

Objectifying Meaning:

Using Blended Design in Tangibilizing Language
for Cross-Cultural Communication.

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Abstract

Language, a conduit for communication, can lead to misunderstandings due to its intricate and nuanced nature, encompassing cultural connotations and subtle layers of meaning.

This research explores the transformation of abstract language into tangible artefacts, 'tangibilizing' inherent meanings. By creating diverse objects inspired by sayings and expressions, the study examines how blending these conceptual meanings with physical forms enhances cross-cultural communication through multiple dimensions.

Guided by the blended design approach based on Fauconnier and Turner's conceptual integration network (2002), this research offers a distinct perspective shaped by multilingual experiences. Incorporating multiple languages and cultural contexts highlights the complexity of translation. This approach acts as a bridge, connecting language and conceptual meaning to the tangible world and fostering cross-cultural understanding.

The exploration introduces a design paradigm in which linguistic and cultural concepts find expression through tangible artefacts, resonating across domains from data visualisation to product design. By merging imagery with underlying meanings, these artefacts evolve into shared experiences, transcending linguistic and cultural boundaries to amplify human connections. Furthermore, the process considers tools for designers to create more meaningful and relatable objects in specific and cross-cultural contexts.

Table of Contents

List of Figures	6
Introduction / Positioning Statement	15
Chapter 1. Literature Review	18
1.1 Objectification	19
1.2 Dimensionality	19
1.3 Semantics and Semiotics.....	20
1.4 Bilingualism & Translanguaging.....	22
1.5 Translation	23
1.6 Boundary Objects	24
1.7 Existing Works, Artists and Designers	25
1.7.1 <i>Object</i> - Meret Oppenheim, 1936.....	26
1.7.2 <i>The Treachery of Images</i> - Rene Magritte, 1929.....	27
1.7.3 <i>Don't let your clothes turn into food for moths: Donate</i> - BZZ Propaganda, 2014.....	28
1.7.4 <i>One and Three Chairs</i> - Joseph Kosuth, 1965	29
Summary.....	31
Chapter 2. Methodology	33
2.1 Practice-led Research.....	34
2.2 Blended Design Approach.....	34
2.3 Associative Thinking.....	36
2.4 Phases of Artefact Creation.....	38
2.4.1 Empathise	38
2.4.2 Definition.....	39
2.4.3 Visualisation.....	41
2.4.4 Making	44

2.4.5 Synthesis.....	49
Summary.....	50
Chapter 3. Creative Practice.....	52
3.1 “ <i>What Elephant?</i> ” (#8)	53
3.2 <i>Eye See You</i> (#12).....	61
3.3 <i>Glass House</i> (#14).....	67
3.4 <i>Upstream without an Umbrella</i> (#18).....	74
3.5 <i>Piping Hot Kettle</i> (#56).....	86
3.6 <i>Cow Bucket</i> (#60).....	94
Chapter 4. Reflection on Project	102
4.1 Post-Showcase & Video Reflection	104
Chapter 5. Conclusion.....	106
5.1 Limitations	106
5.2 Contribution	107
5.3 Future directions.....	108
Reference List	110
Appendix A.....	119
Appendix B.....	129



List of Figures

Figure 1. Oppenheim, M. (1936). *Object* by Meret Oppenheim (1936). [Photograph]. Retrieved from <https://www.moma.org/collection/works/80997>

Figure 2. Magritte, R. (1929). *The Treachery of Images* by Rene Magritte (1929). [Painting]. Retrieved from <https://www.sartle.com/artwork/the-treachery-of-images-rene-magritte>

Figure 3. BZZ Propaganda. (2014). *Don't let your clothes turn into food for moths: Donate* by BZZ Propaganda (2014). [Image]. Retrieved from <https://campaignsoftheworld.com/print/shopping-itaguacu/>

Figure 4. Kosuth, J. (1965). *One and Three Chairs* by Joseph Kosuth (1965). [Photograph]. Retrieved from <https://www.moma.org/collection/works/81435>

Figure 5. Fauconnier, G., & Turner, M. (2002). The basic Conceptual Integration Network (Conceptual Blending Diagram) proposed by Fauconnier and Turner (2002). [Diagram]. Fauconnier, G., & Turner, M. (2002). *The Way We Think: Conceptual blending and the mind's hidden complexities*. New York, NY: Basic Books. (p. 46)

Figure 6. Lee, G. (2022). A design for the English saying, "The bad apple spoils the barrel" combined with an equivalent Chinese saying, "the horse that led the herd astray". [Sketch]

Figure 7. Hasso Plattner Institute of Design at Stanford. (2018). Design Thinking Model from The Hasso Plattner Institute of Design at Stanford (2018). [Diagram]. Retrieved from https://static1.squarespace.com/static/57c6b79629687fde090a0fdd/t/5b19b2f2aa4a99e99b26b6bb/1528410876119/dschool_bootleg_deck_2018_final_sm+%282%29.pdf

Figure 8. Lee, G. (2021). First two designs and only ones with no related metaphor. [Sketches]

Figure 9. Lee, G. (2022). Adapted and simplified Conceptual Integration Network to aid with idea generation. [Diagram]

Figure 10. Lee, G. (2022). Examples of physical sketches (Miro Board #70, #75, #78). [Scan]

Figure 11. Lee, G. (2022). Examples of Procreate sketches (Miro Board #15, #63, #90). [Sketches]

Figure 12. Lee, G. (2022). Miro Board. [Screenshot]. Retrieved from https://miro.com/app/board/uXjVOWdzzu8=?share_link_id=156193467120

Figure 13. Lee, G. (2022). Other sayings that had multiple designs. [Sketches]

Figure 14. The Metropolitan Museum of Art. (n.d.). Peruvian Whistling Jar. [Photograph]. Retrieved from <https://www.metmuseum.org/art/collection/search/502277>

Figure 15. Buckley, J. (2021). Indigenous Fishscale Art *Family* by Jennifer Buckley (2021). [Photograph]. Retrieved from <https://www.nwtarts.com/artist-profile/jennifer-buckley>

Figure 16. TheNyonyaNBabaShop. (n.d.). Peranakan Porcelain ware. [Photograph]. Retrieved from <https://www.thenyonyanbabashop.com/>

Figure 17. Lee, G. (2022). 3D printing process (Kettle). [Photograph]

Figure 18. Lee, G. (2022). Handmaking process (Eye). [Photograph]

Figure 19. Lee, G. (2022). Upcycling (original design on teacup). [Photograph]

Figure 20. Lee, G. (2023). “*What Elephant?*” teacup sets (artefact). [Photograph]

Figure 21. Lee, G. (2023). Saucer design (hidden). [Photograph]

Figure 22. Lee, G. (2023). Cup design (hidden). [Photograph]

Figure 23. Lee, G. (2022). Conceptual Integration Network for “the Elephant in the Room” saying. [Diagram]

Figure 24. Lee, G. (2023). Example of initial tests to hide the original design (teacup). [Photograph]

Figure 25. Lee, G. (2023). Use of permanent marker (saucer) to draw on elephant image. [Photograph]

Figure 26. Lee, G. (2023). Saucer with rough texture (hidden, revealed). [Photographs]

Figure 27. Lee, G. (2023). Test saucer with smooth texture (hidden, revealed). [Photographs]

Figure 28. Lee, G. (2023). Design under teacup (revealed). [Photograph]

Figure 29. Lee, G. (2023). *Eye See You* (artefact). [Photograph]

Figure 30. Lee, G. (2022). Conceptual Integration Network for “Beauty is in the Eye of the Beholder” saying. [Diagram]

Figure 31. Lee, G. (2022). Initial visualisation of final artefact against brown background for better visibility. [Sketch]

Figure 32. Lee, G. (2022). References for mirror and clay placement using Procreate and PainterAR. [Screenshots][Photograph]

Figure 33. Lee, G. (2022). White unshaded mirror. [Photograph]

Figure 34. Lee, G. (2023). Identification of shadow areas to be painted. [Sketch]

Figure 35. Lee, G. (2023). *Glass House* (artefact). [Photograph]

Figure 36. Lee, G. (2022). Conceptual Integration Network for “People who live in glass houses shouldn’t throw stones” saying. [Diagram]

Figure 37. Lee, G. (2022). Various designs that were explored. [Sketch]

Figure 38. Lee, G. (2022). Holding the walls together using tape when assembling. [Photograph]

Figure 39. Lee, G. (2023). Scoria samples. [Photograph]

Figure 40. Lee, G. (2023). Smooth white stone. [Photograph]

Figure 41. Lee, G. (2023). *Upstream without an Umbrella* (artefact). [Photographs]

Figure 42. Lee, G. (2022). Conceptual Integration Network for “A fish out of water” saying. [Diagram]

Figure 43. Fredericks, S. (2018). *Salmon Skin Umbrella* by Synnøve Fredericks (2018). [Photograph]. Retrieved from <https://www.synnove.net/salmon-skin-umbrella/>

Figure 44. Lee, G. (2021). Initial umbrella designs. [Sketches]

Figure 45. Lee, G. (2022). Harvesting of Snapper skin and scales. [Photographs]

Figure 46. Lee, G. (2022). Boiling the fish skins and removing scales. [Photographs]

Figure 47. Lee, G. (2022). Washing of scales and scrubbing of tail and fins. [Photographs]

Figure 48. Lee, G. (2022). Overnight soak in solution of lemon dishwashing liquid, fresh lemon juice and water to fully remove odours. [Photograph]

Figure 49. Lee, G. (2022). Drying of scales, fins, and tail segments. Wet (top), Dry (below). [Photographs]

Figure 50. Lee, G. (2022). Umbrella skeleton. [Photograph]

Figure 51. Lee, G. (2022). Process of gluing scales onto canopy. [Photograph]

Figure 52. Lee, G. (2022). Example of an arrangement of fin segments on shaft of umbrella. [Photograph]

Figure 53. Lee, G. (2022). Thin, almost transparent cheesecloth canopy with scales. [Photograph]

Figure 54. Lee, G. (2023). Closeup of sections of the finished umbrella (canopy, ribs, shaft and handle). [Photographs]

Figure 55. Lee, G. (2022). Patterning and warping seen on fin segment (top) and scale (bottom). [Photographs]

Figure 56. Lee, G. (2023). *Piping Hot Kettle* (artefact). [Photograph]

Figure 57. Lee, G. (2022). Conceptual Integration Network for “Guung chui boi hiang, hiang chui boi guung (Boiled water makes no noise, noisy water isn’t boiled)” saying. [Diagram]

Figure 58. TheNyonyaNBabaShop. (n.d.). Designs on a Peranakan teapot. [Photograph]. Retrieved from <https://www.thenyonyanbabashop.com/>

Figure 59. Lee, G. (2021). Nyonya Kebaya lace designs. [Photographs]

Figure 60. Lee, G. (2022). Fusion 360 CAD model (isometric view, side view). [Screenshots]

Figure 61. Lee, G. (2022). Circuit iteration. [Photograph]

Figure 62. Lee, G. (2022). Promising beginnings of a failed initial design. Early 3D print tests. [Photograph]

Figure 63. Lee, G. (2023). *Cow Bucket* (artefact). [Photograph]

Figure 64. Lee, G. (2022). Conceptual Integration Network for “A drop in the bucket” and “One hair from nine oxen” sayings. [Diagram]

Figure 65. Lee, G. (2022). Fuzzy bucket. Flesh side facing out. [Photograph]

Figure 66. Lee, G. (2022). Organising leather by colour. [Photograph]

Figure 67. Lee, G. (2022). Bucket assembly. [Photograph]

Figure 68. Lee, G. (2022). Wet forming the leather ‘ripple’. [Photograph]

Figure 69. Lee, G. (2023). Final ripple in bucket. [Photograph]

Figure 70. Lee, G. (2023). Close up of droplets. [Photograph]

Figure 71. Lee, G. (2022). Sanded ‘cow horn’ handle (before and after). [Photographs]

Figure 72. Lee, G. (2022). Layer lines reminiscent of cow horn growth rings. [Photograph]

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 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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Introduction / Positioning Statement

Many multilingual individuals encounter the struggle in translating certain words from their native language to another, struggling to find appropriate words to describe emotions or actions that the original term conveys (Gullberg, 2011). This also involves the challenge of conveying the cultural significance or nuances of a word, often resulting in things being 'lost in translation' (Guldin, 2014), or even resulting in 'translanguaging', where bilinguals and multilinguals use specific features from their language repertoire to convey meaning in different contexts (Vogel & García, 2017). The example of translanguaging between two Singaporeans in Wei's *Translanguaging as a Practical Theory of Language* (2018) is an example of the linguistic diversity within my own home.

As someone with receptive bilingualism, it's intriguing to realise that you can understand words in another language, even though it's not your mother tongue, without being able to explain how exactly. Moreover, as a 'third-culture kid', defined by Pollock, Van Reken, and Pollock (2010) as someone who has spent developmental years outside their parents' culture, I have always grappled with a sense of 'non-belonging'. Growing up with Eastern values in a Western society, this 'third culture' emerges as a blend of parental and host cultures, encapsulated in the term "the culture between cultures" (Walters & Auton-Cuff, 2009). This has provided me a unique perspective on meaning and culture; both in the languages and cultures I am exposed to, but also in the new ideas I am able to create. The constant reconciliation and daily blending of concepts led me to explore how this process works on a cognitive level and how it can be applied to promote clearer cross-cultural communication.

A blended design approach considers not only material aspects but also social and cultural ones, aiming to effectively convey meaning through artefacts. In essence, the research outcomes are objects that translate sayings from various languages into physical forms. Language incorporates elements of culture and social hierarchy, as language reveals a culture's priorities through the presence or absence of words that might be available in another language, as well as colloquialisms and slang that are indicative of a person's place in society. It can be thought of as an in-between from a person's thoughts to the material world and is laden with subtle nuances that can easily be misinterpreted without proper context.

Through my research, I've discovered the potential to enhance these concepts using language-based metaphors, idioms, and figures of speech to craft tangible artefacts that blend the evoked imagery and the underlying meanings of these expressions. For instance, consider the idiom 'to let the cat out of the bag', which conjures an image of a cat emerging from an open sack, while also meaning to accidentally reveal a secret.

In contrast, physical objects seem more straightforward in terms of their purpose and meaning; however, in this research project, the development and repurposing of the physical artefacts add another complex dimension. A physical object demands consideration as to how the object will be handled and understood as it provides concreteness to abstract ideas or a physicality to thoughts. The translation of something as intangible and ambiguous as language into something as concrete as a physical object, with tactile and material dimensions, was the challenge investigated. The primary approach involved defying people's expectations about the functionality of an object or artefact, leading to surprise and dialogue. This prompts individuals to connect their preconceived notions about the object's purpose or delve into deeper personal perspectives related to the saying or its associated topic.

The artefacts created showcase my exploration into how this translation process can be externalized, effectively 'tangibilizing the intangible' and demonstrates methods and considerations for designers in such circumstances.

Thesis Overview

Navigation of this thesis starts with discussing the background in Chapter 1: Literature Review, providing context for the research topic by delving into relevant areas and demonstrating its ties to specific literature. This includes Objectification, to introduce key ideas central to this thesis; Dimensionality, for its relevance to both physical and intangible aspects; Semantics and Semiotics, highlighting the complex nature of language essential to the research; Bilingualism, Translanguaging, and Translation, addressing the cross-cultural nature of the artefacts; and Boundary Objects, which showcase how objects are effective communicators across diverse disciplines and perspectives. Examples of existing works and artists are showcased to further justify the ideas discussed in this research.

Chapter 2: Methodology elaborates on the approach and methodological influences,

outlining the structure followed when developing and creating these artefacts. The six artefacts featured as part of this thesis are detailed in Chapter 3: Creative Practice, where notable aspects of the artefact development process are highlighted. This chapter also includes reflections on the resulting artefacts, reflecting deeply on the practice and interpretation of the thesis itself.

The last two chapters present ideas regarding the findings of the entire creative process. Chapter 4: Reflection on Project offers personal insights and reflections, while Chapter 5: Conclusion consolidates the research findings, restates the overall aim, and discusses future directions and applications.

Chapter 1. Literature Review

Chapter Introduction

With the growing interconnectedness of modern society (Magu, 2015), it becomes increasingly relevant that we need to find better methods to overcome obstacles such as language and cultural barriers. As identified by Zhu Hua, (2018), language and culture are interlinked, and hence the teaching of language alongside the culture of the people are important in order for successful communication (Hymes, 1972). Without this context, traditions and meanings may be distorted when viewed through different cultural lenses. For instance, a Westerner interpreting Eastern practices might inadvertently impose their own biases, hindering comprehension of their significance, and vice versa. However, that is not to say that this isn't possible. As demonstrated within this research despite our differences, many concepts, philosophies and principles are shared across cultures and communities and therefore it is only a matter of being able to clearly connect these ideas to each other to reveal that we have all been looking at the same thing - just through these different lenses.

This research aims to explore physical objects as this communicative alternative. However, first we must establish the current beliefs regarding meaning and how it is expressed through words in order to understand the ways in which those connections can then be adapted to another medium, in this case, one that is physical and tangible.

This literature review discusses objectification and its material impact, the dimensionality of objects in comparison to both written and spoken word, the significance of words as a vehicle for meaning and what that implies, bilingualism and how we might apply this cognitive process to design, boundary objects as an example of how this form of object communication is possible, and finally providing examples of existing designs to demonstrate these ideas.

1.1 Objectification

The term 'objectification' is included in the title to signify how this thesis transforms the intangible nature of language into a tangible collection of six objects—a literal play on words as they are 'objectified'. The focus of this thesis is suggested through its definition, "to give expression to (something, such as an abstract notion, feeling, or ideal) in a form that can be experienced by others." (Merriam-Webster, n.d.). This choice of wording also captures the complexity of meaning and applied context within language, where 'objectification' often carries a negative connotation of dehumanization by reducing something to mere object status (Volpato & Andrighetto, 2015). It exemplifies the potential for misunderstandings and miscommunication, as some may associate it with negative connotations related to its ties to slavery and sexual objectification (Volpato & Andrighetto, 2015), and the overall "splitting of a whole person into parts that serve specific goals and functions for the observer" (Gruenfeld et al., 2008, p. 111).

Objectification is often demonstrated through the simplification of complex data or information into clear and easily digestible formats, such as in infographics or data visualization. One notable example is found in 'tangible computing', as introduced by Michael Hohl (2009) in his article *Beyond the screen: visualizing visits to a website as an experience in physical space*. This concept embodies 'objectification' in computing, where physical objects and surfaces are utilized to manipulate and represent digital information (Horn & Bers, 2019). Horn and Bers (2019) further explore this concept with 'tangible languages', which "use physical objects in the real world to represent various programming elements, data abstractions, and flow-of-control structures" (Horn & Bers, 2019, p. 665). This shift from text-based computer languages to interactive, physical interfaces enables a wider range of users, including young children with limited linguistic abilities, to comprehend complex concepts. This exemplifies a positive application of 'objectification' by enhancing efficiency and accessibility.

1.2 Dimensionality

In my research, the meaning within words is translated into physical, tangible objects. Objects seem to possess more dimensions than words—shape, materiality, and physical interactivity being examples of features distinguishing an object from words in a language. The most appropriate definition of 'dimensions' is "one of the elements or factors making up a complete personality or entity" (Merriam-Webster, n.d., Definition

1e). However, individual words can exhibit dimensionality too, as in intonation, inflection, and punctuation, as suggested in Michael Clarke's work, *Verbalising the Visual* (Clarke, 2007). Nevertheless, words cannot truly exist on their own; they need to be spoken (oral), written, or combined into sentences to be actualized, given that the purpose of words is to communicate concepts to specific groups of people.

Consequently, it can be argued that words lack inherent dimensionality because they rely on another medium to contextualize them, with any features of words being technically those of the vehicle they come in. Any attributes associated with words pertain to the manner in which they are conveyed. Walter Hirtle (1985) addresses this concept while examining Gustave Guillaume's (1984) theory known as the *Psychomechanics of Language*. He points out that linguistics often focuses on 'overtly observable' aspects, neglecting those 'mentally observable' like meaning. In his perspective, linguistics retains less essential components and disregards crucial ones—after all, the primary purpose of speech is to convey meaning, not just produce sound (Hirtle, 1985).

In comparison, determining and comprehending the dimensions of a physical object is much simpler. Physical objects are things we can see, touch, and overall experience with our senses; they can be empirically defined, unlike words which are largely intangible. Even in their spoken and written forms, words don't provide the same experience as a physical object. Hence, the dimensions of physical objects are more evident. In this project, I have chosen to explore the shape, materiality, and interactive aspects of physical objects as it is not realistic to delve into all facets of tangible objects within the timeframe of this master's research. These specific attributes were selected as the project developed, based on the patterns emerging through the types of designs I created.

1.3 Semantics and Semiotics

In his *Course in General Linguistics* (1916), Ferdinand Saussure suggested that we must recognise the fragility of language. He explains how words, the linguistic signs, become arbitrary when discussing Principle I: The Arbitrary Nature of the Sign (Saussure, 1916/2008, p. 67). A similar notion can be found in Noam Chomsky's concept of 'deep structure' and 'surface structure', initially introduced in *Syntactic Structures* (1957). Chomsky asserts that "grammar is autonomous and independent of meaning..." (Chomsky, 1957/1966, p. 17), though he uses the terms 'structural meaning' and 'lexical meaning'. This idea of 'deep structure' versus 'surface structure' differentiates underlying abstract

relations of meaning within a sentence (deep structure) from the actual arrangement of words we use to express those relations (surface structure) (Chomsky, 1971). Both Saussure and Chomsky acknowledge the gap between words and the meanings they represent. Words are not synonymous with meaning; rather, they serve as vehicles for presenting meaning. This concept is reinforced by the existence of diverse languages and the capacity to translate them.

The concept of disconnection is also explored in semiotics by Charles Peirce, who introduced the 'Semiotic Triad' (Peirce, 1931-1935). This triad comprises the 'Object', 'Representamen', and 'Interpreter', as elucidated by Daniel Chandler in his book *Semiotics: The basics* (2022):

The Representamen: the perceptible form that the sign takes – the 'sign vehicle'
An Object: something to which the sign refers (a referent), or which it represents.
An Interpretant: the effect produced by the sign or the sense made of it. (p. 31)

Applying this concept, words can be simplified as:

The Representamen = The word itself, representing the concept (i.e., the letters).

The Object = The concept that the word represents.

The Interpretant = The person connecting the concept or meaning with the word.

While Chomsky and Saussure focus on the word and its associated meaning, Peirce introduces the interpretant, acknowledging the external role in interpreting and creating meaning.

Similar to words, diverse interpretations of these words contribute to the 'value' of a word. Its definition and scope are no longer confined to a single cultural palette but are enriched by various perspectives. Alternatively, in *Les Mots et les Choses* (1966), Michel Foucault recognises that "signs, whether verbal or visual, require interpretation to convey any meaning at all, but their unavoidable ambiguities allow for multiple meanings" (Clarke, 2007, pp. 18-19). This notion is further reinforced through the act of reading, where "meaning becomes as dependent on the interpretations of the reader/listener as on the intentions of the writer/speaker" (Clarke, 2007, pp. 16-17).

1.4 Bilingualism & Translanguaging

While discussions around the issues of translating meaning between languages persist, it's intriguing to explore bilingualism and its role in this process as well as illustrating the differences in cognition between bi-/multilingual individuals and their monolingual peers. This section focuses on unimodal bilingualism, rather than bimodal bilingualism - the ability to move between both sign and spoken languages. Although this section focuses on bilinguals, the same principles also apply to multilinguals.

Given cultural differences, effective communication amid diverse personal beliefs is challenging, hence the existence of lingua francas (Bennett, 2020) as common languages between speakers whose native languages are different. The ability to consolidate these ideas within themselves in order to communicate effectively warrants investigation, especially when crossing mediums—from culture to culture and language to physical objects. In Judith Kroll and Ellen Bialystok's (2013) study on *Understanding the consequences of bilingualism for language processing and cognition* they identify that "there is a bidirectional influence between languages for bilinguals" (Kroll & Bialystok, 2013, p. 2), implying that a bilingual individual's cognitive processes are a result of this combination between the different languages. Relating to this is the idea of 'translanguaging' in which bilinguals use different parts of their languages, including various language styles, to 'maximise communicative potential' (García, 2009). This idea is particularly relevant as it highlights language as a means of cross-communication, similar to the blended objects created in this research. To convey meaning effectively, the reliance on a single language is ceded, allowing for a broader scope of communication and comprehension that transcends the constraints of a single language. Bilingualism can therefore be redefined as not just a comprehension of distinct languages, but also as a mastery of their flexible interplay along a continuous linguistic spectrum (Vogel & García, 2017). Translanguaging emphasizes language's communicative aspect over intricate syntax.

Bilingual children also demonstrate an awareness of the 'arbitrariness of language'. They recognise that word labels can change without altering essence, while still conveying meanings (Carranza, 2009). Sandra Ben-Zeev (1977) supports this, stating bilinguals learn alternate means of expression early, understanding the complex relationship between ideas and their expression. This recognition of words' arbitrariness aligns with Saussure's Principle I that words' relationship with concepts is arbitrary (Saussure, 1916/2008, p. 67), suggesting bilinguals possess cognitive flexibility and can move beyond conventional

comprehension. The combination of broader concepts (Kharkhurin & Altabbira, 2015) and enhanced cognitive flexibility (Peal and Lambert, 1962) potentially equips bilinguals to produce more creative designs (Wei, 2018).

1.5 Translation

The topic of translation is commonly associated with the “changing of words into a different language” (Cambridge University Press, n.d.). However, translation isn’t solely confined to words. Esperança Bielsa (2020), in her exploration of Cosmopolitanism and Translation, notes that translation seeks intelligibility and articulation between different worldviews, while also exposing their limitations. She goes on to emphasize that translation can serve as a cosmopolitan democratic tool, enabling us to step outside ourselves and create new ways of existing and engaging with a shared world (Bielsa, 2020).

“...creating new ways of existing and inhabiting a world that we share with strangers we do not understand.” (Bielsa, 2020, p. 119)

This perspective acknowledges that translation isn’t just a means to communicate; it’s an experience that allows us to view others within the context of their culture, free from our biases. This raises discussions about ‘lingua franca’ and its impact on cultural perception. Rather than representing the equal meeting of two cultures, it often results in one culture having an advantage over the other (Bielsa, 2020). Even when both cultures’ native languages aren’t the lingua franca, their values are simplified and not fully recognised due to lack of appropriate vocabulary, as explained by Michaela Albl-Mikasa in her work *Lingua franca, interpreting* (2020), referring to “culture-bound terminology” (Albl-Mikasa, 2020).

In the article *Language differences in qualitative research: is meaning lost in translation?* van Nes, Abma, Jonsson, and Deeg (2010) also acknowledge this issue. Translation requires the interpreter to convey the message in a way that the receiver understands, and this may be difficult as people commonly use narratives and metaphors (Polkinghorne, 2005). As metaphors vary from culture to culture and are language-specific (Lakoff and Johnson, 2003), the way in which a translator is able to communicate these expressions is inhibited by the limitations of the language that they are meant to translate.

While artificial languages like Ido, Esperanto, and Volapük attempt neutrality, issues arise when they must carry culturally embedded values, especially in literary translations (Bennett, 2020). There is a clear need for a communication device that bridges cultures without compromising either side's perspective, allowing the full spectrum of each culture to be experienced.

1.6 Boundary Objects

Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites...These objects may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognisable, a means of translation. (Star & Griesemer, 1989, p. 393)

Putting words onto a physical medium prompts the exploration of ways to express intangible aspects like cultural nuances and core meanings. Susan Leigh Star and James Griesemer address this challenge by asking, "How can findings which incorporate radically different meanings become coherent?" (Star & Griesemer, 1989, p. 392). They introduce the concept of 'boundary objects' to address this issue, originally within the context of heterogeneous scientific research. Their idea acknowledges the importance of translating meaning across different mediums and suggests that objects can effectively communicate knowledge between diverse groups. An example of a boundary object is a product prototype, which can be viewed differently based on perspective, such as from a designer, engineer, or investor standpoint.

Boundary objects serve not only as communicative tools but also as manifestations of overlaps among ideas, disciplines, and groups. They make similarities evident and facilitate cooperation. This idea aligns with Hirtle's distinction between linguistics' observable and mental aspects. Just as words have outward and inward components, so do boundary objects. They possess physical characteristics observable in their form and function, but also carry underlying objectives, like connecting groups with different perspectives. Drawing parallels between words and physical objects, both act as containers for meaning, with shifting interpretations based on context.

In this project, instead of having a team of diverse experts discussing similarities among their fields, I as a multicultural, multilingual individual have created the boundary objects. The result are these artefacts—boundary objects that somewhat represent me as a walking juxtaposition which words can't easily describe. Evaluating the success of these boundary objects in conveying differences to both Eastern and Western cultures align with notions of meaning and translation, as noted by Bowker and Star: “Boundary objects are one way that the tension between divergent viewpoints may be managed” (Star & Bowker, 1999, p. 292).

1.7 Existing Works, Artists and Designers

There have been numerous objects, artefacts, and art pieces created with intentions and outcomes pertinent to this research. This curated list offers examples that resonate with my practice or incorporate aspects that have influenced it. These examples encompass a wide spectrum, spanning from Surrealist art to Conceptual Art and even serving practical purposes, such as advertising.

1.7.1 *Object* - Meret Oppenheim, 1936

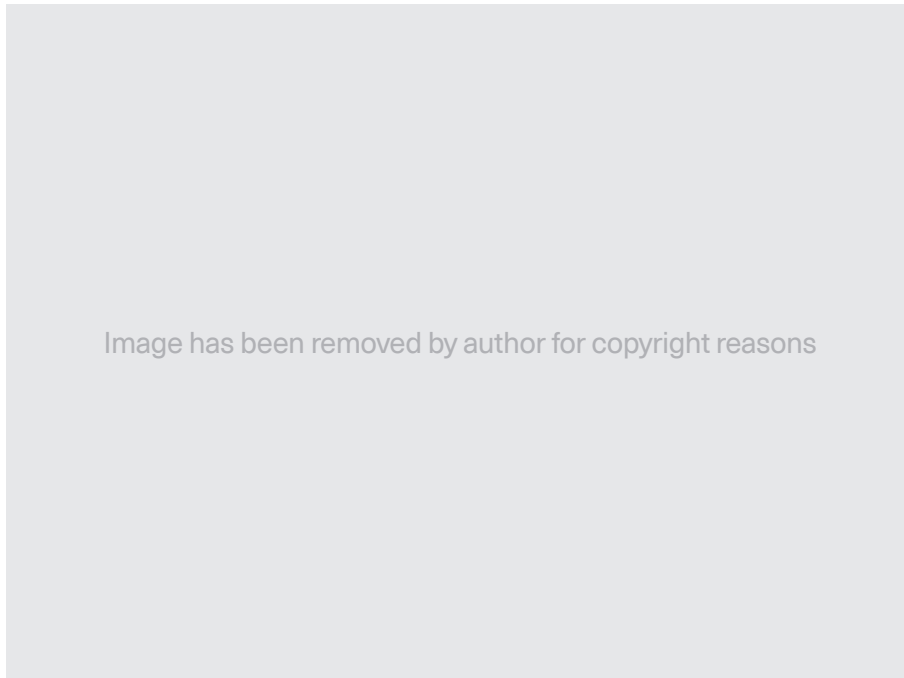


Fig 1. *Object* by Meret Oppenheim (1936).

The artwork *Object* by Meret Oppenheim (1936), a prominent figure in Surrealism is essentially a tea set covered in gazelle fur. This piece exemplifies Surrealist founder André Breton's assertion that "mundane items, when presented in unexpected ways, possess the capacity to challenge reason and tap into the subconscious of viewers" (The Museum of Modern Art, n.d.).

This cup blends two incongruous materials and objects, creating a juxtaposition that elicits both repulsion and fascination. It embodies Breton's notion by twisting a mundane object to provoke thought and challenge conventional perceptions, showcasing how everyday items can defy expectations. A teacup, typically associated with delicate porcelain, is juxtaposed with fur, prompting viewers to question the reasons behind this unconventional choice. Similarly, the crafted artefacts in this study intentionally juxtapose ideas, materials, and processes to drive specific thoughts and conversations about the object's meaning and associated concepts.

The dialogue sparked by the sheer absurdity of this artefact, coupled with the blended design approach that combines fur and teacup resulting in the distinct form of the object, serve as prime examples of the traits I aim to infuse into my own artefacts.

1.7.2 *The Treachery of Images* - Rene Magritte, 1929.

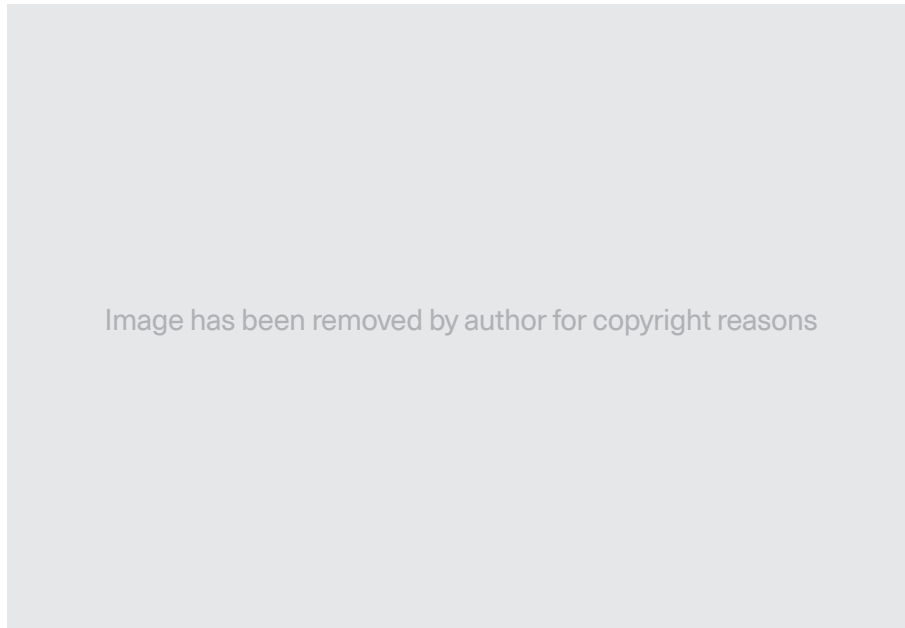


Fig 2. *The Treachery of Images* by Rene Magritte (1929).

The Treachery of Images (1929), crafted by the Belgian Surrealist painter René Magritte, features an image of a pipe accompanied by the words 'This is not a pipe', delving into the interplay between objects and their names. Sean John, discussing Magritte's artwork, points out that it "subverts traditional modes of visual and linguistic representation in an attempt to undermine the social semiotic relationship between words and image" (John, 2016). Michel Foucault similarly identifies this peculiarity in Magritte's piece *This is not a pipe* (1983), stating, "What misleads us is the inevitability of connecting the text to the drawing (... the meaning of the word pipe, and the likeness of the image...) - and the impossibility of defining a perspective that would let us say that the assertion is true, false, or contradictory" (p. 20).

The effect of the artwork prompts viewers to ponder the nature of the pipe. The painting itself isn't a pipe; rather, it's a representation. Yet, does the depiction of a pipe make the statement that it is a pipe true? Foucault notes the paradox: "The statement is perfectly true, since it is quite apparent that the drawing representing the pipe is not the pipe itself. And yet there is a convention of language: What is this drawing?" (Foucault, 1983, p. 19).

Much like the way Magritte explored the paradoxical conventions between objects, words, and images, the artefacts stemming from this research also seek to spark discussions

about how we define our understanding. They engage with the relationship between objects and their meanings, using contradiction and subversion of expectations.

1.7.3 *Don't let your clothes turn into food for moths: Donate* - BZZ Propaganda, 2014



Fig 3. *Don't let your clothes turn into food for moths: Donate* by BZZ Propaganda (2014).

This work is an example of the blended design approach used successfully in a marketing campaign in Brazil that encouraged the donations of unwanted clothing to those in need. The image of the clothes being folded into types of food stuffs creates the cognitive link between food for moths and clothes and showcases the ability for blended design to be used successfully to communicate ideas. The blend of the two concepts is not limited to the objects being portrayed, the clothes and sushi; the connection between the clothes remaining unworn in a wardrobe, while not explicitly stated, is able to be expressed as well.

In the context of this research, this image demonstrates how the use of the blended design approach is already a recognised method in fields other than product design as a way to convey a message. However, instead of being exclusively visual, the outputs of this Masters

degree research are also intended to have an interactive element whereby people are encouraged to use and touch the artefacts. The ability to also express meaning without directly stating it is also relevant as in any design process, consideration of the perception of the design is always required. All of the artefacts produced through this research have been considered in relation to the interpretation of their design and the intended or unintended meanings others may glean from them.

1.7.4 *One and Three Chairs* - Joseph Kosuth, 1965

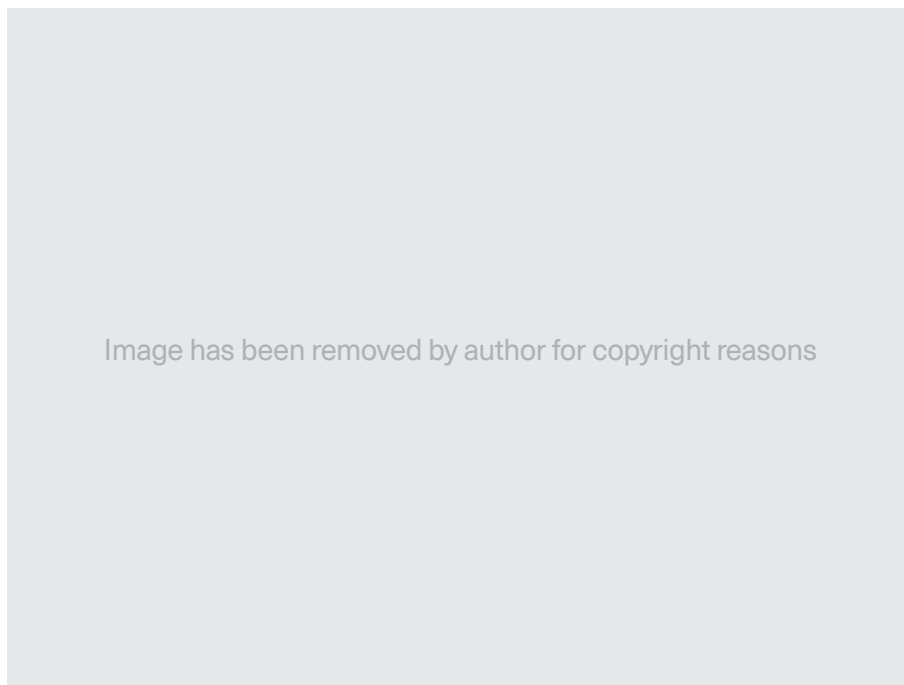


Fig 4. *One and Three Chairs* by Joseph Kosuth (1965).

One and Three Chairs (1965) is a conceptual art piece by Joseph Kosuth that presents varying interpretations of a chair: a physical chair, a photograph of a chair, and the dictionary definition of a chair. This artwork hinges on viewer participation to grasp its underlying concepts, rather than relying solely on materials or physical attributes. Just as with conceptual art, my artefacts also aspire to elicit audience engagement. While their forms do play a role in discussing designers' strategies to infuse meaning into objects, akin to Kosuth's work, the primary aim for viewers is to stimulate dialogues around the concepts and ideas that inspired these designs.

Kosuth's work seeks to foster discourse on ideas, meanings, and 'concepts' in art, distinguishing it from the visual and material focus of Minimalism, a preceding movement. Conceptual art is defined as "art for which the idea (or concept) behind the work is more important than the finished art object" (Tate, n.d). This shift challenged the Minimalist view that art exists independently of representing or imitating other objects or concepts. Minimalist artist Frank Stella stated, "What you see is what you see" (Glaser, 1964).

This research echoes Kosuth's intent—to prompt discussions about the meanings and ideas conveyed through art and their significance in distinguishing representations. This mirrors Rene Magritte's *The Treachery of Images* (1929), where the painting urges viewers to contemplate the relationship between their idea of a pipe and its representation. Just as Kosuth's piece engages viewers in questioning the essence of a chair, my project similarly encourages a deeper exploration of the interplay between meaning and object representation.

Summary

This section establishes a research foundation by discussing objectification in its literal sense, comparing the various dimensions of language and objects, discussing the separation of language and meaning, bilingualism's cognitive implications, translation complexities, and boundary objects' role in communication.

An established understanding exists regarding the separation of meaning from its delivery vehicle, such as words, and how meaning extends beyond this medium—a point emphasized by Bennett (2020) when addressing neutral languages that lose neutrality due to “culturally embedded values”. This notion gains further reinforcement within semantics and translation, critical for a comprehensive grasp of these fields. Bilingualism showcases the inherent ability to grasp this process and apply it seamlessly while transitioning between languages, indicating potential expansion to other mediums.

The concept of translation surpasses language alteration; it offers an immersive understanding of diverse cultures and worldviews, though preserving cultural nuances presents challenges. The discussion highlights the constraints of lingua franca and culturally embedded values, underscoring the need for communication tools that bridge cultures while maintaining authenticity.

The theories of object dimensionality and boundary objects both demonstrate objects' potency as communicative tools. The former probes how an object's physical attributes, encompassing tactility and interactivity, instill multiple facets of meaning, transcending spoken or written language. The latter situates objects within real-world contexts, acknowledging their utilization based on earlier recognised and capitalized-upon insights. Additionally, boundary objects serve as a solution for expressing intangible aspects across mediums, representing overlaps among ideas and disciplines, connecting groups with diverse perspectives. Together, these theories illustrate how objectification can bridge gaps between abstract ideas and tangible forms, enhancing communication and comprehension of complex concepts.

By crafting objects that challenge accepted definitions and beliefs, testing the medium's flexibility in conveying meaning, the outcome offers a deeper understanding of designing objects that effectively transcend boundaries, including cultural ones.



Chapter 2. Methodology

Chapter Introduction

The research employed a practice-led, blended design approach, characterized by distinct phases: Empathising (establishing cultural context through conversations and observation of lifestyle differences); Definition (identifying the areas of relevance, sayings, and metaphors); Visualisation (analysing/selecting sayings, experimenting with metaphors, designing artefacts); Making (physical artefact creation); and Synthesis (presentation strategies). Ongoing literature review and critical reflection contextualized and refined the project. This chapter details the practice-led, blended design methodology and outlines phases, methods, and their roles.

2.1 Practice-led Research

Practice-led research, distinct from practice-based research, doesn't hinge on creating artefacts (Candy & Edmonds, 2018); instead, it yields novel insights into practice (Candy, 2006). This research aligns with practice-led exploration, as its focus isn't solely on artefacts as an output, but also on the viability of blended design to convey meaning effectively. Practice-led research encompasses the role of art in generating insights (Smith & Dean, 2009).

The core of this study involves the exploration of 'tangibilizing' meaning, necessitating physical creation, where objects play an essential role in showcasing and facilitating learning. Iterative creative processes inform personal experiences, reflecting the journey of both the designer and researcher. Introspection on how we engage with our tangible creations uncovers valuable insights, such as new skills, ideas, and a deeper cultural understanding that surpasses what can be conveyed through writing alone.

Furthermore, physicality amplifies meaning, conveying it through materials and visual juxtaposition. These artefacts serve an academic purpose, nurturing inquiry and reflection into the discipline's evolution (Walker, 2014). By physically embodying sayings, they acquire sensory outputs, enhancing their significance.

Practice-led exploration, therefore, coupled with the production of tangible artefacts, enriches understanding and facilitates introspection. This creative process complements the research journey, revealing insights beyond words alone (Walker, 2014). The dynamic between creator and knowledge encourages personalized reflection, promoting deeper learning (Smith & Dean, 2009).

2.2 Blended Design Approach

Blended design draws extensively from conceptual metaphors and conceptual blending, concepts that naturally link diverse ideas and foster an inherent understanding of object functionality (Lakoff & Johnson, 2003; Fauconnier & Turner, 2002). Lakoff and Johnson's work in *Metaphors We Live By* (2003) and Fauconnier and Turner's exploration in *The Way We Think: Conceptual Blending and The Mind's Hidden Complexities* (2002) delve into how humans merge past experiences to create novel perspectives or enhance comprehension.

Despite originating in cognitive science, these theories extend their applicability to creative outputs, revealing how the mind generates ideas and grasps complex concepts.

Within this context, blended design is influenced by conceptual metaphors, which are cognitive bridges connecting different ideas for understanding, and metaphorical projection, the process where attributes from one idea are projected onto another to create a 'blend' that links them. For instance, 'argument is war' projects the concept of war onto argument (Buchholz, 2007). In this project, designs blend metaphors and phrases, ranging from tangible imagery like 'cat out of the bag' to more abstract ones like 'ignorance is bliss'. Artefacts combine both literal and underlying meanings, striving to represent this blend effectively.

Blended design stands as a novel approach that fosters new ideas and perspectives by creatively reimagining existing concepts. Designers deeply engage with their work, benefiting from diverse viewpoints during development.

Expanding on the notion of 'conceptual blending' as proposed by Fauconnier and Turner in *The Way We Think* (2002), blending involves two inputs—the concepts to be blended—within a shared generic space. The blended space, the output of this fusion, captures similarities and mappings between the inputs (Fauconnier & Turner, 2002). Blending seeks to simultaneously hold both a concept and its opposite, without masking their incompatibilities (Fauconnier & Turner, 2002). This is reflected in their 'conceptual integration network' (Fig 5).

In summary, blended design utilizes conceptual metaphors and blending, allowing for the creative recycling of existing ideas into novel outputs. This approach aligns seamlessly with the creative process, encouraging deeper exploration and multi-perspective development and is the primary tool for designing these artefacts.




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Fig 5. The basic Conceptual Integration Network (Conceptual Blending Diagram) proposed by Fauconnier and Turner (2002).

2.3 Associative Thinking

Associative thinking is integral to the creative process (Sowden et al., 2019; Mednick, 1962; Koestler, 1981; Benedek et al., 2012). It involves forming new combinations of associative elements to meet specific requirements or yield usefulness (Mednick, 1962). According to Mednick's theory (1962), those deemed 'more creative' excel in creating fresh connections among seemingly unrelated stored ideas, enabling novel and remote associations (Beatty & Kenett, 2023).

Mednick (1962) outlines three pathways to creative solutions:

- **Serendipity:** Unexpected connections between elements trigger associations or memories when coincidentally encountered, as seen in the discovery of Penicillin.
- **Similarity:** Shared experiences lead to necessary connections due to similarities between associative elements or activating stimuli.

- **Mediation:** Shared elements bring about connections between different elements, as exemplified by psychological concepts like ‘tiredness’ mediating between reactive inhibition and cortical satiation (Kohler & Fishback, 1950).

These processes were applied to varying extents during the initial design and production of the artefacts, avoiding a singular approach for any artefact. The rapid design pace ensured authentic, unrestricted designs by avoiding excessive constraints and overthinking. This cognitive process of linking ideas to generate new concepts isn't novel, as Hernan Casakin (2012) recognises, that using metaphors as a means to foster creativity, require perceiving situations from new viewpoints. In this project, the use of associate thinking broadened the connections that could be made to those otherwise unconventional or initially unthought of. For example, in thinking through the saying “a bad apple spoils the barrel” an apple was linked to a barrel (a barrel of apples), whose shape was linked to a zoetrope, which combined with the idea of horses linked to a carousel (Fig 6).

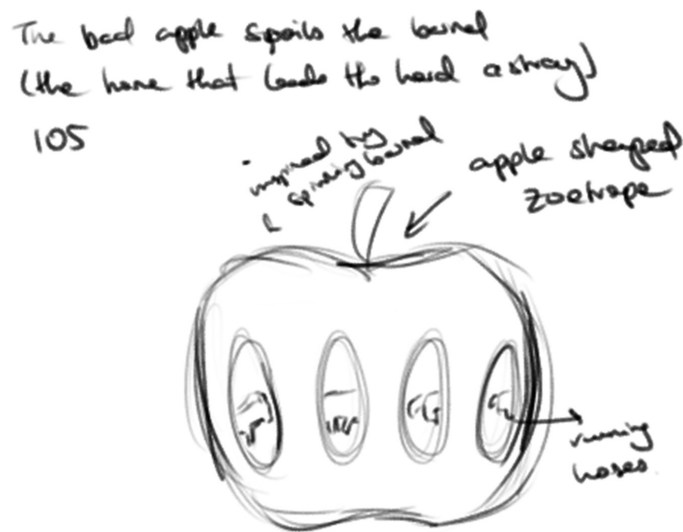


Fig 6. A design for the English saying, “The bad apple spoils the barrel” combined with an equivalent Chinese saying, “the horse that led the herd astray” (Bueler & Chang, 1972, p. 43). It shows an apple shaped zoetrope, with running horses that move inside when the apple is spun. (Miro Board #65).

2.4 Phases of Artefact Creation

Since the research involved crafting physical artefacts, I devised a framework loosely based on the well-established 5-step design thinking process model (Fig 7) (Hasso Plattner Institute of Design at Stanford, 2010). The adapted framework encompassed phases of Empathising, Defining, Visualising, Making, and Synthesis, allowing for structured organisation of the research practice, with distinct methods employed in each phase.

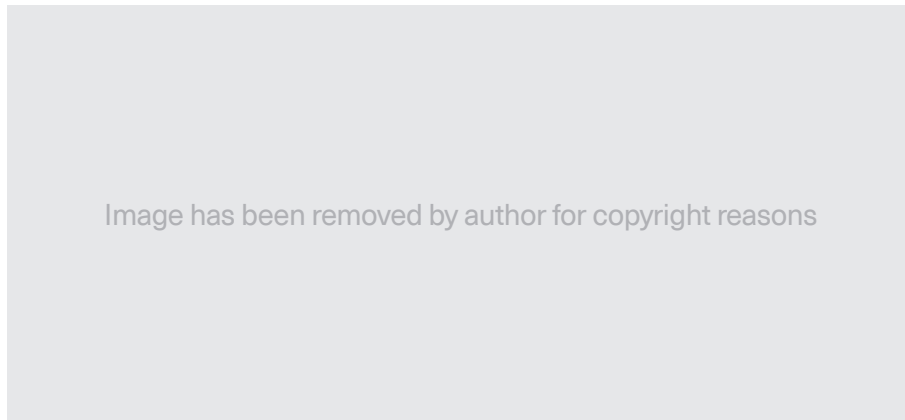


Fig 7. Design Thinking Model from The Hasso Plattner Institute of Design at Stanford (2018).

2.4.1 Empathise

Before any sayings were collected, discussions regarding Teochew and Chinese culture were held with family members to better understand the background and perspective of the community from which the languages originated. This approach followed the directions from the Stanford Introduction to Design Thinking Process Guide (Hasso Plattner Institute of Design at Stanford, 2010), which emphasizes observing, engaging, watching, and listening. Acknowledging the limitations of my own Western-influenced perspective, I relied on my parents' upbringing and stories of their childhood to illustrate the differences in ideals, practices, and biases that provide context to certain sayings and traditions. During this period, many conversations took place, including analyses of old photographs, recollections of songs from the Wayang (Teochew Opera) and Teochew poetry, as well as discussions about life in their rural villages, and about their parents' lives. Observations were ongoing and facilitated by our living arrangements.

Idioms require cultural knowledge to comprehend, as their meanings are not apparent when taken literally. For example, to 'spill the beans' means to reveal a secret, but the individual words themselves would not suggest this. As Gillian Philip (2009) explains in *The Routledge Linguistics Encyclopedia*, idioms "operate as if they were lexical items in their own right and express semantically complete ideas, which may be quite independent of the meanings of their components" (p. 268). Idioms arise from widespread colloquial use, and their comprehension is similar to how we process metaphors through "implicit knowledge—acquired over time—of the 'conceptual metaphors' that underlie the phrases' figurative meanings" (Bortfeld, 2003, p. 218).

Dobrovol'skij and Piirainen (2010) discuss the idiom 'to hit the nail on the head', which means to accurately identify an issue or describe something precisely. This saying originated from medieval times when a target fixed to a wall with a nail required skilled archers to hit it precisely. Today, the idiom is instead associated with accurately hitting a nail with a hammer, illustrating its evolution based on cultural and historical influences.

There are different categories of idioms, where "the idiom is either opaque to speakers or motivated by textual knowledge" (Dobrovol'skij & Piirainen, 2018, p. 24). Motivated idioms are those whose words have an identifiable link to their figurative meaning, while opaque idioms are those whose individual words and their resulting figurative meaning have little or no obvious connection, often requiring cultural knowledge or context to understand. The idiom 'to spill the beans' is an example of an opaque idiom, as the action of spilling beans cannot be easily connected with its meaning of revealing a secret. Conversely, 'to hit the nail on the head' is an example of a motivated idiom, as its imagery can be easily related to the action of being pinpoint accurate.

Idioms are "heavily culturally-loaded phrases or sentences, usually highly specialized in meaning and closely tied to distinctive cultural features and attitudes" (Liu, 2012, p. 2359). This cultural specificity means that while idioms can enrich communication within a culture, they can also pose significant challenges in cross-cultural contexts.

Despite these challenges, metaphors and idioms serve as conduits for exploring meaning and navigating cultural diversity. While Eastern and Western cultures differ significantly, they share enough similarities to yield sayings with similar messages. This is exemplified by Cheyfitz (1991), who proposes metaphors as the preferred mode of translation,

emphasizing the simultaneous recognition of both similarity and difference in metaphoric thinking to bridge intercultural communication gaps.

Metaphors, therefore, offer a means of effective cross-cultural conversation, even in the presence of varying ideologies and circumstances. They allow individuals to engage with each other's ways of life in a relatable yet distinctive manner, fostering mutual understanding as well as allowing unconventional thinking and the application of novel ideas to design problems (Casakin, 2007).

2.4.3 Visualisation

This section addresses the next phase in the design process, which involved translating these ideas into visual sketches and organising the outcomes. During this phase, the objective was to generate a multitude of concepts from a range of phrases within a limited timeframe, utilizing an adapted conceptual integration network to aid in idea generation (Fig 9). This approach guaranteed that the eventual designs authentically embodied and mirrored my initial unfiltered impressions. Subsequently, these designs underwent analysis and refinement if they demonstrated the potential to effectively convey meaning or spark discussions about those meanings. Overall, some 100 concepts were generated during this process as shown in the Miro Board over the course of several weeks (Fig 12).

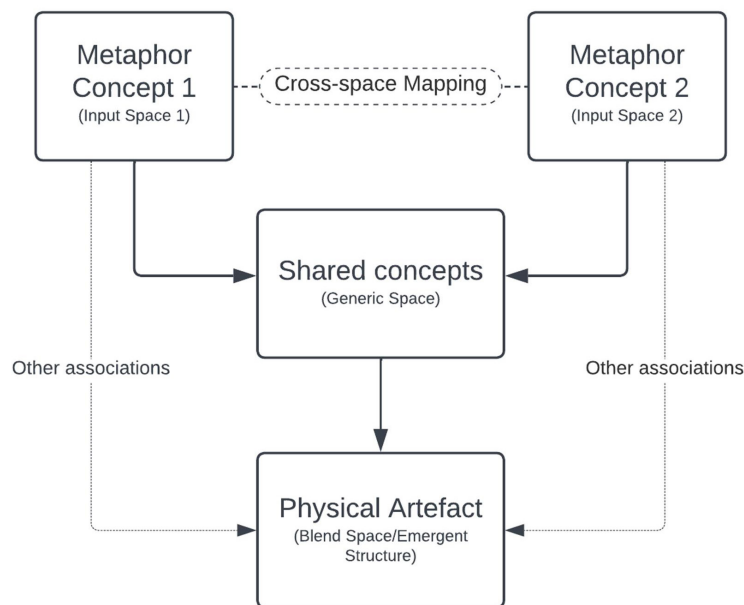


Fig 9. Adapted and simplified Conceptual Integration Network to aid with idea generation.

2.4.3.1 Drawing

The approach of ideating these artefacts through drawing offers clearer communication of ideas in a visual format. It permits easy adjustments and comparisons within different concept variations. Schön's *The Reflective Practitioner: How Professionals Think in Action* (1983) emphasizes the reflective conversation with the situation in good design processes (Schon, 1983), aligning with the idea of designs speaking back and leading to sub-designs. Drawing, elaborated on by Mäkelä, Nimkulrat, and Heikkinen (2014), is described as a form of dialogue between the individual and the drawing itself.

Interpreting diverse sayings led to numerous designs to pinpoint the most fitting and effective representation of each meaning. Sketching, executed both on paper (Fig 10) and digitally using 'Procreate' on an iPad (Fig 11), facilitated rapid exploration. Digital drawing allowed easy adjustments with colouring and references, while physical sketching embodied a sense of permanence. Both methods have their significance; however, the tactile experience of a physical book adds depth to the process.



Fig 10. Examples of physical sketches (Miro Board #70, #75, #78).

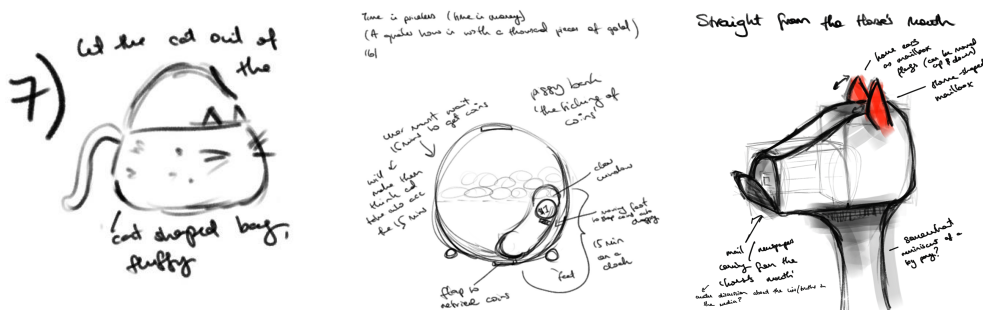


Fig 11. Examples of Procreate sketches (Miro Board #15, #63, #90).

This stage revealed the impact of juxtaposing opposing qualities in both the saying and the object's materiality. Similar to Saussure's observation that language consists of differences (Saussure, 2011), I employed opposite qualities to contrast features. Saussure's concept of a term gaining value through opposition resonates in my approach. Contrasting materials or shapes aimed to subvert expectations, initiating conversations and contemplation about their meanings. This notion highlights how words can be defined by what they aren't, much like defining an object by its contrasts.

2.4.3.2 Organisation and documentation of concepts

As the drawings neared completion, I utilized a Miro board (Fig 12) for systematic arrangement. This involved categorising sketches by creation time (8-10 weekly) and linguistic source (English, Teochew, Chinese, or combined).



Fig 12. Miro Board.

With 100 sketches, the Miro board enabled simultaneous overview and visualised my evolving journey through literature exploration and reflection. Initially, the sketches leaned towards literal expressions, gradually evolving to more intricate and thought-out designs. This also aided in the selection of sketches for physical artefacts.

A tabular framework housed these entries, each representing a drawing or its iterations. Entries were numerically coded, colour-coded by creation week, and selectively highlighted for potential. This selection hinged on complexity, aesthetic appeal, semantic depth, linguistic origin, and contextual coherence. Designs varied in how easy they were to understand, catering to different levels of complexity. See Appendix A for more detail.

2.4.4 Making

Throughout the crafting process of individual artefacts, a diverse range of methods and techniques were employed. The aim was to investigate how the method of creation would influence the inherent meanings of the objects. For example, would an artefact being purely handmade, versus one with ready-made components sourced elsewhere, impact the interpretation of the artefact? Moreover, I was intrigued by how the materials used and the crafting techniques themselves could imbue meaning within the object, even without the viewer's explicit awareness of these intricacies.

For instance, the kettle artefact, incorporates 3D printing (Fig 17) and digital systems to produce a whistling sound, while the eye artefact was hand-sculpted from clay (Fig 18), remaining static without moving parts or circuitry. These artefacts are perceived differently not solely due to variations in their underlying sayings, but also due to their very different construction methods.

Six artefacts were selected for creation based on their feasibility within the time limit, as well as the diverse ways they exemplified the tangible expression of meaning—be it through the crafting process, the materials utilized, the depth of the saying, or the novelty of the artefact.

2.4.4.1 Iteration

Iteration was essential throughout the design process as it allowed for further exploration and refinement of concepts (Wynn et al., 2007; Le, 2013) to ensure that the designs effectively communicated their associated sayings. Most of the final artefacts underwent multiple initial designs or prototypes, reflecting a similar approach during the creation process (Fig 13). Furthermore, various techniques were tested before implementation in the final outcomes. For example, several tests were run on the 3D printer in order to dial in on the correct settings for the kettle artefact, and small-scale models were printed for

both the kettle and the cow bucket in order to test the size of parts of the design together. Similarly, testing took place for the arrangement of fish scales and fins on the fish umbrella (Fig 52) and for various designs, colours, and textures on the teacups and saucers of the elephant teacup artefact (Fig 24, 27). However, as Browning (1998) identifies, iteration can be both beneficial and inhibiting, necessitating reworking if design specifications are not satisfied.

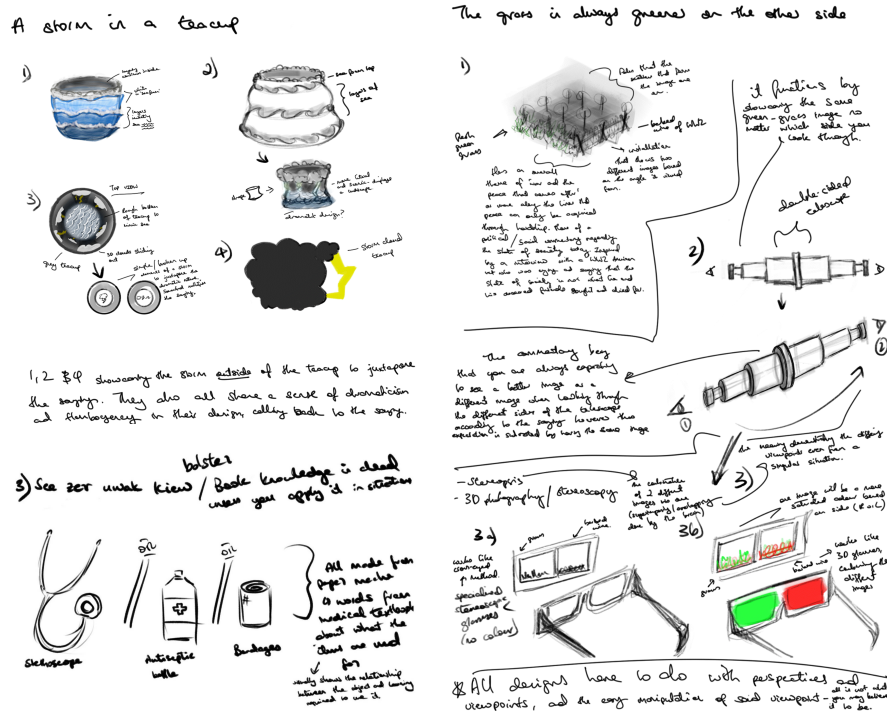


Fig 13. Other sayings that had multiple designs. Miro Board #45: “A storm in a teacup”, Miro Board #55: “See zer uwak kiew” (Teochew saying), Miro Board #49: “The grass is always greener on the other side”.

Throughout this making process, Browning’s ideas regarding intentional and unintentional iterations became evident. Intentional iteration occurred during the visualisation stage to create designs that effectively reflected the saying. In contrast, the physical prototyping stage required revision in instances such as the production of the kettle and the glass houses, where some technical difficulties were unaccounted for.

The criteria for selecting the final design balanced feasibility with generating conversation. Designs inducing discussion through their absurdity, complexity, or presentation were favoured as exemplified by the cow bucket and the eye mirror. The selection wasn’t solely based on which were most abstract or detail-laden but the ones that encouraged the most

questions regarding their underlying purpose and associated sayings, as well as inviting interaction.

Prototyping and iteration encompassed not only physical characteristics but also materials and assembly considerations.

2.4.4.2 Prototyping

Prototyping is a cornerstone of design, enabling the externalisation and effective communication of concepts (Dugger Jr., 2009; Archer & Roberts, 1992). In this exploration, methods extended beyond contemporary rapid prototyping technologies like 3D printing to encompass references from traditional designs and crafting techniques. Examples included Peruvian whistling vessels (Fig 14), North American fish scale art (Fig 15), traditional wooden buckets, and Peranakan porcelain ware designs (Fig 16), renowned for their vibrant colour palettes. These techniques provided a platform for exploration from my perspective as a 'third-culture kid', influencing not only the object's form but also my identity as a designer. Embracing these traditional methods was vital, even though some are less commonly practised today. For instance, replicating North American art necessitated much experimentation due to limited information availability, requiring the application of knowledge from other domains like cooking when removing the scales.

In contrast, CAD modelling (Fig 60) and 3D printing constitute a modern approach, distinguished by the juxtaposition of traditional and contemporary techniques within a single artefact, as evident in the *Cow Bucket*. While 3D printing facilitates rapid prototyping (Greenhalgh, 2016), adjustments to nozzle size and filament type are crucial for achieving desired quality. Unlike the more traditional methods, the process of 3D printing felt disconnected due to its limited adaptability and machine involvement compared to hands-on sculpting, where modifications can be made spontaneously with my own hands. However, 3D printing requires precise setup and calibration for quality outcomes, and therefore in the end a successful print felt almost the same as completing another artefact made by hand as I was still overseeing the making process.

It's important to highlight that there was no particular bias towards any of the techniques used. My limited experience with these methods allowed me to thoroughly explore each of them without relying on prior knowledge or established limitations.



Fig 14. Peruvian Whistling Jar.

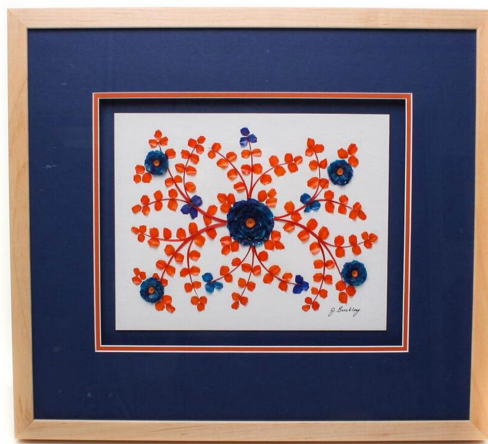


Fig 15. Indigenous Fishscale Art *Family* by Jennifer Buckley (2021).



Fig 16. Peranakan Porcelain ware.

In regard to materials, both upcycled and new materials were employed, facilitating the exploration and expression of diverse material effects and meanings in various objects. Upcycled objects could evoke a sense of familiarity and the everyday (Fig 19), whereas newly crafted items from materials like clay (Fig 18), 3D printed filament (Fig 17), and leather appeared more novel, lacking the same everyday feel as pre-existing objects.

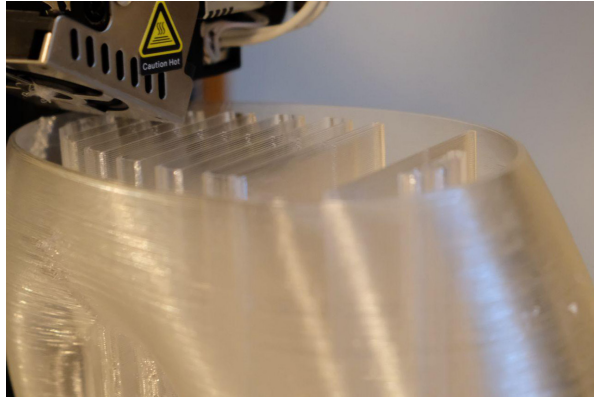


Fig 17. 3D printing process (Kettle).



Fig 18. Handmaking process (Eye).



Fig 19. Upcycling (original design on teacup).

2.4.5 Synthesis

A important aspect of this research involved the holistic observation of all the artefacts. This not only illuminated the evolution of my thought process throughout the project but also contributed to the emergence of new concepts. The attached Miro Board (Fig 12) serves as a visual representation of this journey. By consolidating individual artefacts, a contextual framework emerged, highlighting various processes used to translate expressions into physical objects. This comprehensive approach surpassed the analysis of individual artefacts, enabling the generation of broader insights.

2.4.5.1 Documentation

Throughout the research, ongoing documentation was maintained to capture discoveries and fresh perspectives. This practice also facilitated the arrangement of designs and concepts, subsequently contributing to the growth of forthcoming ideas. Reflection was an integral part of the documentation process, occurring during the ideation phase and following the completion of each design. Such reflection proved crucial, unveiling insights that became apparent only when evaluating the entirety of the finished designs. Comparing various approaches and considerations underscored the significance of this approach.

2.4.5.2 Showcase & Video Output

In light of the central themes of interaction and tangibility within my research, it became imperative not only to provide a visual representation of the artefacts but also to facilitate physical engagement with them (see Appendix B). My choice of materials, such as real leather and authentic fish scales instead of synthetic alternatives, served a dual purpose: enhancing aesthetics and encouraging tactile interactions. This physical engagement poses an intriguing question: how might people interpret these sayings when experienced through a different sensory medium? Therefore, relying solely on images and photographs would not yield the same depth of engagement. This challenge underscores the importance of presenting the physical artefacts as a focal point in my final thesis.

The video output serves as a digital documentation of the showcase, offering an alternative medium for presenting the exhibition and enabling virtual viewing.

Summary

This research adopts a practice-led, blended design approach characterised by distinct phases: Empathising, Definition, Visualisation, Making, and Synthesis - which provides a structured framework for the research. In essence, the Empathising phase provided the cultural context to assist in the comprehension of the sayings, the Definition phase identified sayings and metaphors as the basis for artefacts, while Visualisation translated these concepts into visual sketches, promoting a multitude of design ideas. Making entailed the employment of diverse techniques and materials, leveraging both traditional and contemporary approaches. Iteration facilitated continuous testing and refinement, to ensure effective communication of associated meanings.

Incorporating design strategies like the blended design approach and associative thinking, the methods used ensured meaningful and aesthetically pleasing artefacts. This chapter has justified the approaches taken, emphasizing a practice-led exploratory alignment with the research aims. By creating tangible artefacts, the research has extended beyond words, enabling a deeper exploration and grasp of concepts.

In summary, this methodology demonstrates the exploration of meaning through tactile artefacts, utilizing practice-led research, blended design, associative thinking, and offering a framework for the process.



Chapter 3. Creative Practice

Chapter Introduction

The artefacts discussed within this chapter are arranged chronologically, demonstrating the progression that occurred over the researcher's creative journey. Each section is dedicated to a specific artefact, presenting its associated saying, a description of the physical artefact, the reasons for its selection, a general discussion of the creation process based on the phases discussed previously in the methodology chapter, and concluding with reflections on that particular artefact. This structured approach facilitates the recognition of patterns that arose and are subsequently addressed and reflected on in Chapter 4, producing insights through the creative process.

The number recorded after each artefact's name corresponds to its position on the Miro board (Fig 12).

3.1 “What Elephant?” (#8)



Fig 20. “*What Elephant?*” teacup sets (artefact).

3.1.1 Overview

Sayings: The elephant in the room

Language: English

Meaning: “An obvious major problem or issue that people avoid discussing or acknowledging.” (Merriam-Webster, n.d.)

Credited author of modern saying: New York Times

Work: Newspaper, June 20th 1959. (MIT International Students Office, n.d.)

Origin: Written by Harry Todd Costello in *American Philosophy Today and Tomorrow*, edited by Horace Meyer Kallen and Sidney Hook, 1935. (O’Conner & Kellerman, 2012; Kallen & Sidney, 1935)

3.1.2 Description

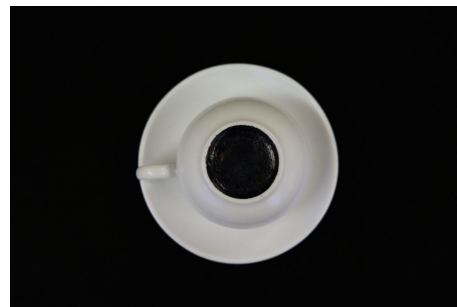
This artefact consists of a set of teacups and saucers that hold an unexpected surprise when the teacup is raised for a sip (Fig 20). When a hot beverage is poured into the teacup, the heat triggers a thermochromic reaction, unveiling an image of an elephant on the saucer or on the underside of the cup as it is lifted. The saucer also features a rough texture, enhancing the sensory experience and encouraging engagement whilst the cup relies on a second secondary person to bring the design to attention. Thus creating an inconspicuous yet interactive element. The name is in reference to the exclamation made when discussing the presence of an elephant on the teacup.

3.1.3 Rationale

The saying prompted contemplation not only about its inherent meaning but also about the context in which it would be applicable. It highlighted the significance of acknowledging conversations that are consciously overlooked. Through this artefact, insights were gained into effective communication through interaction. Rather than directly revealing to the viewer what they are observing or experiencing, the approach was to foster discovery through engagement. The tea set may seem unassuming at first glance, but the true revelation occurs when the teacup is lifted to take a sip, exposing the hidden elephant imagery (Fig 21, 22).



Fig 21. Saucer design (hidden).



22. Cup design (hidden).

Instead of opting for a literal representation of the saying, a strategy of juxtaposition was employed to highlight an implied issue: the absence of communication. This was achieved using an object often associated with gatherings and conversations, infusing it with a secondary meaning beyond its conventional use of holding beverages. By re-purposing a familiar object as a conduit for dialogue, the artefact assumed a novel purpose while remaining relatable.

This artefact was deliberately designed to be recognizable rather than abstract and novel. This decision was rooted in the belief that viewers would better connect with something familiar. The objective was to actively involve the audience in deciphering meaning through interaction. To truly unveil the artefact’s meaning, it was vital for individuals to utilize the teacup as intended—for conversation—and make this discovery for themselves.

The integration of a conversational element held particular importance, mirroring the essence of the saying itself—a commentary on sidestepping discussions that warrant attention. Through deliberate sanding to achieve a blank white appearance, the teacup was intentionally stripped of external influences. This design choice enables each person to interpret the artefact independently, fostering a personal connection to its message.

3.1.4 Design Process

To design this object, I first examined contexts where the saying would apply—uncomfortable discussions. This led to an initial elephant plushie design, linked to comfort and distraction for children based upon my personal experience. However, this literal representation had limitations. Recognizing the saying’s core message being about conversation, or the lack thereof, I then began to consider forms and objects that were usually present in social situations where people converse with each other (Fig 23).

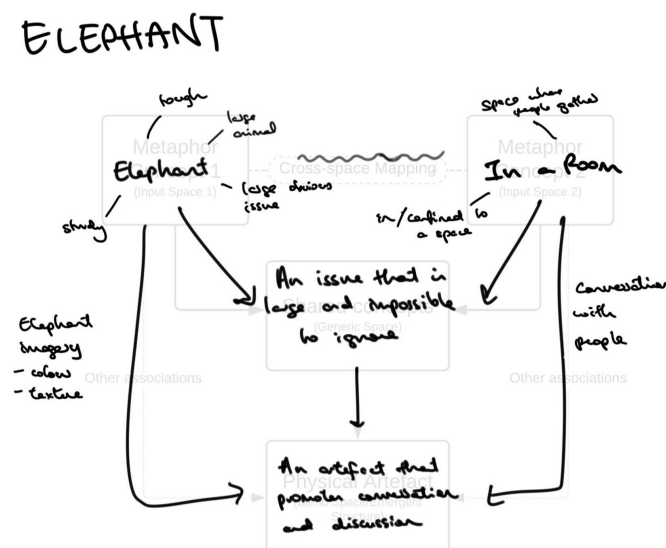


Fig 23. Conceptual Integration Network for “the Elephant in the Room” saying.

Through this approach, I began to perceive my designs not only as reflections of the sayings, but also as physical representations drawn from my own experiences and perceptions of the world. I realised that, like language, objects also convey meaning and facilitate conversations or the transfer of meaning. This extends beyond just the designer and the viewer, where the artefact is created to convey a specific message to the viewer. It also involves a dialogue with the designer, similar to language, and the viewer is free to interpret the message's meaning based on their experiences and the provided context.

A design shift ensued as I moved from personal experiences to more interactive and conceptual designs. This evolution is evident through the sequence of elephant table, coffee table, and rug ideas—each grappling with 'presence but unseen' concepts. However, each had issues in regard to their basic design, being unable to communicate the saying as effectively.

Taking inspiration from Oppenheim's *Object* piece (see p. 26), the addition of novel elements to familiar objects draws attention to their meaning. While still retaining their everyday associations, this alteration would generate curiosity, fuelled further by the use of juxtaposition and opposite characteristics. A series of drinking vessels emerged as a continuation of 'conversational' ideas, leading to a cup (Fig 28) and saucer with thermochromic pigment.

Tests were mainly conducted for aesthetic reasons (design and texture of cup and saucer) (Fig 24) and as well as choosing the appropriate medium to be used with the pigment. An example of an aesthetic choice was the saucer's rough texture, a reference to the wrinkles on elephant skin (Fig 26). The design was finally drawn on with fine-tip marker (Fig 25), baked, and the pigment-glue mix was then brushed and sponged on. After drying and sanding, sealant was applied.

Ideally, the use case scenario would be: two people having a conversation over tea, when one lifts their teacup and realises there is an image of something that wasn't there before, or the other person pointing out this newly revealed image. A discussion over this surprise would then occur.



Fig 24. Example of initial tests to hide the original design (teacup).



Fig 25. Use of permanent marker (saucer) to draw on elephant image.

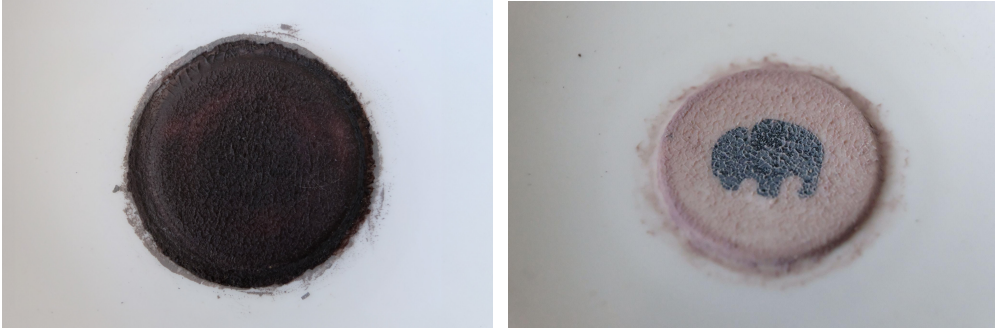


Fig 26. Saucer with rough texture (hidden, revealed).

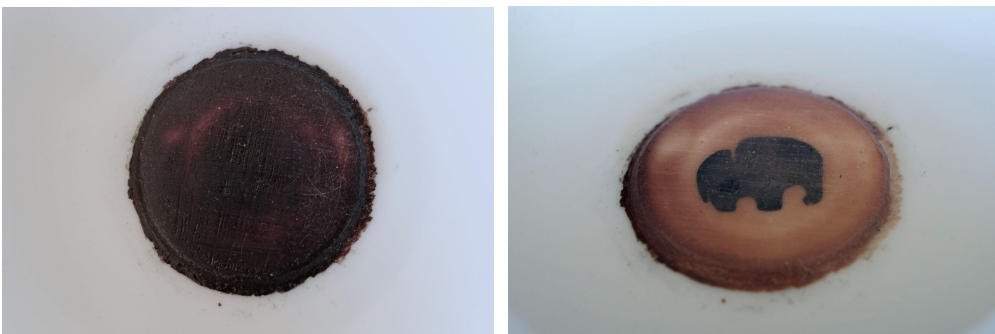


Fig 27. Test saucer with smooth texture (hidden, revealed).



28. Design under teacup (revealed).

3.1.5 Reflection on Process

The cup and saucer set marked an early stage in my design journey, where I was still exploring ways to create tangible objects from sayings. This particular artefact illuminated the importance of interaction between viewers and objects, emphasizing the idea that conversations involve exchanges rather than one-sided communication. Allowing individuals to extract their own interpretations from an object and engage in discussions with each other proved more rewarding than presenting predetermined meanings.

Additionally, I discovered the significance of novelty in drawing attention to the work's meaning. This led me to see the potential in modifying familiar objects to make them unique while retaining their everyday associations. I also recognised the power of contrasts and juxtaposing characteristics to underscore an object's purpose. Instead of directly translating a saying into a physical form with imagery, such as the classic "elephant in the room", I drew inspiration from within the saying itself, focusing on the concept of the 'obvious but unaddressed', which evolved into 'an object that is not obvious and discussed'.

To maintain a sense of familiarity, I repurposed a teacup set. This approach highlighted the blending of new designs with existing objects. Stumbling upon these cups at an Op Shop added additional layers of meaning, emphasizing the role of objects as conveyors of stories and sparking curiosity about the transformation of a well-known design.

Oppenheim's (1936) use of fur on a teacup to provoke unconventional conversation resonated with my approach. These artefacts prompted contemplation about how materiality influences perception and the challenge of encapsulating meaning within an object. The process of translating a sentence into a physical form is multifaceted. For instance, transforming "the elephant in the room" could have focused on the elephant's scale in a room-like environment, its materiality, positioning, or stylistic representation. However, my emphasis on conversation guided an interactive approach.

In choosing an interactive path to emphasize the role of conversation in the design process, the objects themselves completed a full circle: originating from a saying, translated into physical form, and eventually reformulated back into conversational language. This journey fascinated me – the deconstruction and reformation of meaning through different lenses, continuously evolving through individual perspectives yet remaining mutually intelligible.

While these objects' dimensionality offered various ways to convey meaning, they also revealed a potential pitfall – an overabundance of imagery. Striking a balance between literal meaning and visual representation became crucial. Consequently, I explored this image in various dimensions and iterations, recognizing the significance of guiding discovery rather than saturating the quest for the 'correct' interpretation.

The insights gleaned from the design development of this object informed my exploration into the complexities underlying surface-level sayings. This experience underscored the power of interactivity and conversation in clarifying meaning. It fuelled my fascination with opposites, capable of highlighting commonalities like a Venn diagram. Manipulating contrasts became a strategic choice, inciting Eureka! moments among audiences when the saying was fully understood, akin to Fauconnier and Turner's (2002) observation regarding meaning and conceptual blending.

3.2 Eye See You (#12)



Fig 29. *Eye See You* (artefact).

3.2.1 Overview

Sayings: Beauty is in the eye of the beholder

Language: English

Meaning: “Everyone decides individually whether something is beautiful or not, and implying that things or people which are considered beautiful by one person are not necessarily beautiful to others.” (Times-Chambers, 1982)

Credited author of modern saying: Margaret Wolfe Hungerford (née Hamilton)

Work: *Molly Bawn*, 1878. (Phrase Finder, n.d.)

Origin: Concept first appeared in 3rd century BC in Greek. (Phrase Finder, n.d.)

3.2.2 Description

The artefact is a mirror within a frame shaped like an eye (Fig 29). The mirror forms the pupil and iris of the eye, while the frame is sculpted from white air-dry clay and painted to accentuate shadows and emphasize the three-dimensional form of the eye. The eye's shape is based on my own, establishing a connection between the designer and the viewers who peer into the mirror.

3.2.3 Rationale

When designing this artefact, I observed that the saying itself was heavily reliant on the listener's perspective, and offered ample opportunity to experiment with the interactive aspect of my creations. Instead of conveying a fixed message, the artefact's meaning is influenced by each viewer's individual perspective. The saying, "beauty is in the eye of the beholder", is open-ended, implying that labelling something as 'beautiful' depends on the individual rather than a preset criteria. Therefore, the artefact necessitates viewer interaction—viewing oneself in the mirror—to 'complete' its meaning. Without this interaction, it remains just a mirror. Abstracting from this, it implies that objects are given meaning by people; that they are redefined and transformed to fit the view of different peoples and contexts (Dawe, 2001). This can also be applied to language, with the existence of negative connotations being attributed to societal or cultural beliefs as referenced to when discussing 'Objectification' (see 1.1 Objectification, p. 19).

Moreover, the artefact's design is a reflection of the designer, with the eye shape based on my own. This renders the artefact a perfect medium for both designer and viewer. When the viewer gazes into the mirror, they essentially peer into the designer's eye, creating a reciprocal connection. This concept parallels James Elkins' (1996) discussion on objects having the capacity to 'look back'. Elkins illustrates how objects reflect aspects of ourselves and subconsciously remind us of memories, emotional responses, and attachments associated with the object. This ability allows objects to 'stare back' at viewers, forming a dual relationship. Elkins further underscores that this interaction is mutual, as the object not only observes the viewer but also shapes their perception, highlighting the bidirectional relationship between object and viewer (Elkins, 1996).

In summary, this artefact, through its interactive nature and design, exemplifies how individuals assign meaning to objects and how objects, in turn, can reflect and influence our self-perception (Elkins, 1996).

3.2.4 Design Process

When deconstructing the saying (Fig 30), I realised that this particular expression differed from previous ones. Those usually involved two concrete concepts, such as “letting the cat out of the bag” or “the elephant in the room” which connect to visible and identifiable things. However, with “beauty is in the eye of the beholder”, the situation differs. While it may seem that ‘beauty’, ‘eye’, and ‘beholder’ are related to images, closer examination reveals more complexity. What exactly does ‘beauty’ look like? How do we define ‘beauty’, and is it as straightforward as defining a ‘cat’ or a ‘bag’? Beauty is abstract and subjective, differing across cultures and for each individual (Hatfield & Sprecher, 1986). Therefore, trying to encapsulate this within a single form seemed unwise. Instead, I found it more effective to ‘reflect’ this complexity, conveying the fluid and individual nature of beauty through user interaction.

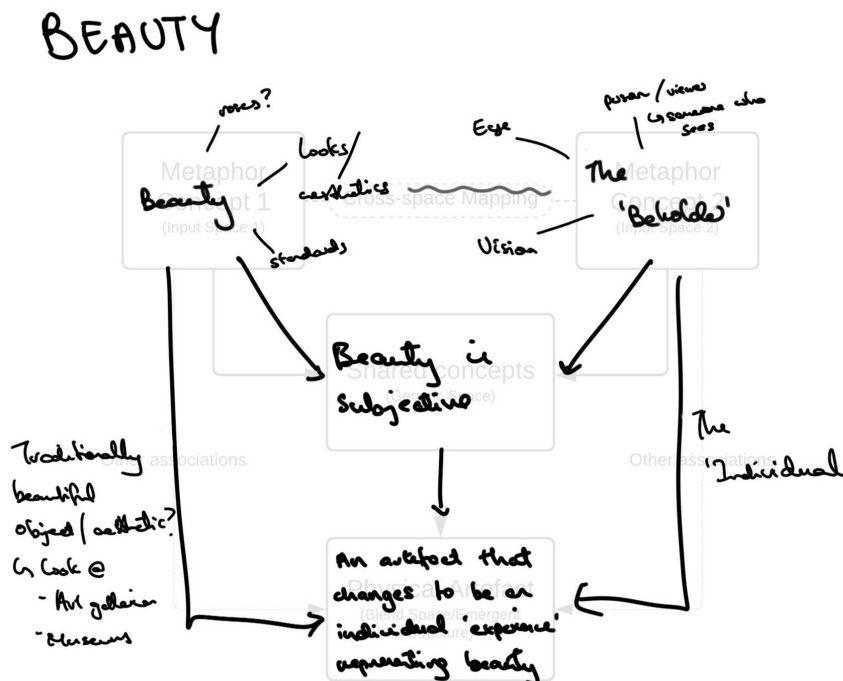


Fig 30. Conceptual Integration Network for ‘Beauty is in the Eye of the Beholder’ saying.

Here it is important to clarify the distinction between ‘containing’ and ‘reflecting’. In this context, ‘containing’ means crafting a shape and asserting it as the embodiment of all things beautiful. While the form may resonate with the designer, it might not hold the same meaning for viewers. On the other hand, ‘reflecting’ involves creating something fluid

enough to accommodate the various definitions held by this single concept, yet still leaving room for individual interpretation. A parallel can be drawn with cultural stereotyping—using one stereotype to represent an entire culture’s array of traditions and history can be harmful. Rather, appreciating the diversity of artefacts, foods, and clothing within a culture forms a richer understanding.

The sketching process was straightforward, as I had already identified the key images I wanted to include, and they happened to blend together in a cohesive way: the eye becoming the frame for the mirror, which represented the iris and pupil (Fig 31).



Fig 31. Initial visualisation of final artefact against brown background for better visibility.

The foundation of the design, an eye, is a fundamental part of the saying itself. However, the mirror was incorporated to address both the ‘beauty’ and ‘user-reliant’ aspects of the artefact. A mirror is associated with beauty or vanity, as it is used to see one’s reflection. It also fulfils the ‘user-reliant’ aspect, since a mirror’s purpose is to reflect whatever is in front of it, requiring interaction.

It quickly became evident that a new approach was necessary during the making stage. The mirror, intended to represent the entire eyeball, was flat compared to the actual spherical shape of an eye. Therefore, instead of creating half an eyeball, I explored traditional relief sculptures as an alternative.

Before shaping the base with air-dry clay (Fig 14), I realised the importance of outlining the eye's components and decided that using my own eye as a reference was the best approach (Fig 32). I could view my eye from different angles and feel its ridges and folds, which wouldn't be as achievable with just a picture. The use of my own eye as a reference also allowed the mirror to symbolise a designer's externalized process of connecting or looking back at a viewer through a medium—the mirror itself.

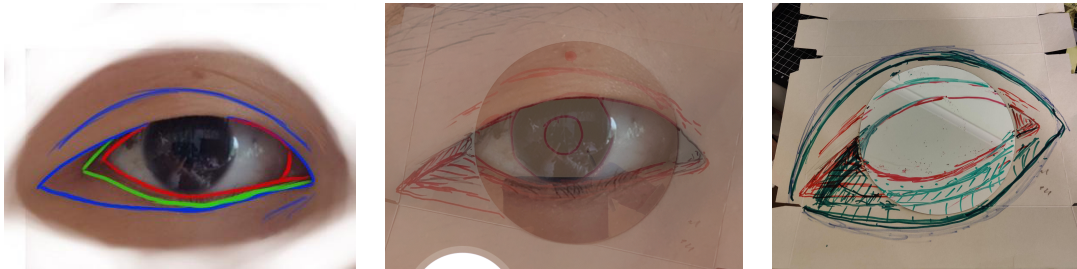


Fig 32. References for mirror and clay placement using Procreate and PainterAR.

Although I had initially planned for the mirror to encompass the entire eyeball, I decided that the mirror would represent only the pupil and iris, the parts associated with 'seeing'. This choice refined the design, making it more traditionally eye-like.

The eye was then sanded and painted. While I considered leaving the eye white to symbolise purity and beauty (Fig 33), similar to marble Greek and Roman sculptures, it was noted that a purely white sculpture might obscure the varying dimensions of the eye. Therefore, grey paint was applied to areas where shadows would typically appear (Fig 34). However, the white sclera of the eye remained white to maintain contrast.



Fig 33. White unshaded mirror.

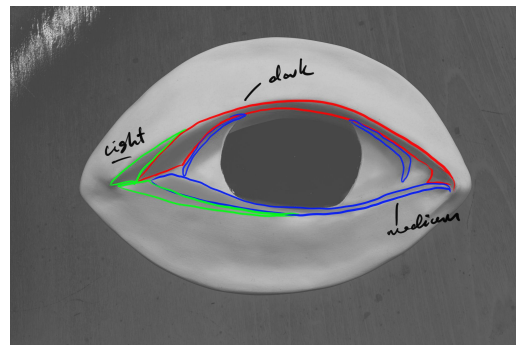


Fig 34. Identification of shadow areas to be painted.

3.2.5 Reflection on Process

This artefact marked one of my earliest understandings of the interplay between the designer, design, and end user. It extends beyond a mere eye-shaped mirror inviting self-reflection; the eye's very shape mirrors my own, embodying a designer's ideals projected onto the viewer. In the context of this research, this hints at how meaning can be influenced by a designer's preconceived notions and touches on the dynamic process of objects undergoing transformations in identity and interpretation, as discussed by Kevin Dawe (2001).

Yet, at its core, this artefact is a mirror reflecting the person before it. The eye-shaped frame represents introspective contemplation, prompting viewers to engage with their image in a more profound and thought-provoking manner compared to the habitual act of looking in a mirror. In our routine self-scrutiny, despite conscious efforts, we more often than not perceive flaws within ourselves in comparison to the prevailing societal beauty standard (Gurari et al., 2006). The eye mirror serves as an externalized embodiment of our scrutinising eyes and underscores the need for self-reevaluation.

The call for direct viewer interaction adds intrigue; the artefact's meaning hinges on this interaction to convey the saying it represents. On its own, the object lacks specific significance—it's merely a mirror in an eye-shaped frame. However, when someone gazes into the pupil, where the mirror is placed, the saying comes to life, and the artefact gains meaning. Even then, this meaning remains subjective, dependent on the viewer's perspective, as a mirror merely reflects what's before it. This fluidity sets this artefact apart from the others; even as the designer, I lack full control over how people perceive themselves, despite shaping the medium through which they do so.

During creation, I discovered the mirror's manifold secondary meanings. The shape of the eye is based on my own, notably with a typical Asian appearance. This reflects me as the designer's 'observation' of the viewers—the individuals they design for—through their work's medium. Similarly, viewers assess the designer through the artefact, and this is one of the reasons why I maintained the eye's white colour, aside from the shaded folds for depth. This neutrality aims to minimise bias from patterns or colours, yet even this omission can be seen as an 'aesthetic' choice, illustrating the challenge of unbiasedness also reflected in artificial languages discussed earlier.

3.3 Glass House (#14)



Fig 35. *Glass House* (artefact).

3.3.1 Overview

Sayings: People who live in glass houses shouldn't throw stones

Language: English

Meaning: "People who have faults should not criticize other people for having the same faults." (Merriam-Webster, n.d.)

Credited author of modern saying: George Herbert

Work: Unknown, 1651. (BookBrowse, n.d.)

Origin: *Troilus and Criseyde*, Geoffrey Chaucer, 1385. (MyEnglishPages.com, n.d.)

3.3.2 Description

This artefact comprises two 'glass houses' crafted by connecting glass coasters. Each house holds stones: one features a singular, smooth white stone, while the other is filled with rough scoria stones (Fig 35). The intention is to create a contrast between them, sparking conversations and symbolising hurtful words through their juxtaposition. Whether delivered with sweetness or bluntness, words, akin to stones, possess the power to hurt, just as rough or polished stones are still able to break glass.

3.3.3 Rationale

The saying intrigued me due to its rich imagery—glass, a house, and stones, with both stones and glass possessing distinct material qualities. At a glance, the tactile experience of these objects contrasts—glass being smooth, transparent, and fragile, while stone is textured and opaque. Conversations arose about this texture and its relevance to the saying (Fig 36). The stones could symbolise verbal insults, much like 'harsh words' replacing 'stones' in the saying. Hurtful words are not always immediately apparent, much like the smooth stones which, although pleasant to touch, can still cause harm. Just as a stone can break a glass house regardless of aesthetics, hurtful words can wound regardless of intention.

This prompted me to explore how altering the stones' texture could shift the overall interpretation. For instance, would changing from smooth river pebbles to rough scoria stones intensify the thought-provoking nature of the saying? Moreover, in the early research stages, discussions revolved around simplifying the object while retaining its essence. The design was distilled until it became a smooth stone encased in glass. When thrown, the glass surrounding the stone would shatter upon impact, illustrating how exchanging hurtful words is mutually destructive. This exploration delved into concentrating meaning within minimal elements and layers of interpretation, such as the representation of the saying and the interactive component.

While not the final outcome, components of the second design were incorporated. When interacting with the artefact by lifting it, individuals must consider the weight of their words (the stones) and the overall fragility of the house.

This artefact primarily explored the impact of materiality on meaning creation and

manipulation. It showcased how ‘tangibilizing’ language expands dimensions for designers, incorporating textures and tactile sensations absent in spoken or written communication. It underscored the intricate relationship between materials, meanings, and interpretations.

3.3.4 Design Process

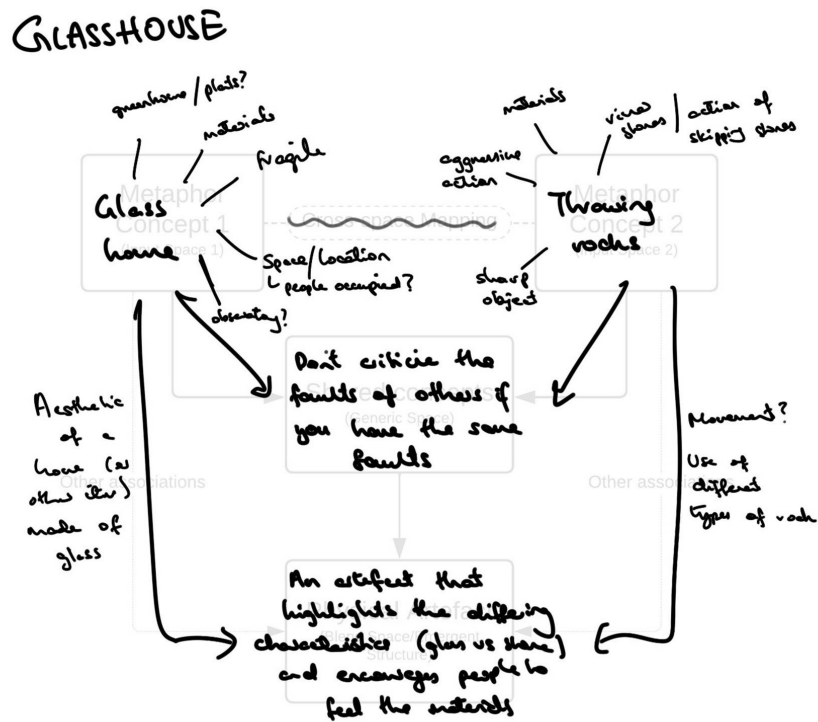


Fig 36. Conceptual Integration Network for “People who live in glass houses shouldn't throw stones” saying.

The initial designs were focused on materials rather than the representational form of a ‘house’. The focus then shifted to simplifying the form of each design, to explore how well the materials could convey the saying’s meaning and its effectiveness. Various initial designs are illustrated below in Figure 37. Design iterations included:

- An alternative approach of creating the house from stacked glass pebbles (Fig 37, 4a).
- An arrangement where glass was moulded around a stack of rocks, leaving an

imprint with nothing inside (4a variant).

- A simpler version with the glass house being just a rock covered with glass. This depicted a cautionary aspect, suggesting that throwing words thoughtlessly could have repercussions, just as throwing the glass-covered rock could cause more harm than just the rock itself (Fig 37, 4b.).
- A representation of the scene through either a smooth or spiked glass pebble. This combined the appearance of a rock with the transparency and feel of glass. The design embodied elements of previous concepts, highlighting the need to be cautious in both carrying the artefact and choosing one's words. If dropped or thrown, the glass shards could cause collateral damage (Fig 37, 4c, ci).

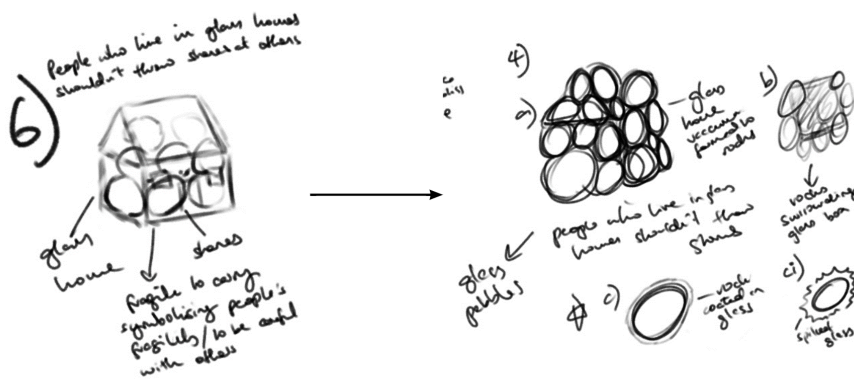


Fig 37. Various designs that were explored.

The chosen design of a glass house not only visually mirrored the saying but also conveyed its message through interaction. When picked up, it symbolised the careful choice of words and their weight, like how mishandling the glass house would lead to its breaking. The texture of the materials and their interaction with each other was also considered to better communicate the saying; for example, the contrasting feel of smooth stones (Fig 40) versus rough scoria (Fig 39).

Like some of the other artefacts, existing materials were used, in this case, glass coasters. Ironically, during the assembly, the walls themselves fell apart frequently, requiring constant monitoring and support to stick together properly (Fig 38). This process also made me reflect on the aftermath of the saying—the difficulty of picking yourself back up and returning to 'normal' and not truly being the same.

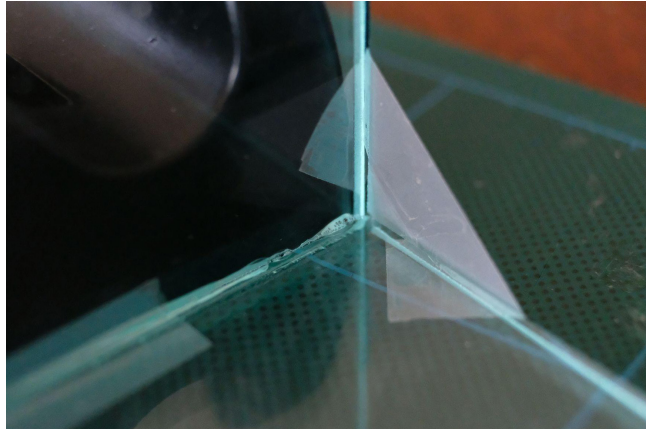


Fig 38. Holding the walls together using tape when assembling.

Stones were gathered from the immediate environment, as well as a collection of stones obtained during my travels around New Zealand. While they aren't categorised by specific rock type, they were chosen for their unique characteristics such as shape, colour/pattern, and texture.



Fig 39. Scoria samples.



Fig 40. Smooth white stone.

3.3.5 Reflection on Process

This artefact aims to embody the material aspects of the saying while exploring the threshold where an artefact loses its significance and becomes incomprehensible. The primary materials in the saying, glass and stones, guided the initial design process, deviating from my usual idea-centric approach. The focal point of this saying, the 'image', is the house, a symbol intertwined with the saying's core idea, juxtaposing the fragility of glass and the hardness of a stone. This straightforward saying was chosen for its universal recognition of glass's fragility and stone's hardness, presenting an opportunity for interaction within the artefact.

Although the final artefact, resembles a glass gingerbread house, it preserves the saying's imagery. This material-centred artefact explores the visual processing of language's imagery, reflecting my own mental visualisation of the saying.

The assortment of different rocks holds significance because their distinct traits, when placed inside the glass houses, create varied perceptions. For instance, a smooth white pebble evokes a different response to rough, dirt-coloured scoria rock. This distinction also applies to the number and size of rocks within each glass house. Choosing to use smooth and rough rocks aimed to symbolise the nature of spoken words, where rough rocks embody obvious, hurtful expressions, resonating with Shakespeare's "a rose by any other name would smell just as sweet". However, here, hurtful words, regardless of their appearance, still cause pain.

The concept evolved to include two glass houses with contrasting arrangements, prompting viewer inquiries about the contrast. One structure contains a single rock, while the other is brimming with rocks of opposing characteristics. The decision to opt for a smooth white pebble and rough scoria rocks amplifies the impact, reflecting innocence and harshness. This juxtaposition highlights that hurtful words, whether overtly malicious or deceptively sweet, are capable of shattering the metaphorical glass house. Comparing these two artefacts invites viewers to contemplate the feel and representation of the stones, fostering interaction with textures. Moreover, attempting to handle the artefacts serves as a reminder of how delicate our interactions with others can be.

Building upon Barthes' exploration of semiotic signs and sign-functions in his work *Elements of Semiology* (1967), I aimed to challenge his assertion that "as soon as there

is a society, every usage is converted into a sign of itself; the use of a raincoat is to give protection from the rain, but this use cannot be dissociated from the very signs of an atmospheric situation” (Barthes, 1967, p. 41). This challenge was undertaken through the simplification of the resulting artefact to its fundamental two materials, which, despite their basic nature, could still convey complex meaning.

3.4 *Upstream without an Umbrella* (#18)

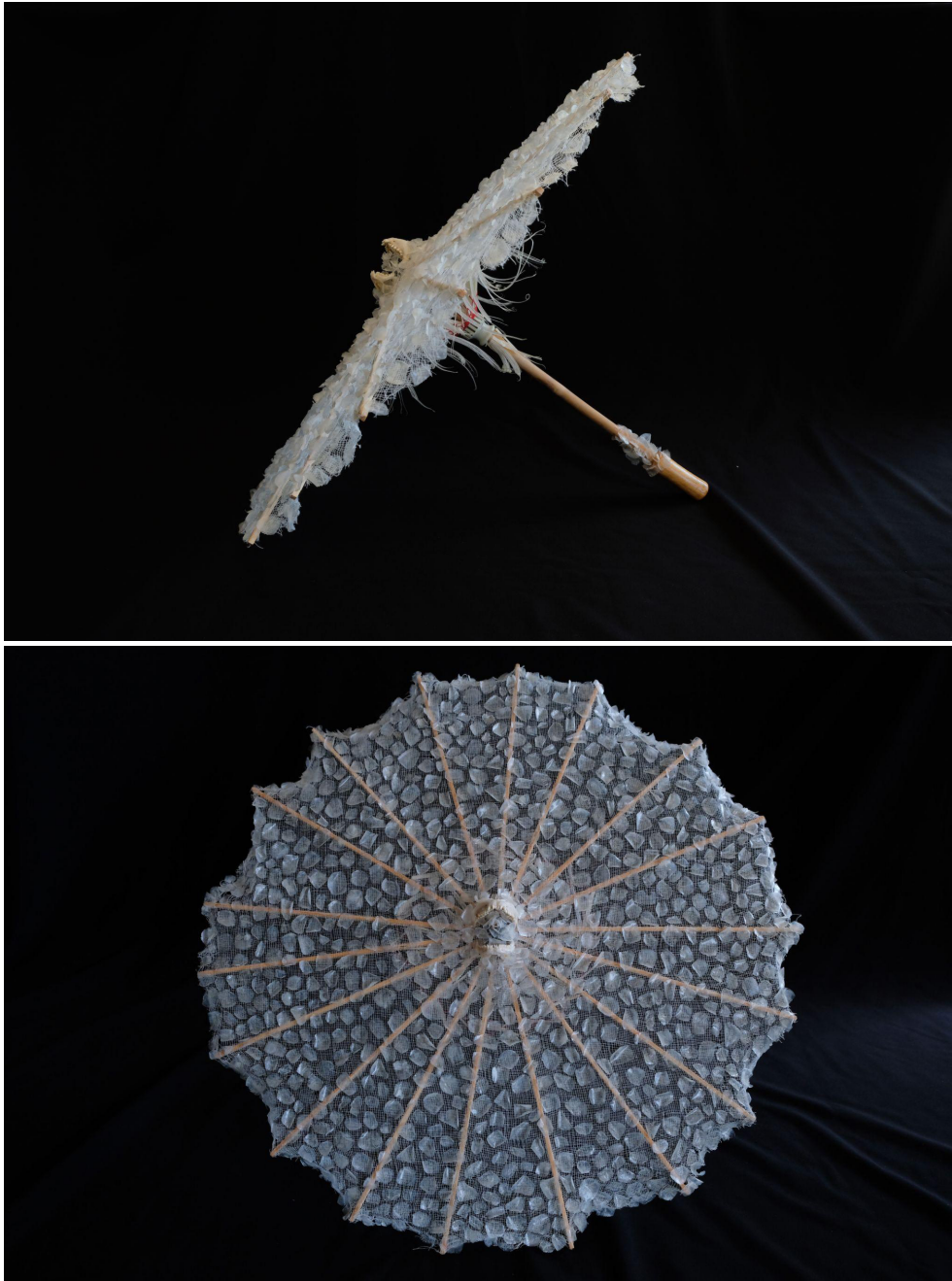


Fig 41. *Upstream without an Umbrella* (artefact).

3.4.1 Overview

Sayings: A fish out of water

Language: English

Meaning: "A person away from his or her usual environment or activities." (Dictionary.com, n.d.)

Credited author of modern saying: Samuel Purchas

Work: *Purchas His Pilgrimage*, 1613. (ESLVault, n.d.)

Origin: *The Canterbury Tales: Prologue*, Geoffrey Chaucer, 1483. (Phrase Finder, n.d.)

3.4.2 Description

An umbrella made from real fish material on a Japanese umbrella (wagasa) frame (Fig 41). The paper panels have been replaced with cheesecloth in order to maximise transparency and clearer viewing of the fish scales which make up the top of the umbrella. Parts of the fish fin and tail have also been attached to the shaft of the umbrella, with scales also attached to the handle. Fish jawbones have been placed at the tip of the umbrella to create the image of a fish swimming 'upstream' or up to the sky. The name of the artefact is a play on the saying "upstream without a paddle" which means to be in a difficult situation with no easy way out.

3.3.3 Rationale

The process of developing this artefact investigated the utilization of organic materials directly tied to the saying, considering their impact on how the artefact is interpreted. This exploration pertained to both the viewers and the designer, as the materials and construction of the artefact presented additional avenues for meaning. My hypothesis centred on the role of the designer throughout the crafting process - encompassing material sourcing, assembly, and fabrication - in enhancing the artefact's significance. I wondered whether the designer's investment, from cleaning the fish to washing the scales and assembling the object, could generate a level of attachment that transcended to the viewer. Could the intensity of the making process be perceptible when compared to artefacts made with store-bought materials?

While putting this hypothesis to the test awaits the artefact's showcase, this question has been addressed by writers and craftspeople. Notably, Kreuzbauer et al. (2015) discuss how the act of handcrafting an object enhances its value compared to a mass-produced counterpart due to the knowledge that a 'creator' imparts their unique personal expression into the object.

3.4.4 Design Process

Similar to the 'Opposite Thinking' ideation method in design where conventional features of an object are reversed to inspire creative thinking (Yu, 2012), I applied this process to my artefact. In this context, I not only deconstructed the saying and its meaning (Fig 42), but I also encouraged viewers to do the same to fully grasp the artefact's intent. The umbrella, an unexpected element, prompted questions about its connection to the fish and the way the fish parts were arranged. Why was an umbrella used? Why are the parts of the fish broken up in such a manner?

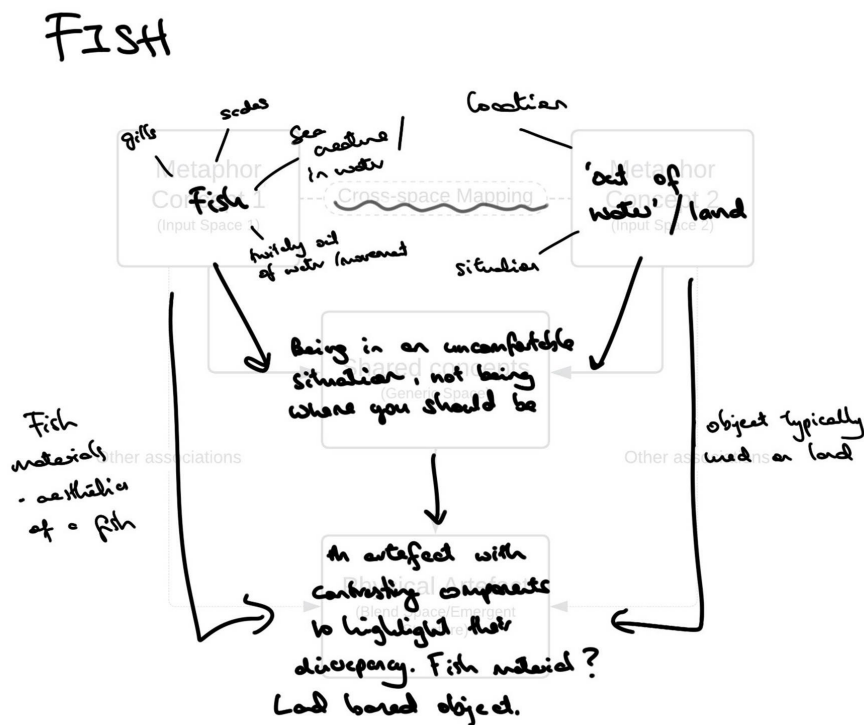


Fig 42. Conceptual Integration Network for “A fish out of water” saying.

Initially, I envisioned the artefact's shape to represent the meaning of saying “out of one's element; in surroundings not suited to one” (Collins English Dictionary, n.d.). With the initial idea of a fish, a situation 'out of water' implies being on land. To introduce an element of surprise and expand beyond the literal interpretation of being 'land-based', I reconsidered water's role. Shifting the focus to something interactive and related to water, but not submerged, led me to the form of an umbrella. This choice allowed the fish material to interact with water while signifying an out-of-ideal-context scenario, aligning with the saying's implication. The idea of an umbrella was also inspired by Synnøve Fredericks' *Salmon Skin Umbrella* (2018) (Fig 43).



Fig 43. *Salmon Skin Umbrella* by Synnøve Fredericks (2018).

After finalising the form of the umbrella, integrating the fish materials became more straightforward. The initial design (Fig 44) aimed to emulate a fish swimming upward toward the sky, drawing inspiration from fish swimming upstream. The fish umbrella featured a fish head attached to the tip of the umbrella, while the main canopy was composed of fish scales. The shaft of the umbrella was crafted from the spinal bones of a fish, culminating in a fishtail at the handle's end. This arrangement mirrored a fish anatomy.

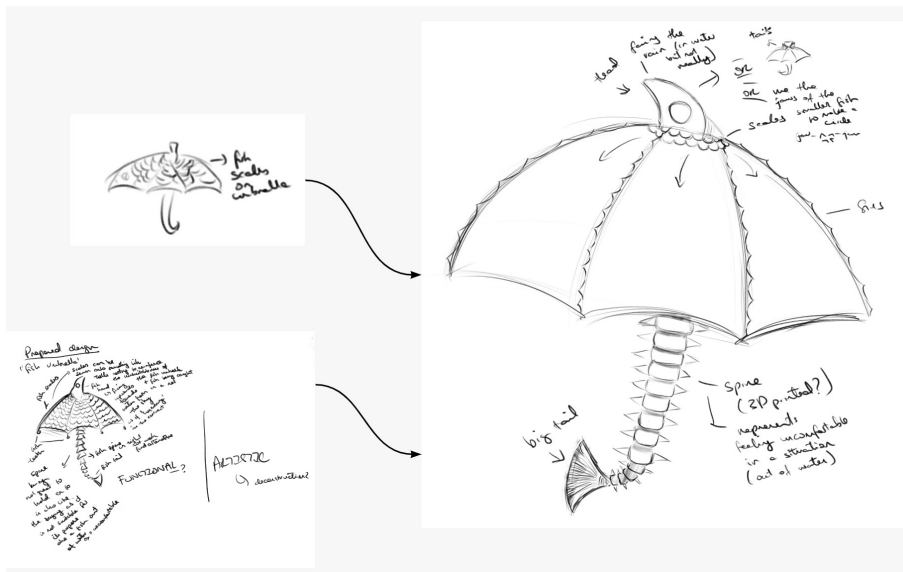


Fig 44. Initial umbrella designs.

The fish scales used in the project were sourced from freshly caught Snapper and Kahawai fish (Fig 45). The cleaning process involved boiling the skins, loose scales, and fins/tails to separate them and remove organic material (Fig 46). They were then scrubbed (Fig 47) and soaked in a mixture of lemon juice, dishwashing liquid and water, then left to dry over two nights (Fig 48).



Fig 45. Harvesting of Snapper skin and scales.

In hindsight, boiling the loose scales and skins separately could have saved time and removed smaller debris earlier. Furthermore, boiling the scales separately from the fins and tails could have prevented mixing and allowed for a longer boiling time to improve the cleaning process. Baking of the fish scales may have also prevented them sticking together during the drying process (Fig 49).



Fig 46. Boiling the fish skins and removing scales.



Fig 47. Washing of scales and scrubbing of tail and fins.



Fig 48. Overnight soak in solution of lemon dishwashing liquid, fresh lemon juice and water to fully remove odours.



Fig 49. Drying of scales, fins, and tail segments.
Wet (top), Dry (below).

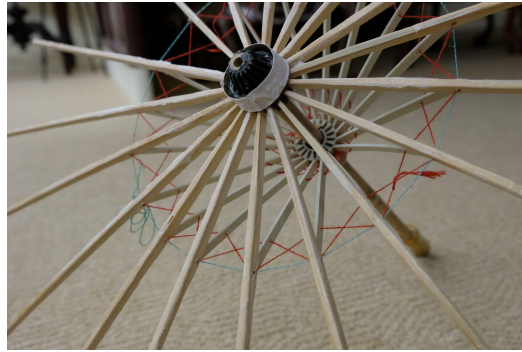


Fig 50. Umbrella skeleton.



Fig 51. Process of gluing scales onto canopy.



Fig 52. Example of an arrangement of fin segments on shaft of umbrella.

The fabric canopy of an umbrella was removed (Fig 50) and substituted with cheesecloth, onto which the scales were affixed (Fig 51). This fused the umbrella and fish by integrating the scales with the umbrella's shape, while the cheesecloth permitted a clear view of the scales (Fig 53). Testing determined the scale arrangement – whether they should overlap or be spaced. While initially, overlapping scales seemed more realistic, they became problematic by bunching up and curling during the initial drying process (Fig 55). Opting for spaced scales provided a less crowded and transparent view under the umbrella's canopy (see Appendix B for overlapping sample piece).

This highlighted the importance of designers listening to material limitations and capabilities, allowing the design to evolve organically and shape its own meaning.

As the original umbrella had a sturdy handle, replacing it with the previous design of spinal bones would have compromised its structural integrity. A compromise was reached by using fish tail and fin segments to embellish the shaft and stretcher, along with scales encircling the shaft (Fig 52).



Fig 53. Thin, almost transparent cheesecloth canopy with scales.

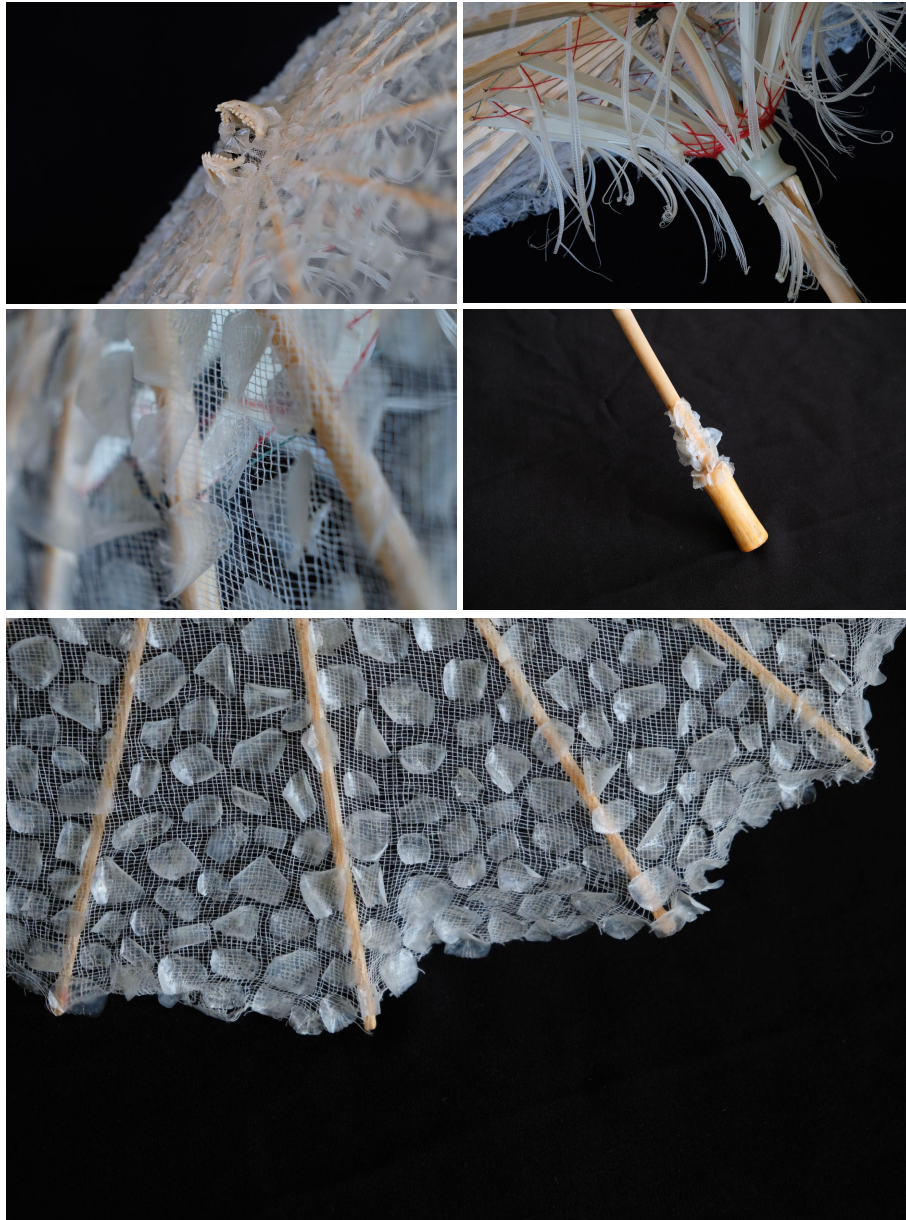


Fig 54. Closeup of sections of the finished umbrella (canopy, ribs, shaft and handle).

This artefact was an experiment involving organic materials and the deliberate subversion of viewer expectations in interpreting its meaning. My hypothesis was that altering the final outcome in a contrasting manner could lead to deeper contemplation of the saying's meaning, like in previous artefacts.

This artefact is an umbrella made from organic fish matter - its scales, fins, and bones (Fig 54). As one of the first designed artefacts, this piece helped me understand the integral importance of materiality. Merely shaping or representing an object wasn't enough for

creating a conversational piece. The use of organic material isn't only significant in how it was sourced, but also in the overall effect of staying true to the saying it represents. The impact wouldn't be the same if, for example, the scales were 3D printed or store-bought sequins. The fact that they are organic material from actual fish creates a more meaningful object. This might stem from the fish having been alive at one point or the utilization of natural materials instead of plastic, a material carrying negative connotations that would introduce other interpretations. This artefact highlighted the impact of natural materials on the object's character and the significance of material sourcing in enhancing an object's singular meaning.

3.4.5 Reflection on Process

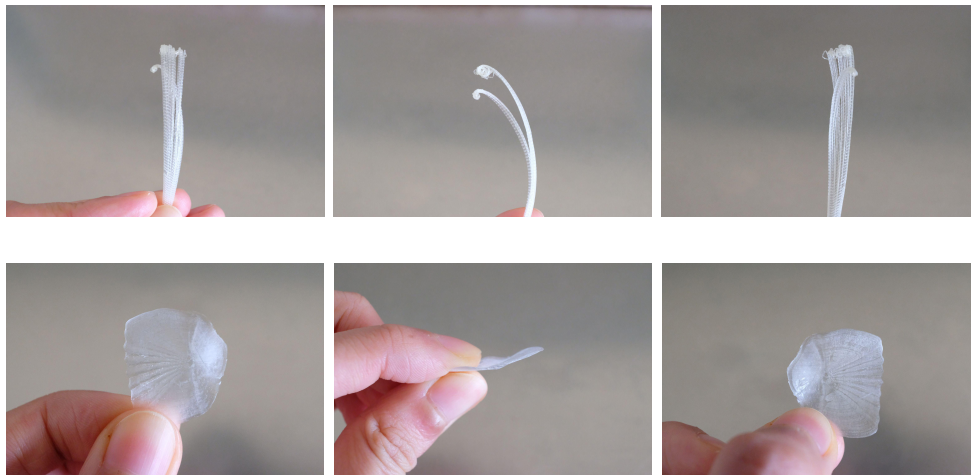


Fig 55. Patterning and warping seen on fin segment (top) and scale (bottom).

While fish scale art is not new (Zengin et al., 2015; Alla et al., 2017; Grey et al., 2006; Insider Business, 2022), there's limited documentation on the exact processes of cleaning and extracting scales, despite their historical use by Yukon First Nations cultures (Hager, n.d.; Indigenous Yukon-Yukon First Nations Tourism & Culture Association, n.d.). Therefore, I developed a process based on trial and error, acknowledging room for improvement. For example, boiling fish skins and fins separately could have streamlined the process, and refining the cleaning mixture could have yielded better results.

This artefact highlights customised materials in conveying meaning. It underscores the importance of considering suitable materials, not just for function but also for deeper meaning. Objects made using traditional methods often carry deeper value due to time and

human labour invested, becoming more meaningful. I realised this as the artefacts with the most personal involvement in design and creation held the most significance for me.

The participation of an object in helping define its own meaning is also demonstrated here with the new arrangement of the curled scales and the non-inclusion of the spinal bones, which resulted from navigating material limitations. These limitations prompted a shift in the placement of tail and fin segments along the umbrella's bottom. While I initially had a solid design and plan for this project, the constraints of the materials caused me to pivot in my final arrangement of parts – this change not necessarily being unfavourable. The interplay between material constraints and unintentional design adjustments influenced the object's affordances, thereby presenting prospects for potentially redefining its intended meaning within the context of the saying itself. For instance, placing the scales on the shaft just above the handle (Fig 54) further emphasizes the discomfort conveyed by the intended message of this umbrella, however the placement of the fin may not read as relevantly. Interestingly, this process aligns with Gibson's (1950) early notion of affordances, where meaning is intrinsic to an object, suggesting that meaning need not be constructed or expanded upon by the observer (Jones, 2003). In the context of affordances, objects essentially establish their purpose by engaging the viewer, as they are "properties taken with reference to the observer" (Gibson, 2015, p. 135).

3.5 Piping Hot Kettle (#56)



Fig 56. *Piping Hot Kettle* (artefact).

3.5.1 Overview

Saying: Guung chui boi hiang, hiang chui boi guung

(滾水不响, 响水不滾)

Translation: Boiled water makes no noise, noisy water isn't boiled.

Language: Teochew

Meaning: Talking excessively doesn't equate to intelligence. The term 'boiled water' refers to those who have gained wisdom over time and, like boiled water, are calm and quiet.

On the other hand, 'noisy water' symbolises those who lack wisdom and experience. Equivalent English says are "empty vessels make the most noise" or "still water runs deep".

Credited author of modern saying: Unknown

Work: Through oral communication

Origin: Presumably from the Chaoshan region of eastern Guangdong, China where the language originated from. Definitely before the 20th Century, as it was in common usage during my Grandfather's time, and it's understood to be an old saying.

3.5.2 Description

This artefact is a kettle designed with inspiration from 18th-century ear trumpets, aiming to link the auditory aspect of the saying with the act of boiling water. The kettle features electronic sensors that, when the kettle is tilted for pouring, trigger a whistling sound. Unlike the traditional instance where a kettle whistles when water reaches boiling point, this design intentionally defies expectations by whistling at an unexpected moment. This unanticipated timing prompts viewers to question the peculiarity and redirects their attention to the initial saying, “boiled water makes no noise” (Fig 56).

3.5.3 Rationale

The kettle served as an exploration into the creation of an object based on a non-Western saying. It also sparked comparisons between crafting with static materials—like wood, leather, or glass—and incorporating digital and electronic components, such as Arduino sensors. This parallel can be likened to the contrast between writing on a computer versus using pen and paper by hand. The inquiry revolved around the potential implications of choosing one approach over the other—do these choices impact the object’s character or significance? Particularly, does integrating electronic systems make an object feel more industrial, potentially diminishing its uniqueness and meaning?

This artefact allowed for experimentation with a distinctive creation process, one in which the designer may have somewhat less influence over the final outcome. When crafting with materials like clay, each piece can be individually shaped and moulded to the designer’s vision. In contrast, an Arduino-based design offers a different dynamic; while the code and circuit can be manipulated, there remain certain limits to what can be achieved. Nonetheless, these systems provide a creative avenue, albeit distinct from the methods employed in traditional hand-crafted items. This distinction renders this artefact particularly captivating as it distinguishes itself from its hand-assembled counterparts.

3.5.4 Design Process

Given the Teochew languages’ declining use, finding sayings in this dialect was challenging. I had to rely solely on sayings commonly spoken in my household. In addition, for this research, I transcribed phrases phonetically using the English alphabet to ensure clarity, as Teochew lacks its own distinct writing system and Chinese characters are read in Teochew. This adds complexity to creating a physical artefact from the saying as there

is this added sharing of ideas between the multiple systems. Unlike associating words or nouns with ideas, it became about making tangible the experiences tied to the saying. However, this led to simpler object designs.

The saying essentially conveys that ‘those who are wise don’t make so much noise’ or that it’s wiser to stay quiet than to speak and appear foolish. This reflects our culture’s essence, valuing humility and minding one’s own business, avoiding open boasting about wealth, knowledge, or status, and refraining from excessive pride. It can also relate to the fear of being wrong and ridiculed, stemming from the pedestal of pride, honour, and maintaining a good reputation.

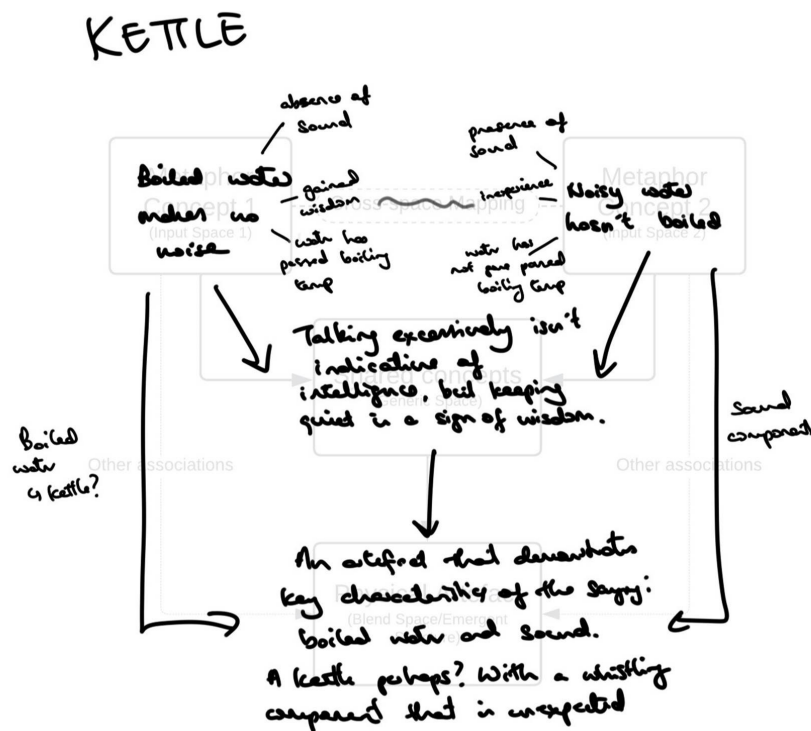


Fig 57. Conceptual Integration Network for “Guang chui boi hiang, hiang chui boi guang (Boiled water makes no noise, noisy water isn’t boiled)” saying.

In a way, the wording of the saying uses accessible imagery familiar to people of all levels—boiling water. However, fully translating this idea was challenging, revealing the limitations of the design process. It’s complex to create physical associations for abstract concepts like ‘honour’ and ‘humility’. This is evident in designs like ‘beauty is in the eye of the

beholder', which had a physical anchor. Unlike concepts with tangible symbols, honour and humility are harder to link with something physical. What does it mean to be humble? What does 'honour' entail? These questions tend to prompt individual designers to reflect on personal experiences, rather than focusing on relatability. For example, honour might mean career success to one but chivalrous individualism to another. Both interpretations are valid. However, the aim in creating the objects for this project was to communicate shared ideas through a physical medium, not just the designer's perspective. They need to be understandable by people with different experiences and statuses, like boundary objects.

When initially designing the artefact, I began with the concept of 'boiled water' and 'sound', employing free association to generate related ideas such as 'kettle' and 'pots' (Fig 57). This approach allowed for creative outcomes and a more natural creative process. The freedom in ideation led to the rapid generation of concepts that could later be refined.

Rather than a kettle whistling as would be expected, an alternate concept involved producing sound unexpectedly, not necessarily when the water was boiling. This interactive aspect aimed to provoke conversations and interpretations. The Peruvian whistling vessel, combining the concepts of 'kettle and sound', influenced the design somewhat, as its inherent interaction requirement—pouring to produce the whistling sounds—aligned with the concept. Furthermore, the vessel also held a cultural element that, when combined with the essence of the saying, could have enhanced the richness of the final artefact.

Choosing the kettle design allowed for exterior exploration. Initial concepts included a plain brushed steel appearance for subtlety, or a Peranakan inspired design (Fig 58, 59) with a corresponding colour palette to incorporate cultural elements. The initial notion of steam driving a mechanical gear system for whistling shifted to an electronic approach using an Arduino and a piezo.

Throughout this design process, the goal was to encourage interaction and interpretation by users. By relying on shared experiences and familiar movements, the artefact aimed to communicate meaning without explicit explanations. This approach acknowledged the complexity of imbuing objects with meaning and the potential for diverse interpretations. Ultimately, creating objects that resonate and effectively convey intended meaning requires a balance of interactivity, cultural references, and familiar forms.



Fig 58. Designs on a Peranakan teapot.



Fig 59. Nyonya Kebaya lace designs.

The kettle was crafted in two components: the kettle shape and the electronic system for generating whistling sounds. The form was designed in Fusion 360 and subsequently 3D printed. The dual colours used highlighted the domed bottom of the kettle, resembling an ear trumpet. For flexibility in design overlay, white was selected as the foundational colour. This also aided in showcasing the layer lines created by the 3D printing process which was the particular highlight of this artefact.

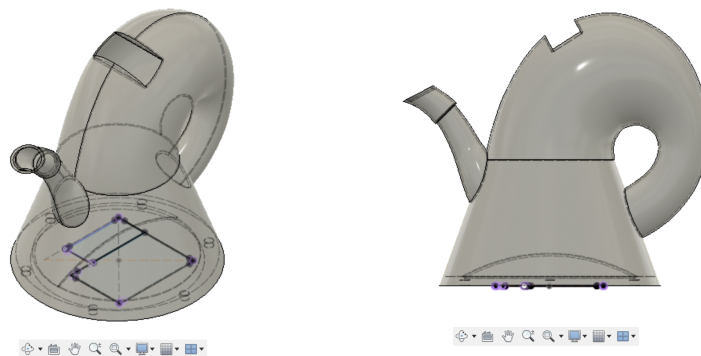


Fig 60. Fusion 360 CAD model (isometric view, side view).

The whistling effect was achieved using Arduino components, programmed to mimic a kettle's characteristic warble and increasing frequency (Fig 61). Triggered by a change in angle detected by a sensor, the whistling stopped when the object was tilted back.

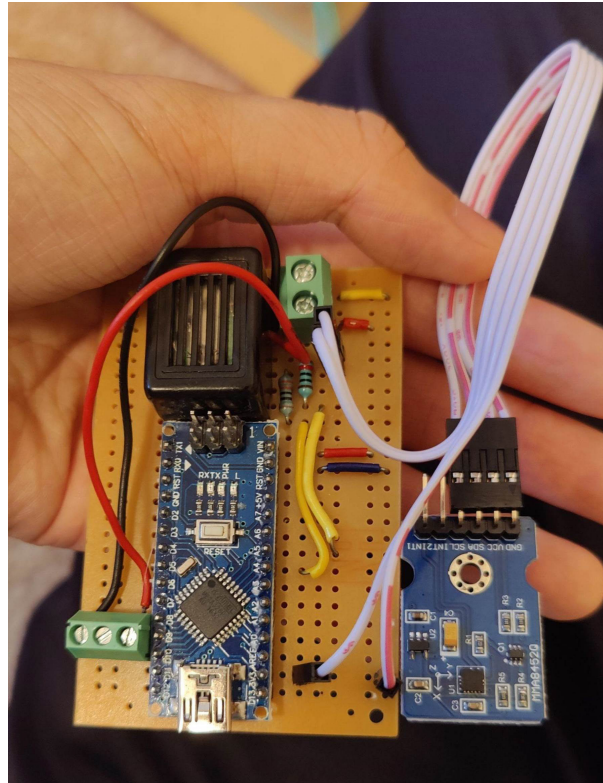


Fig 61. Circuit iteration.

3.5.5 Reflection on Process

This artefact provided an opportunity to showcase my thought process as a receptive bilingual, revealing how I process my dialect, Teochew, into English, even without speaking it fluently. While most assume understanding a language implies also speaking it, receptive bilingualism challenges this assumption. The creation of this artefact allowed for cross-cultural and linguistic meaning analysis, exploring how these factors influence expression through a physical medium. Communication is not limited to single languages but is a dynamic process that draws on a person's entire linguistic and cultural experiences as identified in translanguaging (Wei, 2011). The majority of the way I 'understand' Teochew is not necessarily directly translating them into my first language English but upon reflection, it is more an association with an experience, which arguably is more complex and emotionally connective. For instance, Teochew word 'lou', to braise something, evokes memories of my mother cooking 'lou bak', a braised pork dish. This suggests that words are

mediums for meaning, as Saussure noted, where concept and word are arbitrary. Thus, this object is a design expressing experience rather than being confined by language.

Incorporating electronic components added an interesting contrast in making processes - handcrafted vs. digital. The artefact was digitally modelled and 3D printed, revealing differences between handmade and machine-produced designs:

- 1) A sense of detachment between myself and the design emerged despite being its creator.
- 2) Machine production minimised uniqueness.
- 3) Frustration due to challenges in effectively conveying intentions to the machine and achieving accurate execution of commands.

The feeling of difference in the assembly process was particularly evident due to the 3D printer's involvement. This disconnect could be attributed to the perception of mass-produced goods as disposable, diminishing emotional attachment. The lack of uniqueness in machine-produced objects may hinder relatability, as we recognise our own imperfections and even ascribe positive value to them (Sennett, 2008). Furthermore, the absence of a human's invested time could devalue the object. Among all artefacts, this one stands out for its assembly by a machine - the 3D printer.

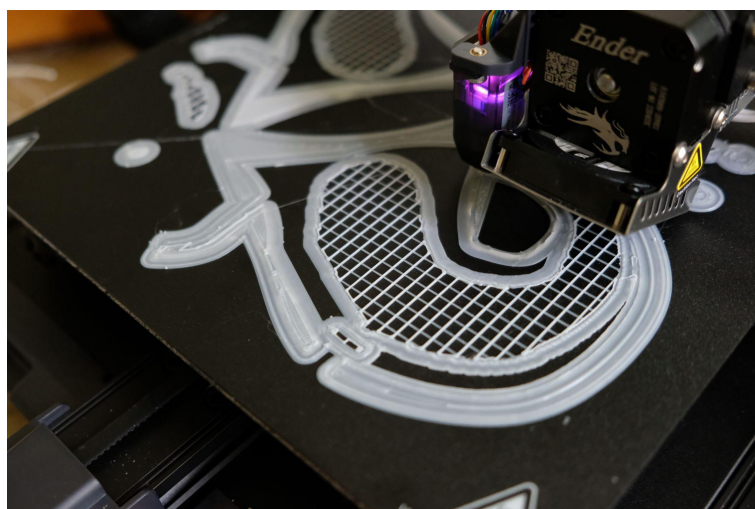


Fig 62. Promising beginnings of a failed initial design. Early 3D print tests.

The sense of disconnect continued as the inclusion of a machine felt like collaborating with another entity, facing its own challenges (Fig 62). While humans have miscommunications, machines lack reasoning. Throughout this artefact's creation, challenges arose without clear solutions, requiring alterations due to uncooperative software or printers. Unlike working with handmade artefacts, where I could easily troubleshoot issues, here I had to adapt or restart entirely. It felt less like working with a machine and more like working around it.

3.6 Cow Bucket (#60)



Fig 63. Cow Bucket (artefact).

3.6.1 Overview

Sayings:

A drop in the bucket

九牛一毛

Translation: One hair from nine oxen (Bueler & Chang, 1972)

Languages: English and Mandarin

Meaning: "Something small and unimportant, especially when compared with something else." (Cambridge Dictionary, n.d)

Credited author of modern saying

(English): John Wycliffe

Work (English): John Wycliffe Bible, the first complete English translation of the Bible. (Dictionary.com, n.d.)

Origin (English): The Holy Bible, Book of Isaiah 40:15

Credited author of modern saying

(Mandarin): Sima Qian

Work (Mandarin): Bao Ren Shao Qing (Letter to Ren An), Han Dynasty est. date 91 BCE. (Watson, 1958; Goldin, 2005; Nalesnik, 2021)

Origin (Mandarin): -

3.6.2 Description

This artefact is a nine-sided bucket crafted from plywood and adorned with various tones of leather, chosen to mirror the authentic hues of oxen hides (Fig 63). The handles of the bucket take the form of the oxen's horns, while suspended droplets from the horns allude to the concept of 'drops in the bucket'. At the bottom of the bucket, a ripple represents the impact of a fallen droplet, capturing its ensuing impact.

3.6.3 Rationale

This hybrid artefact blends sayings from both Chinese and English that share similar meanings yet employ different metaphors. The aim was to craft an object that harmonises these two cultures, with both sayings embodying the concept of something "small and unimportant, especially when compared to something else" (Cambridge Dictionary, n.d).

As someone receptive to multiple languages, this artefact mirrors my world-view—a fusion of cultures and ideas. It granted me the opportunity to experiment with diverse fabrication methods that convey meaning by utilizing both traditional handmade and 3D printed techniques for this artefact. These methods infuse personal significance into the object, effectively reflecting the designer's perspective. Various materials, both organic and synthetic, were integrated into the final artefact to support this purpose.

Though not without imperfections, the final artefact exudes a distinctive character. It encompasses three cultures: Western, Eastern, and a distinct 'Third' Culture that unites them. Moreover, it served as a gateway to explore the new dimensions unlocked by translating the saying into a tangible form, triggering reflections on cross-cultural communication.

3.6.4 Design Process

During the process of curating sayings (see 2.4.2 Definition, p. 39), I observed that there were multiple sayings that, while initially appearing different due to their use of distinct imagery, shared similar meanings. To explore this further, I aimed to utilize blended design to create a hybrid representation connecting the meanings of these two seemingly distinct sayings. Employing Fauconnier and Turner's (2002) 'conceptual integration network', I moved beyond mere representation of the sayings. Instead, I merged the physical attributes of the imagery embedded in each saying.

BUCKET

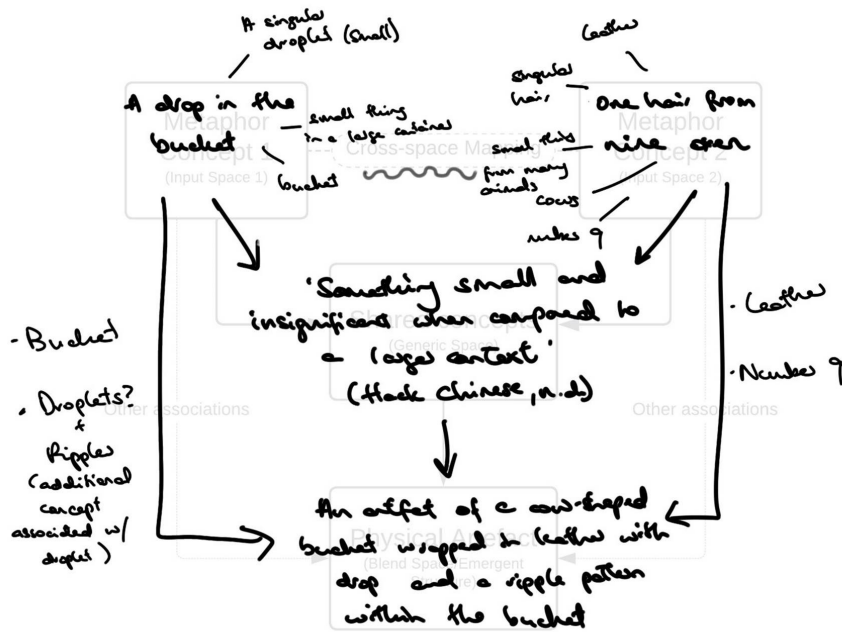


Fig 64. Conceptual Integration Network for “A drop in the bucket” and “One hair from nine oxen” sayings.

Limited experimentation was conducted in the initial design phase due to the predefined bucket shape resulting from conceptual blending outcomes (Fig 64). Therefore, my focus shifted toward refining the leather patterning, the bucket’s form, and the other components. While having a predetermined design in mind, the creative process introduced novel approaches through working with the materials, leading to enhanced outcomes. Hence, decisions were influenced by material investigations.

This dynamic interaction between the designer and materials held significance, as it determined how the creation would be perceived and engaged with by viewers, thereby imbuing the artefact with greater meaning. Analogously, this thought process resembles the distinction between a personal photograph and an unfamiliar one—sharing an experience inherently endows greater significance, yet communicating this depth of meaning to others remains an ongoing query within this research, as it dwells in the realm of intangibility.

From these initial design explorations, a realisation became evident: alternate avenues of conveying meaning existed beyond overt forms of representation. The material being

an example as the leather's presence directly associated the artefact with a cow. This parallels the idea of 'reading between the lines', where individual words hold connotations and relationships, akin to how leather embodies an inherent connection to a cow or similar creature.

With the overall shape and direction of the artefact settled, I used recognizable objects to maintain familiarity while evoking viewer curiosity due to their unconventional arrangement.

Leather of various colours served a dual purpose: referencing the nine oxen in one saying and inviting tactile interaction (Fig 66). By positioning the flesh side up, where hair would have been removed during tanning, an additional layer of complexity and irony emerged. While the saying references the "hair from nine oxen", the fibrous texture of the flesh side was used instead (Fig 65). Through this arrangement of the leather, does this alteration in assembly change the object's meaning? If so, how? These design decisions are intended to stimulate discussions about the physicality of meaning and the communicative capabilities of objects, given this additional interactive dimension, thus justifying the inclusion of juxtaposition. Through this interaction, deeper layers of meaning can be revealed through the sense of touch.



Fig 65. Fuzzy bucket. Flesh side facing out.



Fig 66. Organising leather by colour.

The bucket's nine-sided shape directly alluded to the nine oxen in the secondary saying (Fig 67). Both the 3D-printed horns/handles and ripples were deliberate choices, reflecting experimentation with different sayings and crafting techniques (Fig 68) and their effect on outcomes. Whilst clay would have created a more organic look, this amalgamation of hand-made and machine-made components creates a unique blend.



Fig 67. Bucket assembly.



Fig 68. Wet forming the leather 'ripple'.



Fig 69. Final ripple in bucket.

While the initial design adhered to the literal "a drop in the bucket" imagery with a singular droplet, the choice evolved to feature multiple drops (Fig 70). This reinterpreted the saying more positively, highlighting ripples generated by a single droplet (Fig 69). By grouping droplets, their combined impact defies the notion of insignificance, showcasing the potential for substantial change despite their small size.



Fig 70. Close up of droplets.

3.6.5 Reflection on Process

This artefact proved to be the most intricate in both its conceptualization and creation. It not only merged two sayings from different languages and cultures but also integrated diverse manufacturing techniques. Its complexity is layered due to the meaning attributed to each component of the bucket. The design choices were intentional, serving both individual purposes and a collective intention. For instance, the choice of leather, each piece differing not only in colour but also in texture, some smoother or coarser than others, exemplified this intention.

Another instance lies in the horns that compose the handle of the buckets. The layer lines resulting from the 3D print gave the horns an unexpectedly organic appearance when sanded down (Fig 71, 72), reminiscent of existing cow horns and their growth rings (Mwanza et al., 2013). Another layer of meaning could also be found in the connection formed by lifting the bucket and the saying “to take the bull by the horns”, as the horns of the cow comprise the handle of the bucket.

Further discussion arises concerning the shared meaning of each saying, which seems to have transcended cultures and varying ideologies, differing primarily in the imagery employed to convey the message. This divergence prompts consideration about whether this might be due to distinct cultural priorities and lifestyles, highlighting that even among different cultures, parallels can emerge.



Fig 71. Sanded 'cow horn' handle (before and after).

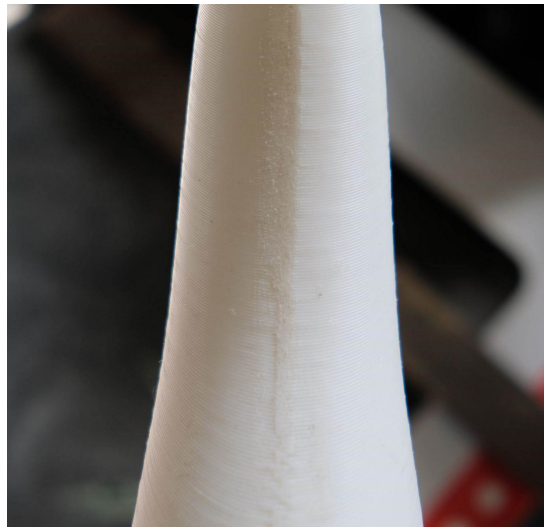


Fig 72. Layer lines reminiscent of cow horn growth rings.

Objects as physical mediums have demonstrated their capacity to serve as communicative tools. This is particularly evident in this amalgamation of sayings from two cultures with divergent ideologies. These objects represent the potential that emerges through the additional interactive element. The continued experimentation with manufacturing processes also highlights the significance of the manner in which artefacts are created and their role in supplying context and meaning to the outcomes.

In a sense, these objects have 'crossed boundaries', akin to traditional boundary objects, inviting opportunities for intercultural communication.

Chapter 4. Reflection on Project

The artefacts emerged by identifying common viewpoints in different sayings using the conceptual integration network and blending them into unique pieces while preserving the essence of each saying. This approach avoids sacrificing or compromising for either perspective, resulting in artefacts that embody both viewpoints and meanings. In the future, including contradicting or unrelated sayings could also test the validity of this approach.

One advantage of these artefacts is their reflection of my initial design approach before receiving any feedback. These unfiltered outputs showcase how I first interpreted the artefacts, flaws and all. They serve as a point of conversation about my thinking and creative process as a designer. Creating these artefacts, as Bennett (2020) pointed out regarding the artificial language Esperanto, revealed the difficulty of achieving true impartiality.

Upon reflection, dedicating more time to experimenting with diverse materials and construction methods could have been beneficial. For example, exploring options like utilizing glass blowing for the glass house or crafting an umbrella entirely from fish parts would have provided valuable insights into all-natural artefacts. These experiments could have shed light on how different methods and materials influenced the overall expression of meaning and possibly increased clarity of the final outputs. However, considering the constraints of the available time frame, the conducted testing yielded adequate insights for this thesis.

Experimentation with contradictory elements in designs, like the initial iterations of the elephant teacup, led to active interpretation and translation of sayings, prompting deeper conversations about their meanings. Subverting expectations emerged during the early stages of the design process, fostering interest in viewers and discussions about purpose, influenced by surrealist designer Meret Oppenheim (1936). Conceptual designers like Joseph Kosuth (1965) also inspired this approach, where the work's purpose is to generate conversation around its concept rather than its aesthetics.

Interaction played a pivotal role in conveying meaning. Artefacts like the *Eye See You* mirror

and the “*What Elephant?*” teacup set required engagement to complete their meaning. This transformed the artefacts into conversational pieces, encouraging dialogue not only between users but also between the designer and viewers, as seen in the *Eye See You* artefact. All artefacts created could be considered an unconscious conversation between a designer and the viewer, as the artefact somewhat represents a designer’s inner biases – and a viewer engages with this opinion through viewing or physically interacting with it. Unlike words that rely on individual interpretation, physical objects carry a more direct message due to their concrete nature and ability for multi-dimensional interaction such as tactility and sight.

The use of multiple languages in the artefacts presented challenges in terms of design and interpretation. Profound understanding of both language and culture was crucial, as some nuances escaped me due to my upbringing in a Western society. Kharkhurin’s discussion about language proficiency’s impact on creative performance supported this, showing that proficiency in both languages correlated with creative benefits (Kharkhurin, 2011).

However, the artefacts also revealed the potential of cross-cultural communication and boundary bridging. While cultural nuances might have been inadvertently excluded due to my limited understanding, these artefacts suggest a way to promote effective communication between different groups. The blending of sayings demonstrates that even different ideas can coexist and be conveyed in a single design.

Throughout the research, I observed a form of communication between me as a designer and the materials. This interaction unveiled the materials’ limitations and strengths, shaping the creative process into a collaboration rather than a one-sided endeavour. This partnership changed my approach, emphasizing the importance of listening to materials and understanding their characteristics. This shift in perspective, from manipulating to collaborating, is essential not only in design but also in our relationship with the environment and each other. Just as materials should be respected as noted by Stephanie Bunn (1999), tools deserve the same consideration. For instance, in 3D printing, even in CAD modelling, one must account for the printer’s capabilities. This perspective extends to broader contexts, like working with cultures unfamiliar to a designer. Collaborating with communities ensures needs are met and extreme biases are avoided, creating designs that truly resonate. This lesson in collaboration holds relevance for our society’s relationship with the environment and cultural understanding.

4.1 Post-Showcase & Video Reflection

As I explored presentation considerations and conducted tests throughout the iterative development cycle, the showcase provided an opportunity to informally assess the engagement and reactions of a broader audience (see Appendix B). It was intriguing to observe how people from diverse cultural backgrounds quickly grasped the essence of my research as I explained the artefacts and their associated sayings. The discussions surrounding these artefacts highlighted the awareness of the miscommunication inherent in various languages and underscored the need for a more intuitive medium.

Interacting with the artefacts enabled most attendees to quickly grasp the connection between the artefact and the saying without prompting, for example, the *Glass House* artefact, which emphasized materiality and the interplay of textures. This connection, however, wasn't consistently apparent when it came to languages they were less familiar with. Nevertheless, through extended discussion and interaction, attendees were able to establish these connections.

Further findings post-showcase was regarding the age of the attendees and lack of knowledge around some of the sayings. This prompted notions regarding the challenges around the communication of meaning within a constantly evolving linguistic landscape. In this way, it is not only communication across cultures, but also across different age groups.

The video follows the explanations that sparked these conversations, providing a succinct yet informative illustration. The shots were carefully selected to maximize visual communication, offering a visual link to the artefacts under discussion. The purpose being to inform, document, and showcase the artefacts and the interactions with them.

Chapter 5. Conclusion

This research into language and artefacts through an exploration of sayings, materials, and forms has engaged with the potential and challenges of communication. The thesis documents different processes through which meaning can be explored and expressed through design outputs, as well as considerations into other alternative methods, such as discussions regarding the different dimensions within both language and physical objects, how specific materials and methods can impact how an object is read and therefore interpreted, as well as how the meaning within an object is not only the product of a designer but also created based on the dialogue between a designer and the materials.

The viability of conceptual blending design is discussed, particularly in contexts where conveying meaning is crucial. Such situations might include graphic design for infographics, product design emphasizing quick user comprehension, data visualisation requiring concise communication, and artistic works aiming to convey messages. Conceptual blending opens doors to innovative communication methods and encourages designers to reflect on their creative process. Although designs may seem independent from their creators, they inherently reflect the designer's thoughts. Including viewers in this process is possible through conceptual blends and shared experiences – imagery and ideas that resonate with both designers and viewers.

These insights intersected with culture and boundary objects, where artefacts served as 'reference points' for communication across diverse interpretations. By incorporating sayings from different cultures and applying conceptual blending, these objects facilitate conversations among varied groups and ideologies, tapping into shared human experiences that transcend differences.

5.1 Limitations

Several limitations were encountered during this project. Firstly, the inability to source a broader range of languages hindered the demonstration of the blended design approach's potential to combine diverse cultural perspectives. I could only utilize languages I personally had exposure to, and even that was challenging due to the decline of dialects

like the one used in this thesis. As the number of native speakers of this dialect decreases, there is a subsequent erosion of the sayings' genuine meanings, along with the loss of certain cultural nuances and ideas across generations.

Another constraint was my limited comprehension of languages other than English. While both Teochew and English are spoken in my household, my proficiency in Mandarin is limited, and my grasp of Teochew is confined to basic household terms. This linguistic bias towards a Western perspective influenced my approach to object creation. This resonates with Bennett's (2020) assertion that "Lingua franca economies are inherently more elitist than translation economies" (p. 290) highlighting the distortion of perspective that can arise.

Other limitations pertain to material availability and time constraints during the creation of the artefacts. Furthermore, certain theoretical directions, like aesthetic cognitivism, embodied design thinking, affordances and traductology were also not fully explored due to time constraints and the breadth of this research. Delving deeper into the significance of specific cultural traditions and objects would have strengthened the foundation for more informed artefact creation. However, the abundance of avenues this research has revealed prevented an exhaustive exploration of diverse cultures.

5.2 Contribution

This research aims to deepen the understanding of cross-cultural interactions, revealing that core concepts transcend cultural norms. The selection of sayings highlighted overlaps in core messages, suggesting potential for enhanced cross-cultural communication in object design and design thinking. In a world grappling with cultural and ideological differences, this research seeks to minimise misunderstandings and encourage connections. Objects surrounding us can be vehicles for unity, highlighting similarities rather than differences. Furthermore, this research also demonstrates the validity of using the conceptual integration network, or the blended design approach, as an effective ideation methodology in design.

5.3 Future directions

Future applications of this research include validating this approach in real-life scenarios, such as designing products for different cultures. The insights from this process could inform the field of product design by creating universally relevant designs, while recognising cultural specificities. Further applications include understanding human cognition and perception, especially in transcending linguistic, ideological, and cultural differences.

In conclusion, this research journey has encompassed the complexities of language interpretation and the creation of tangible objects as carriers of meaning. It highlights the power of language-based metaphors, idioms, and figures of speech in crafting tangible artefacts that blend imagery and underlying meanings. I hope these findings can contribute to enhanced cross-cultural communication and deeper appreciation of shared human experiences, transcending linguistic and cultural boundaries.

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Week 3

20 If it ain't broke don't fix it

broken boards
rot hole
"If it ain't broke don't fix it"
board
nails

21 Needle in a haystack

long pin catches
needle in a haystack
A bale of pins

22 A leopard doesn't change its spots

leopard doesn't change its spots
leopard doesn't change its spots when looking in a mirror
leopard's legs and spots?

23 Don't bite off more than you can chew

Stalk
Styler
Don't bite off more than you can chew

24 Dead men tell no tales

Sung note
Dead men tell no tales
Singing notes (if you're dead) or something like that

Week 4

25 Don't cast your pearls before swine

It's not easy work
Don't cast your pearls before swine
pig's eye

26 Don't rock the boat

Don't rock the boat
boat shaped death
Remember to keep balanced -> not rock the boat by going back & forth. Example: with life

27 A house divided against itself cannot stand

A house divided against itself cannot stand
House divided
Self cannot stand

28 Love is blind

Love is blind
Love is blind

29 Money is the root of all evil

Money is the root of all evil
Money is the root of all evil
Money is the root of all evil

30 Pearls of wisdom

Pearls of wisdom
Pearls of wisdom

42

Spill the beans



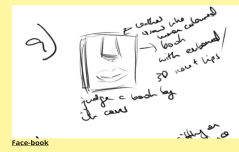
43

Throw caution to the wind



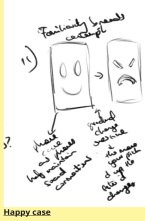
44

Don't judge a book by its cover



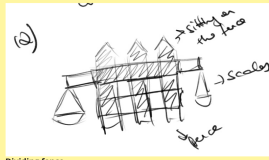
46

Familiarity breeds contempt



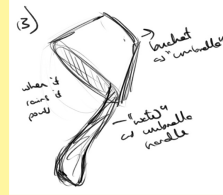
47

Sitting on the fence



48

When it rains it pours



Week 7

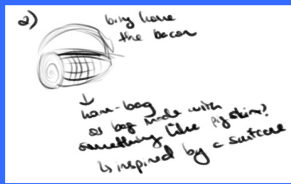
50

Apple of Discord



51

Bring home the bacon



52

A bag of tricks



Week 8

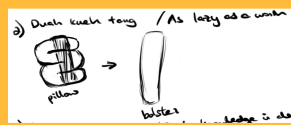
53

Pah kueh Ei tu



54

Duah kueh tang



55

See zox uwak kiew



56 **Guang chui bei xiang, hāng chui bei guang**

Guang chui bei xiang hāng chui bei guang
 (The more things we do, the more we know)
 (The more things we do, the more we know)
 (The more things we do, the more we know)

57 **Do chui boh sim**

Do chui boh sim (The more things we do, the more we know)

58 **Zheng guo, tiak guo**

Zheng guo, tiak guo (The more things we do, the more we know)

Week 9

59

In a rowing club and club
 (The more things we do, the more we know)

60

In a rowing club and club
 (The more things we do, the more we know)

61

A needle in a haystack
 (The more things we do, the more we know)

62

To arrange up the size of each club
 (The more things we do, the more we know)

63

To arrange up the size of each club
 (The more things we do, the more we know)

64

On a rowing club and club
 (The more things we do, the more we know)

65

To arrange up the size of each club
 (The more things we do, the more we know)

66

To arrange up the size of each club
 (The more things we do, the more we know)

67

To arrange up the size of each club
 (The more things we do, the more we know)

Week 12

84

But what are they?

one can use it as a natural insecticide. It is very effective against many types of insects. It is also very easy to grow and maintain. It is a very good plant for a garden.

85

Burning the midnight oil [candle]

different legs when burning down the candle it will slowly change the height of the clock.

86

Every cloud has a silver lining [cloud lining]

When it rains, the water in the cloud falls to the ground. This is the silver lining of the cloud. It is a very good thing to have rain.

87

How can I build up a clay [Colaptes auratus]

Clay is a very important material. It is used to make many things, including bricks and pottery. It is also used in the construction of buildings.

88

A rolling ball gathers its mass

As a ball rolls, it gathers more mass. This is because the ball is moving faster and faster. The more mass it has, the faster it will go.

89

In a nutshell

A nut is a seed that is enclosed in a hard shell. It is a very important part of many plants. It is also a very good source of food.

Week 13

90

Straight from the horse's mouth

The horse's mouth is a very important part of its anatomy. It is used for eating, drinking, and breathing. It is also used for many other things, such as pulling a carriage.

91

Fellas like sheep / Droppings like flies

Sheep droppings are a very important part of the sheep's life. They are used for many things, including as a source of fertilizer. Flies are attracted to the droppings because they are a source of food.

Week 14

92

There's no snake without fire

A snake is a very important part of many ecosystems. It is used for many things, including as a source of food. Fire is a very important part of many ecosystems as well.

93

A picture is worth a thousand words

A picture is a very important part of many cultures. It is used for many things, including as a source of information. A picture can often convey more information than a thousand words.

94

Planting seeds of kindness

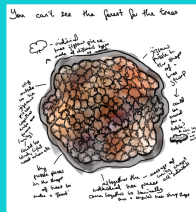
Planting seeds of kindness is a very important part of many cultures. It is used for many things, including as a source of information. A tree can often convey more information than a thousand words.

Week 15

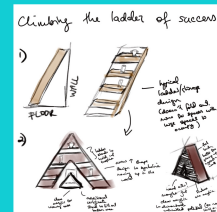
95



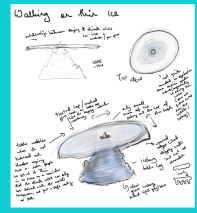
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99



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Appendix B.

Set up of the artefact showcase held on 5th October 2023 with included processwork.



