feel too gentle and reassuring, reducing the sense that the platform was actively shaping mood and attention. Blue suggests the digital environment, emotional distance, and quiet control, while pink introduces attraction and affective pull. Together, they create a space that feels appealing but slightly unstable, so that digital influence does not appear immediately threatening, but instead first feels familiar and rewarding.

Space develops in a similar way. The earlier chapters remain closer to everyday reality, grounding Kai's experience in an ordinary world. As the story progresses, the spaces become more abstract and digitally charged through threads, screens, floating symbols and layered interface forms. In the final chapter, the return to a more normal reality marks a shift away from immersive digital control, allowing a sense of release to emerge (Figure 5.4).

Figure 5.4
Spatial Progression, Invisible Strings



Note. This figure compares selected chapters from *Invisible Strings* to show the shift from recognisable reality to abstract digital immersion and back to a more grounded reality. The comparison highlights how colour and space work together to communicate attraction, psychological pressure, and a gradual sense of release. Duan, Y. (2026).

This progression helps make influence feel environmental rather than purely psychological. The story does not only tell the reader that Kai is under pressure, it places that pressure in the visual world around him. Through colour, density and the movement from reality to abstraction and back again, the artefact makes algorithmic influence feel atmospheric, perceptual and emotionally legible.

5.4 Reader Experience and Encouraging Critical Digital Awareness

I did not want the digital format of *Invisible Strings* to become highly interactive or game-like, as too many effects or gestures would weaken the project's reflective quality. For this reason, interaction remains simple, relying mainly on tapping, clicking, and quiet page transitions. By limiting interaction, the project avoids turning its critique into another fast and overstimulating screen experience. The reader is invited to notice repetition, compare small visual changes across chapters, and reflect on how apparently ordinary digital experiences are gradually shaped by systems of prediction, attention management, and emotional design. Awareness in this project begins through a reflective shift in perception, as the reader moves from immersion towards noticing, questioning, and interpretation. The restrained interaction is a deliberate rhetorical choice that shapes how the reader moves, notices and stays with the work, helping create distance from habitual scrolling while encouraging a more critical and reflective mode of reading.

5.5 Reflection on the Final Artefact

The final artefact makes hidden systems visible without reducing them to simple mechanical images. Algorithmic manipulation is presented as something intimate, familiar, and initially difficult to detect. Together, the symbolic elements of the thread mirror and use of space show how platform influence emerges gradually and narrows attention patterns. The artefact also addresses the second part of the research question by encouraging critical digital awareness.

5.6 Limitations and Critical Evaluation

Invisible Strings has limitations. Firstly, the prototype does not operate as a fully adaptive system. Although it is presented in a digital format, it does not change in real time according to each reader's behaviour. This means the work can symbolically and narratively represent personalised influence, but it cannot reproduce the full adaptive logic of actual platform systems.

Secondly, the project relies strongly on metaphor, atmosphere, and symbolic reading. This is one of its strengths, but it also means that some meanings may remain open or be interpreted differently by different readers. This means that the work needs to balance narrative accessibility with symbolic complexity.

Furthermore, the project is limited by the absence of a larger reader study. Although the prototype has been refined through studio discussion and reflective review, its interpretation has not been examined across a broader group of readers. For this reason, the project should be understood as a situated design response rather than a generalisable user study.

Invisible Strings is a speculative and practice-led intervention rather than a simulation of an actual platform. Its value lies in making hidden influences more visible through visual storytelling and encouraging readers to reflect on how digital habits may shape attention and behaviour over time.

Conclusion

Invisible Strings communicates algorithmic influence through metaphor, character, colour, space, and restrained interaction. It argues that the artefact renders hidden digital systems more perceptible through a gradual and emotionally legible narrative experience. While acknowledging its limitations, the project creates a reflective space in which readers can become more aware of how everyday digital habits may be shaped over time. The following chapter returns to the research question and summarises the project's key outcomes.

6 CONCLUSION

This research asked how visual storytelling can reveal hidden mechanisms of algorithmic manipulation and encourage critical digital awareness among Gen Z members of the Chinese diaspora. *Invisible Strings* responds to this question by translating abstract digital systems into a visual and emotional narrative experience. Rather than explaining algorithmic influence only through theory or technical language, the project makes it perceptible through character, metaphor, atmosphere, spatial pressure, and restrained interaction.

The practice-led process showed that knowledge about algorithmic influence did not emerge through theory alone, but through iterative making, testing, and reflection. It made it possible to translate abstract concepts into visual and narrative form and to evaluate which combinations of metaphor, pacing, atmosphere, and restrained interaction communicated most effectively. In this sense, the process was not only a way of producing the artefact, but also a way of generating design knowledge through practice. It revealed that algorithmic influence was communicated most effectively when it unfolded gradually, when metaphor developed through repetition, and when interaction remained restrained enough to support reflection.

This project contributes to practice-led design research by showing that drawing, prototyping, and experimentation can generate knowledge rather than simply illustrate outcomes. It also contributes to visual storytelling by showing how a digital picture book can become a space for reflecting on social and technological issues. More specifically, *Invisible Strings* suggests that critical digital awareness can be encouraged through narrative experience, when readers are invited to slow down, notice patterns, compare recurring visual changes, and question how attention, emotion, and behaviour may be shaped over time. The project draws on selected Chinese ideas in its use of metaphor, particularly through a mirror-based logic of reflection and disclosure, in which awareness emerges gradually rather than all at once. In this way, it offers a situated perspective shaped both by my movement between Chinese and Aotearoa New Zealand digital contexts and by selected Chinese philosophy ideas that frame awareness as reflective, indirect, and gradual.

The project does not reproduce real-time algorithmic personalisation, and it should be understood as a situated design response rather than a generalisable user study. Because the prototype has not been examined through a large reader study, it does not claim to measure the effects of the work on all readers. Instead, its contribution lies in proposing how visual storytelling can create conditions that encourage reflection and critical noticing.

Overall, *Invisible Strings* argues that algorithmic manipulation often works through familiarity, repetition, and emotional comfort rather than obvious force. Visual storytelling offers one way to make these processes more visible and emotionally understandable. Rather than providing a final solution, the project offers a slow and reflective way of seeing, encouraging readers to pause, notice patterns, and question how ordinary digital habits may be shaped over time.

REFERENCES

- Anand, N., Sharma, M. K., Thakur, P. C., Mondal, I., Sahu, M., Singh, P., Kande, J. S., M. S., N., & Singh, R. (2022). Doomsurfing and doomscrolling mediate psychological distress in COVID-19 lockdown: Implications for awareness of cognitive biases. *Perspectives in Psychiatric Care*, 58(1), 170–172. <https://doi.org/10.1111/ppc.12803>
- Asgari, M., & Hurtut, T. (2024). A design language for prototyping and storyboarding data-driven stories. *Applied Sciences*, 14(4), Article 1387. <https://doi.org/10.3390/app14041387>
- Bucher, T. (2018). *If... then: Algorithmic Power and Politics*. Oxford University Press.
- Chute, H. L. (2010). *Graphic women: Life Narrative and Contemporary Comics*. Columbia University Press.
- Cohn, N. (2014). The architecture of visual narrative comprehension: The interaction of narrative structure and page layout in understanding comics. *Frontiers in Psychology*, 5, Article 680. <https://doi.org/10.3389/fpsyg.2014.00680>
- DataReportal. (2024). Digital 2024: New Zealand. <https://datareportal.com/reports/digital-2024-new-zealand>
- Dimock, M. (2019, January 17). *Where Millennials End and Generation Z Begins*. Pew Research Centre.
- Du, X., & Lin, S. (2019). Social media usage, acculturation and psychological wellbeing: A study with Chinese in New Zealand. *International Communication of Chinese Culture*, 6(3), 231–245. <https://doi.org/10.1007/s40636-019-00160-2>
- Education New Zealand. (2020). ENZ's WeChat mini programme supports Chinese students. <https://www.enz.govt.nz/news-and-research/ed-news/enzs-wechat-mini-programme-supports-chinese-students/>
- Errey, N., Zowghi, D., Leong, T. W., Wu, Y., Yuan, X., Huang, W., & Liang, C. J. (2025). Heuristics for evaluating narrative visualization: A validation study. *Journal of Visualization*, 28(3), 645–659. <https://doi.org/10.1007/s12650-025-01051-y>
- Escande, Y. (2026). Aesthetics in Chinese Philosophy: Painting and Calligraphy. In E. N. Zalta & U. Nodelman (Eds.), *The Stanford Encyclopedia of Philosophy*. Stanford University. <https://plato.stanford.edu/entries/chinese-painting-calligraphy/>
- Fogg, B. J. (2003). *Persuasive Technology: Using Computers to Change What We Think and Do*. Morgan Kaufmann.

- Goldschmidt, G. (1991). The dialectics of sketching. *Creativity Research Journal*, 4(2), 123–143. <https://doi.org/10.1080/10400419109534381>
- Gray, C. M., Kou, Y., Battles, B., Hoggatt, J., & Toombs, A. L. (2018). The dark (patterns) side of UX design. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (Paper 534, pp. 1–14). Association for Computing Machinery. <https://doi.org/10.1145/3173574.3174108>
- Hanuka, T. (2012). *Overkill*. T. Hanuka.
- Knight, T. (Director). (2016). *Kubo and the two strings* [Film]. LAIKA.
- Kramer, A. D. I., Guillory, J. E., & Hancock, J. T. (2014). Experimental evidence of massive-scale emotional contagion through social networks. *Proceedings of the National Academy of Sciences*, 111(24), 8788–8790. <https://doi.org/10.1073/pnas.1320040111>
- Lao Tzu. (2012). *Tao te ching: The ancient classic*. Capstone.
- Lee, K.-F., & Chen, Q. (2021). *AI 2041: Ten Visions for Our Future*. Currency.
- Liang, Z., Zhang, X., Ma, K., Liu, Z., Ren, X., Goucher-Lambert, K., & Liu, C. (2025). StoryDiffusion: How to support UX storyboarding with generative-AI. In Proceedings of the 27th International Conference on Multimodal Interaction (pp. 135–144). Association for Computing Machinery. <https://doi.org/10.1145/3716553.3750793>
- Male, A. (2017). *Illustration: A Theoretical and Contextual Perspective* (2nd ed.). Bloomsbury Academic.
- McCloud, S. (1994). *Understanding Comics: The Invisible Art*. HarperPerennial.
- Oeldorf-Hirsch, A., Romann, L. R., Witkowich, I., & Chen, J. (2025). *Exploring social media users' experiences with algorithmic transparency cues*. *New Media & Society*. Advance Online Publication. <https://doi.org/10.1177/14614448251339493>
- Robinet, I. (1979). Metamorphosis and deliverance from the corpse in Taoism. *History of Religions*, 19(1), 37–70. <https://doi.org/10.1086/462835>
- Salisbury, M., & Styles, M. (2012). *Children's Picturebooks: The Art of Visual Storytelling*. Laurence King Publishing.
- Schuster, N., & Lazar, S. (2025). Attention, moral skill, and algorithmic recommendation. *Philosophical Studies*, 182(1), 159–184. <https://doi.org/10.1007/s11098-023-02083-6>
- Schön, D. A. (1983). *The Reflective Practitioner: How Professionals Think in Action*. Basic Books.

- Shaw, C., & Nickpour, F. (2024). Design as an agent of narratives: A matrix and framework for incorporating narratives into design processes. *Advanced Design Research*, 2(1), 37–44. <https://doi.org/10.1016/j.ijadr.2024.07.003>
- Smith, H., & Dean, R. T. (Eds.). (2009). *Practice-led Research, Research-led Practice in the Creative Arts*. Edinburgh University Press.
- Sun, W., & Yu, H. (2020). *WeChat and the Chinese Diaspora: Digital Transnationalism in the Era of China's Rise*. Routledge.
- Suzuki, D. T. (1938). Zen Buddhism. *Monumenta Nipponica*, 1(1), 48–57. <https://www.jstor.org/stable/2382444>
- Tan, C. (2020). Revisiting Donald Schön's notion of reflective practice: A Daoist interpretation. *Reflective Practice*, 21(5), 686–698. <https://doi.org/10.1080/14623943.2020.1805307>
- Trilling, D. (2024). Communicative feedback loops in the digital society. *Weizenbaum Journal of the Digital Society*, 4(2). <https://doi.org/10.34669/WI.WJDS/4.2.4>
- Tufekci, Z. (2015). Algorithmic harms beyond Facebook and Google: Emergent challenges of computational agency. *Colorado Technology Law Journal*, 13(2), 203–218.
- Varsano, P. (2013). Disappearing objects, elusive subjects: Writing mirrors in Chinese literature. *Representations*, 124(1), 96–130. <https://doi.org/10.1525/rep.2013.124.1.96>
- Walden, T. (2018). *On a Sunbeam*. Avery Hill Publishing.
- Wang, E. Y. (1994). Mirror, Death, and Rhetoric: Reading Later Han Chinese Bronze Artifacts. *The Art Bulletin*, 76(3), 511–534. <https://doi.org/10.2307/3046055>
- Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. PublicAffairs.

APPENDIX

Invisible Strings is an interactive digital picture book presented on iPad Pro (12.9 inch).

Media: Figma interactive prototype.

Duration: approximately 15 minutes.

Exhibited at Ngutu Kākā Gallery, Auckland University of Technology, 3–6 June 2026.

Interactive Prototype Link:

<https://www.figma.com/proto/1L8kXVnLzkCUTwG6CrrMmD/Invisible-Strings-Digital-Book-Final?node-id=4086-1959&p=f&viewport=-2913%2C887%2C0.24&t=YSq28me8vLgB46z-1&scaling=scale-down-width&content-scaling=fixed&page-id=17%3A112&hide-ui=1>

Visitors interacted directly with the digital picture book through touch navigation. The interface was intentionally kept simple, allowing readers to progress through the story at their own pace. Presenting the work on a single device preserved the immersive reading experience and supported the project's aim of communicating the hidden influence of algorithms through visual storytelling.

Figure A1

Installation View. Ngutu Kākā Gallery, 2026.



Figure A2

Installation View. Ngutu Kākā Gallery, 2026.



Figure A3

Installation View. Ngutu Kākā Gallery, 2026.



Figure A4

Reader Interaction. Ngutu Kākā Gallery, 2026.



Figure A5

Reader Interaction. Ngutu Kākā Gallery, 2026.

