careful painting

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Exploring paint as a tool to improve healthcare experiences.

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 at a university or other institution of higher learning.

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Thanks to the team at Auckland University of Technology’s Good Health Design for allowing me and my workshop, to be part of your symposia, offering a platform to grow and learn as a researcher. Thank you for also supporting my painting endeavours and allowing me to take over a large wall in your office. The endless cups of tea accompanied by many uplifting conversations were truly valued.

Thank you to my family, the love, support and belief in both me and my project kept my spirits high while I found my way through this new journey.

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Abstract

The design of patient and family-focused information in healthcare is often poorly considered and executed. However, there is a growing recognition for the benefits to staff and patients when the arts are evident in a healthcare context. This research used painting, communication design and co-design to explore the potential for the often difficult and system-focused experience of a healthcare journey, to be balanced by a handmade aesthetic. Clinical and non-clinical stakeholders and experts, as well as end-users of healthcare were engaged through a creative workshop as well as three case studies to explore the 'handmade' in healthcare communication design. The case studies focused on diverse patient and staff experiences including; (a) the outpatient experience for the Deaf community, (b) communicating with clinicians, stroke patients and their caregivers about setting up telehealth sessions, and (c) communicating care to older adult patients in an Assessment, Treatment and Rehabilitation (AT&R) ward. A paint-based toolkit was developed over a series of workshops to discover how thinking through the act of painting, colour choice and mark-making, might enhance the experience of sharing meaningful conversation in a group setting. Painting methods were found to be valuable in creatively engaging patients and staff in co-design activities, and helped them to consider the focus topic of what 'care' looked like, and meant to them. The prototypes developed in each case study acted as applications of what was uncovered in the workshops and challenged the boundaries of what more colourful and insight-driven healthcare communication might look like.

Designers and clinicians alike working in healthcare are often constrained by its rigid systems and hierarchical staff structures, despite a shared desire to offer patient-centred care. Completed during the time of Covid-19, and facing institutional challenges, the case study design outputs of this research remain in the prototype phase. However, they demonstrate the opportunities that exist to humanise healthcare communication design and the potential positive impact arts-based co-design workshops can have in the healthcare context.

Joy is
the release of pain
an ice in the tonic
the heat in the sun -
it comes
rushing in
in tiny flowing currents
a rhythm in your hands
the wind in your body -
when it comes
don't question it :
it has come running for you

Poem by Annabel Hawkins

Written for Hannah Sames,
on finding joy through art and design.

Introduction

Positioning the researcher

Background

I have always believed in the healing nature of making. Being in the moment and creating something new.

Both of my parents work in medical fields, and although I felt pulled towards the caring nature of that career path, I decided to study fine arts and hone my skills and love for painting. I feel there is something powerful and daring, yet delicate and emotional about the experimental nature of painting.

It is my opinion that one does not need to be trained in creating or analysing art for it to elicit some sort of nuanced response. If, for example, a single colour in a painting reminds the viewer of their favourite childhood jumper, and with that, comes memories of a time and place they once lived, then an emotional connection has been made. I am fascinated by these anecdotal stories, hearing of feelings and thoughts that emerge upon looking at the amalgamation of colour, texture and form on a surface.

Following my Fine Arts Diploma, I studied Communication Design (undergraduate) at Auckland University of Technology (AUT). I was curious as to how I could bring my previous visual arts learning into communication design, to create meaningful and thoughtful experiences for consumers. Learning about, and from, the intended end-users was always captivating to me. I felt there was a place for this kind of communication design to be done in healthcare spaces, to benefit health consumers.

Upon reflection of times I had spent in hospital, both personally and in supporting family members, my 'design-eye' could not help but imagine how the experience might have felt different if the patient information had not looked so daunting. Or if the walls in the rooms where many days on end were spent, had colours, shapes, and textures on them that promoted a healing space. This is what ignited the spark for this research. I wanted to know how healthcare communication could be designed in a way that embraced patient insights, creative thinking and would visually connect with people.

Personal Creative Practice

Sitting in the space between visual art (with a focus on painting) and communication design, my creative practice benefits from the qualities of both disciplines.

The word 'painting' is used throughout my research to refer to the artistic application of paint to a surface as a vehicle for conversation, or the making of an artifact. Elkins (2019) wrote, "paint incites motions…and through them it implies emotions" (p. 193). In painting workshops I had facilitated outside of this study, I noticed a sense of connectedness between participants, and a willingness to share thoughts and stories. The movement seen in the brush strokes were evidence of a human hand at work, fueled by thoughts, feelings, purpose, and spontaneity. It was unsurprising then, that literature suggested creative workshops could lead to feelings of ownership, "improved mood and social connection" (Marshall et al., 2014, p. 755).

Design, from the Latin word 'disegno' meaning "drawing, planning, sketching and designing" (Bernard, 2005, p. 10), overlaps with the visual arts discipline. However, communication design has a more specific purpose of communicating a clear message to the viewer, "choosing marks and arranging them on a surface to convey an idea" (Hollis, 1994, p. 7). These marks, also known as signs and codes, create meaning (be it denotative or connotative) and can be made up of icons, symbols, illustration and typography (Bernard, 2005, p. 30).

Both painting and communication design can be emotional, visually speak to viewers, and have the potential to "empower, delight and enrich lives in our communities" (Good Health Design, n.d.).

The research opportunity

I was made aware of the need for improved healthcare communication design in hospitals for the Deaf community in a conversation with The Associate Director of the Institute for Innovation and Improvement (i3).[1] There was recognition for the need of a more fair and enjoyable experience for Deaf patients visiting North Shore Hospital. A proposal for creating a co-design toolkit with the Deaf community had been submitted to the Health Research Council of New Zealand by a team led by Dr. Gareth Terry[2] in 2019. After learning of the inequality and lack of focus on design that assisted Deaf patients navigating a health journey, I felt this was the starting point for my research.

The nature of design research in a healthcare space, and with a community to which I did not belong, called for co-design to be a key method. Dr. Stephen Reay[3] and Cassandra Khoo[4] from Good Health Design[5] had extensive knowledge and experience in this field, and as such, were important motivators and supporters of the Deaf co-design research proposal.

As the year progressed, it became clear that the design and facilitation of the painting workshop that was developed, constituted a practice-led research output in its own right. This also led to two further case studies in which the toolkit was tested and used to prototype design solutions.

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1. Institute for Innovation and Improvement (i3) is based at North Shore Hospital, Auckland, New Zealand. Their work is person centred, community and clinician-led, and data driven.
2. Dr. Gareth Terry is a Senior Lecturer in Rehabilitation Studies at AUT. He has been a health researcher for 16 years and currently works from the Centre for Person Centred Research (PCR), leading the research theme of Disability, Diversity and Accessibility.
3. Dr. Stephen Reay is a Professor of Design and the Director of Good Health Design at AUT. His research centres around the collaboration of design and other disciplines to improve health and wellbeing experiences.
4. Cassandra Khoo is a researcher and communication designer at AUT's Good Health Design and Waitematā DHB's Institute for Innovation and Improvement (i3). Her research focusses on using branding and information visualisation to improve health and wellbeing communication.
5. Good Health Design is a research and design led studio based at AUT. It is transdisciplinary, encouraging creative thinking and co-design research to respond to healthcare challenges.

"Design deals in human interactions with artifacts and situations that contain a great deal of uncertainty"

Cal Swann (2002, p.51)

Design research during a pandemic

This research began just before the Covid-19[6] pandemic. As a consequence, I learned the importance of reflexivity and responsiveness; to be able to creatively adapt to new situations. Ings (personal communication, September 20, 2019) quoted Caplan:

> "One of the hallmarks of a creative person is the ability to tolerate ambiguity, dissonance, inconsistency and things out of place. But one of the rules of a well-run corporation, is that surprise is to be minimalised. Yet if this rule were to be applied to the creative process, nothing worth reading would get written, nothing worth seeing would get painted, nothing worth living with and using would ever get designed."

With the hopes of bringing more visual creativity into healthcare spaces, I was inspired by these words. I needed to allow the ambiguity of 2020 to open up new opportunities, and embrace the challenges as a way of improving my research approaches and methods. In times when individuals within the healthcare system viewed creative communication design as being out of place, it was my role to show its worth, and that it was exactly where it should be. This research allowed my creative practice and ability as a co-design workshop facilitator to grow. I hope this learning will be helpful to the people and places of healthcare in the future.

The unique year of 2020 also pushed healthcare communication design into the spotlight. Colour, typography, shape, and copywriting were aspects of communication design that made Aotearoa/New Zealand's Covid-19 response internationally recognised (Figure 1). McLaughlin (2020) wrote in Creative Review that Aotearoa/New Zealand was leading the way with simple but powerful design, while Greive (2020) wrote "it was a masterpiece of utilitarian design" (The Spinoff). The typeface was sans-serif with rounded edges which "blunted its impact" (Greive, 2020) and the shade of yellow was warm and "yolky" (Greive, 2020). The use of words such as 'bubble', for example, "stay in your household bubbles" (New Zealand Government, 2020), and 'unite', such as, "unite against Covid-19" (New Zealand Government, 2020), with short and simple messaging across all communication channels, felt positive and achievable.

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[6] The Covid-19 virus affects people's lungs and airways. It was confirmed in January 2020 by the World Health Organisation (WHO) that Covid-19 was a global health emergency. In March 2020, Aotearoa/New Zealand's government announced an Alert Level system, whereby, at Alert Level 4, the entire population was to remain at home with a select group of people. These would be the only people with whom physical contact was allowed, and this time was known as 'lockdown'. All other physical contact was restricted through social distancing, wearing face masks and limited numbers of people in essential areas such as supermarkets.

2020 proved how popular unconventional modes of health communication could be.

2020 also proved how popular unconventional modes of health communication could be. Instagram and Twitter saw the growth of accounts such as; Shit You Should Care About (https://www.instagram.com.shityoushould careabout/) (Figure 2), The Spinoff (https:// www.instagram.com/thespinofftv/), and the appearance of many illustrators, short film makers, graphic designers and poets who created artful Covid-19 information posts (Figure 3). Associate Professor Siouxsie Wiles, known to many as "that pink-haired science lady" (The University of Auckland, 2019), became well-known for demystifying the science behind the Covid-19 virus on Twitter and television interviews. These examples and many more, provide evidence that there is space for health information that is designed with colour and creativity in order to create a deeper connection with audiences.

Literature analysis and contextual review became central to progressing this research, as Covid-19 lockdown periods in Aotearoa/ New Zealand created barriers to the intended program of co-design. For much of the duration of my research timeframe, hospitals only allowed family members of patients to visit. Complying with government rules and AUT ethics also meant that in-person contact and group activities were limited for many months. The mental and physical effect the pandemic had on myself, and anecdotally, the general population, was considerable, as stress about health, finance and loved ones escalated.

In order for successful co-design to be completed, a relationship and degree of trust needed to be built with the healthcare professionals and potential workshop co-facilitators. This would have allowed them to feel confident in participating in this research project. However, regular meetings and in-person connections were also precluded, creating several limitations.

Conducting research during Covid-19 resulted in an experience and project outcome different to what may have been if there had not been a deadly, global pandemic occurring. Navigating lockdowns[7], social distancing, new health and safety protocols, and mental and physical wellbeing during this time was fairly unchartered territory. Design and design research are however, generous, creative and reflective by nature. Therefore, I was able to embrace these qualities and find new solutions to challenges.

Involving an institution such as the hospital, a system being threatened by the pressures of Covid-19 was difficult. However, it was the very place that could benefit from co-design, especially in a time of crisis. "Public and patient involvement is still largely seen as 'nice to have' but non-essential" argues Richards & Scowcroft (2020, p. 1). During the pandemic, views and preferences of the community were "not well recognised, valued or systematically used to improve care" (Richards & Scowcroft, 2020, p. 1).

Personally, the experience of researching during a pandemic felt overwhelming and daunting, however, discovering new ways to continue the study was enriching and enlightening. My creative practice and experience as a researcher was pushed to the limits as I attempted to challenge the way communication design and co-design could be achieved in hospitals. I learned to become comfortable with uncertainty, and my desire to continue this research beyond the Masters timeframe was not knocked. I believe there is value in including the arts, insight-driven communication design and co-design in healthcare.

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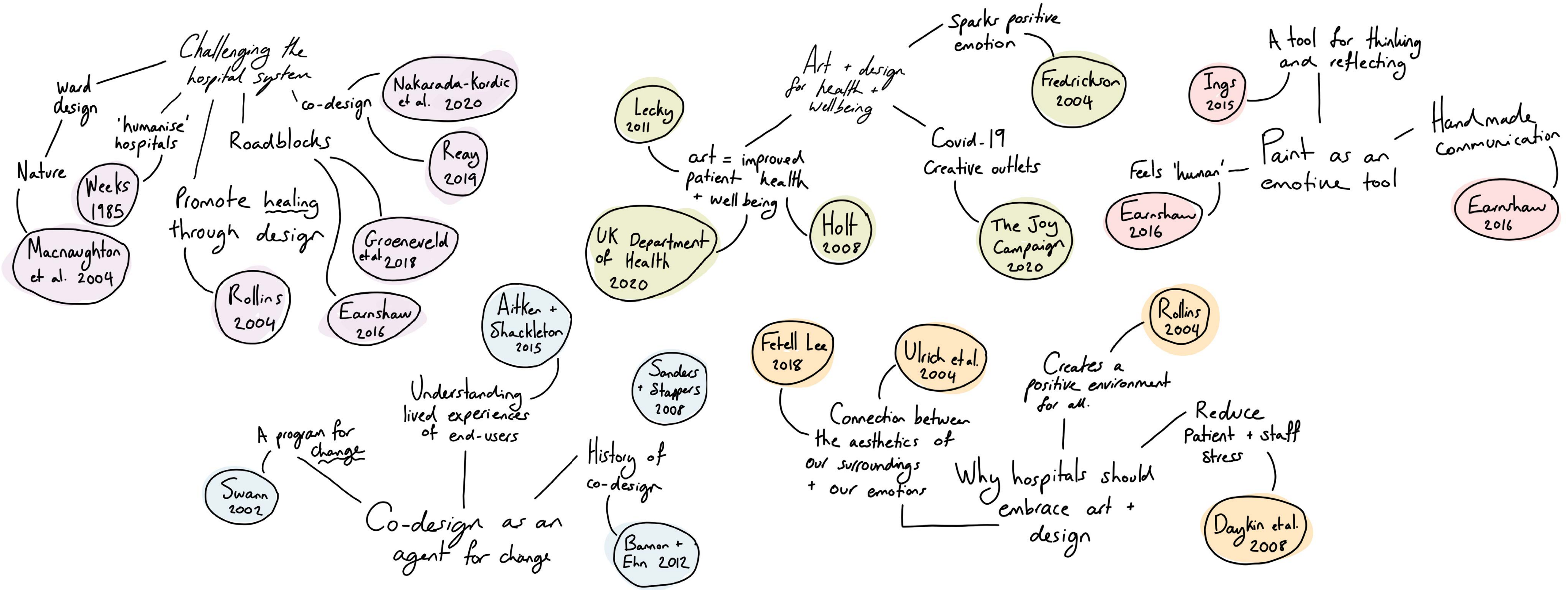
[7] In March 2020, Aotearoa/New Zealand's government announced an Alert Level system to combat the spread of Covid-19. At Alert Level 4, the entire population was to remain at home with a select group of people (who were the only people with whom they were allowed physical contact with). This was known as 'lockdown'.

Figure 1. A collection of Instagram posts from the official New Zealand Government Covid-19 Instagram account @uniteagainstcovid19. Retrieved August, 2020 from https://www.instagram.com/UniteAgainstCOVID19/

Figure 2. A collection of Instagram posts from the Instagram account @shityoushouldcareabout, demonstrating an array of information posted during the Covid-19 lockdown in Aotearoa/New Zealand. Retrieved March, 2020 from https://www.instagram.com/shityoushouldcareabout/

Figure 3. A collection of Instagram posts from creatives around the world, created to inform and inspire during the Covid-19 lockdown. All accessed April 2020. From Left: Handcrafted typography about the importance of washing your hands by @alleywaydesigns. Social Distancing: A short film by @freimanemadara. Poetry by @annabel_hawkins_ (commissioned by @2113Creatives as part of the #SeeYouSoon project, displayed on billboards around Aotearoa/New Zealand). Unpacking The Stigma Around Covid-19 by @courtneyahndesign.

Contextual Review



Contextual Review

There is a growing body of research linking how people feel in a space to the visual design around them. Healthcare spaces are no exception. Rollins' 2004 analysis of health design stated that "the healthcare environment – where care is actually provided and received has substantial effects on patients" (p. 338). This contextual review discusses how healthcare institutions can "benefit from design's 'human-centred' approaches and focus on end-user experience" (Reay et al., 2016, p. 230). The challenges to make creative change in a place that is under "increasing demands to look for better and more-cost effective patient-centred healthcare" (Reay et al., 2016, p. 235) are explored. Following this, I discuss how the arts currently exist within the healthcare context and the benefits of collective creativity to help improve patient experience. Participatory design, more commonly referred to as 'co-creation' or 'co-design' can "have an impact with positive, long-range consequences" (Sanders & Stappers, 2008, p. 9) by working with end-users at the beginning and throughout the design process (Sanders & Stappers, 2008).

McCrary Sullivan (2000) argues "the artist is a researcher…inquiring, testing with the body as well as the mind, sensing and seeing, responding and re-testing…registering complexity, then sorting, finding pattern, making meaning" (p. 226). Analogue creativity such as painting can also lead to "increased confidence and joy" (Reynold et al., 2007, pp. 1–10) making it an appropriate tool to test in healthcare-based co-design workshops. It enabled participants to "tell something of themselves and their lives through the things they make" (Marshall et al., 2014, p. 757). Therefore, understanding how handmade art such as painting can be a form of research is the final context discussed.

> **There is a growing body of research linking how people feel in a space, to the visual design around them.**

Challenging a system

Hospitals should be 'human' both organisationally and physically (Weeks, 1985, p. 1815). Organisational humanness would include good communication, staff contributing without "feeling that the organisation is getting in the way" (Weeks, 1985 p. 1815), compassion and support. Weeks (1985) goes on to say that physical humanness would include "familiar architecture, nicely decorated…with a lot of flowers…and lawns and trees outside" (p. 1815). This idea is supported by Macnaughton et al. (2004), who argues, landscaped courtyards, natural light and well-utilised communication in a space, help to create a "non-institutional healing environment" (p. 16). Rollins (2004) found that there was a link between patient health, quality of care and "the way a hospital is designed" (p. 338), with the opportunity for hospitals to not only offer treatments, but to also promote healing. With ample literature supporting the humanising of healthcare spaces, it should be asked why this is seen so infrequently in hospitals, and why designers often face institutional barriers to creative change.

Designers and design researchers can aid in making positive, human-centred change through collaboration with the hospital, but are frequently met with challenges (Groeneveld et al., 2018, p. 307). Design research has the potential to highlight areas for improvement and generate questions that need designed responses. This, however, can cause tension in a context where creativity is a departure from the norm (Earnshaw, 2016, p. 55). Groeneveld et al. (2018), faced issues conducting fieldwork, involving end-users, navigating sensitive situations, building understanding, establishing rapport, and communicating the value of design in a hospital project (pp. 314–318). Literature suggests this is in part due to the hierarchies and control of the often-bureaucratic healthcare system (Foucault, 1973) and the skepticism about the value of co-design for health and wellbeing (Nakarada-Kordic et al., 2020, p. 214). Reluctance to change, or humanise, hospital cultures and environments can stem from fear of superior disapproval, and hesitancy to explore beyond the status-quo (Earnshaw, 2016). This may be underpinned by a "lack of confidence that a valid new idea can be produced" (Earnshaw, 2016, p. 58). When the disciplines of design and healthcare attempt to work together, there can be a "clash of worlds and paradigms" (Nakarada-Kordic et al., 2020, p. 218). Designers can feel constrained by the rigid systems and structure of the healthcare institution (Nakarada-Kordic et al., 2020, p. 219) and "design literacy in healthcare organisations is often low" (Reay et al. 2019, p. 396). Reay at al. (2019) found that navigating the hierarchies in order to incite change as a designer "requires strong well-connected and transparent internal support" (p. 396).

Art and design for health and wellbeing

A key point that differentiates humans from other forms of intelligent life is our creativity. Humans have been making art since the beginning of time. Drawing on cave walls, chiseling sculptures, performing, and weaving, all to tell stories, express feelings and make sense of the world. While creative activities have been prominent in the context of mental health for some time, there is a growing recognition of the improvement in health and wellbeing of both staff and patients when the arts are evident in a healthcare context (Lecky, 2011, p. 501–509). Although this research does not aim to provide an in-depth analysis of art therapy, or its methods, the essence of art therapy does exist in this study. The United Kingdom Department of Health and Arts Council England (2020) published a *Prospectus for Arts in Health*, supporting the idea that "the arts play an essential part in creating a sense of wellbeing and improving quality of life, and that this, in turn, contributes to the health of individuals, communities and the nation" (p. 2). The prospectus outlined that at the core of including arts in healthcare, is the desire to inform and create "high-quality clinical care that is focused on the needs of the patients and service users" (p. 2). Art-based activities allowed patients to express themselves in ways that other forms of communication could not (Arts Council England, 2020). There is also evidence to suggest that when participating in creative activity, or surrounded by art (visual, audio or performative), the physiology of the body 'shifts' – "art and music affect a person's autonomic nervous system, their hormonal balance and their brain neurotransmitters" (Holt, 2008, p. 161). This, in turn, can promote a type of healing physiology (Holt, 2008, p. 161).

During Covid-19, which resulted in self-isolation and lockdown for much of the world, visual and performing arts were highlighted as a tonic for the soul. The Guardian (2020) showed videos of people in Italy singing from their balconies, harmonising with their neighbours during lockdown to keep spirits high. Hobbycraft[8] in the United Kingdom, stated that sales grew over 200% and online craft sessions drew in over fifteen-million viewers as a result of lockdown (Brignall, 2020). In Aotearoa/New Zealand, Lumo[9] teamed up with Art Ache[10] to create *The Joy Campaign* (2020). This gave essential workers the opportunity to enjoy illuminated, large-scale artworks (instead of the usual advertising) on their daily commute (Figures 4, 5 & 6). These, and many more examples of the arts taking spotlight during a trying time, supports the premise that humans turn to art to feel connected with others, show care for one another, to inspire, soothe, and to spark joy. Research shows a direct link between experiencing positive emotions and the state of our well-being, both physical and mental. Fredrickson (2004) discusses the 'broaden-and-build' theory, which suggests that positive emotions (such as joy) allow us to broaden our thinking and build resilience when our minds and bodies are being challenged (pp. 1367-1378). The theory that "positive emotions also produce optimal functioning, not just within the present, pleasant moment, but over the long-term as well" (Fredrickson, 2004, p. 1367), could be applied to the instance of patients in a hospital.

[8] Hobbycraft is a craft supplies store with over 90 stores in the United Kingdom and an online crafting community.
[9] Lumo is a New Zealand billboard company. https://lumodigital.nz/
[10] Art Ache is a platform celebrating New Zealand artists. https://artache.com/

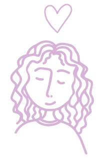


Figure 4. Lazar, C. (2020). Untitled. (Photograph by Baxter, B. for The Joy Campaign, Art Ache). Aotearoa/New Zealand. Retrieved from https://artache.com/the-joy-campaign/

Figure 5. McMillan, T. (2020). Untitled. (Photograph by Baxter, B. for The Joy Campaign, Art Ache). Aotearoa/New Zealand. Retrieved from https://artache.com/the-joy-campaign/

Figure 6. Green, V. (2020). Untitled, (Photograph by Baxter, B. for The Joy Campaign, Art Ache). Aotearoa/New Zealand. Retrieved from https://artache.com/the-joy-campaign/

What has 2020 taught us as a creative community?
we're the duct tape
holding the cardboard
over the broken window

Dominic Hoey (2020)

Why hospitals should embrace art and design

In a systematic review of over 600 published studies, Daykin et al. (2008) found that art, design and environment, were all factors that could reduce patient and staff stress. More specifically, exposure to certain art in healthcare settings also helped to alleviate anxiety (Daykin et al., 2008, p. 85). Patient feedback on art in hospitals revealed that calming, naturalistic or domestic imagery was preferred over "abstract or challenging art" (Daykin et al., 2008, p. 86). It is important for large institutions such as hospitals to know that while art may often be considered "the icing on the cake" (Daykin et al, 2008, p. 91), there are significant benefits to creating positive feelings. "Therapeutic benefits, enhanced experiences of care…promoting a sense of identity; and enhancing staff morale and motivation" (Daykin et al., 2008, p. 91), suggests that embracing art in hospitals helps to build the layers of the cake beneath the icing too. Fredrickson (2004) summarised that positive emotions can broaden our way of thinking, "undo lingering negative emotional arousal" (p. 1375), spark future well-being, "seed human flourishing" (p. 1375) and set people on a path to "healthy longevity" (p. 1375).

When considering the environment of a hospital, Rollins' (2004) discussed how "improved design, work processes, and culture can increase institutional vitality and improve the bottom line" (p. 338,). This can create a place where staff might want to continue working for many years, which has beneficial financial implications for hospitals (Rollins, 2004). Research by both Fetell Lee (2018) and Ulrich et al. (2004) examined the connection between our emotions and surroundings, with significant overlaps in their findings. Fetell Lee (2018) argues that "vibrant colour and light" (p. 8) produce an aesthetic of joy. This has been supported by research of Ulrich et al. (2004) where the ample natural light and brightness in wards was strongly correlated with shorter lengths of stay "compared to patients in dull rooms" (Ulrich et al. 2004, p. 20). If this cannot be achieved due to the architecture of the building, the use of art and design could act as remedies to such problems. Further, both researchers identified the importance of natural environments, suggesting that viewing nature in art, or in real life, "reduces stress and diverts patients from focusing on their pain or distress" (Ulrich et al., 2004, p. 22).

Covid-19 caused many hospitals around the world to stretch their capacity beyond what was previously considered normal. In an effort to keep as many people safe and out of hospital, design played an important role in communicating to the public how to stay safe (see: Design Research During a Pandemic). In May 2020, the Aotearoa/New Zealand Ministry of Health (MoH) declared that hospitals around the country would triple their ICU capacity within two months (Leggott, 2020, p. 2). In response to this, Auckland Regional Public Health Service (ARPHS) (2020) published a Manager's Wellbeing Toolkit for over-burdened hospital staff. Staff were encouraged to spend time in nature, acknowledging that this could be restorative and beneficial to mental well-being (ARPHS, 2020, p.26).

> "When positive emotions
> are in short supply,
> people get stuck."
>
> Barbara Fredrickson (2004, p. 1375)

Co-design as an agent for change

Co-creation and co-design are terms that have been increasingly used within design practice since the 1970s (Bannon & Ehn, 2012). They combine the user-centred design approach popularised in the US, and the participatory design approach stemming from Northern Europe (Sanders & Stappers, 2008, p. 5). Both allow the intended audience (or end-user) of the designed outcome to "participate in the informing, ideating and conceptualising" (Sanders & Stappers, 2008, p. 5) of the design at an early stage.

Rooted in action research (AR) methodology, these methods are reflective and reflexive, encouraging the researcher to create work that understands the participants and their lived experiences (Aitken & Shackleton, 2015). This way of creating draws the designer into a researcher role and distributes decision-making power among others who may not be deemed 'designers' by profession, but rather, experts in their own experiences (Aitken & Shackleton, 2015). This can be challenging to those more accustomed to making choices based on their own preferred aesthetics or preconceived creative ideas, and requires listening to others, learning through making and trial and error, as well as self-reflection from the designer (Swann, 2002). It is important to understand the difference between the two terms, co-creation and co-design, as outlined by Sanders and Stappers (2008), when used as methods in an AR methodology.
Co-creation refers to the act of creating with two or more people and can be carried out in a range of applications such as material and physical, or metaphysical and spiritual (Sanders & Stappers, 2008, p. 6). Co-design encompasses the "creativity of designers and people not trained in design working together in the design development process" (Sanders & Stappers, 2008, p. 6). This allows the designer/researcher to document opinions, lived experiences and emotions on a particular topic. Co-design is therefore a specific type of co-creation. This type of research creates a sensitivity to the outcome of the work and is intended to create designed solutions that are beneficial, thoughtfully made and most effective for the end-user (Sanders & Stappers, 2008). A large part of co-design takes place before any design work is done, as illustrated in Figure 7. The term 'fuzzy' is used to describe the part of the research that is often riddled with open-ended questions, ambiguity, and substantial learning from participants (Sanders & Stappers, 2008, p. 6).

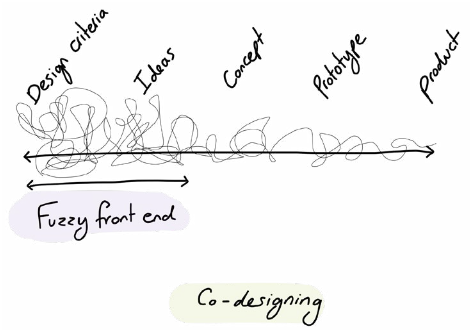


Figure 7. The co-design process. From "Co-creation and the new landscapes of design," by E. Sanders and P. Stappers, 2008, CoDesign, 4(1), 6, https://doi.org/10.1080/15710880701875068.

> "We are heading into a new space where relationships between people matter more than products and where human experience is what matters most of all."
>
> Elizabeth B.-N. Sanders (2000, p. 1)

Paint as an emotive tool

Creating art by hand has been done for more than 35,000 years to “express views of the world” and act as a form of communication (Earnshaw, 2016, p. 49). Craft, from the word ‘cræft’ meaning ‘strength’, can be thought of as the act of making with one’s hands, which, when used as a form of design research, adds strength to both the findings and designed outcome (Ings, 2015, p. 181). Working with paint in design research is multi-faceted. First, it is a tool to think with. Participating in a creative activity such as painting can create feelings of nostalgia for some, and many designers and researchers now see the power of craft as a “necessary and relevant means of engaging important parameters of thinking” (Ings, 2015, p. 181). David Crow (2008) writes, “hands were celebrated as capable of probing the world, bringing unity of working and learning” (p. 20). Second, it is a tool to make with. Embracing textural marks, imperfection, spontaneity and repetition adds evidence of a human hand at work, visually showing the time and care being taken to make something of meaning. Creativity is an important mode of communication (Earnshaw, 2016). The creator must ask what kind of message or feeling they want to be communicated and use colour, mark-making, and materials to achieve this (Earnshaw, 2016). When you can see the hand of the artist at work, it is inevitable that the “creations, and the ideas behind them, are inescapably connected to the social and cultural experiences of individuals” (Earnshaw, 2016, p. 47). Hand-made visual art is relational, it connects the viewer to a thought or feeling, creates connection to the experiences of others and can inspire a different way of thinking or feeling.

Conclusion

It is important to understand how creating insightfully designed artifacts for a healthcare context can improve patient and staff experiences. The literature suggests that when we allow end-users to be involved in the design process, a more human-centred, meaningful outcome can be achieved. Visual communication tells people a lot about the experience, feeling and tone of the place that is or will be visited. The design of healthcare environments and information (more specifically, for adults), often fails to deliver meaningful, human experiences due to the barriers designers face when working in the healthcare system. The literature suggests there is potential for joyful and caring interactions within healthcare spaces to impact the mental and physical wellbeing of patients and staff. Creative practice can serve as a unique co-design tool, as well as a way of thinking through making for the researcher.

> “No machine could replace the sensitivity of hands.”
>
> David Crow (2008, p. 23)

The research Question

Communication design in healthcare is often based on the needs of the healthcare system rather than the patient. This can result in large amounts of jargon-heavy text and an aesthetic that is clinical rather than sensitive to the potentially complex emotional state of patients and their whānau/family. However, the communication design in a healthcare space is an important dimension of health and medicine, "particularly when considering how to improve patient care" (Meloncon & Frost, 2015, p. 11). In this research I looked at whether healthcare experiences could benefit from co-design workshops, using painting as a tool to inspire thoughtful conversation around the topic of what 'care' meant and might look like to patients and staff in healthcare. I also investigated areas where there was potential for the healthcare journey to be delivered with more creative, art-based and handmade qualities in order to spark joy and visually parallel the care offered by healthcare staff. This required communication design that pushed the boundaries of how healthcare is traditionally presented.

How can painting be used in both co-design and communication design to improve patient and staff experiences in healthcare?

Methodology

Introduction

Gjoko Muratovski (2016) writes "design is now becoming more about listening, asking, understanding and drafting new possibilities and alternative realities" (p. 14), and when this happens, people and their needs are put at the heart of the design process. This research aimed to generate a body of field research and design explorations through an action research (AR) methodology, exploring a co-design framework.

As there are three design case studies in my research, it should be noted that I entered each environment as an outsider. Outsider-ness presents challenges, areas of opportunity, and requires asking how one might go about conducting research in a space to which they have not previously belonged. Being an outsider researcher "is relevant to all approaches of qualitative methodology" (Dwyer & Buckle, 2009, p. 55), and AR offers a methodology that supports developing best practices when working with others.

Action Research

Action research (AR) stems from a problem in need of a solution (Swann, 2002). As a methodology, AR supports a researcher to pursue an outcome that provokes change, as well as field research. AR is underpinned by four key characteristics: cyclical, participative, qualitative and reflective (Dick, 1993, p. 5). The cyclic component of AR requires an iterative design process. Figure 8 shows how the design research process was revisited and re-analysed at several stages to help evaluate the findings to a standard where well-informed design decisions could be made. Qualitative and participatory approaches within AR suits research that has a vague beginning because the flexibility of methods and critical analysis of the information helps the researcher to "move towards better understanding and practical improvement" (Dick, 1993, p. 9). Donald Schön's (1987) theory of reflection-in-action helps a researcher form "that crucial moment of synthesis," (Swann, 2002, p. 51) when what has been discovered is brought together to generate a solution or opportunity for further research. AR also allows for the human-centred design (HCD) process of listening, ideating and prototyping to authentically and empathetically design with people in need of a better healthcare experience.

> "Action research is about proposing change to organisations and their systems."
>
> Jonathan Aitken & Deborah Shackleton (2014, p. 5)

Using a co-design framework

Information and data gathering for AR is enriched with participative involvement from others. Therefore, employing a co-design theoretical framework was essential for this research to ensure that end-users were actively involved throughout the design process. This acknowledged end-users as "experts of their experience," (Sanders & Stappers, 2012, p. 24) and allows for a more human-centred design (HCD) focus. Sanders and Stappers (2012) also highlight the importance of giving participants tools with which to express themselves. In my co-design workshops, paints and brushes were tools that participants used to visually communicate their thoughts on a particular topic, through colour and mark-making.

Co-design encompasses many stages for collecting data, ideating, prototyping, iterating, analysing and synthesising, all of which help to design ideas that are empathetic to the end-user's needs (Brown, 2009, pp. 68–75). Empathy is important in co-design to ensure it is inherently human-centred. Honest and open opinions shared by participants were often emotional and personal, so a level of trust needed to be acquired by both parties to see the world through the eyes of others "and feel the world through their emotions" (Brown, 2009, p. 50).

Insights were collected through literature reviews, expert and patient interviews, and co-design workshops. It was best-practice to ensure I had an in-depth contextual understanding of each case study's specific healthcare experience, before speaking to any patients myself. This ensured my interviews would be sensitive to the patient experience. Gatenby and Cantore (2018) conclude that co-design is about the "surfacing of the intuitive wisdom…about what it feels like to experience living and working in a system" (p.35), which is what the workshops and interviews aimed to do with staff and patients. Short et al. (2017) highlighted a disciplinary gap "as health professionals often lack the appropriate skills for executing an impactful design solution" (p. 2565) while "designers lack the knowledge about the complicated and high demands of the health context" (p. 2565). This gap is where co-design methods offer the researcher opportunities to better understand complex situations and analyse how design might be able to offer a solution.

As a consequence of the 2020 Covid-19 pandemic, the amount of co-design intended for each case study was restricted during the timeframe of this research. This resulted in outcomes that focus more heavily on the research rather than the 'design action' and would require further study to test concepts in their environments and gain further participant feedback. Swann (2002) notes that this is sometimes the case with AR, however, discourse "will help design to progress" (p. 61) and help to provide knowledge to others in the design field.

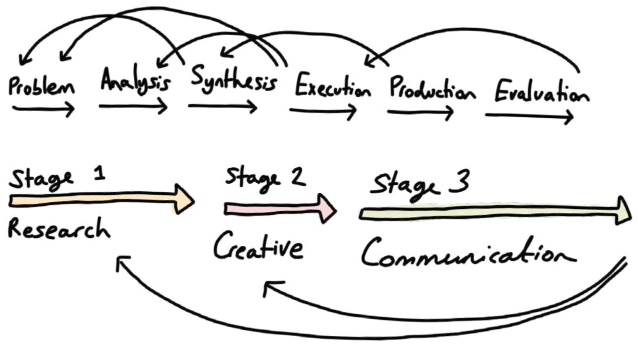


Figure 8. The iterative design process. Adapted from "Action Research and the Practice of Design," by C. Swann, 2002, Design Issues 18(1), X, https://doi.org/10.1162/07479360252756287.

careful painting

Ethical considerations

Participation from members of the public, healthcare staff and patients of the hospital was essential in ensuring this research was situated within the co-design framework. Participant involvement allowed for the testing of a co-design workshop and the feasibility of paint as a research tool. Participant involvement also allowed experiences and knowledge of the healthcare system of which they were a part, to be shared. This ensured that the research and the case studies were human-centred in their approach. Participants were involved in three co-design workshops, patient interviews and three expert interviews, followed by feedback sessions. Further co-design with patients fell beyond the scope of my research timeline as a consequence of Covid-19.

Formal ethical approval for this research was granted by AUTEC on 4 March 2020 (number 20/27) for expert interviews. Due to Covid-19 restrictions, an amendment to the expert interview ethics was approved on 11 May 2020. Approval for ethics amendments to conduct co-design workshops and patient interviews was given by AUTEC on 29 September 2020. An Application for Approval of Research was also completed and accepted by the Waitematā DHB on 23 March 2020.

See Appendix 1 for ethics related documents:

- Ethics Application 20/27
- Ethics Application 20/27 Approval Letter
- Ethics Amendment Approval Letter (Covid-19 protocols for expert interviews)
- Ethics Amendment Approval Letter (Co-design workshops and patient interviews)
- Waitematā DHB Approval of Research

Three Case Studies

To explore the research question through creative practice, the output of this research took the form of three proposed design concepts, each by way of a separate case study as follows. These case studies were also employed as a way to find out how using paint in a co-design workshop that aimed to incite group discussion, might influence the creative decisions made for healthcare communication design.

Considering healthcare communication design for the Deaf[11] community visiting the hospital

There is ample evidence that the Deaf community find healthcare systems tricky and unpleasant to navigate (Scheier, 2009). The lack of knowing best practices when communicating with the Deaf community from hospital staff, and the difficulty that may come with a Deaf patient informing staff of something as seemingly simple as their name and who they are there to see may cause anxiety. Looking at this specific step in the healthcare journey, I proposed an Introduction Card. The hope was that patients would feel less worry during initial interactions with staff (upon arriving in a healthcare space), and that staff would be better informed on how to communicate with those who were Deaf.

Telehealth information for patients and clinicians

Covid-19 led to an exponential uptake of telehealth, having previously been used minimally throughout Aotearoa/New Zealand. For many, this was a new way of working, and created a steep learning curve in adopting new techniques for conducting rehabilitation online. It generated word-heavy documents for both parties to read and understand in a short timeframe. In an attempt to communicate the care that the patient would continue to feel during telehealth sessions, and bring some joy to the learning experience, I proposed a design for step-by-step cards for patients and their caregivers, and an artwork that doubles as a checklist for clinicians.

Communicating care in an Assessment, Treatment and Rehabilitation (AT&R) ward

Aesthetics analysis can reveal why some environments make people feel nervous or low in energy, while others inspire sociability and positivity (Fetell Lee, 2018, p. 10). At an AT&R ward in Aotearoa/New Zealand, the older adult rehabilitation gym was identified by staff as having walls that were uninspiring and unpleasant to look at. Through co-design interviews with patients and staff, a large-scale painting intended for the main wall was prototyped. The hope was that it would visually communicate feelings of care (paralleling the care that was offered by healthcare staff) and provide a more healing environment by encouraging greater connection between staff and patients.

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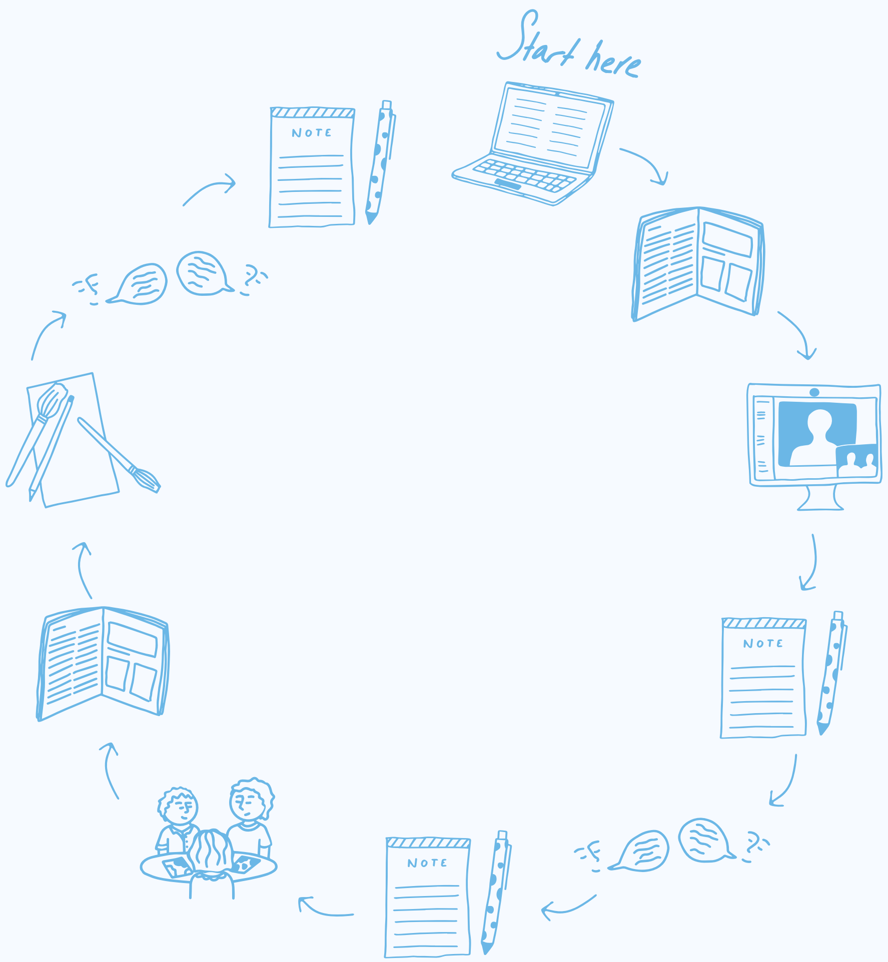
11. The word Deaf (with a capital D) represents a culture in and of itself, with a language (New Zealand Sign Language) as recognised by the United Nations and Aotearoa/New Zealand law. Being Deaf should not be synonymous with the concept of being 'disabled'.

Research and design process sequence



careful painting

6

Research Methods

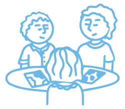
This section presents the overarching research methods used for the case studies that make up this research. Specific methodological details unique to each case study will be presented in Section 7, Documentation of the Research, along with the outcomes of each case study.

Contextual Review

A contextual review helps define the nature of the research; why it is needed, who else has addressed aspects of the research question and how specific methods might be used to conduct the research (Gray & Malins, 2004, p.35). It requires critical thinking to analyse the outcomes of prior research and to address questions that are important to the project (Gray & Malins, 2004, p.38). By completing a contextual survey, information can be evaluated for significance and relevance from a wide pool of sources to help enrich the project and address areas of uncertainty (Gray & Malins, 2004, p.68).

My contextual review was conducted through library databases and Google Scholar, using the key terms; communication design, art in healthcare, patient experience and co-design. Analysis of specific texts helped me understand how creative practices were being used as co-design tools, and how art and communication design is, or could be, used in healthcare to improve patient and staff experiences. Further research into the context of co-design was important to understand the methods that would be most appropriate and worthy of testing. Further enquiries were also made around the three specific patient experiences using a subset of key terms; Deaf health literacy, stroke patients, telehealth and older adult patients.

Co-design workshops



The prefix ‘co-‘ suggests working with others (i.e. cooperation and collaboration), something that is “unavoidable and inevitable in the design of complex social systems, like health care” (Gatenby, 2018, p. 52). Co-design workshops were used to investigate two aspects of the research. First, how paint could be used as a tool to incite meaningful conversation by encouraging participants to first think through colour and mark-making before sharing their thoughts in words. A co-design toolkit was developed that included paints, brushes and prompt cards that participants used “in order to create ‘artifacts’ that expressed their thoughts, feelings and/or ideas” (Sanders, 2001, p. 4). Second, the workshops were designed to gain an understanding into what the words ‘care’ and ‘joy’ meant to participants, and how these definitions might inspire communication design in healthcare. While the typical use of a co-design workshop is to harness the creativity of designers and participants to develop a solution to an issue, these workshops were also a way to test the feasibility of painting as a co-design tool.

Ethical and Covid-19 related restrictions meant specific workshops for each patient group could not be held within the timeframe of this research. However, a series of workshops spanning various locations such as the AUT City and Manukau campuses, and North Shore Hospital’s The Design Space, were facilitated. This allowed for a participant base that included hospital staff as well as people who had experienced aspects of a healthcare journey.

Expert interviews

Face-to-face interviews are an important method of data collection to capture the experiences and perspectives of participants (Crouch & Pearce, 2012, p. 111). When interviewing an expert in a particular field, the researcher is learning from expert knowledge, different to that of lived-experience, everyday or common-sense knowledge (Meuser & Ulrike, 2009, p. 18). Experts for the interviews in this research were chosen because of their position in a field of interest in relation to the research question, and their depth of understanding of a particular healthcare experience.

Being in Covid-19 lockdown ‘bubbles’, it was safest to conduct the interviews using videoconferencing. Three experts were interviewed; a Waitematā DHB Disability Advisor, an Experience and Insights lead in Patient Experience, and a Senior Lecturer at AUT. Due to time constraints, limitations of interviewing online and scheduling issues, a member from the Deaf community was unable to be interviewed as initially intended, despite multiple attempts to make connections. As a proxy, so that my research could progress, the video resource, Deaf Health Stories (Major et al., 2017), proved invaluable, providing footage of 50 Deaf healthcare experience recounts.

Hammond and Wellington (2012) reported online interviewing as a “growing opportunity for researchers” (p. 91) to speak to experts while avoiding barriers such as location, time and travel. However, with videoconferencing comes an array of interview technique challenges. For example, when writing notes, the interviewer loses eye-contact with the interviewee, and this may be perceived as disinterest (Mann, 2016, pp. 88–89). Reflexivity after each interview was important to learn and improve my skills for further research.

Patient Interviews

A series of interviews with patients at the AT&R ward at North Shore Hospital were conducted as a form of co-design that was most appropriate to their circumstance, as well as the time and space available to me. These were “meaning-making occasions” (Holstein & Gubrium, 2002, p. 117), where I took on the role of empathetic listener. Ten patients were interviewed at the AT&R ward, and their stories are discussed in more detail in Section 7, Documentation of the Research (see: Case Study Three).

The patient interviews took place after rehabilitation sessions in the AT&R gym, therefore I was aware of, and considerate toward, the potential for fatigue. This resulted in some interviews having greater depth of conversation than others. The visual prompts of colour palettes and images, were made to a large scale (one image per A4 sheet of paper) so that they were clear to see. With Covid-19 precautions in mind, they were also laminated to enable disinfecting before presentation to the next participant. I also wore a face mask to protect those around me, which presented some issues when patients with difficulty hearing relied on lip movement to work out what words were said.

Research and reflection journals

“Keeping self-reflective journals is a strategy that can facilitate reflexivity” (Ortlipp, 2008, p. 695) and allow the researcher to examine and clarify their beliefs and thoughts throughout the study (Ortlipp, 2008, p. 695–705). It was also a way of making the research process as transparent as possible – making decisions and experiences visible to the reader (MacNaughton, 2001, pp. 208–223). Writing in this way is a way of learning and thinking, helping with decision making and unpacking ideas to develop the research further (Ortlipp, 2008, p. 700).

I kept a journal to reflect on my experience of attending New Zealand Sign Language (NZSL) classes (see: Section 7, Documentation of the Research, Case Study One). Taking part in NZSL lessons was part of my research, and by reflecting in a journal on the stories my teacher told, and the key moments of learning each week, I was able to achieve deeper levels of thinking and enriched learning about Deaf culture. A digital journal was also written regularly throughout this Masters research to capture my thoughts, concerns and supervision feedback. This was helpful in determining contexts, finding new literature, and discussing ideas with supervisors who offered new perspectives. Field notes were taken in a journal during the co-design workshops, patient interviews, expert interviews and hospital ward observation, which acted as a way of quickly recording key pieces of information and my thoughts and feelings in the moment.

Prototyping

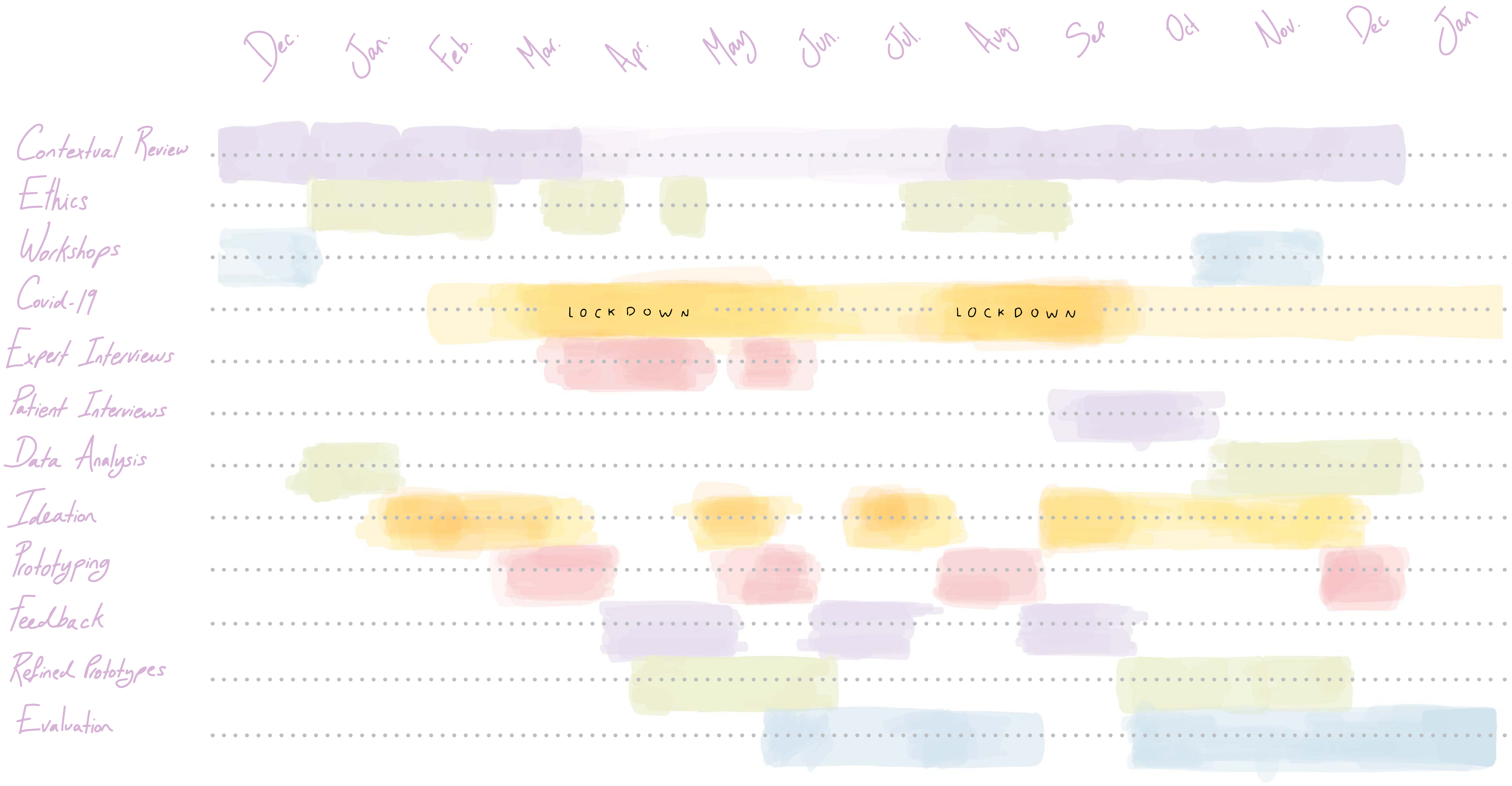
Characterised by the desire to address social issues through the designing of an artifact, practice-based research methods encourage 'making' as a way of gaining knowledge (Cross, 2006). Making prototypes to test theories and produce artifacts is what Cross (2006) considers "invention before theory" (p. 9) – one must 'make' before fully understanding the effect of what has been made. Prototypes can be manifestations of ideas in a form that is appropriate for analysing or testing with end-users (Lim et al. 2008, pp. 1–27).

Prototypes (see: Section 7, Documentation of the Research) were made for each case study, to test whether they were appropriate for the specific healthcare experience. The prototypes were also a form of visual research to help tell the story of what was discovered. Following the iterative design process (Figure 8) the prototypes began as brainstorms, rough executions and were refined after participant feedback. They were used to test whether art-based communication design might improve patient and staff experiences.

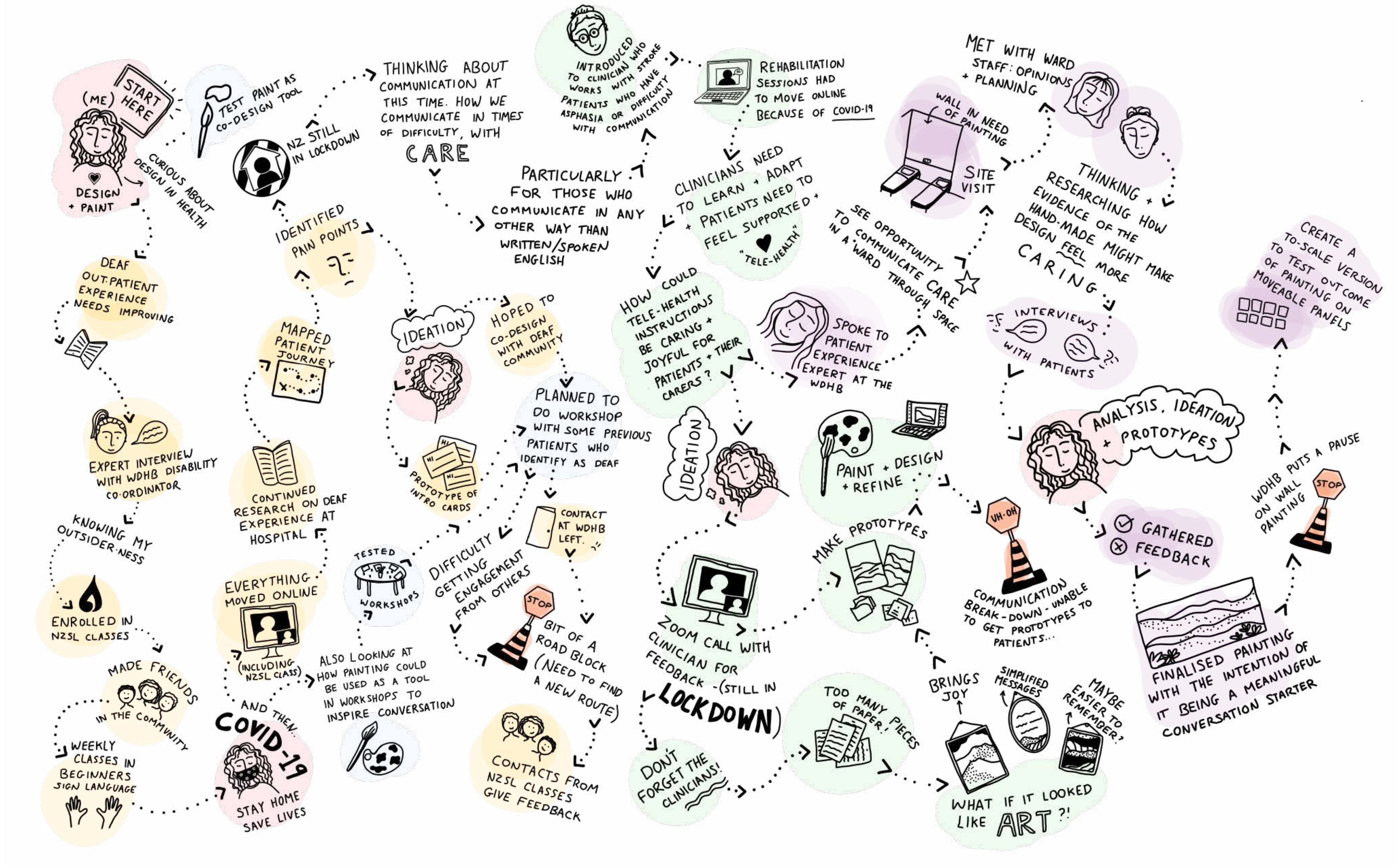
Reflective Practice

Donald Shön (1987) stresses the importance of a creative practitioner reflecting on their work, which he calls "reflection-in-action" (p. XI). Shön (1983) encourages researchers to "surface and criticize the tacit understandings" (p. 61) they may have about their own practice. Reflection-in-action is something that is part of our everyday lives, thinking while we work, in research, assessing methods or theories as we progress. It is therefore important to make the time to write these reflections down for further analysis (Bassot, 2015, p. 10). I completed critical reflections throughout my research in order to address why I was doing something a certain way, if it could be done differently, and how it could be improved to be more effective next time. It provided time to pause and be aware of my feelings, questions and assumptions.

Research timeline



Research journey map



- Moments of learning through making
- Roadblocks
- Communicating care in an Assessment, Treatment and Rehabilitation (AT&R) ward
- Considering the communication needs of the Deaf community when visiting the hospital
- Co-design workshops
- Telehealth information for patients and clinicians

7

Documentation of the Research

Part 1	Learning New Zealand Sign Language
Part 2	Developing a co-design workshop
Part 3	Three case studies

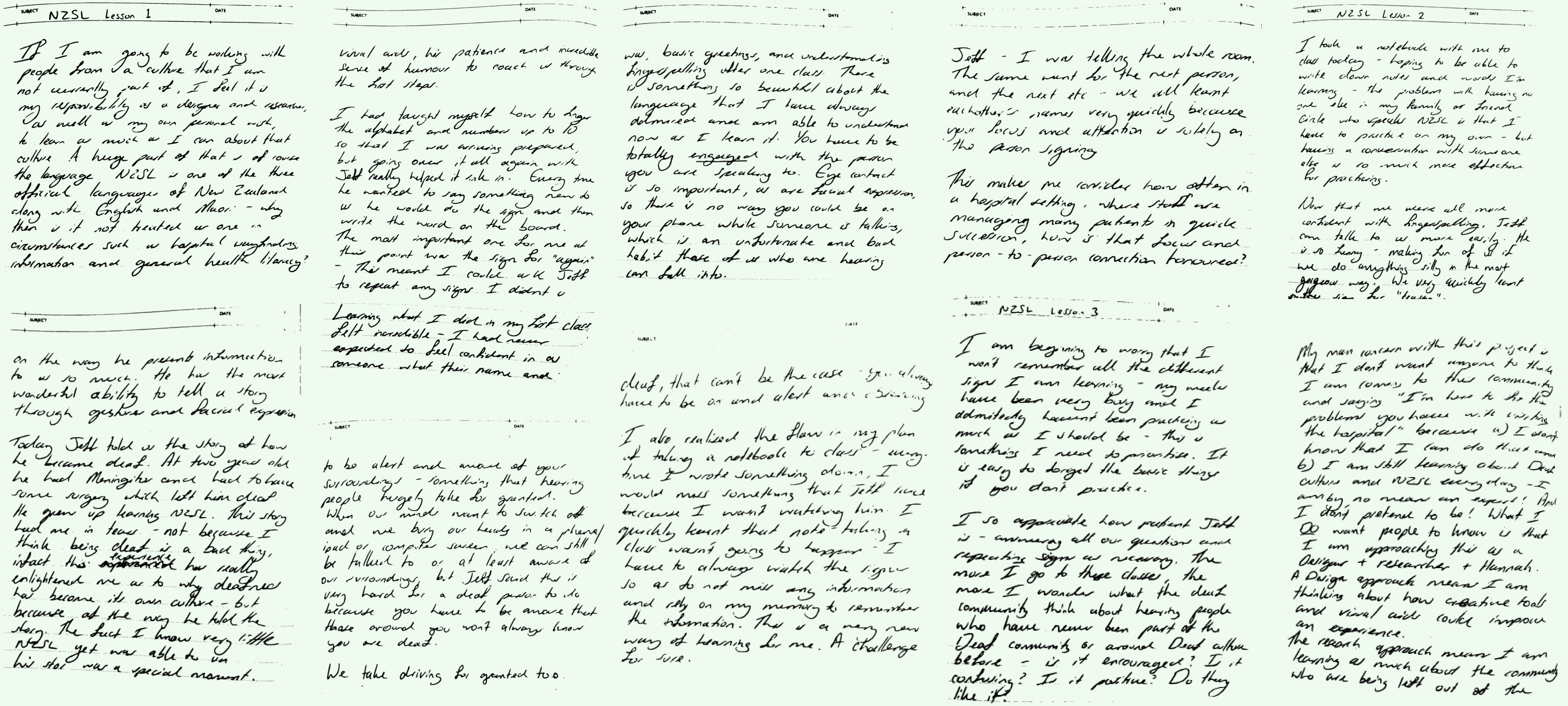
Learning New Zealand Sign Language

As a hearing person I am not part of the Deaf community, which positioned me as an outsider researcher (Dwyer & Buckle, 2009, p. 55). I did not share an identity, language, or experiential base with the Deaf community and understood that "participants are typically more open with researchers" (Dwyer & Buckle, 2009, p. 58) who have a shared life experience. Acknowledging this, I wanted to learn more about Deaf culture and New Zealand Sign Language (NZSL). I undertook and completed a six-month beginner's course in NZSL through the Auckland Deaf Society (Figure 9). Participating in NZSL classes did not mean I became an insider; however, it did mean I experienced communicating in basic NZSL in a predominantly hearing world. I became more aware of how many healthcare spaces were not designed with the Deaf community experience in mind.

After meeting my NZSL teacher, I also found a new appreciation for the way people tell stories, regardless of language differences. A few NZSL signs, facial expressions, recognisable actions, and a great sense of humor was all the teacher needed to tell a story. All class participants were given the opportunity to converse in NZSL about how their week had been going, and what they would be doing later that evening.

I kept a reflective journal (Figure 10) during this process in order to analyse and reflect on what I learnt each week. Having the time and space to recount what was covered in each class was my way of digesting the learning of NZSL and Deaf culture. It helped me think more deeply about the concept of cross-cultural co-design, what might happen if a designer or researcher worked with a community they did not belong to, and how they might respectfully go about this. I also wondered if this was ethically and morally sound, and how the research data might be limited because of it.

Figure 9. The Fickling Centre where my NZSL classes took place (prior to moving to video calling online during the Covid-19 lockdown). (2020). From Auckland Council. https://bookings.aucklandcouncil.govt.nz/facilities/facility/fickling-convention-centre



NZSL Lesson 1

If I am going to be working with people from a culture that I am not necessarily part of, I feel it is my responsibility as a designer and researcher, as well as my own personal wish, to learn as much as I can about that culture. A huge part of that is of course the language. NZSL is one of the three official languages of New Zealand along with English and Maori - why then is it not treated as one in circumstances such as hospital wayfinding, information and general health literacy?

on the way he presents information to us so much. He has the most wonderful ability to tell a story through gesture and facial expression.

Today Jeff told us the story of how he became deaf. At two years old he had Meningitis and had to have some surgery which left him deaf. He grew up learning NZSL. This story had me in tears - not because I think being deaf is a bad thing, infact this experience has really enlightened me as to why deafness has become its own culture - but because of the way he told the story. The fact I know very little NZSL yet was able to un his story was a special moment.

visual aids, his patience and incredible sense of humour to coach us through the first steps.

I had taught myself how to finger the alphabet and numbers up to 10 so that I was arriving prepared, but going over it all again with Jeff really helped it sink in. Every time he wanted to say something new to us he would do the sign and then write the word on the board. The most important one for me at this point was the sign for "again" - This meant I could ask Jeff to repeat any signs I didn't u

Learning what I did in my first class felt incredible - I had never expected to feel confident in as someone what their name and

to be alert and aware of your surroundings - something that hearing people hugely take for granted. When our minds want to switch off and we bury our heads in a phone/ipad or computer screen we can still be talked to or at least aware of our surroundings, but Jeff said this is very hard for a deaf person to do because you have to be aware that those around you won't always know you are deaf.

We take driving for granted too.

was, basic greetings, and understanding fingerspelling after one class. There is something so beautiful about the language that I have always admired and am able to understand now as I learn it. You have to be totally engaged with the person you are speaking to. Eye contact is so important, as are facial expression, so there is no way you could be on your phone while someone is talking, which is an unfortunate and bad habit those of us who are hearing can fall into.

deaf, that can't be the case - you always have to be on and alert and observing

I also realised the flaw in my plan of taking a notebook to class - every time I wrote something down, I would miss something that Jeff said because I wasn't watching him. I quickly learnt that note-taking in class wasn't going to happen - I have to always watch the signer so as to not miss any information and rely on my memory to remember the information. This is a very new way of learning for me. A challenge for sure.

Jeff - I was telling the whole room. The same went for the next person, and the next etc - we all learnt eachother's names very quickly because your focus and attention is solely on the person signing

This makes me consider how often in a hospital setting, where staff are managing many patients in quick succession, how is that focus and person-to-person connection honoured?

NZSL Lesson 3

I am beginning to worry that I won't remember all the different signs I am learning - my weeks have been very busy and I admittedly haven't been practicing as much as I should be - this is something I need to prioritise. It is easy to forget the basic things if you don't practice.

I so appreciate how patient Jeff is - answering all our questions and repeating signs as necessary. The more I go to these classes, the more I wonder what the deaf community think about hearing people who have never been part of the Deaf community or around Deaf culture before - is it encouraged? Is it confusing? Is it positive? Do they like it?

NZSL Lesson 2

I took a notebook with me to class today - hoping to be able to write down notes and words I'm learning - the problem with having no one else in my family or friend circle who speaks NZSL is that I have to practice on my own - but having a conversation with someone else is so much more effective for practicing.

Now that we were all more confident with fingerspelling, Jeff can talk to us more easily. He is so funny - making fun of us if we do anything silly in the most gorgeous way. We very quickly learnt the sign for "teasing".

My main concern with this project is that I don't want anyone to think I am coming to their community and saying "I'm here to fix the problems you have with visiting the hospital" because a) I don't know that I can do that and b) I am still learning about Deaf culture and NZSL everyday - I am by no means an expert! And I don't pretend to be! What I DO want people to know is that I am approaching this as a Designer + researcher + Hannah. A Design approach means I am thinking about how creative tools and visual aids could improve an experience. The research approach means I am learning as much about the community who are being left out of the

Figure 10. Scans from my reflective NZSL journal.

Because my communication with members of the Deaf community was limited to those I met through my NZSL class, much of my learning had to be done alone (except during class time). Of the 155 students learning Sign Language in Willoughby and Sell's 2019 study, 56 stated that videos were their most helpful strategy for practicing outside of class time, while 39 found practicing with fellow learners was effective, and 19 mentioned note taking during and after class was most helpful (p. 470). These three approaches were my preference for practicing, therefore I used the NZSL Online Dictionary videos (https://www.nzsl.nz/) to watch how specific signs were done, as well as conversation videos on Youtube produced by Learn NZSL (https://www.youtube.com/channel/UCEg2CjT2EoeZui6ffWD1_Lw). I also practiced with other hearing students outside of class time, and wrote notes during class. As NZSL learning required a lot of eye contact with the teacher during class, I found it was more useful to write notes of specific signs after class, as a way of revision (Figure 11).

During Covid-19 lockdown, NZSL classes were hosted online through videoconferencing. There were initial challenges to overcome, such as ensuring the camera was capturing all hand and facial movements, lag occurred due to slow internet connections and meant some signs were missed, and group work (or working with a partner) became more difficult. Functions such as the 'digital whiteboard' and 'chat' panels were used for writing words that would have otherwise been written on the classroom whiteboard, and I found a significant amount of learning still occurred. It made me consider the importance of good online video communication for the Deaf community, particularly during a time such as lockdown.

Reflection

Willoughby & Sell's 2019 qualitative study of students learning Auslan (Australian Sign Language) found that the Deaf community was less accessible for beginner learners (p. 470), as this relied on the willingness of Deaf community members to "act as language models" (p. 455). I had a similar experience, whereby, I made several attempts to connect with Deaf community members unsuccessfully. Meetings that seemed to be a possibility were prevented from happening for personal reasons, communication break-down, or scheduling issues. Anecdotally, a Waitematā DHB Disability Advisor reported struggling to make connections with the Deaf community also, to source participants for a hospital project aimed at improving the Deaf healthcare experience (personal communication, April 23, 2020).

I considered why an unequal balance of language existed. Media and communication design is often made by (and for) hearing people. For example, when NZSL interpreters are put in a 'bubble' to the side of a screen while a hearing person speaks, there is an "unequal distribution of the visual space and the use of the bubble relegates the status of sign language to a language whose only usefulness is in interpretations of spoken messages" (Schmitt, 2017, p. 132). Being aware of the way NZSL and English are presented side-by-side in media (or any form of visual communication) is important in showing that users of NZSL and English are (and should be) "on equal footing" (Schmitt, 2017, p. 134). However, hearing people are unlikely to understand Deaf Culture and Deaf experiences, which potentially causes a lack of trust from within the Deaf community. Understandably, this may lead to reluctance in wanting to work with hearing researchers or designers.

Learning Beginner NZSL was valuable in helping me research best practice for approaching co-design workshops with the Deaf community, as well as being a deeply personal learning experience. Prior to these classes I was only partially aware of the challenges Deaf patients might face during a healthcare journey, and had limited knowledge of Deaf culture. This experience opened my eyes to the feelings of exclusion and unfairness when the Deaf community is left out of the communication design process. I was able to translate this understanding across to other groups of patients, empathetic to the vulnerability, lack of power and uncertainty they may feel in a healthcare situation that has not been designed with them in mind. I experienced the joy of telling stories non-verbally and relying on the movement of hand and facial expression to connect with others. The importance of eye-contact when speaking NZSL was also powerful. I noticed how present in the moment people were when conversing in NZSL, not being distracted by mobile devices or other activities (of which hearing people are often guilty).

Enrolling in these lessons came at a time when my research was solely focused on creating a co-design toolkit and communication design for the Deaf community. As Covid-19 and other external factors caused a shift in the initial project scope, this experience was not made redundant. I learned how to be a researcher who interacted as empathetically with participants as possible, understanding what might happen when minority groups are left out of important design decisions. I worked with the knowledge gained through this experience in Case Study One, a smaller scope of the initial project proposal (of co-designing with the Deaf community).

Co-design workshops

This section documents the development of three co-design workshops that were undertaken to explore how painting (with a focus on use of colour and mark-making) might be used as a co-design tool to support research participants in giving visual form to their feelings and thoughts. The paintings created by participants helped them to tell stories of their experiences.

See Appendix 2 for material relating to the co-design workshops.

Learning through participation

Participating in a number of co-design workshops that were run by other designers and researchers, helped me to better understand what it was like to be a participant. It was important that I gained insight into best practices as the outcome of a co-design workshop is reliant on the way participants engage with the process (Dennis, 2014, p. 397). I observed and experienced the importance of the role of a facilitator to engage participants in activities and to progress conversation. The common thread throughout the workshops that I attended (described below), were the meaningful conversations that were generated, offering thought-provoking and insightful qualitative data for the researchers.

The Design for Health Symposium (September, 2019), run by AUT's Good Health Design, explored the emerging field of 'design for health'. I attended two workshops. The first was Life Café (Figure 12), facilitated by Helen Fisher and Claire Craig (https://goodhealthdesign.com/symposium/design-for-health-symposium-workshops). It engaged participants in a number of creative activities using photographs, found objects and paper cut-outs to explore what people found most meaningful in life, and in care. This workshop was designed to re-think palliative and end of life care. I found it encouraging to experience being at a table of strangers who, very quickly, were comfortable with sharing deep thoughts and emotions about life's up and down moments. It showed me the power that collective creativity has to bring people together.

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Figure 12. Contents of the Lab4Living Life Café workshop toolkit, designed as part of the Marie Curie Design to Care Programme, created by H. Fisher, C. Craig, & P, Chamberlain. From Lab4Living. https://lab4living.org.uk/projects/life-cafe/

The Things for Thought Toolkit (https://goodhealthdesign.com/symposium/design-for-health-symposium-workshops) was the second workshop I attended. It showed me what it was like to be given objects to use as talking points, rather than being asked to 'make' something (Figure 13). This workshop employed the universal language of touch through a series of handmade clay artifacts to connect with ourselves and others. The objects were used to unpack what a sense of belonging might mean to participants. This workshop taught me that a well-structured session with guided questions that inspire deep thought, challenged the participants, helping them to be more reflective in their thinking, and confident speaking in a group. This workshop was helpful in showing how a research facilitator might encourage conversation by offering their own thoughts and opinions too.

I also attended several workshops at the Design for Social Innovation Symposium (https://www.designforsocialinnovation.nz/), which focused on authentic participation and used design to "address complex social issues in Aotearoa" (Design for Social Innovation, 2019). The four pillars of connecting, growth, engagement and sharing were valuable for my deeper understanding of how to facilitate co-design that addressed community problems (Figures 14 & 15).

Figure 13. Contents of the Things for Thought Toolkit, designed by the team at Good Health Design, AUT. From Good Health Design. https://www.goodhealthdesign.com/projects/a-sense-of-belonging

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copyright reasons

Figure 14. Contents of the Exploring Multi-Sensory Wayfinding toolkit. From Facebook. https://www.facebook.com/Curative/photos/a.2481734351880327/2481737881879974

Figure 15. I explored the sense of touch to re-draw textures found outside as part of the Exploring Multi-Sensory Wayfinding workshop. From Facebook. https://www.facebook.com/Curative/photos/a.2481734351880327/2481738215213274

Developing the use of paint as a toolkit

For millennia, humans have used paint as a tool to express their innermost thoughts and emotions. Dissanayake (2000) argued that art and the capacity to create is an essential part of being human. Fury et al. (1997, p. 1154) discussed how the nonverbal nature of drawing or painting as a child, frees the expression of feelings. By creating a workshop that encouraged the perceived 'child-like' freedom of painting without inhibition, there was an underlying concept of finding joy in play. The workshops aimed to make the co-design process enjoyable, and cultivate a safe environment where participants felt they could openly share the meanings of their paintings.

Sanders and William (2003, p.147) discussed harnessing people's creativity through the use of toolkits and a 'make' method that encouraged creative expression through the tools supplied. They suggested that being ambiguous was preferred because participants could interpret the activity and the materials however they wanted, without feeling there was a right or wrong way to do so. "The visual nature liberates people's creativity" (Sanders & William, 2003, p.147) from the limitations of words and allows for much freer expression.

Colours are inherently mixed with connotative emotions, but these can differ between people. For example, 'warm tones' such as yellow, orange, peach and pink, often make people feel uplifted and joyful. 'Cool tones' such as blue, green and purple can make people feel soothed and calm. While these are both positive descriptions, it can just as easily be said that people may associate a specific colour with a negative memory or emotion. The co-design workshops investigated what 'frustration', 'care' and 'joy' meant and looked like to participants. The outcomes from these workshops could be used to inform interior design decisions in hospitals, future communication design, and also paint a picture of what the notion of care meant to people.

I facilitated three workshops. The first was before Covid-19 had arrived in Aotearoa/New Zealand, while the second and third were after the lockdown period and strict social distancing regulations were lifted. There was time between each workshop to reflect on how participants responded to the toolkit, the effectiveness of the facilitation of the session, and the questions asked during the workshop. I discuss below how each workshop was run, the iterations made between each one in order to improve them, and the data collected. This co-design workshop remained in prototype form at the conclusion of this Masters research, with potential for further iterations and the hope that it could be used to co-design with the Deaf community, or other minority groups, as well as being used in health design research.

For millennia, humans have used paint as a tool to express their innermost thoughts and emotions.

Workshop One

The Design for Health Symposium (September 2019) (https://goodhealthdesign.com/symposium/design-for-health-symposium-workshops) was the location for co-design workshop one. It was named ‘Communicating in Colour’ (Figure 16). There were eight participants, including a range of healthcare professionals, researchers and designers. It was intended to be a prototype for a co-design workshop with the Deaf community (with NZSL interpreters present) as this was the initial topic of this research.

Following a plan (see: Appendix 2), the main focus was to take the participants through a series of guided mark-making painting activities. The workshop began with participants drawing ‘contour portraits’ of each other. A contour portrait is when the artist looks at a person opposite them and, while not looking at their paper, draws the contours of what they see in one continuous line (Figure 17). Laughter ensued, as participants observed their finished drawings. This was found to be a friendly way to build connection between participants. It also established a comfortable and safe space for participants to feel they could share in later in the workshop. Next, was a scene-setting exercise where participants were asked to close their eyes as I guided them to think back to a recent time when they had experienced a good day. After opening their eyes, participants were asked to choose colours that reminded them of that day and had ten minutes to create marks on the paper that emulated the energy of the day. We then moved into the discussion phase where I asked for volunteers to talk about their painting and what it represented to them. After one participant had shared, it was inspiring to see the knock-on effect as more participants became eager to share their stories. There was a positive energy in the room as people smiled and laughed and the paintings were generally brightly coloured with brush strokes that alluded to waves or felt ‘energetic’ (Figure 18). The same exercise was repeated for a bad day (Figure 19). It was interesting (although not surprising) to see most participants reach for dark, dull colours such as black, grey and dark blue.

DESIGN
FOR HEALTH
SYMPOSIUM 2019
THURSDAY 19 + FRIDAY 20 SEPTEMBER

WORKSHOP SESSION C

COMMUNICATING IN COLOUR

With over 200 ethnic groups identified and around 160 languages spoken, the population of New Zealand is a beautiful amalgamation of nationalities and cultures, providing us with a wonderful complexity in how we communicate. What happens to that complexity when we remove verbal or written communication? In this workshop, we will think abstractly about how our hands can create a visual language, through utilising design thinking, colour explorations and mark making experiments. The aim is to elicit an emotional response from the viewer and to communicate a particular message or feeling. By taking into consideration the different communication abilities of those visiting a place of health and wellbeing, and understanding the essentiality of aesthetics in this context, the ideas of communication can reach much deeper to uplift, reduce anxiety, empower and support visiting patients. (Disclaimer: no previous visual arts experience is required to be part of this workshop)

WORKSHOP FACILITATORS

Hannah Sames
AUT

Hannah Sames is a lecturer at Auckland University of Technology (AUT) in Communication Design and is currently completing her Master of Design. She has a love for all things branding, painting, illustrating and typography, and also for helping others, ideally, using her visual practice. Upon attending Whitecliffe College of Art and Design and AUT, completing studies in both Fine Art and Graphic Design respectively, she has found her place using colour, mark-making, branding and graphic design to communicate messages that need to be heard.

Jarrard O'Brien
Institute for Innovation and Improvement (i3), Waitematā DHB

Jarrard is an anthropologist with a passion for putting people's experience at the heart of health design. His role in the Institute for Innovation + Improvement is to encourage human-centred design thinking so that all of their work is centred on the needs of staff, patients and the community. Jarrard is also completing his PhD looking at Māori experiences of hospital care.

Gareth Terry
AUT

Gareth Terry is a Senior Lecturer in Rehabilitation Studies in the School of Clinical Studies at AUT, working out of the Centre for Person Centred Research. His work is informed by a background in critical health psychology and his current research explores rehabilitation, bodies, disability, and access. Gareth is also interested in qualitative methods, in particular thematic analysis, and is currently co-authoring a book on the approach for the APA.

Figure 16. Description of the Communicating in Colour workshop as displayed on the Design for Health Symposium website. AUT Good Health Design.

Figure 17. Contour portraits completed by participants in the Communicating in Colour workshop. Design for Health Symposium, September 2019.

Figure 18. Paintings about a 'good day', from the Communicating in Colour workshop, Design for Health Symposium, September 2019.

Figure 19. Paintings about a 'bad day' from the Communicating in Colour workshop, Design for Health Symposium, September 2019.

Observations

There were a number of differences between participants. It took some longer than others to make any marks on their paper, or to choose a starting colour. One participant was hesitant from the outset saying they were “never good at art at school” and that they had not painted since being a child. This seemed to be a difficult barrier to break through despite reassurance that the paintings were free to be whatever they turned out to be, and judgement (on artistic ability or any other criteria) was not the focus. This helped me understand that as the facilitator, that I needed to make it clearer at the beginning of the workshop that the purpose of painting was to participate in a process that stimulated discussion. Participants were asked for feedback on the workshop (Table 1) in order for me to learn what could be done differently next time. I took note of where opportunities for improvement in the toolkit were and remedied this for the next workshops.

Participant Feedback

- The participant who was initially most hesitant was later enthusiastic about doing a similar workshop in her work place to build team morale.
- One participant thought the workshop sounded “childish to begin with, but after seeing the reaction from the exercises it was quite good for adults to do.”
- A participant suggested there could be a final exercise that addressed a question or issue that needed resolving, however this would require more time to discuss a bigger topic.

Figure 20. The paper cups were set up in the middle of the table ready for participant arrival. This was ineffective as the cups were too small and light for washing brushes and I needed to fill the cups with water during the workshop which was distracting from the flow of the exercises.

Workshop One toolkit opportunities for improvement	Improvements made for Workshop Two
Paper cups filled with water for washing brushes were too flimsy (Figure 20). People nearly knocked them over and they were too small for some of the paint brushes.	I collected enough recycled glass jars to use for brush water. These were more sturdy, could be shared between two participants and were larger to fit the paint brushes.
The paint brushes were all placed in the middle of the table which meant participants did not know which one to choose, and it looked overwhelming.	I purchased a range of large, small and medium sized paint brushes so that up to ten participants could have two brushes each. These were placed by each table spot.
There were not enough paint colours to choose from. I only had the primary colours along with black and white. Colour mixing was not frequently done to achieve different tones or hues.	I purchased a variety of paint colours ranging from pastels to dark hues. I also encouraged more mixing of colours when facilitating the workshop.
Each participant required a minimum of three sheets of paper, but if they were given these all at once, the pages beneath the top layer were often ruined by paint and water soaking through.	I gave out one piece of paper at a time and replenished when a new exercise was beginning.
Paper towels disintegrated easily when coarse brushes were being wiped clean.	I cut a large piece of cotton material into ten pieces for each participant to have their own rag. These were more absorbent and could be washed and reused.

Table 1. Table of toolkit improvements between Workshop One and Workshop Two.

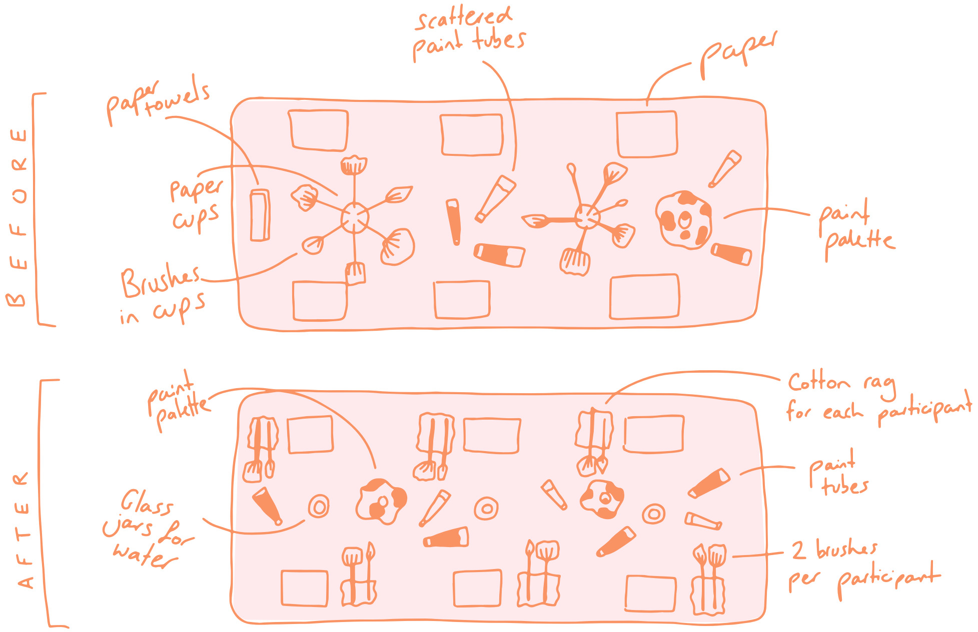


Figure 21. Before and after comparison of toolkit set up at the co-design workshops.

Workshop Two

The second workshop took place at the North Shore Hospital's The Design Space. This session was run as part of the Making Methods symposium (2020), a research-based event hosted by Good Health Design (https://www.goodhealthdesign.com/making-methods) (Figure 22). Being part of an event with other creative co-design workshops meant there was a wider participant outreach and staff at the hospital had been invited to participate in the activities. The space was light and welcoming for participants, and I had two tables set up with the improved painting toolkit (Figures 21, 23 & 24).

My improved workshop plan was broken into sections as shown in Table 2:

Explain	I planned a more succinct talk to begin the workshop, giving participants a background on who I was, what my research was about and what they did not need to worry about (i.e. being an experienced painter or what the final painting looked like). I made it clear that this was to test a process of thinking through colour and mark-making, giving visual form to their thoughts and feelings.
Visualise	I had 90 minutes for the workshop, therefore I was able to create a longer visualisation stage. Participants closed their eyes while I asked them to think about a specific moment that felt joyful. While their eyes were closed I asked: • Where were you during this moment? • What could you feel? • What were you standing/sitting on? • What were you or others around you wearing? • What could you smell? Or taste? • What did it sound like? • What was it about this moment that was so joyful? The aim of these more specific questions was to allow participants to generate a rich image in their mind, thinking beyond a surface level memory.
Create	After the visualisation stage I encouraged participants to paint what they felt during that moment, rather than a direct image of the scene. We discussed how the energy of a brush stroke might look (i.e. slow or fast, soft or hard), and how that might help to portray a feeling. I encouraged mixing colours to achieve new hues, rather than being limited to what was on the table. I also did not want to appear to be 'watching over', or come across as 'judging' the work of the participants. Therefore, rather than walking around (as I had done previously) I sat down and completed a painting too. This created a power shift as I became an active participant as well, rather than just the 'facilitator'.
Share	After ten minutes the participants transferred their paintings to a new table in order to observe them in a 'clean' environment (away from any paint mess and brushes). We stood in a circle around the table which created an inclusive space where everyone could see the paintings. This also felt more like a shift in mindset from 'creating' to 'sharing'.
Question	I wanted to unpack what 'care' meant to the participants. This helped generate data for my research and later communication design decisions in the three case studies.

Table 2. Improved workshop plan.

Observations

I noticed that painting could be confronting to participants initially. I saw hesitancy in their body language when they were reaching for brushes. However as soon as I mentioned there was no need for prior painting experience, they relaxed into the process more easily. It was interesting how participants held onto a feeling of potentially being judged for what they created in the first exercise. One participant said “my adult brain is getting in the way,” suggesting a child may find this exercise easier, however, it was harder for adults to open up to creative activities and free their thoughts in a visual way. Upon reflection, beginning with guided painting exercises before asking questions may have helped participants feel comfortable in the beginning phase of this workshop.

There was hesitation when I asked for volunteers to share their painting and its meaning. I offered my own story to begin the conversation and this was successful in encouraging other participants to share. It was interesting to note the amount of detail participants could recall about often small and fleeting moments of joy (e.g. the colour of clothes, the weather, details of the environment and their innermost feelings at the time) (Figure 24).

When I asked participants to paint about a time that had frustrated them, I noticed a shift in the collective mood, creating a more sensitive time in the workshop to navigate. However, one participant said, “reflecting on a frustrating moment in this workshop really helped me appreciate the positive, joyful moment.” This was encouraging to hear that they had understood why I asked them to paint these contrasting moments. My concern however, was not to bring up traumatic memories for participants or cause anyone to feel upset. After building trust with the group through the previous exercises, many were willing to share their ‘frustrating moment’ paintings. Conversations were empathetic and sparked further discussion about why certain colours and marks were chosen to represent such times.

Participant feedback

- Participants mentioned that having time to think about how they would represent their thoughts through colour and mark-making allowed them to build a rich narrative.

- It was suggested that I should mention that the discussion circle was a ‘safe place’ and reiterate that participant names would be anonymous if any part of their story was re-told for research documentation purposes.

- One participant noted that “choosing colour for my feelings made me think in a more abstract and metaphorical way.” This subsequently made it easier to discuss in a group setting.

- Participants who were medical staff highlighted that this workshop would be beneficial for new staff working in a hospital, to see how they thought creatively, gain insight into what ‘care’ meant to them, and to get to know them better as individuals.

- Talking about a joyful moment was a good insight into what someone valued and helped to build greater connection.

- A participant noticed that everyone existed on the same ‘level’. Rather than being there “in your staff role, the painting made everyone feel carefree and like themselves rather than their ‘work-selves’.”

Figure 22. Poster for the Making Methods Symposium, Good Health Design, November 2020.

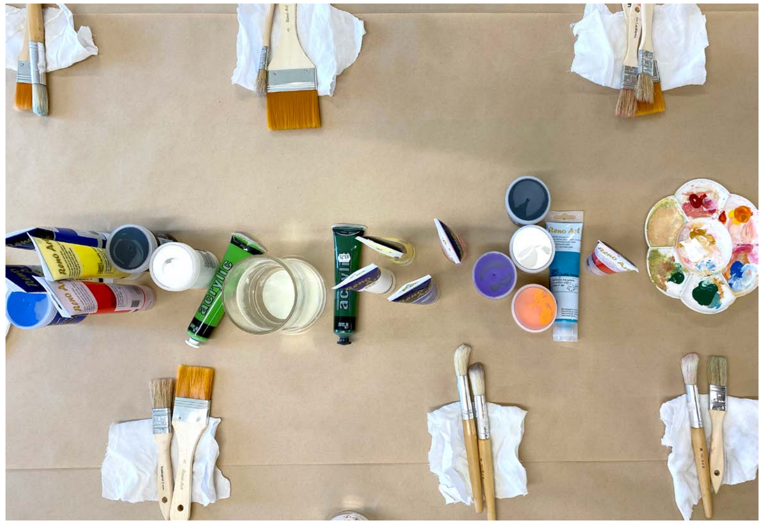


Figure 23. New co-design painting tool kits set up for Workshop Two in the Making Methods Symposium, North Shore Hospital, The Design Space, November 2020.

Figure 24. Joyful moments being painted at Workshop Two in the Making Methods symposium, North Shore Hospital, The Design Space, November 2020.

Workshop Three

Workshop Three took place at St Paul Street Art Gallery (Figures 25 & 26). Galleries can have connotations of visiting as an observer rather than a participant, so it was interesting to see the shift in creative involvement as discussed in the Observation section below. The session plan followed the structure of Workshop Two with the addition of visual PDF slides shown on an iPad during the workshop (see: Appendix 2). This allowed participants to see the workshop stages; visualise, create, share, question. They also helped me to keep my timing throughout the workshop and I was able to move from one activity to the next with ease.

Observations

I saw apprehension from some of the participants during the ‘explain’ phase. One participant commented that it felt like a childish activity and that their “adult way of thinking” was getting in the way. A similar comment had been made in both Workshops One and Two, suggesting that this was a commonly felt barrier by participants. It became clear that I needed to convince participants that they were here to play, and that the process of painting, however frivolous it may have felt, was an act of deep thinking, remembering and synthesising. Conversation was significantly less than Workshop Two during the ‘share’ phase. This could be attributed to any number of factors, such as participant shyness, the environment or a lack of resonance with the activity. During the ‘questioning’ phase, asking participants what ‘care’ meant to them, I noticed more comfort with the process. Participants shared generously with deep insights into how care was different at home and in healthcare environments, and the personal memories associated with care.

Participant feedback

- Two participants commented that this would be an engaging way to help students think about how they felt at certain times before having to talk about it.

- With the help of painting to prompt conversation, participants found it easier to put words to their thoughts on the non-tangible concepts of joy, frustration and care.

- A participant said “this was challenging to start because I haven’t painted in such a long time. I didn’t know what I was doing. But after I realised it wasn’t about the end result and we just had to use it to capture our thoughts I was fully on board.”

Figure 25. Workshop Three in the Making Methods Symposium, St Paul Street Gallery, AUT, November 2020.

Figure 26. Joyful paintings in progress during Workshop Three of the Making Methods Symposium, St Paul Street Gallery, AUT, November 2020.

Results

Over the three workshops I worked with a total of twenty four participants. The three key words explored through painting were 'joy', 'frustration' and 'care'. By encouraging thinking through painting before thinking with words, participants shared that they were able to articulate their thoughts and feelings more easily than if they had been asked to speak from the outset. Painting, as a tool for creating conversation, was successful in pushing participants into a different mode of thinking, and prioritised nonverbal communication as a powerful method of expression.

Table 3 shows an overview of the key words, colours used and topics of conversation when participants were exploring the notions of frustration, joy and care. From this, it was clear there were similarities in the way people expressed what joy made them think of, and how they perceived care. Words such as 'warmth', 'soft' and 'love', were used across both the joy and care explorations, while specific memories, or associations, took into consideration nature, harmony and freedom. Figure 27 shows 18 paintings depicting joy, while Figure 28 shows frustration, and Figure 29, care. These images may not mean much to anyone except their creator, however, there are clear differences (and similarities) that can be see between the representation of the three themes, in the use of colour and mark-making techniques. It could be suggested that using the data from these workshops, communication design may be designed in a way that encourages experiences that feel deeply caring and/or joyful.

Word Explored	Key words	Key colours used in paintings	Examples of moments shared by participants
Joy	Calming, smooth, high-energy, vibrant, fun, laugh, jump, nature, creative, loved, peaceful, sweet, fragrant, decadent, soft, lush, sun and warmth.	Bright red, bright pink, pastel pink, pastel green, orange, light blue, white, turquoise-green, emerald green and lavender.	Sitting under a tree on a blanket, eating strawberries, visiting parents, baking, buying/picking flowers, seeing kids, coffee, making breakfast, watching Netflix, making tea, singing in the car, going home, seeing pets, being at the beach, trying something new, walking in nature, board games, video-calling overseas family/friends and eating ice cream.
Frustration	Annoy, persistence, dull, low-energy, give-up, monotone, sadness, frown, hot, noisy, bland, fiery, spikey, prickly, traffic and windy.	Black, grey, dark blue, gold, dull red, white, lime green, bright yellow, deep purple and moss-green.	Stuck in traffic, when it is raining and there is no umbrella or raincoat, red lights, arguments, burning the dinner, family stuck overseas due to Covid-19, a boring class, homework with kids who don't want to do it, forgetting to turn a hair straightener off, burning toast, spilling anything, ripping anything, lost keys, running out of toilet paper, sunburn behind the knees (or back of the neck), running late and forgetting an appointment.
Care	Community, inclusion, feeling individual, not a number, friendship, support, valued, respected, listened to, warm, love, truth, renewal, soft, gentle, diversity, natural and breaking barriers.	Bright pink, deep red, golden yellow, soft peach, bright orange, sky blue, pastel green and lilac.	Feeling like a valued individual, having a support system, stable and grounded, enveloping love, trustworthy, hugs (lots of hugs), nana in her garden, the opposite to a system where you're just another number, friendship, being part of a community, having faith, diversity – all inclusive, unconditional love, holding hands, reliability on someone, not made to feel stupid, patience, understanding feelings and physical needs.

Table 3. Overview of key words, colours and topics from the co-design workshops.

Visualisation of the data

Joy

Frustration

Care

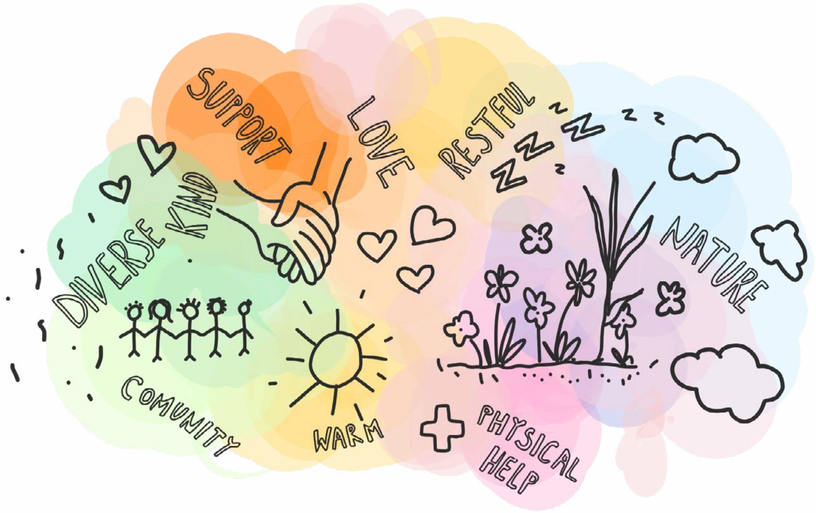


Figure 27. Joyful moments painted by participants the co-design workshops.

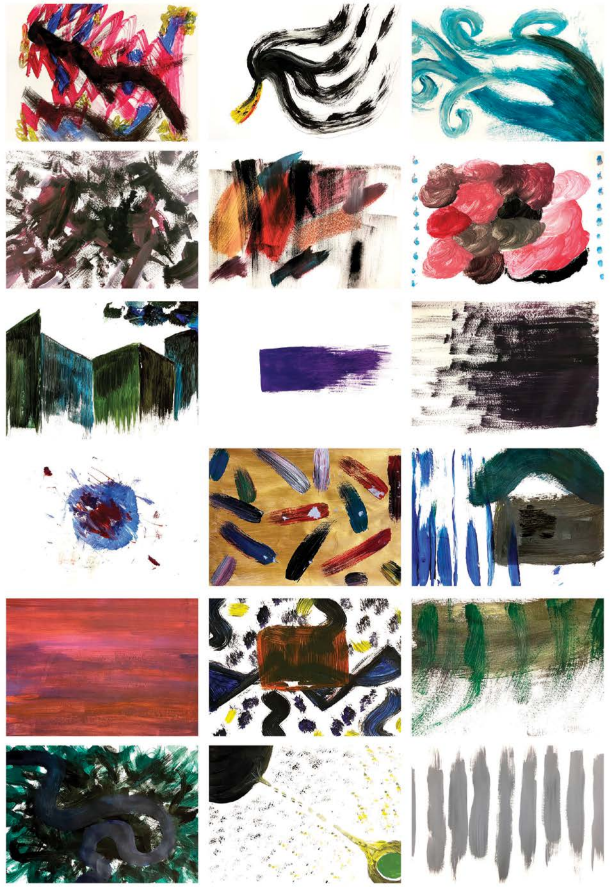


Figure 28. Frustrating moments painted by participants the co-design workshops.

Figure 29. Caring moments painted by participants the co-design workshops.

Creating meaningful conversation.

careful painting

Discussion

With other areas of this research project in mind such as working with the Deaf community or stroke patients, the development of a co-design toolkit that is inclusive of a diverse range of participants is possible. It would require further testing with participants from the Deaf community (and NZSL interpreters would need to be present in workshops) in order to fully comprehend where improvements to the workshop need to be made. However, the current method successfully created an opportunity for discussion on topics that might have been more difficult to articulate had there not been a creative toolkit for participants to use.

There is also potential for a workshop like this to engage staff and patients in future healthcare decisions, not just in communication design.

The evidence of breaking barriers between staff roles, allowing creativity to be celebrated by all participants and creating meaningful conversation, showed that this toolkit was worthy of further exploration. From the data I gathered, an indication of what joy, frustration and care meant to people was achieved, and how these topics looked when visualised as colours and marks. These themes could be substituted for any number of topics needing to be explored, and offer a creative and enjoyable way to co-design. The Communicating in Colour co-design workshop ultimately acted as a catalyst for the subsequent design practice case studies which became applications of the workshop findings - using painting and colour as a tool to communicate certain messages within healthcare contexts.

Case Study One

Considering healthcare communication design for the Deaf community visiting North Shore Hospital.

Contextual review

The Deaf community of Aotearoa/New Zealand seldom has its communication needs met during visits to the hospital, resulting in health inequalities and poor health literacy (Alexander, 2012, p. 979–981). Larson (2019) explores the term 'Deaf gain' in *Deaf Gain: A Documentary Film*, describing it as anything that works towards improving the lives of Deaf people (Larson, 2019). In a healthcare context, a movement led by this approach could help to reduce feelings of discrimination and improve Deaf health literacy. Larson (2019) shines a light on the beauty of Sign Language and the importance of learning from Deaf culture to reduce discrimination and work towards a more open-minded society that sees different ways of communicating (such as NZSL) as an asset, not a disability.

When considering how communication design might improve aspects of a patient journey for the Deaf community, "it's important for the Deaf to be included in all discussions…there are many qualities that Deaf people have that hearing people can benefit from," (Larson, 2019, 6:56) and these qualities could lead to communication design that benefits a wider group of patients too. There is a substantial body of research highlighting the healthcare challenges faced by the Deaf community, both globally and in Aotearoa/New Zealand. This suggests that the community has been heavily researched and repeatedly asked where healthcare challenges lie. This was also anecdotally reported throughout the initial period of consultation to initiate this research, and it was informally reported that there had been few changes made responding to the research (personal communication, September 3, 2019).

Major et al. (2017) worked with forty Deaf community members from around Aotearoa/New Zealand to share stories of how Deaf patients interacted with health information and the barriers they faced. Themes identified included; missing out on information, feeling left out, feeling stuck when not understanding, uncertainty on booking interpreters, the risks associated when there was no interpreter and negative attitudes from staff towards them and their experience (Major et al., 2017). This video was pivotal in demonstrating the areas of communication design in desperate need of improvement, not only in a hospital context, but in all places of healthcare. As one participant said, "we need to teach them [hearing healthcare staff], we definitely don't need to blame them" (Major et al., 2017, 54:12). However, at a time that is already potentially distressing, clear and effective communication should be a basic minimum standard and the responsibility for education should not fall to the Deaf patient. The Capital and Coast District Health Board created several online videos (https://www.youtube.com/watch?v=DzLcgY71zEQ&feature=emb_logo) for Deaf patients and hospital staff to watch in order to understand how best to communicate with each other. This was a positive step towards educating hearing people.

Because deafness is often invisible, it is important for hospital staff to be made aware early on in the visit that the patient is Deaf so that they can communicate accordingly. There is the potential that staff may not have been educated on how to respectfully and fairly interact with Deaf patients and "are generally unfamiliar with the perspective of Deaf people as members of a socio-cultural group and language minority" (Witko et al., 2017, p. 59). Wanting to be recognised in such a way is an underlying theme in Larson's documentary and in Deaf Health Stories (Major et al., 2017), as well as being evident through the on-going work of Deaf Aotearoa (https://www.deaf.org.nz//). The stories shared in such videos presented insights into how the Deaf community need to be given equal health communication opportunities and the barriers that currently exist should be removed to avoid "conflict-related bias" (Larson, 2019, 7:05). The challenge of visiting a place of healthcare for the Deaf community, speaks to the deep-rooted discrimination against anyone who has a different way of communicating. Categorised in healthcare as 'disability', despite the evident need for the Deaf community to be recognised as its own cultural group, is an example of systemic discrimination. Large institutions such as hospitals have the power to help create a society that is more equal by providing information that is more thoughtfully designed for the Deaf community.

Witko et al. (2017) discussed in *Deaf New Zealand Sign Language Users' Access to Healthcare*, the fundamental issues for this community when seeing a general practitioner (GP) (p. 53–61). They confirmed that communication breakdowns often occurred in the consultation room. For example, medication instructions might be miscommunicated, resulting in patients taking the wrong dosage, or GPs may assume that Deaf patients can understand English through lip-reading, then providing jargon-heavy information sheets to read at home (Witko et al., 2017, p. 53). Elsner, who featured on Larson's (2019) documentary, highlighted that "what hearing people should know is that we're the same…the only difference is language…Hearing people often think Deaf can't read or write" (7:37). With this in mind, one must also remember that, as Witko et al. (2017) discussed, English is often a second language for many NZSL speakers (p. 53–61). Therefore, written information can be misinterpreted and does not translate exactly from word to sign, which is why NZSL interpreters are paramount to any Deaf appointment (Witko et al., 2017, p. 53–61).

The amount of written information one encounters upon journeying through the healthcare system can be overwhelming, especially if English is a second language (Alexander et al., 2012, p. 979–981). Booking appointments or an interpreter "requires a level of confidence in English and digital literacy…that is not available to many Deaf people," which means this is also an identified pain point for Deaf patients (Witko et al., 2017, p. 56). The studies done by both Major et al. and Witko et al. were pivotal to my research as they were both based in Aotearoa/New Zealand and published within the past five years. Incorporating qualitative and quantitative data, the literature gave me a greater understanding of the challenges faced by the Deaf community. It positioned my research as more of a response to previous research done with the Deaf community, rather than re-asking the questions that already have ample anecdotal responses.

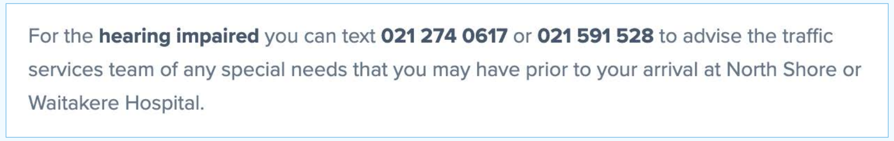
Discussions with healthcare staff, representatives and researchers of the Deaf community highlighted that the issues explored in the literature remain in the current healthcare system. By identifying the opportunities for improvement, this project might encourage communication designers to put greater consideration into creating with a more diverse range of cultures and languages in mind. When the needs of others are used to inform communication design decisions, the results are likely to be more inviting and fairer to those who are most vulnerable.

Through this case study I set out to explore how communication design, embracing a painted aesthetic, might help make one part of the Deaf patient experience feel more caring.

Mapping the Deaf out-patient journey

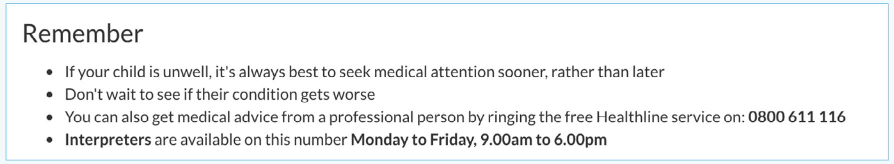
It was important to analyse the current visual language of information design at North Shore Hospital in order to better understand the context in which the Deaf patient experience sits. By reviewing the Waitematā DHB and North Shore Hospital websites, it was evident that there were no graphics or sections specifically aiding a hospital visit for those who are Deaf. 'Hearing impaired' was a term found on the Waitematā DHB website (https://www.waitematadhb.govt.nz/), and only a small mention of interpreters was present (Figures 30 & 31). This is despite interpreters and their importance to the healthcare journey for Deaf patients being mentioned 134 times in Deaf Health Stories (Major et al., 2017). Quotes such as "it's SO [sic] important to have an interpreter there" (9:00) and "I never go in[to the doctor] without an interpreter" (32:29), and many more, were examples of the Deaf community's reliance on interpreters. 'Hearing loss' appears twice on a small, postcard sized sign sitting on the Welcome desk upon entering North Shore Hospital (Figure 32). These terms frame deafness as an 'impairment', rather than a cultural linguistic difference. The healthcare system needs to ensure it is using language that does not present the Deaf community as having a disability or a deficit if it hopes to work towards creating an equity between hearing and Deaf patients. Patston (2007) encourages the language of 'functional diversity' as a way of thinking to remove the "boxes of impaired (or disabled) and a comparative normal" (p. 1625). His concept of Constructive Functional Diversity (CFD) removes any suggestions of "difference or deviation from a predetermined norm" (Patston, 2007, p. 1625).

Factors such as time and monetary cost of making NZSL videos may be preventing Waitematā DHB from making healthcare information accessible to Deaf patients. However, there is an opportunity for printed or web-based communication to be designed to help in the interim. Deaf Aotearoa has developed downloadable PDFs, with one specifically for a healthcare journey: 25 Signs to Learn for Medical Situations (https://indd.adobe.com/view/e95f530c-84c1-42c9-bf8f-cd2a1fe92ed9). This could be a resource that is accessed from the Waitematā DHB website and also made available in printed form to hospital staff.



For the **hearing impaired** you can text **021 274 0617** or **021 591 528** to advise the traffic services team of any special needs that you may have prior to your arrival at North Shore or Waitakere Hospital.

Figure 30. Example of 'hearing impaired' being mentioned on the Waitematā DHB website, [screenshot] https://www.waitematadhb.govt.nz/



Remember

- If your child is unwell, it's always best to seek medical attention sooner, rather than later
- Don't wait to see if their condition gets worse
- You can also get medical advice from a professional person by ringing the free Healthline service on: **0800 611 116**
- **Interpreters** are available on this number **Monday to Friday, 9.00am to 6.00pm**

Figure 31. Example of small text informing how to contact interpreters on the Waitematā DHB website, [screenshot] https://www.waitematadhb.govt.nz/

Dear friend

A hearing loss doesn't have to get in the way of us communicating

If you have a hearing loss please tell us

For more information contact:

The National Foundation for the Deaf Inc
Phone: 0800 867 446
Email: enquiries@nfd.org.nz
Website: www.nfd.org.nz

The Hearing Association
Phone: 0800 23 34 45
Website: www.hearing.org.nz

Figure 32. A postcard sized card on the Welcome desk at North Shore Hospital.

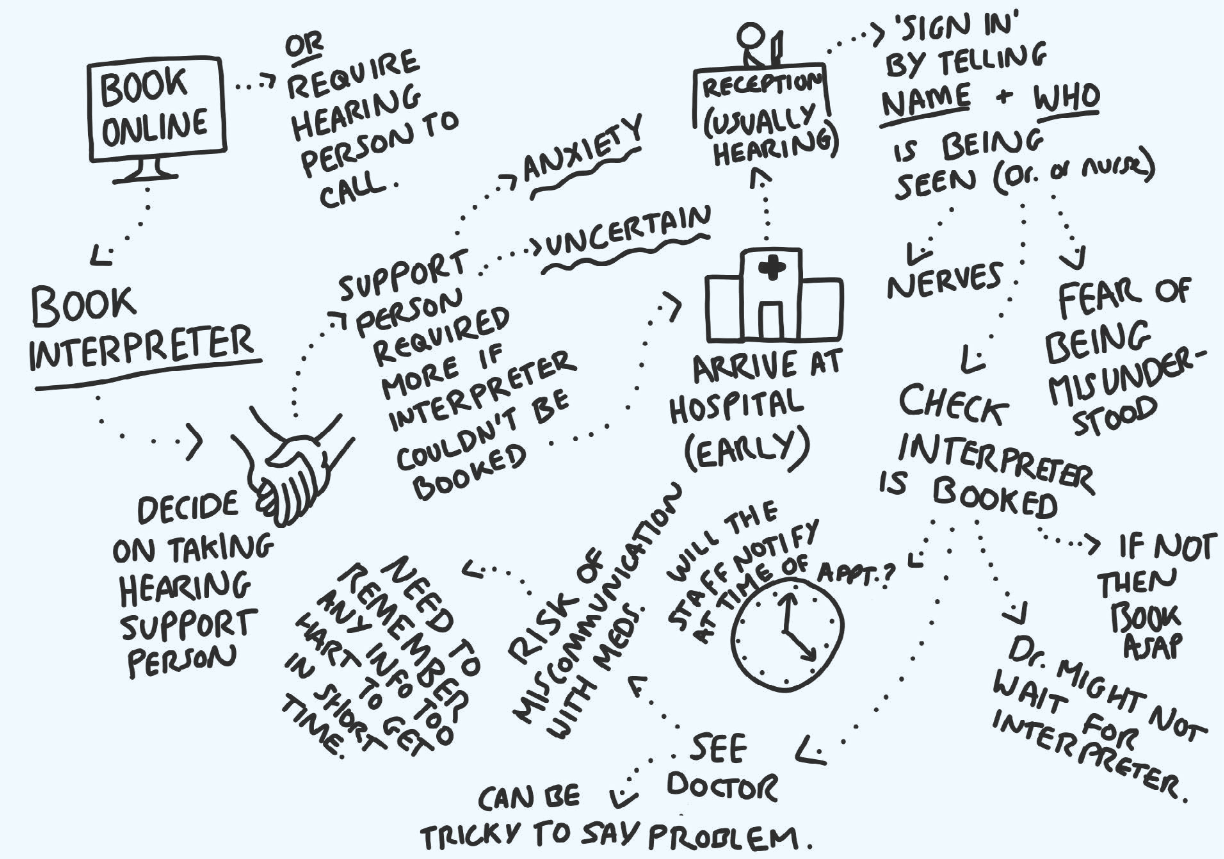


Figure 33. Illustration mapping the Deaf patient journey during a visit to the hospital. The journey was pieced together using insights from Deaf Health Stories (Major et al., 2017) and research done by Alexander et al. (2012) , Witko et al. (2017), Middleton et al. (2010) and Scheier (2009).

A visual language

During the Covid-19 lockdown in Aotearoa/New Zealand, a Deaf Aotearoa executive board member argued how important it was that the Deaf community received information at the same time as the hearing community (Trigger, 2020). There was praise for the NZSL interpreters who appeared at the daily briefings from the Prime Minister and it was expressed that presenting information equally to those who are hearing was more than being about fairness, it had a positive impact on how someone who is Deaf felt about their ability to participate in society (Trigger, 2020). It would be best practice for healthcare providers to offer all important health information in NZSL too, so that those who are Deaf would have equal accessibility to that of the hearing community. While this remains incomplete for many health resources, I wanted to test how arts-based modes of visual information, such as illustration, could be used in communication design. I was interested in the work of Clos (2010), of Barcelona's Mot Studio (https://motstudio.com/lesquatrestacions-sistemu-projects). SisTeMu was created to be a visual language that used geometric forms and colours to translate harmonies found in musical compositions in an attempt to make complicated scores more accessible to the viewer (Tom Edicions, 2010, https://tomedicions.bigcartel.com/) (Figure 34). Through line, shape and symbols, I attempted to translate several of the Prime Minister's information-heavy daily briefings to Aotearoa/New Zealand (Figures 36, 38 & 40).

This was an interesting exercise in understanding how tricky it can be to capture a large amount of information and represent it visually, in a way that is hand-made and brings a humanness to the reading experience. The potential for missing out smaller details of information was high, as I attempted to focus on capturing humour and/or emotion that was conveyed by the speakers, much like the NZSL interpreters do. These visual experiments could also serve as a concept that might help more than only the Deaf community. Those who prefer to learn visually, speak English as a second language, or who missed seeing the real-time briefing and wanting a faster way of knowing what was said, could benefit from non-verbal, illustrated information. There is also evidence of playfulness and a hand-made quality existing in these illustrations.

Figure 34. Clos, E. (2010). Lesquatrestacions — SisTeMu. From Mot Studio. https://motstudio.com/lesquatrestacions-sistemu-projects. Copyright Eulàlia Clos & Mot Studio.

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Figure 35. April 4 government briefing to Aotearoa/New Zealand. Screenshot from Youtube. https://www.youtube.com/watch?v=0BSEqssl2w8

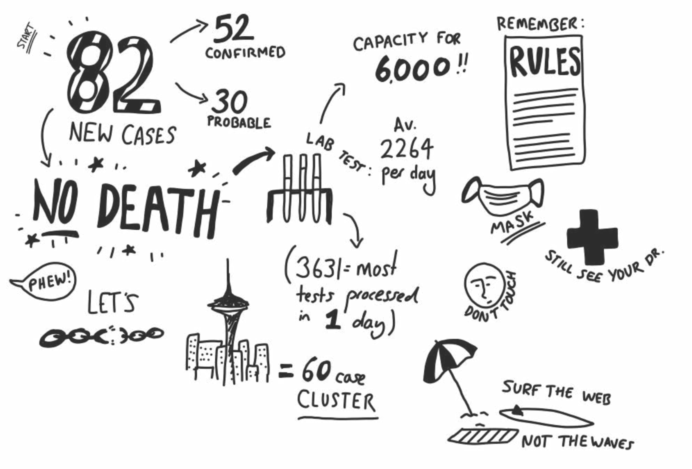

Figure 36. My visual representation of the April 4 government briefing.

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Figure 37. April 5 government briefing to Aotearoa/New Zealand. Screenshot from https://www.youtube.com/watch?v=ZBuJIMOQTbY

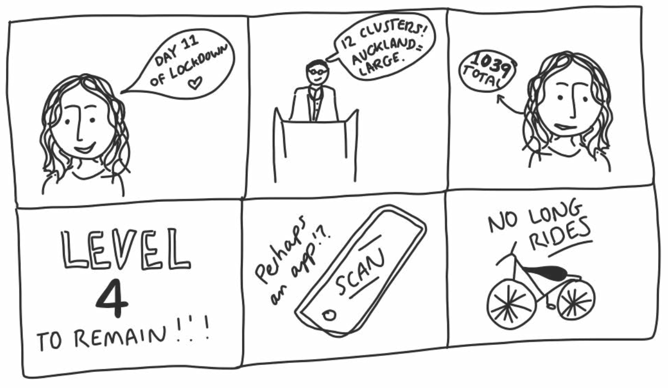

Figure 38. My visual representation of the April 4 government briefing.

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Figure 39. April 11 government briefing to Aotearoa/New Zealand. Screenshot from https://www.youtube.com/watch?v=Je8mWZokZcE

Figure 40. My visual representation of the April 4 government briefing.

Expert Interview

I interviewed a Disability Advisor at the Waitematā DHB (see Appendix 3 for interview material). As with much of the research in this study, this was conducted over a video call while Aotearoa/New Zealand was in a Covid-19 lockdown. The knowledge shared during this interview was used to better understand how to appropriately conduct a Deaf-accessible workshop, as well as to help identify areas where communication breakdown occurred in the hospital for the Deaf community. A number of key themes and insights were identified as follows:

Literacy levels

While someone who is Deaf might be fluent in NZSL, English is often a second language. A lot of the information Deaf patients were sent home with from the doctor or nurse requires further translation or research in order to be fully understood.

Anxiety

Deaf patients can have good relationships with their GP however, coming to the hospital is a different story. Large institutions do not take into consideration that it is the Deaf community's right to have information in a language it can understand too. Arriving at the hospital where a staff member will not necessarily know who they are upon arrival (unlike at a local GP), can cause a lot of anxiety. It is the first point of contact and requires a lot of important information to be communicated.

Interpreters

Doctors do not always know what time they will see a patient during ward rounds. It can be difficult to get the timing right for booking interpreters. It can feel as though the system was designed for the staff in the system, rather than those who are receiving the care.

Co-design

Working with the Deaf community is essential. You need connections so that final designs have had community input and feedback. Doing co-design with the Deaf community should consider how many interpreters will be needed during a workshop. It is also important to be clear about what the co-design workshop aimed to achieve.

Covid-19

The use of video calling for online appointments during Covid-19 provided an opportunity to consider whether Deaf patients needed to physically be in the hospital for outpatient appointments. If it could save travel time, stress of arriving and lack of being understood by staff, then it might be a positive option. Interpreters are also more likely to be able to be booked for specific times.

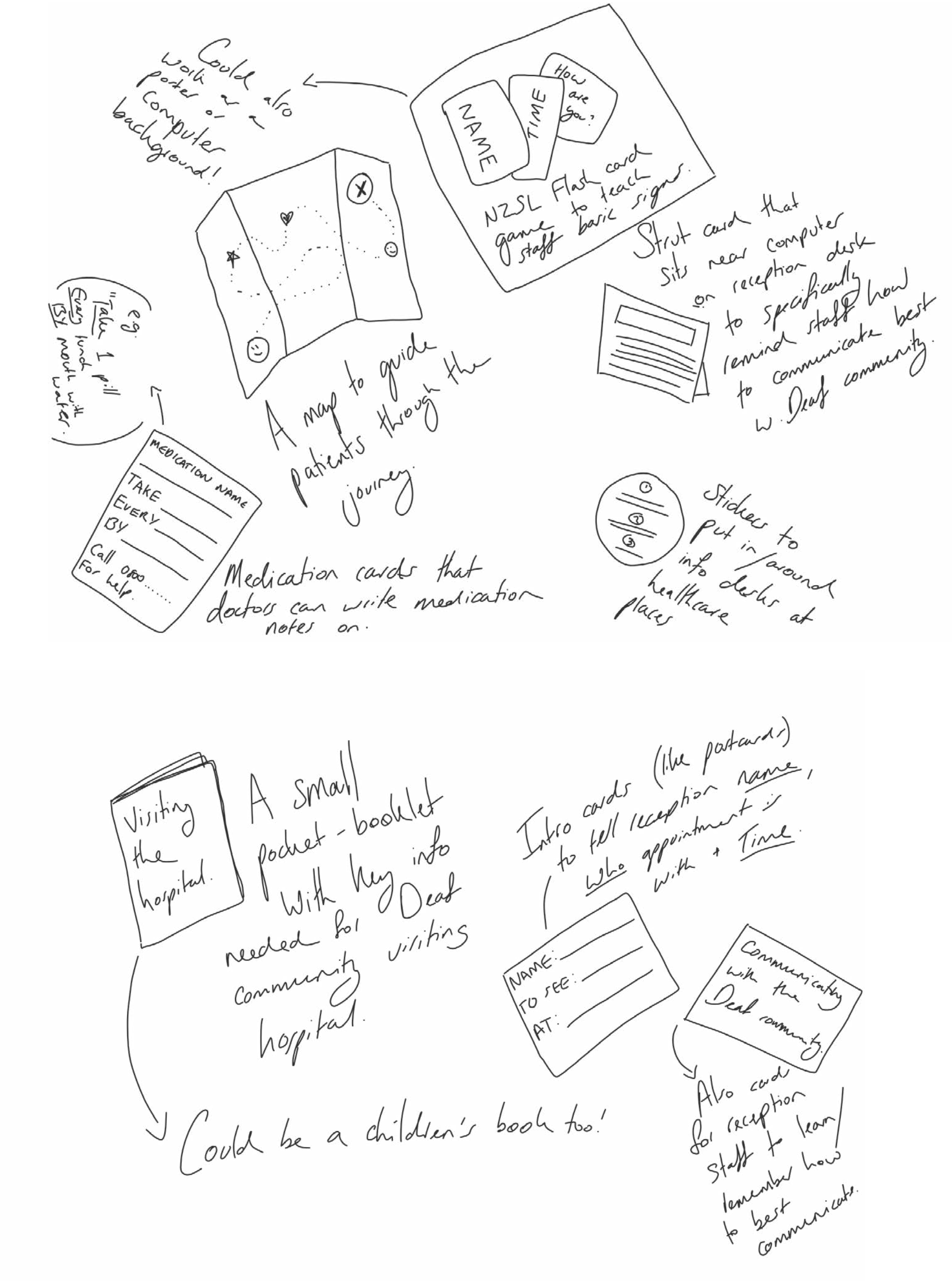
Beyond the hospital

Engagement with services like cervical screening is a lot lower in the Deaf community because health messages are not getting out to the Deaf community through channels that are accessible for them. It is not just health information at the hospital that needs improving, it goes beyond that.

This interview reaffirmed the importance of using research that has already been done with the Deaf community, rather than repeating questions that have already been asked. It was apparent that it would be appropriate for me to begin the ideation phase and create prototypes based on my research findings, to then use during workshops as a starting point for iterations and ultimately, a solution. The interview also helped me to identify the opportunity for this project, testing how communication design that utilises the findings from the co-design workshops on joy and care (as discussed previously), might help to improve the Deaf healthcare journey.

Ideation

I contemplated how a piece of printed communication design might benefit patients who were from the Deaf community (or potentially anyone who spoke English as a second language). These ideas aimed to consider those who may not have access to technology, and to feel bespoke and carefully-crafted, made with the learning from my NZSL classes in mind. I wanted the final resource to be easily accessible and free (for example, available at a GP/clinical space, hospital, Deaf society office or Deaf clubs).



Could also work as a poster or computer background!

NZSL Flash card game to teach staff basic signs.

A map to guide patients through the journey.

Strut card that sits near computer on reception desk to specifically remind staff how to communicate best w. Deaf community.

e.g. "Take 1 pill Every lunch by mouth with water."

Medication cards that doctors can write medication notes on.

Stickers to put in/around info desks at healthcare places

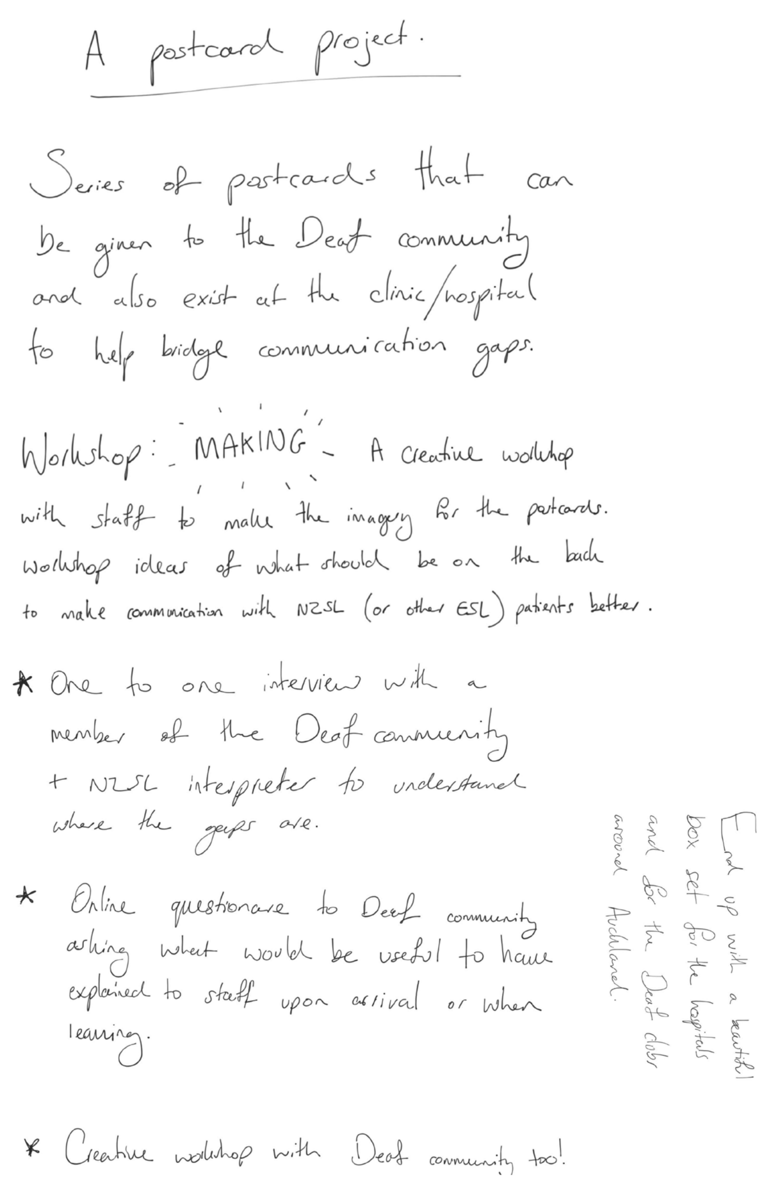
A small pocket-booklet with key info needed for Deaf community visiting hospital.

Could be a children's book too!

Intro cards (like postcards) to tell reception name, who appointment is with + Time.

Also cards for reception staff to learn/remember how to best communicate.

Figure 41. Sketchbook illustrations of ideas for the Deaf outpatient journey.



A postcard project.

Series of postcards that can be given to the Deaf community and also exist at the clinic/hospital to help bridge communication gaps.

Workshop: MAKING – A creative workshop with staff to make the imagery for the postcards. workshop ideas of what should be on the back to make communication with NZSL (or other ESL) patients better.

* One to one interview with a member of the Deaf community + NZSL interpreter to understand where the gaps are.

* Online questionare to Deaf community asking what would be useful to have explained to staff upon arrival or when leaving.

* Creative workshop with Deaf community too!

End up with a beautiful box set for the hospitals and for the Deaf clubs around Auckland.

Feedback

A subsequent meeting with the Waitematā DHB Disability Advisor allowed me to get feedback on initial ideas. Feasibility was discussed for anything requiring technology to be acquired as hospital resources and budgets were tight (especially during Covid-19). The 'postcard' concept seemed the most appropriate and achievable in the scope of my Masters research timeframe, as well as having the potential to create an empathetic connection between staff and patients using a physical piece of design. In my expert interview with an Experience and Insights Lead on the Patient Experience team, similar opinions were expressed.

To accompany the concept of postcards, I hoped to run co-design workshops with members from the Deaf community to get their feedback. Reiterated by Lott in Larson's (2019) documentary, if Deaf people are included in conversations about Deaf gain opportunities, then the result will be a more inclusive world (6:56). Roy (2016), a Deaf, human-centred designer working in the vanguard of innovation that is inclusive of disability or excluded communities, spoke to the importance of "observing people in real-life situations and empathising with them" (02:20). During Roy's (2016) TedTalk, I was reminded that this step is crucial in designing solutions in order to be effective in the lives of those who need it most. Due to the difficulty of connecting with a Deaf community member who had been a patient at North Shore Hospital, observation of a patient and staff interaction was unable to occur. However, as previously noted, Major et al.'s (2017) video provided 50 stories of Aotearoa/New Zealand-based healthcare interactions. Therefore, analysing these videos was a temporary substitute for real-time observation.

Deaf Co-design Workshop Proposal

I proposed to facilitate one to two Deaf co-design painting workshops with up to five Deaf community members in each session who had experienced communication difficulties or barriers during a hospital visit. The workshops would be based on the three previous prototyped co-design painting workshops (see: Co-design Workshops discussion). The proposal was as follows:

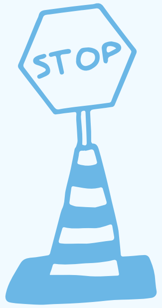
Length of time
The workshop would be no longer than 1.5 hours and koha would be offered to the participants

Place
North Shore Hospital's The Design Space

Interpreters
An NZSL interpreter would be present at the workshops

Aim
The aim of the workshops were two-fold. Collect feedback on a prototyped introduction card to understand how it might be used to reduce anxiety upon arrival at the hospital. I also considered how the artworks created during the workshop could be incorporated into the design of the final artifact. This would help to draw parallels between stories told through NZSL and those told with mark-making. This has potential to add a layer of meaning to this resource, empathetic in its feeling for the healthcare sector. I also wanted to test if using coloured paints and mark-making as a tool for expressing feelings, stories and experiences would be feasible and effective as a co-design method when working with the Deaf community. Some questions I considered were:

- How can I build trust between myself, the participants and the interpreter to cultivate a comfortable and safe space?
- How might I communicate the concept of the introduction cards, or will they be self-explanatory enough?
- Does this concept work to help Deaf patients feel more confident in coming to the hospital?
- What improvements would be necessary to iterate new versions of the prototype?
- Will the interpreter be able to translate my workshop instructions to participants in the way I intend?
- Can painting encourage participants to think of meaningful moments in a visual language with colour and mark-making before speaking through NZSL?



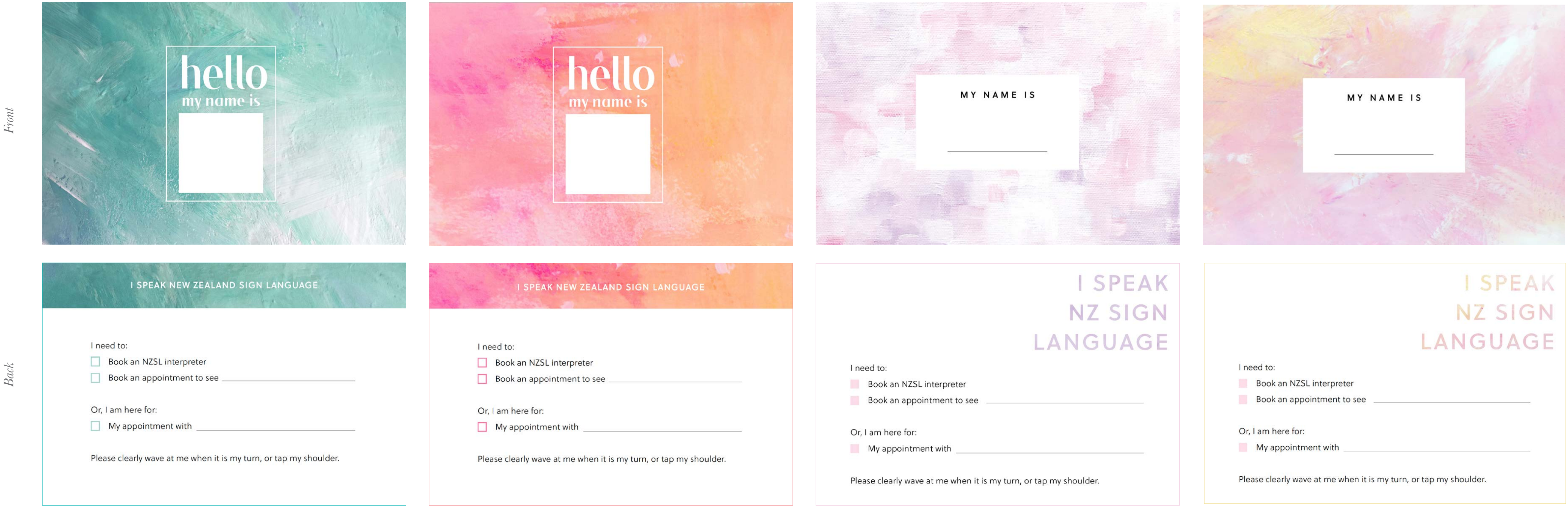
careful painting

Road-block

Due to the constraints imposed by AUTEC and Waitematā DHB's ethics protocols, I was unable to directly reach out to potential co-design workshop participants from the Deaf community, who had also been patients at North Shore Hospital. This became the responsibility of the Disability Advisor at Waitematā DHB. Shortly after sending the workshop proposal for approval, another Covid-19 lockdown began and there were several months where no in-person contact was allowed. I contemplated how the co-design workshop might be facilitated on a video calling platform with a small group of participants and an interpreter. I looked at online digital painting applications such as SketchPad (https://sketch.io/sketchpad/) and Kleki (https://kleki.com/). However, after testing these personally, the authenticity of painting with real paints, the opportunity for spontaneous mistakes and the quality of the materials, was lost. Working non-digitally allowed for unexpected outcomes, as Ings (2015) discussed, materials have "idiosyncratic responses and the unanticipated can occur when we use tools in unconventional ways" (p. 184).

An online workshop would have also required a degree of technology knowledge from participants in order to join a video call, open a paint application and share a screen, all while being communicated to through an interpreter. This challenge was close to being remedied when lockdown was lifted and the potential for in-person working opened up again. Unfortunately, at this time, my contact at Waitematā DHB left the role of Disability Advisor (a position that remained unfilled during my research timeline), which haltered the ability to contact the previously identified participant group. Other means of recruitment were explored but were found to be unfeasible within the constraints of this research. Even though Aotearoa/New Zealand had come out of lockdown, there was an ongoing sense of retreat and holding steady, with people (especially those involved in the healthcare workforce and context) appearing less open to new projects. Due to the time constraints of my research project, the co-design workshops with the Deaf community remain unexplored and an opportunity for further study.

Prototyping



hello
my name is

hello
my name is

MY NAME IS

MY NAME IS

I SPEAK NEW ZEALAND SIGN LANGUAGE

I need to:
☐ Book an NZSL interpreter
☐ Book an appointment to see ________________

Or, I am here for:
☐ My appointment with ________________

Please clearly wave at me when it is my turn, or tap my shoulder.

I SPEAK NEW ZEALAND SIGN LANGUAGE

I need to:
☐ Book an NZSL interpreter
☐ Book an appointment to see ________________

Or, I am here for:
☐ My appointment with ________________

Please clearly wave at me when it is my turn, or tap my shoulder.

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☐ Book an appointment to see ________________

Or, I am here for:
☐ My appointment with ________________

Please clearly wave at me when it is my turn, or tap my shoulder.

Figure 42. Prototypes of postcards for the Deaf outpatient journey. The design incorporated hand-made paintings from previous Communicating in Colour workshops, space for the end-user to write their name, and the key pieces of information that a staff member at the hospital may need to know.

Feedback

I continued to progress the design prototype of introductory postcards further and gained feedback in a small, informal focus group (which included hard-of-hearing and Deaf friends who I had met through the Beginner NZSL classes) (personal communication, October, 2020). After reflecting on their feedback, the key points were as follows:

It may help with confidence

Knowing it would be easier to communicate with reception than if the card was not available would help with confidence upon arriving at the hospital. It would however need to be clear and easy to read so that information could be conveyed quickly.

Useful for staff

There was the hope that staff receiving the card (upon patient arrival at the hospital) would adjust their communication style appropriately, such as checking an interpreter had been booked or had arrived, waving clearly when it was the patient's appointment time or writing information in clear English when required.

Size

The postcard size felt too big. It would be better to be credit card sized so that it would be easy to carry in a wallet.

Clear information on the card

Make sure the patient's name, appointment time and nurse or doctor name were clear. It should also inform if an interpreter had been pre-booked and if not, how to book one.

Concerns

Would staff members know how to communicate in the best way possible with Deaf patients upon receiving the card from a visiting patient?

Prototyping

Research and anecdotal evidence showed that there was a communication barrier when informing staff at the Welcome desk of the Deaf patient's name, and with whom they had an appointment. The patient and staff member also needed to ensure an interpreter was booked or had arrived. This often quick and easy interaction for a hearing patient is vastly different for those who are Deaf. Hospital staff are extremely busy and have to comply with complex systems, therefore, a small piece of communication design such as this had potential to help make a difference to this aspect of a Deaf patient's experience.

The level of work needed to be done to improve the communication design for the Deaf healthcare experience was well beyond the scope of this project. Therefore, my design concept selected one part of the journey to explore as a way of identifying opportunities for communication design. Often the first interaction when arriving at a place of healthcare can be most important in setting the tone for the rest of the visit. Highlighting key points of information in a clear format would allow staff to employ best practices for ensuring patients have an equal and fair experience to hearing patients.

I prototyped a series of patient and staff cards, as well as carry-cases for the cards to sit in. Prototypes allowed me to see how these cards might function in a wallet, as well as what could fit on the card while still being clearly visible. I also prototyped a card for the hospital staff which would be postcard-sized to fit enough information on best practices to remember when communicating with a Deaf patient.

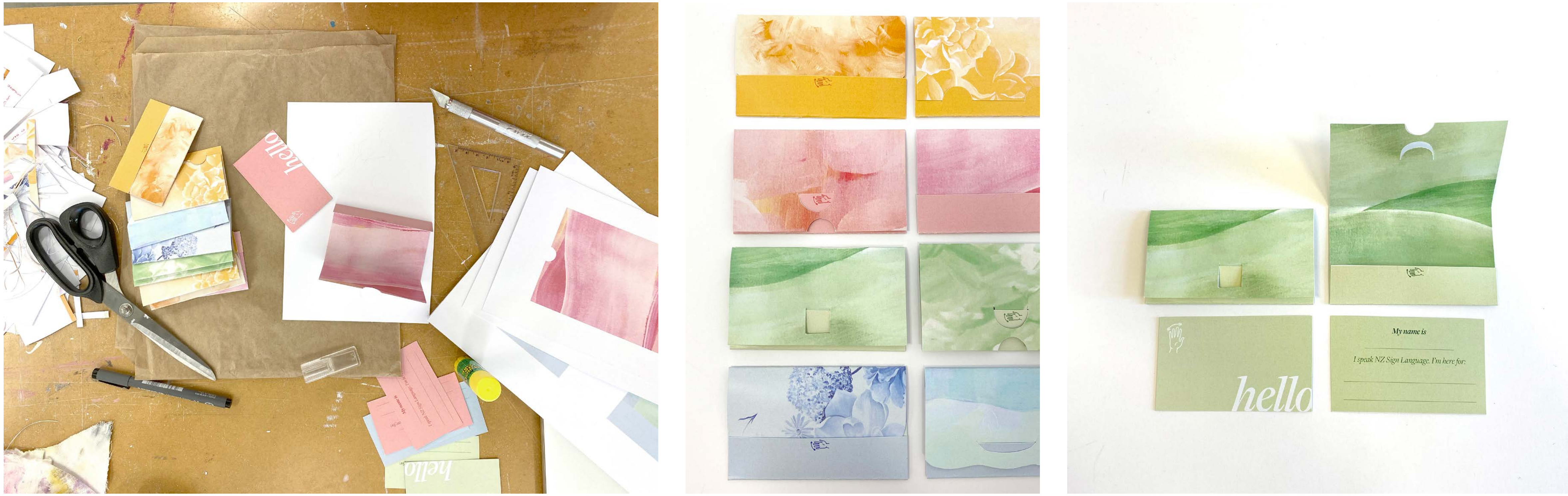


Figure 43. I developed prototypes of introduction cards for Deaf community members. I also prototyped cases that could hold up to five cards for ease of storage in a bag or car.

See the separate Careful Painting Prototypes PDF for images of the final concept.

Reflection

Without adequate participation from the Deaf community, it was not ethically or morally right to progress this idea without further feedback and testing. While the prototype remained open to iteration and further feedback, I hoped that it would show how hand-made elements in communication design could feel bespoke, personal, empathetic and understanding of the communication barriers faced by the Deaf community.

If this case study was to progress and the cards were to be produced, new versions of the cards could be made featuring artworks completed by Deaf community members, with the intention of reinforcing community creativity and aspiring to uplift the end-users. The difficulty of building connection with the Deaf community as an outsider researcher, as well as gaining trust from, or speaking to, members from this community, may parallel the difficulty those who are Deaf are likely to experience with the hearing community. This is particularly due to living in a world that prioritises and normalises hearing over deafness.

Learning NZSL and gaining a deeper insight into Deaf culture was personally enriching. The classes offered not only personal growth, but also allowed me to draw metaphorical connections between the predominantly 'hand-made', gestural qualities of NZSL and the hand-made, gestural nature of painting. NZSL is reliant on personal connection, hands shaping words and ideas, and facial expressions creating subtle nuances of meaning. I was interested in the relationship that hand-made elements, such as painting, incorporated into communication design could have with the Deaf community. Larson's (2019) documentary, used words such as visual, natural, cinematic, powerful, layered, creative and fulfilling (2:33). These words in relation to NZSL give inspiration to the creative, layered, gestural nature and sensitivity of visual elements that can be achieved authentically by hand with paint. Asking how to get a healthcare system such as a hospital to be empathetic to this community and put them at the forefront of design decisions is important, and remains an unanswered consideration at the conclusion of this research. If this can be achieved, there can be hope for more effective communication for all.

Learning NZSL and gaining a deeper insight into Deaf culture was enriching.

Case Study Two

Caring telehealth information for patients and clinicians.

Contextual review

The New Zealand Institute of Economic Research (NZIER) (2020) defined stroke as “a cerebrovascular condition which increases in incidence as people age” (p. 1). With more patients surviving post-stroke, ‘disability’ is expected to increase (NZIER, 2020, p. 1) as “people’s ability to produce speech and expressive language, and to comprehend language” (Bright & Reeves, 2020, p. 3) occurs. Clinician interaction with clients who have experienced stroke can be formative in setting up different identity and relational possibilities, especially as these patients may experience drop-off in regular friendship interactions (personal communication, March 31, 2020).

During Covid-19, telehealth became essential in providing ongoing rehabilitation for patients who had experienced stroke, as in-person appointments became increasingly unsafe. Bright and Reeves (2020) found that the continuation of relationships between clinician and patient was “integral to stroke rehabilitation” (p. 1), providing “stability in a time of instability” (p. 4), as a person adjusted to life post-stroke.

However, transferring from appointments that existed in a physical healthcare space, to something that needed to be accessed online at home, was a disruption to the norm for both clinician and patient. This shift required an intake of additional information and the learning of new processes as the need “to produce a high level of awareness and competence in telehealth among healthcare practitioners” (Kerr & Norris, 2004, p. 63) arose. With already high volumes of checklists and information crossing a clinician’s desk and computer, there was concern about the cognitive load of staff. Grigg (2015) wrote that checklists needed to be “innocuous and thought provoking…they cannot live passively on an inanimate list. Checklists should be short, relevant and effortless” (p. 570). For patients and their caregivers, the need to effectively communicate how to prepare for telehealth in order to encourage continued engagement also arose. The therapeutic value of a stroke patient’s relationship with their clinician was reinforced by Bright and Reeves (2020) as their study challenged the notion of relationships being a “nice-to-have” (p. 7) rather than essential. Wright et al. (1998) suggested that telehealth “‘declinicalises’ interactions because caregivers remain in their own home territory” (p. 79). This could be viewed as a positive aspect of telehealth, as supported by Lawson et al.’s (2019) work, exploring the feasibility of telehealth-delivered memory rehabilitation for stroke patients. The study concluded that telehealth was an effective tool for providing rehabilitation when meeting in-person presented barriers (Lawson et al., 2019, p. 58). The American Heart Association (2017) also highlighted the benefits of telehealth, stating that it provided accessible healthcare through improving patient safety and engagement, reducing transport costs and unnecessary appointments (where excess administration for the healthcare staff and patient can be avoided), and enhancing provider-to-provider communication.

Despite the potential benefits of digital communication, there was still a strong case for printed, written information in healthcare, specifically for patients and their caregivers. Research suggested that much of what healthcare professionals said at the time of an appointment was easily forgotten (Kitching, 1990). Therefore printed documents were often relied upon to recall important information (Weinman, 1990). Much of the literature on patient information design focused on; using an organised layout, clear typography, instructional diagram illustrations, avoidance of abstract imagery, and editing text for a low reading age (Hoffman & Worrall, 2004). Kitching (1990) stated that layout design was responsible for “attracting the reader, drawing attention to the information, and maintaining attention” (p. 299). Patient and caregiver education helped to improve “knowledge, satisfaction, psychological outcomes, adherence to treatment and disease self-management" (Hoffmann & Worrall, 2004, p. 1166). Therefore, the way information is designed may affect how patients feel at the time of engagement. However, Hoffmann and McKenna (2015) found that much of the healthcare literature was designed in a way that left out "stimulation that encourages reader interaction, such as summaries of sections…font size of at least 12 point, and captions that explain graphics" (p. 291). A poor match "between the reading level of the written materials provided and patients' reading ability" (Hoffmann & McKenna, 2015, p. 291) was also discovered, suggesting that people of all literacy levels found healthcare material with a lower reading level easier to comprehend.

Often, printed material supplied by a healthcare provider is in written form. This can present "barriers to anyone with difficulties processing written language" (Herbert et al., 2019, p. 1505) such as people with aphasia. Research done with aphasia patients showed that "linguistically complex text is problematic" (Herbert et al., 2019, p. 1508). Herbert et al. (2019) discovered that there was favourable mention of colour in the design of information to encourage further engagement (p. 1517). Imagery (photography) and illustrations (such as vector graphics) were identified as making printed health information aphasia-friendly, with patients reporting that writing was easier to understand and there was a place for the eye to rest (Rose et al., 2011, p. 1580). "Approximately one third of participants with aphasia reported that they needed pictures to understand writing" (Rose et al., 2011, p. 1579), with one clear image per sentence being preferred (Herbert et al., 2019, p. 1517). In contrast, the use of imagery and illustration in aphasia information has also caused controversy (Rose et al., 2011, p. 1580). Parr et al. (2008) questioned whether repeated use of graphics might be perceived as patronising to patients with aphasia.

Through this case study I set out to explore how a hand-made approach to telehealth communication design might make the set-up process for staff, patients and caregivers feel more joyful and caring.

Initiation of the Project

During Aotearoa/New Zealand's Covid-19 lockdown, a Senior Lecturer at AUT's School of Clinical Sciences, identified an opportunity to improve the information design for best practices (targeting clinicians) when setting up telehealth. However, stroke patients and their caregivers also required information on the process of preparing for an online rehabilitation session. An initial meeting on March 31, 2020, with the Senior Lecturer was undertaken using a video call (to comply with the government lockdown rules of no in-person contact). Key points discussed were as follows:

Resources

Patients and clinicians were receiving jargon-heavy information, designed with a 'clinical' aesthetic. The information sent to patients needed to engage them in wanting to continue communication with their clinician through telehealth, while information sent to clinicians needed to reinforce how to build a relationship and what best communication practices were during Covid-19. The healthcare sector was under high pressure and working with limited resources.

Clinician concern

Clinicians were sceptical about how to build a strong relationship over a video call. However, these assumptions have been challenged in literature that suggest relationships built during telehealth can be built to the same level as in-person sessions. The concern is knowing how to quickly and effectively educate clinicians to become comfortable working in this different environment. Covid-19 and the rise of telehealth was a disruption to the way clinicians in Aotearoa/New Zealand were used to working.

Information design considerations

Aphasia in post-stroke patients compromises the ability to hear or read and produce oral or written language. Only the key points clinicians and patients need to know should be communicated.

Key ideas to communicate to the clinician

Clinicians should be reminded that good communication is based on the relationship between the giver and receiver of information. There should be guidance on how to achieve the best experience possible for the patient through telehealth; and how to combat a stressful time, exacerbated by the concerns of Covid-19. Tools that may help communication, available on video calling services such as the 'chat' function or the 'digital whiteboard', could be utilised.

Key ideas to communicate to the patient and caregiver

It is important to make the telehealth set-up clear and concise, with a 'can-do' undertone, and to reinforce how the clinician will offer support in this situation.

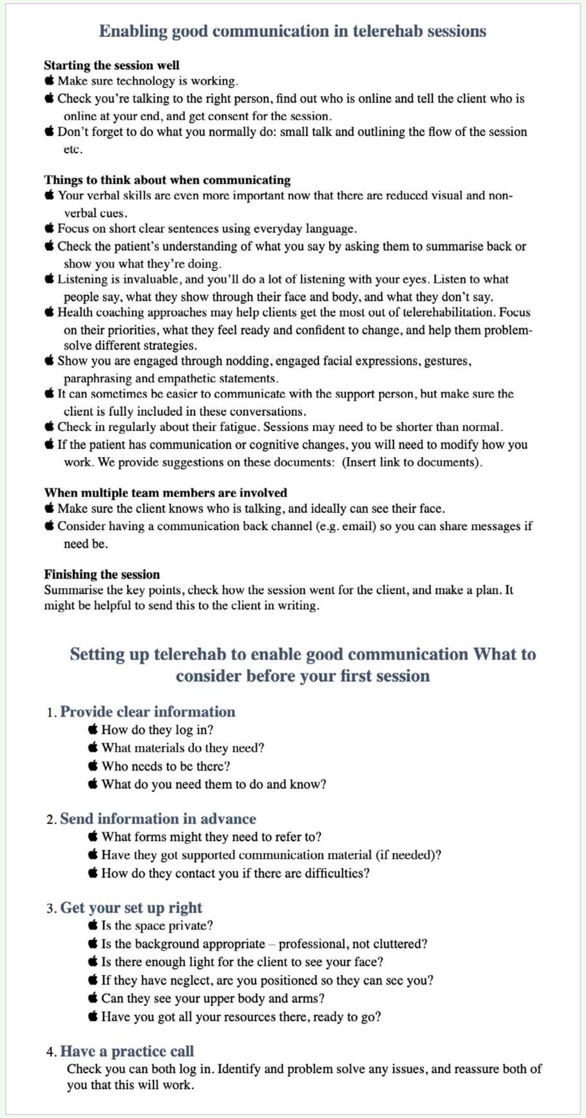
Personal reflection

Following the initiation of this case study, I considered whether healthcare material needed to look as though it had come from a clinic or DHB, in order for the information to be taken seriously. I also wondered if end-users appreciated learning through more creative and colourful communication design in comparison to the corporate-style PDFs or word documents often sent to clinicians and patients (see figure 44).

Patients with aphasia often suffered from severe anxiety and/or depression, more than non-aphasic people (personal communication, March 31, 2020). The addition of learning a new system may add to stress or anxiety. Therefore, information design for patients may be more effective in encouraging participation in telehealth if the information was presented or delivered in a more joyful or caring way. Playful concepts, a reduction in the number of words, the use of colour and hand-painted elements, were initially considered as having potential to enhance delivery of information in a way that would be better understood and retained.

Communication from the government during Aotearoa/New Zealand's response to Covid-19 encouraged me to think about the importance of key words and images that might help make apprehensive times feel more manageable. For example, the word 'bubble' (https://www.youtube.com/watch?v=4UnKPzFel2w) became commonplace in daily conversation after the Ministry of Health mandated members of the population remain in contact with only a small group of people (a 'bubble') as an essential part of the alert level system. This was to reduce the spread of the Covid-19 virus (see figure 45). The understanding of this word became about keeping the nation safe. However, it also possessed connotations of child-like play, of being light, floating, and being temporary. The playful connotations we associate with bubbles, helped to make the pandemic response seem more manageable and less scary. Fetell Lee (2018) wrote that "play is one of our greatest means of accessing delight, with deep roots in human life" (p. 134). Therefore, by incorporating an element of play into a serious situation, a more emotional connection may be achieved.

I was interested in exploring whether a key aspect of creating communication design that felt caring was by identifying a shared human experience. For example, spending time in nature may spark memories of a childhood spent playing outside, a local walk, or a favourite beach. In this case study, I aimed to push the boundaries of how healthcare information is delivered, questioning how hand-made elements, human experiences, illustration and use of colour might help to improve the telehealth set-up process information.



Enabling good communication in telerehab sessions

Starting the session well
- Make sure technology is working.
- Check you're talking to the right person, find out who is online and tell the client who is online at your end, and get consent for the session.
- Don't forget to do what you normally do: small talk and outlining the flow of the session etc.

Things to think about when communicating
- Your verbal skills are even more important now that there are reduced visual and non-verbal cues.
- Focus on short clear sentences using everyday language.
- Check the patient's understanding of what you say by asking them to summarise back or show you what they're doing.
- Listening is invaluable, and you'll do a lot of listening with your eyes. Listen to what people say, what they show through their face and body, and what they don't say.
- Health coaching approaches may help clients get the most out of telerehabilitation. Focus on their priorities, what they feel ready and confident to change, and help them problem-solve different strategies.
- Show you are engaged through nodding, engaged facial expressions, gestures, paraphrasing and empathetic statements.
- It can sometimes be easier to communicate with the support person, but make sure the client is fully included in these conversations.
- Check in regularly about their fatigue. Sessions may need to be shorter than normal.
- If the patient has communication or cognitive changes, you will need to modify how you work. We provide suggestions on these documents: (Insert link to documents).

When multiple team members are involved
- Make sure the client knows who is talking, and ideally can see their face.
- Consider having a communication back channel (e.g. email) so you can share messages if need be.

Finishing the session
Summarise the key points, check how the session went for the client, and make a plan. It might be helpful to send this to the client in writing.

Setting up telerehab to enable good communication What to consider before your first session

1. **Provide clear information**
    - How do they log in?
    - What materials do they need?
    - Who needs to be there?
    - What do you need them to do and know?
2. **Send information in advance**
    - What forms might they need to refer to?
    - Have they got supported communication material (if needed)?
    - How do they contact you if there are difficulties?
3. **Get your set up right**
    - Is the space private?
    - Is the background appropriate – professional, not cluttered?
    - Is there enough light for the client to see your face?
    - If they have neglect, are you positioned so they can see you?
    - Can they see your upper body and arms?
    - Have you got all your resources there, ready to go?
4. **Have a practice call**
    Check you can both log in. Identify and problem solve any issues, and reassure both of you that this will work.

Figure 44. Single pages of already condensed information that was sent to clinicians at the time of Covid-19. This was to support the setting up and facilitating of telehealth rehabilitation sessions.

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

Figure 45. Screenshot from the Build Your Bubble informational video released by the Ministry of Health. Screenshot from Youtube. https://www.youtube.com/watch?v=4UnKPzFel2w

Expert Interview

I interviewed a Senior Lecturer at AUT's School of Clinical Studies (see Appendix 3 for interview material). The knowledge shared in this interview was important in helping me understand the importance of communication and relationship building within rehabilitation sessions, as well as identifying the areas of design opportunity. The key themes and discussion points from the interview were as follows:

Importance of including patients in research

It is important for researchers to talk to people who have experienced communication difficulty, as gathering their perspectives is critical. This requires several meetings or interviews to ensure ethical practices are being upheld. Stroke patients are often under-represented in research or left out because of assumptions about ability to engage in research and a lack of accessible research practices. Lack of knowledge, skill or resourcing can be barriers to patient inclusion.

Accessible Design features

It can be helpful to use simple language, sans-serif typefaces, large amounts of negative or white space, and to use pictures that support key words. Images should not be abstract and should represent clearly the object or action being communicated. These accessible design features can, however, cause the need for many sheets of paper when printing the resources, creating a tension between something that is accessible, and simultaneously inaccessible.

Covid-19

While there is research evidence that telehealth is effective, anecdotally there are many clinicians in Aotearoa/New Zealand who have reservations about the quality of therapeutic relationship that can be achieved. Telehealth feels different and is relatively unknown, and that can be scary to navigate. There were concerns regarding equity of access to telehealth and patient ability to navigate technology. Feedback from clinicians suggests that telehealth works better for mild to moderate communication difficulty. Therefore, post-Covid-19 there is the potential to keep telehealth as an option for follow-up sessions in some cases.

The importance of visual information for someone experiencing communication difficulties is paramount, and it was anecdotally reported that patients did not necessarily enjoy receiving plain white paper with large, bold black text. Concern was also raised about the amount of information continuously landing on a clinician's desk. As such, this project presented an opportunity to create more visually interesting information that might help make the transition to telehealth more accessible for both the clinicians and patients.

Telehealth feels different and is relatively unknown. That can be scary to navigate.

Mapping the telehealth set-up

In order to understand the process of setting up a telehealth session from both the patient and clinician perspective, I found it helpful to cut up the key information documents and map out the different journeys for clinicians and patients. I grouped steps that clinicians might need to take for building therapeutic relationships and facilitating a tele-rehab session (Figure 46). My aim was to condense the steps and use simplified language to represent what would happen at each step of the process. This helped me to move into the prototyping phase.

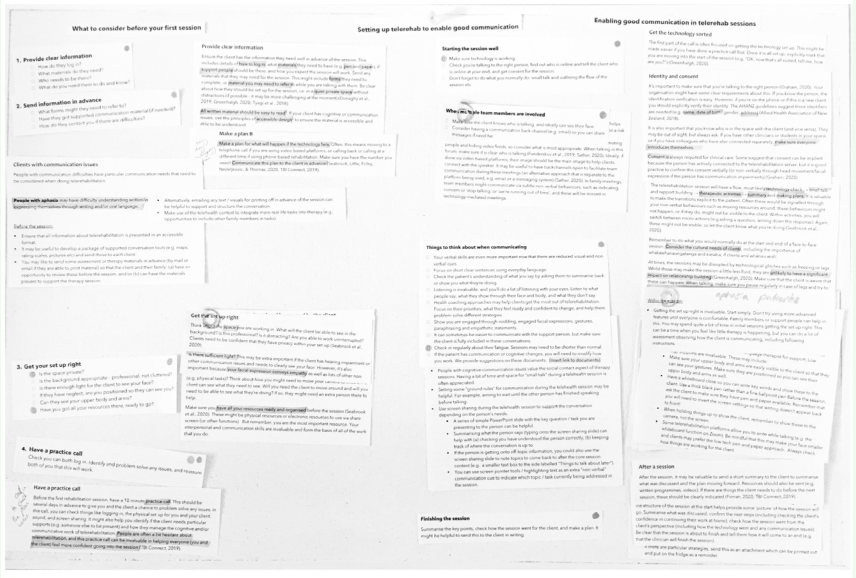
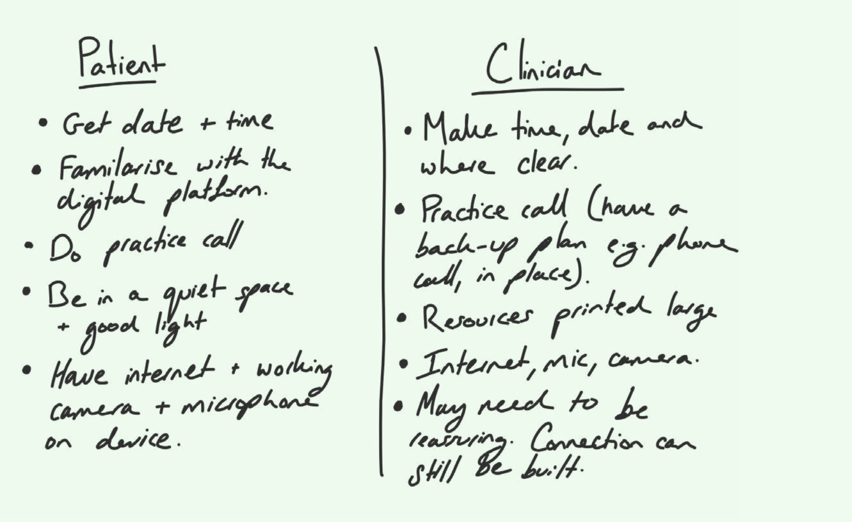


Figure 46. I cut up the informational documents that were provided for both staff and patients in order to group the information and more easily see how and where information could be condensed.



Patient	Clinician
• Get date + time	• Make time, date and where clear.
• Familarise with the digital platform.	• Practice call (have a back-up plan e.g. phone call, in place).
• Do practice call	• Resources printed large
• Be in a quiet space + good light	• Internet, mic, camera.
• Have internet + working camera + microphone on device.	• May need to be reasuring. Connection can still be built.

Figure 47. Condensed steps for patients and clinicians

Ideation

BEFORE

- Set a date for your practice call
- Get your log-in details
- Find a quiet, private + well lit place in the house
- Have any necessary equipment with you
- If you have a support person joining, ensure they are free
- Check wifi + battery.
- Make a plan B

DURING

- Check the technology is working.
- Let your practitioner know if you can't see / hear them well enough due to their positioning or technology.
- Be open with how you're feeling.

AFTER

- Your practioner will send you any important notes or follow up info.
- Send feedback via email if needed.

LOCATION

Where online do you need to go? Have you got the log in?
What time are you meeting for a practice run?
Where will you put your computer so that you are in a quiet and private space with good light?

COMFORT ESSENTIALS

Make sure wifi connection is good.
Ensure your computer is plugged in to a power source or has enough battery.
Know Plan B just in case.
Have you got a comfortable way to view the computer?

BASKET OF GOODIES

What do you need to have with you? Pen / paper / forms
Are you bringing a friend (support person)? If so, do they need to bring anything along?

Imagine telerehab as a picnic.

LOCATION

- There's a little more of a journey to take to get there than what you may be used to, but with practice, it will be like a walk in the park!

COMFORT ESSENTIALS

- You are joining the picnic to share and enjoy. To learn, to communicate as best you can of how you feel, and to enjoy this new experience together.

BASKET OF GOODIES

- Picnics usually have a basket of goodies – you may need to bring something along to share with your practioner, as will they.
- Your picnic is a safe space.

KEY TAKEAWAY

- It should be as stress-free as possible. If you have any trouble finding your way there, feel free to ask for more clear directions.

GET READY

Set a date for your practice call. Get the log-in details. Have a plan B in place, just in case! Before your call begins, find a quiet space, somewhere private with enough light. You want your practitioner to be able to see you!

NEARLY THERE

Your practitioner will let you know what you may need to have with you during the call (a pen, some paper, any forms or maybe a support person). Check your wifi connection and how much battery you have (or plug in to a power source). Turn off notifications (sounds).

YOU MADE IT!

Enjoy your practice call. Be sure to let your practitioner know if you had any issues accessing the technology or if something isn't working for you - they are there to help you. Be open and honest (as you would be in previous appointments). Take care and ask for help if needed.

Figure 48. Scans of the mood-boards and ideation phase from my sketch book.

Feedback

After showing the initial ideas to the academic, preference was given to Idea 4. This was because the icons and words created an easy-to-read step-by-step guide. It was suggested that this would be convenient for both the clinician (as an overview) and patients. It was also noted that the resource would be most useful if it could be sent as an attachment in an email or downloaded from a website, which meant it had to be appropriate for a PDF format. This felt limiting, as I was also interested in exploring how a clinician and patient may respond if the information was tactile and felt as if it had been crafted with care by hand, offering an interesting juxtaposition to the online environment. During Covid-19, there was a global increase of meetings held on Zoom.[12] As Wiederhold (2020) reported, there were 10 million people attending meetings on Zoom at the end of 2019, and "by April 2020, usage had exploded to 30 million" (p. 437). The tiredness, anxiety and increased worry that resulted in many people from overuse of video calling platforms, led to the term 'zoom-fatigue' used by researchers and journalists (Wiederhold, 2020). This phenomenon highlighted the benefit of receiving information non-digitally, being able to look away from the computer for a moment, and rest the eyes on a colourful, insight-driven, designed piece of information.

While the fundamental telehealth information was front-of-mind for the clinician, I was conscious of not leaving the more playful elements such as story-telling out of the concepts. I realised it was going to be important to test where the boundary was between design that did not make sense and that was too abstracted, and design that was corporate, formal, and lacking personality. I was also concerned about keeping the communication difficulties that patients may be experiencing front-of-mind while designing new concepts. Utilising the principles of accessible design[13] was important, however, I wanted to explore the balance between accessible and joyful aesthetics.

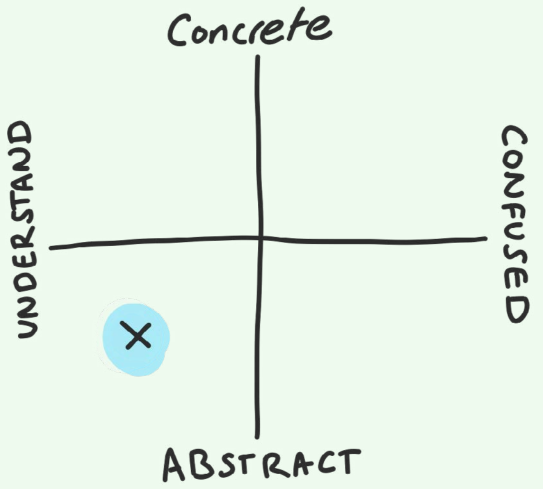


Figure 49. Visualising where the communication design should sit between abstract and concrete, and how understandable this may or may not make it.

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12. Zoom is a videoconferencing platform allowing users to work collaboratively while working remotely. It offered video, audio, and wireless screen-sharing capabilities. It could be used on a variety of computers and smart phones.

13. Accessible design aims to reduce barriers to use for a diverse range of end-users or viewers (Fletcher, 2006).

Exploring a new landscape

I viewed the transition from in-person rehabilitation to online telehealth as navigating a new landscape. Metaphorically, it may be a place that feels unfamiliar, where new learning is required in order to understand the space (e.g. hills to overcome and streams to explore). I wanted to visually explore how to represent this through my creative painting practice. As part of my creative process, and to explore this idea further, I took inspiration from the textures and shapes in nature around me (i.e. grass, leaves, flowers and water). I also found the shape of hills cathartic to look at and paint (especially as this phase of visual research occurred during the Covid-19 lockdown), and hoped this feeling would resonate with the viewer. Herbert et al. (2019) found that people with aphasia often had negative experiences with imagery that relied on metaphorical interpretation as it was confusing and unclear (p. 1517). Therefore, my image explorations were not intended to inform or educate a person about the telehealth process. Instead, they were abstract representations of nature, intended to evoke a sense of joy and allow me to consider how I might meaningfully use colour, texture and shape in the telehealth communication design.

Figure 50. Abstract nature-based paintings, inspired by my photographs of nature around me.

Figure 50 (continued). Abstract nature-based paintings, inspired by my photographs of nature around me.

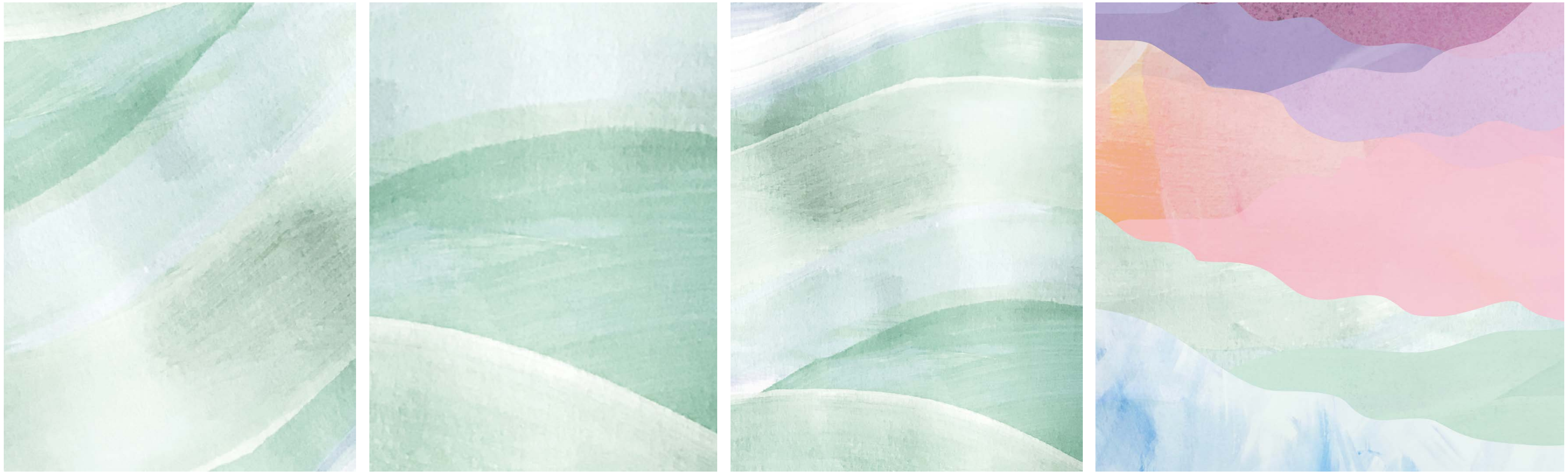


Figure 51. Landscape paintings, exploring the contours of hills and mountains in Aotearoa/New Zealand.

Prototyping

My practice became focused on the most efficient way to distil a large amount of information into a few words and test using non-written language (such as icons or photos). Using the abstract nature paintings (pictured above) (as well as experimenting with collage) I constructed a visual language. I hoped colour, texture and the continued concept of nature and a new landscape, would help create telehealth information that challenged the way healthcare documents could be given to patients. Upon reflection of the expert interview and further research into accessible graphic design, I was concerned with the challenges stroke patients may face, such as page tracking and feeling overwhelmed with a large amount of small text. For the clinicians, I considered what could reduce reading time (such as bullet points), and understood that there was already a level of knowledge of their professional practice.

Figure 52. Collages exploring the steps of setting up for telehealth.

Figure 53. Icons exploring the steps of setting up for telehealth

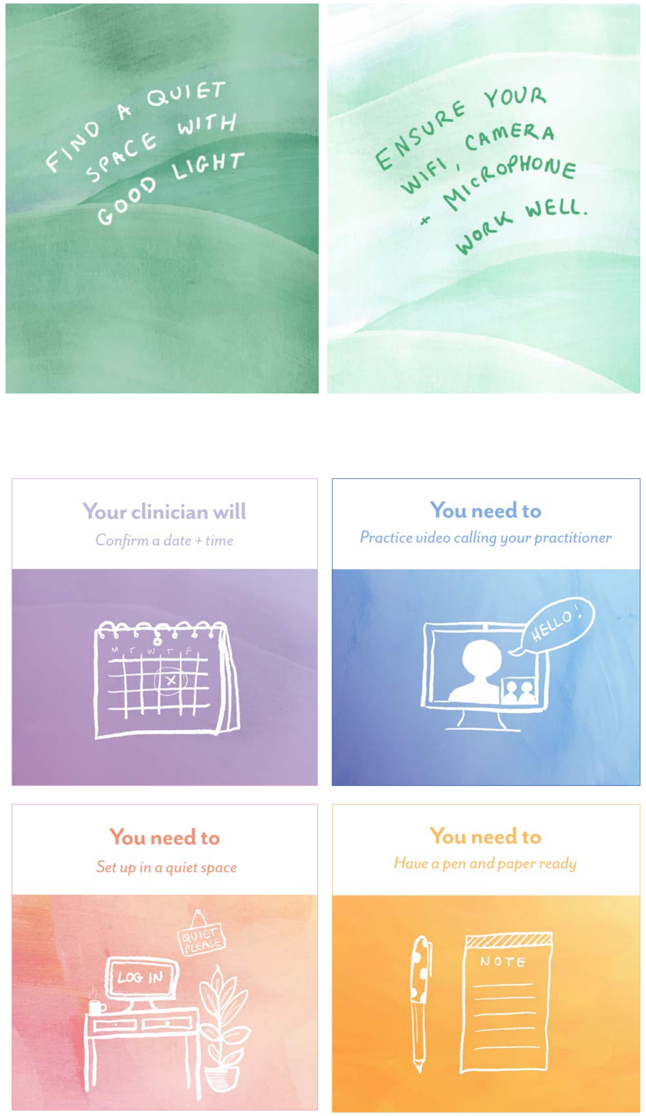
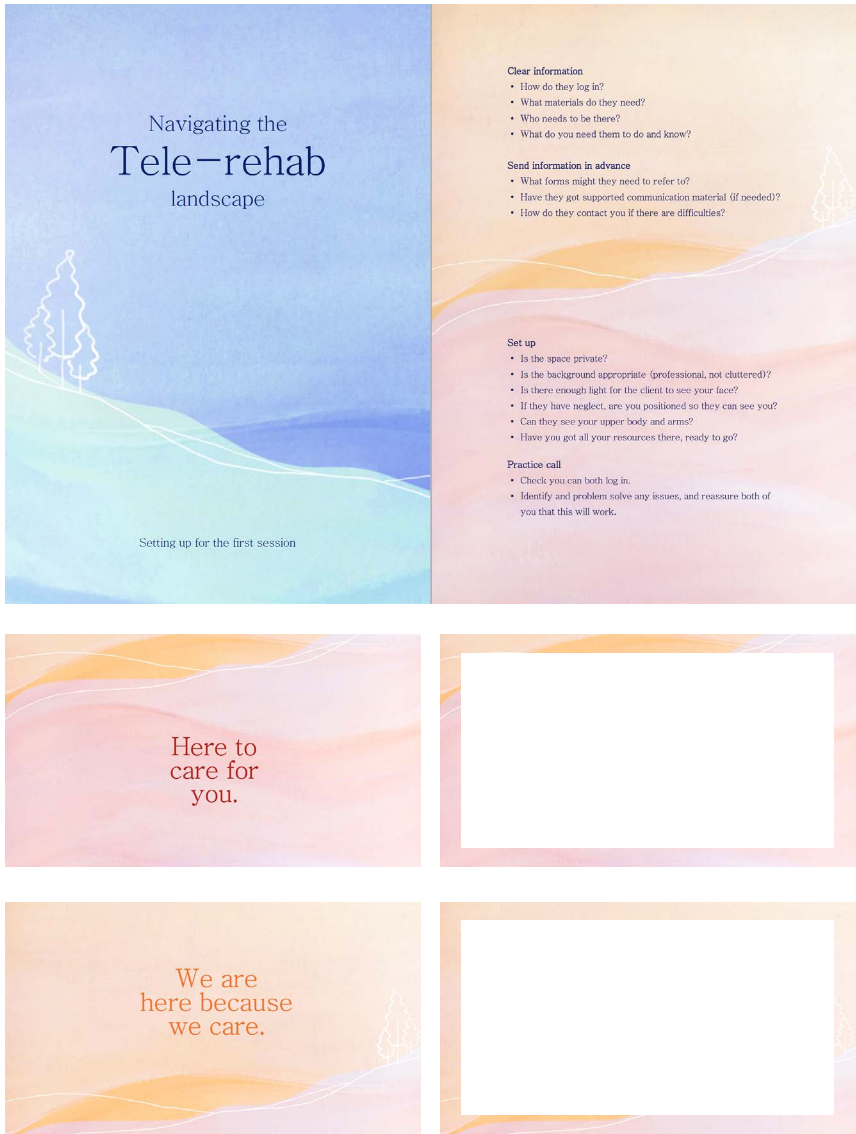


Figure 54. Prototyping postcard sized instructions (intended to be printed and boxed), educating the patient/caregiver of the steps to setting up for telehealth

Figure 55. PDFs that could be emailed (as per clinician request), educating patients of the steps to setting up for telehealth.



Navigating the
Tele–rehab
landscape

Setting up for the first session

Clear information
- How do they log in?
- What materials do they need?
- Who needs to be there?
- What do you need them to do and know?

Send information in advance
- What forms might they need to refer to?
- Have they got supported communication material (if needed)?
- How do they contact you if there are difficulties?

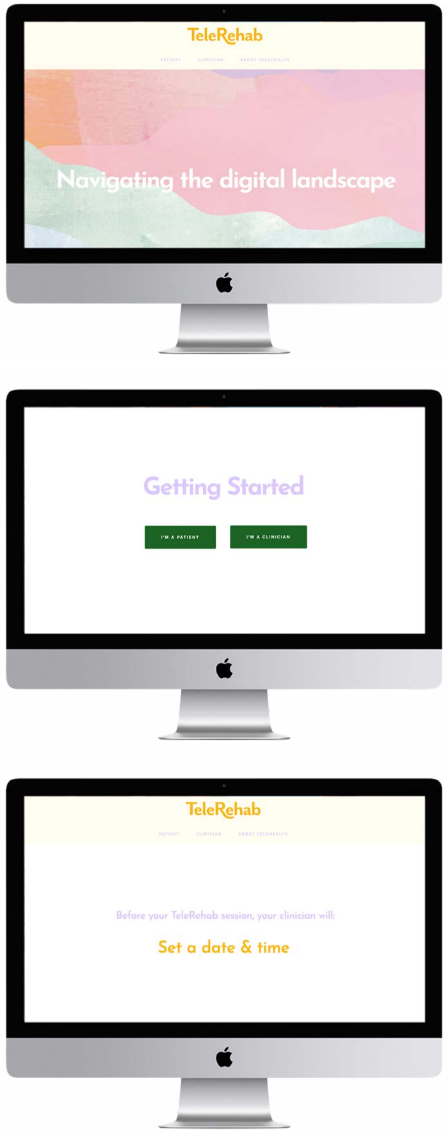
Set up
- Is the space private?
- Is the background appropriate (professional, not cluttered)?
- Is there enough light for the client to see your face?
- If they have neglect, are you positioned so they can see you?
- Can they see your upper body and arms?
- Have you got all your resources there, ready to go?

Practice call
- Check you can both log in.
- Identify and problem solve any issues, and reassure both of you that this will work.

Here to
care for
you.

We are
here because
we care.

Figure 56. PDFs for clinicians on the steps of setting up a telehealth session and postcards they can give/send to patients with any specific notes they may have, adding a personal touch.



TeleRehab

Navigating the digital landscape

Getting Started

TeleRehab

Before your TeleRehab session, your clinician will:

Set a date & time

Figure 58. Mock-up of a website designed using the principles of accessible design, for both clinicians and patients.

TeleRehab
SETTING UP

YOUR CLINICIAN WILL:
- TELL YOU HOW AND WHEN TO CONNECT
- CALL IF THERE ARE ANY PROBLEMS
- MAY ARRANGE A PRACTICE CALL

YOU NEED TO:
- FIND A QUIET PLACE WITH GOOD LIGHTING
- MAKE SURE YOUR DEVICE HAS INTERNET, A CAMERA & MICROPHONE
- HAVE A PEN & PAPER CLOSE BY

YOU MAY WANT:
- A SUPPORT PERSON TO JOIN

TeleRehab
SETTING UP

TeleRehab

YOUR CLINICIAN WILL:
- TELL YOU HOW AND WHEN TO CONNECT
- CALL IF THERE ARE ANY PROBLEMS
- MAY ARRANGE A PRACTICE CALL

YOU NEED TO:
- FIND A QUIET PLACE WITH GOOD LIGHTING
- MAKE SURE YOUR DEVICE HAS INTERNET, A CAMERA & MICROPHONE
- HAVE A PEN & PAPER CLOSE BY

YOU MAY WANT:
- A SUPPORT PERSON TO JOIN

TeleRehab

Figure 57. Postcards that clinicians can give to patients, with the telehealth steps and room for notes.

Feedback

Further discussion and evaluation with the academic about the prototypes are summarised as follows:

- Words that are emphasised should be the most important words.
- Icons are concrete and clear which is important, it may be better to use these than abstract collages.
- There is the potential that a website may be difficult to navigate for some. Furthermore, directing people to an appropriate web location may be challenging.

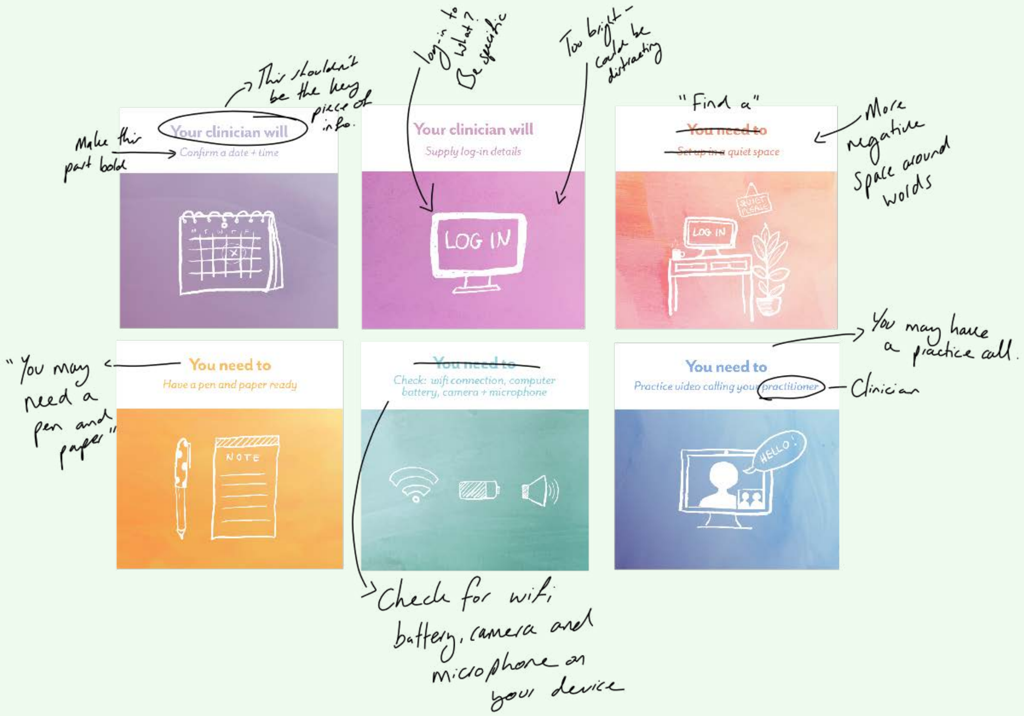


Figure 59. Development of the designs post-feedback showing the changes in language and visual elements.

Prototyping

Thinking about the struggle with identity that many people post-stroke may experience (Bright & Reeves, 2020, p. 8), I considered how the physical design might exist in a person's personal space, (e.g. their home or office). For patients, multiple pages of healthcare information in their personal environment may feel like an invasion of space. For clinicians, much of their information may look similar to what currently exists, if they follow the commonly practiced corporate format of PDFs and documents, heavy with black text on a white background. These prototypes were an opportunity to test the effects of breaking historic discourse used for health information communication with both patient and clinician. If there was more colour and abstract mark-making, it was anticipated that this might either distract from the important information or could make the communication more memorable and interesting to look at. I considered how people often treasure hand-made artifacts and displayed art in their homes. There was also the potential for healthcare information designed with these characteristics, to feel more 'human'.

I carefully considered the findings of Herbert et al. (2019) as the lack of possibility of working directly with stroke patients in my research became apparent. This included aphasia-friendly design principles such as; a layout that was consistent across pages, clear headings, short sentences, clear images depicting concrete ideas and typography that was large in size (however, not too large that it would become hard to track). "Visual attractiveness" (Herbert et al., 2019, p. 1517) was also reported to be effective in retaining and encouraging greater interaction with the material from participants.

Figure 60. Prototypes for a set of cards that could be sent to patients in order to help with the telehealth session set up. It follows the principles of accessible design with the objective of reducing barriers for a diverse range of end-users or viewers (Fletcher, 2006).

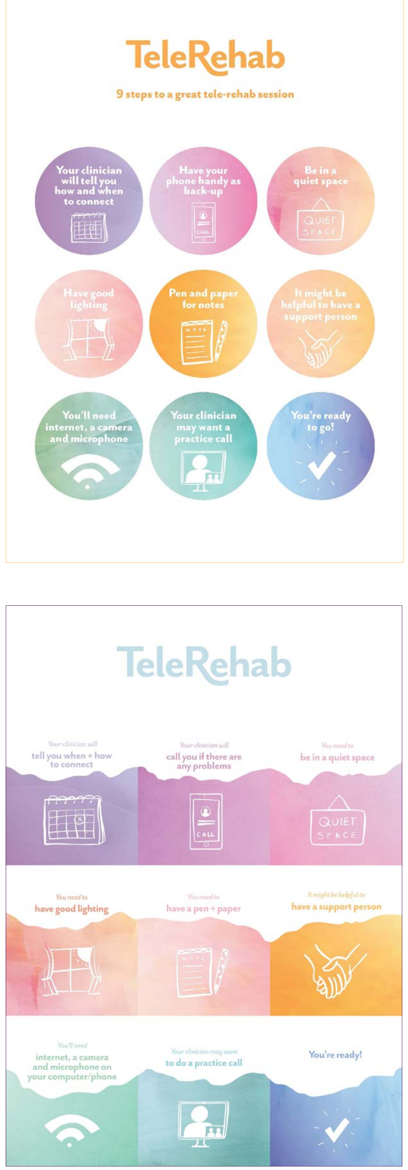


Figure 61. Further prototyping of poster/PDF having taken on board the feedback from the expert interviewed.

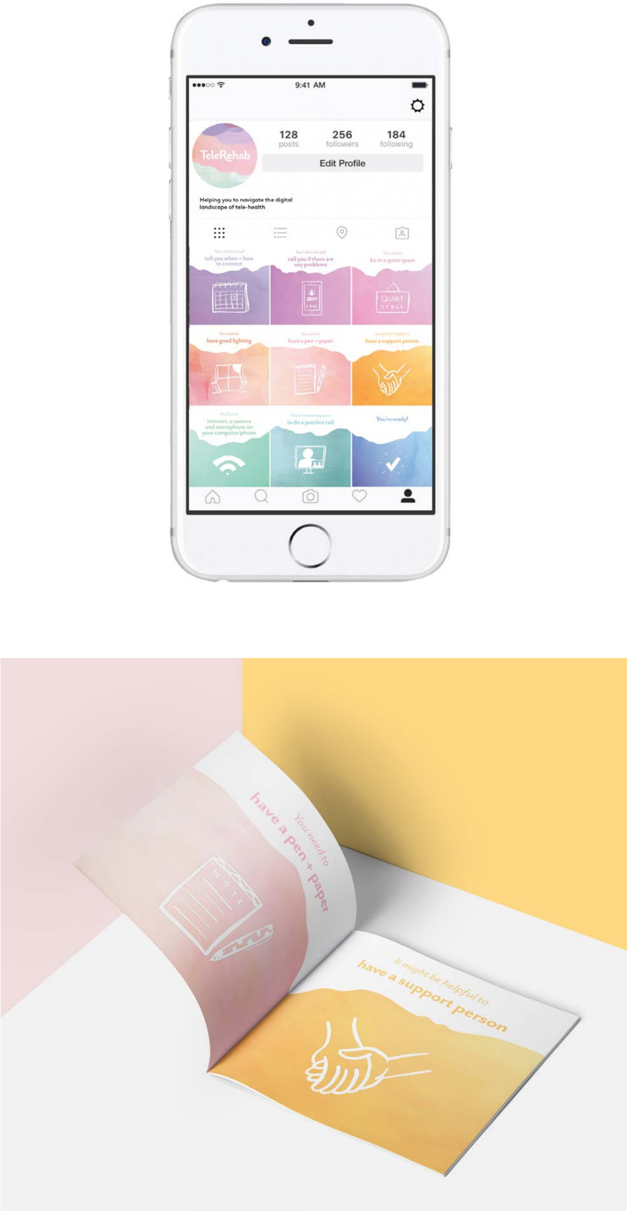


Figure 62. Prototyping how the information might look as an instagram (easy to access for smart-phone users) or a booklet (a tactile, physical piece of information that could be kept near a computer at home).

Figure 63. Prototypes of a landscape painting for clinicians' offices. The hills incorporate the key reminders for setting up a telehealth session and act as a visual aid rather than a large amount of detailed information.

Final Concepts

I considered how clinicians might interact with information that had been designed to look more like an artwork (that could be put on the wall) as a reminder of the key points for good communication during telehealth. I wondered if this might bring a moment of joy to their day, as well making information stand out amidst the large quantity of incoming information (received both physically and digitally). For patients, I considered principles of aphasia-friendly design (as discussed by Herbert et al., 2019), and if patients with aphasia could receive information that might put their minds at ease to help make the telehealth process less daunting. Anecdotally, clinicians often prioritise the written word over imagery, however, there may be a balance between the two so that images are not misinterpreted, and words are not overwhelming.

See the Careful Painting Prototypes PDF for images of the final concepts.

Reflection

The final concepts in this case study remain to be tested with aphasia patients. Therefore, they exist as prototypes open to being critiqued and iterated. Due to the ethical restrictions of contacting patients who may be vulnerable, especially during the time of Covid-19, the prototypes will require evaluation at a later date. This would include exploring whether a different, more arts-based approach to designing healthcare information would be beneficial to the retention of information and the engagement level with the end-user. Regardless of this, I endeavored to show that when historic discourses in healthcare communication design are broken, there is the potential to improve both the clinician and patient experience.

This case study speaks to Weeks' (1985) argument that hospitals should be 'human' in both their organisational and physical attributes (as previously discussed in Chapter One - Challenging a System). While telehealth exists outside the physical hospital grounds, it still needs to nurture human connection and be sensitive to patient and staff experiences. A large part of the experience falls to the reading and learning of information supplied by healthcare institutions, often before, during, and after an appointment. Consequently, institutions that provide care and rehabilitation, built on the foundation of humanised interactions, could work towards creating more human-centred environments (Pound et al., 2018, p. 1225–1249). This would require a system that values the way clinicians need to communicate with their clients in order to build strong therapeutic relationships (Bright & Reeves, 2020, p. 10). I would argue that greater importance be placed on the visual communication of the information given to both clinician and patient. Visual information could be empathetic and bespoke to the experience, and visually communicate a greater sense of care through evidence of the time taken to create it.

Arts-based communication design has been exhibited during Covid-19, as people were eager for "more dynamics, brightness and beauty" (Kachan, 2020). There are still boundaries as to where creative communication is an appropriate option, such as information that is required to look and function a certain way to ensure the safety of patients and efficiency of the healthcare system. However, if for example in this case study, it is information to educate the clinician or patient on best practices during an appointment, there may be greater space and flexibility around how this information can be presented. As such, this case study shows there are further opportunities to explore in designing non-traditional healthcare information.

"Communicate passionately,
in an interesting way,
and with a bit of colour!"

Gareth Terry (personal communication, April, 2020)

Case Study Three

Communicating care in an Assessment, Treatment and Rehabilitation (AT&R) ward.

Contextual review

The traditional, institutionally designed healthcare facility is being questioned by researchers where the wellbeing of patients is concerned (Devlin & Arneill, 2003). There is an increasing movement towards patient-centred care, providing patients with choice and offering more control over their environment, in order to combat feelings of lack of control, depression, confusion, and elevated blood pressure (Ulrich, 1991). Studies suggest that there are positive effects on patient outcomes when physical changes in the healthcare environments are made (Devlin & Arneill, 2003) to reduce "poor design" (Ulrich, 1991, p. 97). Devlin and Arneill (2003) reported on the research of ambient environments in hospitals, including noise, music, lighting, colour, views and art. The literature suggested that hospitals with ambient environments that do not provide adequate emotional support for patients, can have negative effects on mental health and overall wellbeing (Devlin & Arneill, 2003). Ulrich (1992) reported on lower blood pressure in patients viewing serene artwork, and highlighted the importance of "an element that produces positive feelings, effortlessly holds attention and interest, and therefore may block or reduce worrisome thoughts" (p. 24).

Healthcare facilities are often designed for maximum functionality, efficiency and effective use of space (Ulrich et al., 2004). The consideration of aesthetics and inclusion of elements such as colour, light and art are seen more frequently in children's hospital design (e.g. the Wall of Smiles project at Auckland's Starship Hospital, 2014, see Figure 64) than in adult hospitals. O'Brien et al. (2015) question why the strategies implemented in children hospitals to diminish the "shock of hospitalisation" (p. 726) are not applied to adult wards "to make it a more healing and supportive place" (p. 726). The Junipers Psychiatric Intensive Care Unit in England embarked on reviving adult ward spaces through art (Hospital Rooms, 2016). Artists repainted walls and ceilings to transform rooms from dull and uninspiring, to engaging and visually stimulating (Hospital Rooms, 2016) (see Figures 65 & 66). Discussions with staff after the rooms had been painted resulted in opinions such as, "I've become enlightened about how art can be interpreted in so many different ways. It has started lots of interesting conversations" (Hospital Rooms, 2016). One patient felt they were "contributing to something special" (Hospital Rooms, 2016) and that they had "helped to make the ward nicer for other people" (Hospital Rooms, 2016). Dr. Whicher, Medical Director, reinforced how projects of this nature benefited the staff and patients using the space, saying it "greatly contributes to their recovery and care" (Hospital Rooms, 2016).

In a systematic review of qualitative studies exploring older adult's perception of health, Song and Kong (2015) identified the theme of 'connectedness with others' in helping older adults feel healthy and happy. Furthermore, creating connection with someone else often resulted in a feeling of energy and vitality, which in turn made older adults feel healthier and more motivated (Perry & Woods, 1995). The specific question that arose for this case study was how painting and co-design might be used to help create a feeling of connectedness (and in turn energy) in the AT&R ward. Wright et al. (2017) found that co-design was effective when working with vulnerable patients and staff in complex healthcare environments. Using co-design was found to encourage higher engagement levels with those who would otherwise not have been involved in a creative process (Wright et al., 2017).

Kabadayi et al.'s (2020) study was one of the first to focus on fostering older adult care experiences (OACE). The authors concluded that along with a social environment, autonomy and dignity, older adults can feel "empowered, respected, engaged and connected as part of their experience" (Kabadayi et al., 2020, p. 953). Figure 67 communicates a model that OACE providers should follow in order to see positive wellbeing outcomes in their patients (Kabadayi et al., 2020, p. 955). The various outcomes of OACE centred on well-being (e.g. emotional, physical, and social) can be attributed to "contributing to overall life quality and successful ageing" (Kabadayi et al., 2020, p. 964).

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Figure 67. A conceptual framework of the older adult care experience (OACE). From "Fostering older adult care experiences to maximise well-being outcomes: A conceptual framework", by S. Kabadayi, Hu, K., Lee, Y., Hanks, L., Walsman, M., & Dobrzykowski, D., 2020, Journal of Service Management, 31(5), p. 955. Copyright 2020 by Emerald Publishing Limited.

Figure 64. A ward repainted as part of the Walls of Smiles project at Auckland Starship Hospital. (2014). Screenshot from Youtube. https://www.youtube.com/watch?v=v5ElAsDRICk

Figure 65. Vora, B. (2019). The Junipers PICU Corridor. (Photographed by D. Griffiths) from Hospital Rooms. https://hospital-rooms.com/dpt-the-junipers

Figure 66. Pilkington, R. (2019). The Junipers PICU De-Escalation Room. (Photographed by D. Griffiths) from Hospital Rooms. https://hospital-rooms.com/dpt-the-junipers

Project beginnings

North Shore Hospital's Assessment, Treatment and Rehabilitation (AT&R) ward offers a rehabilitation gym to older adult patients (over 65 years of age) (Waitematā DHB, n.d.). This space and its staff are dedicated to improving patient mobility and independence through strengthening exercises (Waitematā DHB, n.d.). The staff working in the AT&R ward identified the main wall in the rehabilitation gym as being "dull and unexciting" (personal communication, September 9, 2020) (Figure 68). This provided an opportunity to use co-design and the practice of painting to create an uplifting, encouraging and caring experience in the space, (both through the co-designing and the final artifact). I endeavored to put patients at the heart of the design process to optimise their health and happiness in the space.

In this case study, I investigated how painting and co-design might be used to help create a more caring and joyful space for the staff and patients in the rehabilitation gym.

Expert Interview

I interviewed the Experience and Insights Lead on the Patient Experience team at Waitematā DHB. This person was identified as an expert for their work on places and systems in need of improvement to support and better patient experience. The key themes and insights from the interview were as follows:

Recognising the need for improved communication

Patient experience is not only about the interaction between patient and healthcare professional, it begins the moment they enter the hospital. Hospitals need to consider what is being communicated to patients, both visually in the space, and through information design. The need for improved communication in several aspects of the healthcare journey is expressed in patient feedback which often mentions miscommunication, not feeling listened to, or being given information that is confusing and too jargon-heavy. There is an understanding that the hospital does not always get communication right, however, it is an area that hopes to be focused on to create improved patient experiences.

"Colour can make a big difference"

Colour adds a lot to a patient experience. While it is important to consider that certain colours have different cultural meanings, there is a generalised understanding that colour in a healthcare space can help promote healing. There is a lot of power in using colour to make a space feel more homely, warm, calming and healing. Green can help bring suggestions of nature indoors, and light blues are good for calming and making people feel as if there is more natural light in the space. "Seeing artwork in a healthcare space also makes a big difference. Some wards have had colourful decals applied to walls, (e.g. photograph of Rangitoto Island, or trees) and it has been noted that the space feels lifted."

The challenges of working in a large organisation

"Making change in an organisation as big as the hospital is something you have to chip away at," and staff need to be actively engaged in helping make these changes happen. The drive and the desire to improve aspects of communication is evident, however, challenges from within the system can make it difficult to implement change. The DHB does not always have the budget to meet desired changes, however "we need to get over the 'we can't do it' and instead ask 'how can we make this happen?'"

The way staff interact with patients, the colours in hospital spaces and the intricate healthcare systems and processes required to make changes, are all factors in improving patient experience. Reflecting on this expert interview helped me to see where the opportunities were for creative use of communication design, as well as heightening my awareness of the challenges of working in a hospital system.

Site Analysis

I met with the Experience and Insights Lead at Waitematā DHB, along with two senior staff who worked in the AT&R ward. Upon arrival, the first wall to greet visitors is a tone of muted yellow-brown, painted on two of the main walls in the gym area (Figure 68). During my 1.5-hour observation I took fieldnotes, as summarised:

Patient movements

Patients spent approximately 20-30 minutes in the rehabilitation gym area. They were often not exercising the entire time they were there as they needed to wait for staff members to finish previous sessions with other patients.

Physical space

Part of the entrance space to the gym acted as a waiting area for patients to be taken back to their room. Patients using a wheelchair or who were tired from their workout session sat in the area and had nothing to look at other than the yellow-brown wall. There were several other plain walls, either white or dark blue. These colours did not feel cohesive or complementary, and made the space feel disjointed.

Patient and staff interaction

Conversation between staff and patients was centred around the rehabilitation exercises. Patients were friendly and interested in what I was doing, they showed a keen interest in bringing more art and design into the space. Staff were also intrigued by the project, they expressed negative opinions of the current wall colours. Staff were warm, welcoming and accommodating to both me and their patients.

This observational research was pivotal in helping me explore how the idea of an artifact, centred around triggering memories, could be used to encourage conversation between clinicians and patients. Learning of the staff's dislike for the yellow-brown walls emphasised to me how much an environment impacted people, and how changing colours can be a worthy solution.

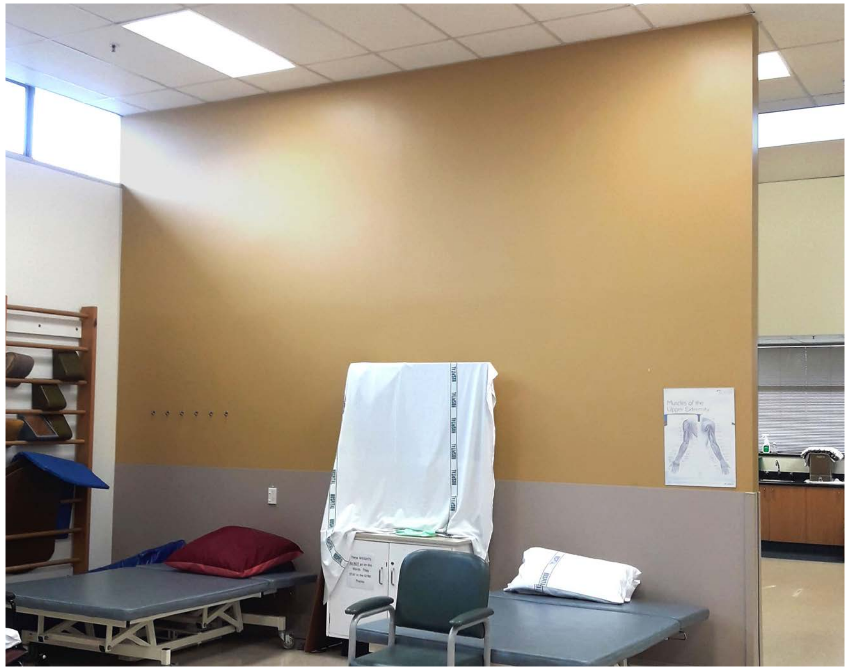

Figure 68. The main wall in the AT&R ward identified by staff and patients as having potential to look more aesthetically pleasing to motivate and uplift patients and staff. The wall was approximately 5m x 2m in size.

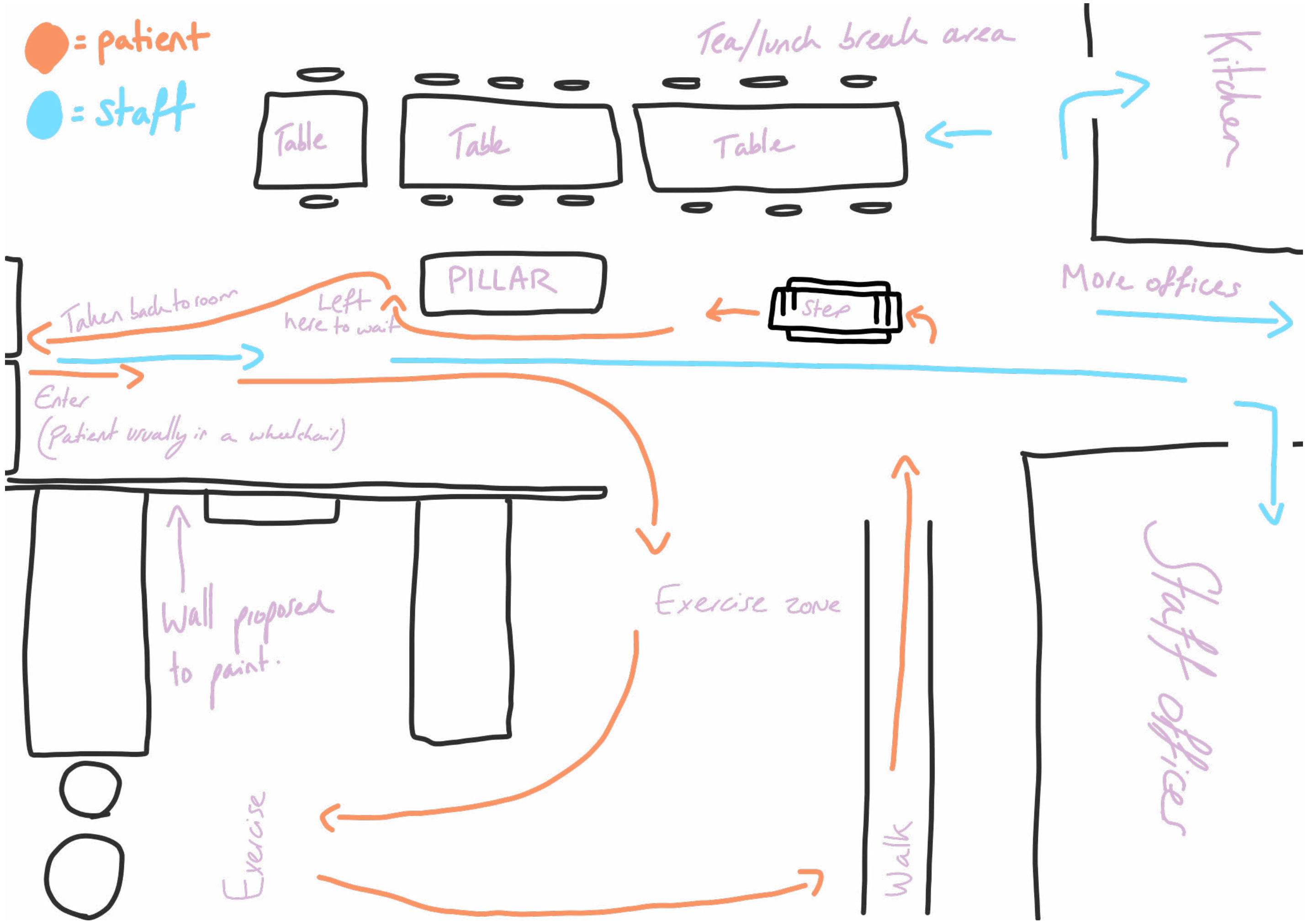

Figure 69. Field notes of patient and staff movements through the space.

Patient Interviews

I had hoped to “bring power to the voice of those often excluded from design while tapping into the wisdom and ‘domain’ knowledge” (Rogers et al., 2014, p. 3915) of older adults. As this case study aimed to use co-design to create a visual element for the space that was patient-centred, I considered several options as to how this would most ethically and empathetically be done. It was important to consider that patients in the ward were recovering from surgery, re-learning to walk or regaining strength in specific muscles to be able to support themselves in maneuvering around. Factors such as how many patients were in the ward at any given time, the amount of time they spent in the gym, the space available for me to use, and the strict healthcare guidelines following the Covid-19 pandemic lockdowns (such as wearing a mask at all times), had to be considered. After discussions with the Experience and Insights Lead and the two senior staff who worked in the AT&R ward, I concluded that semi-structured interviews with one patient at a time were the best option for data collection. In the interviews I aimed to find out which colours brought joy to patients, why that was, what memories were associated with particular colours and what the notion of care meant to patients.

Designing the patient interview

“Interpreting colours is complicated because there is no one-to-one correspondence between colour and concepts” (Schloss, 2018, p. 2) as shown in figure 70a. Instead, colours have one-to-many (figure 70b) or many-to-one (figure 70c) associations. This is due to the personal nature of how people relate to colour, influenced by its context, their life experience and memories that may be triggered, and cultural differences (Yokosawa et al., 2015). Through conducting interviews with patients at the AT&R ward, I aimed to discover preferred colours for a healing environment.

In order to ensure the interview was most effectively conducted, I prototyped ways for patients to select colours that made them feel joyful and would bring energy to the ward. I initially created a colour palette (Figure 71) based on The Palmer Lab 37 set of colours (studied in the Berkeley Colour Project) (Palmer et al., 2013) (Figure 72). These colours included; red, orange, yellow, chartreuse, green, cyan, blue, and purple. There were also four variants of each colour; saturated, light, muted, and dark.

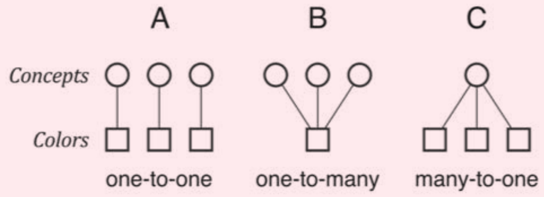

Figure 70. The three ways in which colour may be interpreted; (a) one-to-one), (b) one-to-many, (c) many-to-one. Adapted from “Color inference in visual communication: the meaning of colors in recycling”, by K. B. Schloss, L. Lessard, C. Walmsley, & K. Foley, 2018, Cognitive Research: Principles and Implications, 3(5), p.2. Copyright 2018 by K. B. Schloss, L. Lessard, C. Walmsley, & K. Foley.

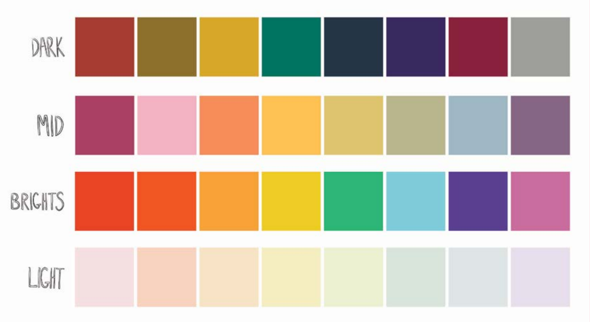

Figure 71. Colour palette for the prototype interview exercise.

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Figure 72. Schloss, K., & Palmer, S. (n.d.). Aesthetic Preference for Colour Combinations.From Department of Psychology, University of California, Berkley. (https://palmerlab.berkeley.edu/pdf/SchlossPalmer.pdf)

Designing the patient interview

I tested the concept of patients ranking each colour on a scale from 'bored' to 'joyful', and 'stressful' to 'calming' (Figure 73). Looking at the five colours closest to the 'joyful' and 'calming' end of the scales from each participant, I made new colour palettes (Figure 74) and hypothesised that, with enough data, a palette for places such as hospitals to refer to could be made. This exercise was tested with non-patient participants of a similar age range (over 60 years). It was however, a time-consuming exercise which would not be appropriate with the AT&R ward patients due to potential post-workout fatigue. I was given feedback that there were too many colours to choose from which made the exercise feel overwhelming. I also wanted to explore what it was that made someone feel drawn to a particular colour and what that colour reminded them of or what they associated it with.

For the next iteration I reduced the number of options in each category (Figure 75). I repeated the exercise using the scales and found that the exercise still took a long time to complete, particularly for people who contemplated each colour choice carefully.

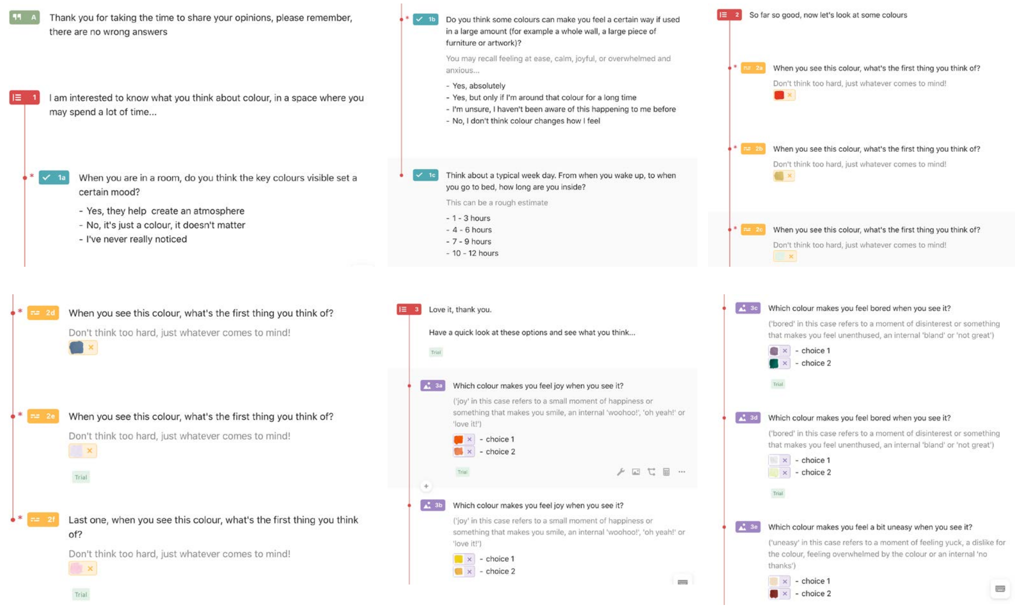
Figure 73. Participants ranked colour from the given colour palette on scales from 'bored' to 'joyful' and 'stressful' to 'calming'.

Figure 74. The colour palettes made from each participant's choice of colour nearest the 'joyful' and 'calming' end of the scales.

Figure 75. The simplified colour palette.

Designing the patient interview

Around this time, Auckland had another Covid-19 lockdown after community transmission cases became a threat to the greater population. Therefore, I had to consider how I might conduct patient interviews in an online space. I tested creating a questionnaire online using Typeform (https://admin.typeform.com/signup) (Figures 76 & 77). I chose this platform based on its clear layouts, colour-coded questions sections and ability to show large images on screen. I also had to consider that patients might not have the ability or resources to complete an online interview so this was not an ideal case. However, it had potential to be tested further in the case of being unable to facilitate in-person interviews.



A Thank you for taking the time to share your opinions, please remember, there are no wrong answers

1 I am interested to know what you think about colour, in a space where you may spend a lot of time...

1a When you are in a room, do you think the key colours visible set a certain mood?
- Yes, they help create an atmosphere
- No, it's just a colour, it doesn't matter
- I've never really noticed

1b Do you think some colours can make you feel a certain way if used in a large amount (for example a whole wall, a large piece of furniture or artwork)?
You may recall feeling at ease, calm, joyful, or overwhelmed and anxious...
- Yes, absolutely
- Yes, but only if I'm around that colour for a long time
- I'm unsure, I haven't been aware of this happening to me before
- No, I don't think colour changes how I feel

1c Think about a typical week day. From when you wake up, to when you go to bed, how long are you inside?
This can be a rough estimate
- 1 - 3 hours
- 4 - 6 hours
- 7 - 9 hours
- 10 - 12 hours

2 So far so good, now let's look at some colours

2a When you see this colour, what's the first thing you think of?
Don't think too hard, just whatever comes to mind!

2b When you see this colour, what's the first thing you think of?
Don't think too hard, just whatever comes to mind!

2c When you see this colour, what's the first thing you think of?
Don't think too hard, just whatever comes to mind!

2d When you see this colour, what's the first thing you think of?
Don't think too hard, just whatever comes to mind!

2e When you see this colour, what's the first thing you think of?
Don't think too hard, just whatever comes to mind!

2f Last one, when you see this colour, what's the first thing you think of?
Don't think too hard, just whatever comes to mind!

3 Love it, thank you.
Have a quick look at these options and see what you think...

3a Which colour makes you feel joy when you see it?
('joy' in this case refers to a small moment of happiness or something that makes you smile, an internal 'woohoo!', 'oh yeah!' or 'love it!')
- choice 1
- choice 2

3b Which colour makes you feel joy when you see it?
('joy' in this case refers to a small moment of happiness or something that makes you smile, an internal 'woohoo!', 'oh yeah!' or 'love it!')
- choice 1
- choice 2

3c Which colour makes you feel bored when you see it?
('bored' in this case refers to a moment of disinterest or something that makes you feel unenthused, an internal 'bland' or 'not great')
- choice 1
- choice 2

3d Which colour makes you feel bored when you see it?
('bored' in this case refers to a moment of disinterest or something that makes you feel unenthused, an internal 'bland' or 'not great')
- choice 1
- choice 2

3e Which colour makes you feel a bit uneasy when you see it?
('uneasy' in this case refers to a moment of feeling yuck, a dislike for the colour, feeling overwhelmed by the colour or an internal 'no thanks')
- choice 1
- choice 2

Figure 76. The back-end view of my questionnaire on Typeform.

Thank you for taking the time to share your opinions, please remember, there are no wrong answers

phew, that's good press Enter ↵

1→ I am interested to know what you think about colour, in a space where you may spend a lot of time...

sounds good press Enter ↵

a. When you are in a room, do you think the key colours visible set a certain mood? *
- A Yes, they help create an atmosphere
- B No, it's just a colour, it doesn't matter
- C I've never really noticed

b. Do you think some colours can make you feel a certain way if used in a large amount (for example a whole wall, a large piece of furniture or artwork)? *
You may recall feeling at ease, calm, joyful, or overwhelmed and anxious...
- A Yes, absolutely
- B Yes, but only if I'm around that colour for a long time
- C I'm unsure, I haven't been aware of this happening to me before
- D No, I don't think colour changes how I feel

c. Think about a typical week day. From when you wake up, to when you go to bed, how long are you inside?
This can be a rough estimate
- A 1 - 3 hours
- B 4 - 6 hours
- C 7 - 9 hours
- D 10 - 12 hours

2→ So far so good, now let's look at some colours

yes please press Enter ↵

a. When you see this colour, what's the first thing you think of? *
Don't think too hard, just whatever comes to mind!
Type your answer here...

b. When you see this colour, what's the first thing you think of? *
Don't think too hard, just whatever comes to mind!
Type your answer here...

e. When you see this colour, what's the first thing you think of? *
Don't think too hard, just whatever comes to mind!
Type your answer here...

f. Last one, when you see this colour, what's the first thing you think of? *
Don't think too hard, just whatever comes to mind!
Type your answer here...

a. Which colour makes you feel joy when you see it?
('joy' in this case refers to a small moment of happiness or something that makes you smile, an internal 'woohoo!', 'oh yeah!' or 'love it!')
- A choice 1
- B choice 2

b. Which colour makes you feel joy when you see it?
('joy' in this case refers to a small moment of happiness or something that makes you smile, an internal 'woohoo!', 'oh yeah!' or 'love it!')
- A choice 1
- B choice 2

c. Which colour makes you feel bored when you see it?
('bored' in this case refers to a moment of disinterest or something that makes you feel unenthused, an internal 'bland' or 'not great')
- A choice 1
- B choice 2

d. Which colour makes you feel bored when you see it?
('bored' in this case refers to a moment of disinterest or something that makes you feel unenthused, an internal 'bland' or 'not great')
- A choice 1
- B choice 2

e. Which colour makes you feel a bit uneasy when you see it?
('uneasy' in this case refers to a moment of feeling yuck, a dislike for the colour, feeling overwhelmed by the colour or an internal 'no thanks')
- A choice 1
- B choice 2

Figure 77. The front-end view of the Typeform questionnaire.

Designing the patient interview

When it appeared that I was going to be able to conduct the interviews in-person, I considered how I might make the exercise feel more personal and allow the opportunity for story telling from participants. By illustrating around colour swatches that engendered particular memories for participants, I aimed to create a glossary of colour connotations (Figure 78). This was found to be an effective way to engage participants in talking about why they chose a specific object or concept to associate with a colour.

I also planned to ask patients about imagery as a way of telling stories of memories or bringing a particular aesthetic to the AT&R ward gym. I ensured there would be a large enough array of options (but not too many that it became overwhelming). I chose stock imagery accessed from Pexels (https://www.pexels.com/) based on the most popular categories (as displayed on its website on September 5, 2020). These included; Abstract art, Botany, Landscape photography, Food photography, Cities and Lifestyle (see Figure 79). From these, I chose two to three images from each category to create laminated picture cards for the interviews. The cards offered participants the opportunity to talk about what memories came to mind, and how they felt about particular imagery in the gym space.

Figure 78. Illustrated words and images around colour swatches, based on what what memory the colour inspired for the participants.

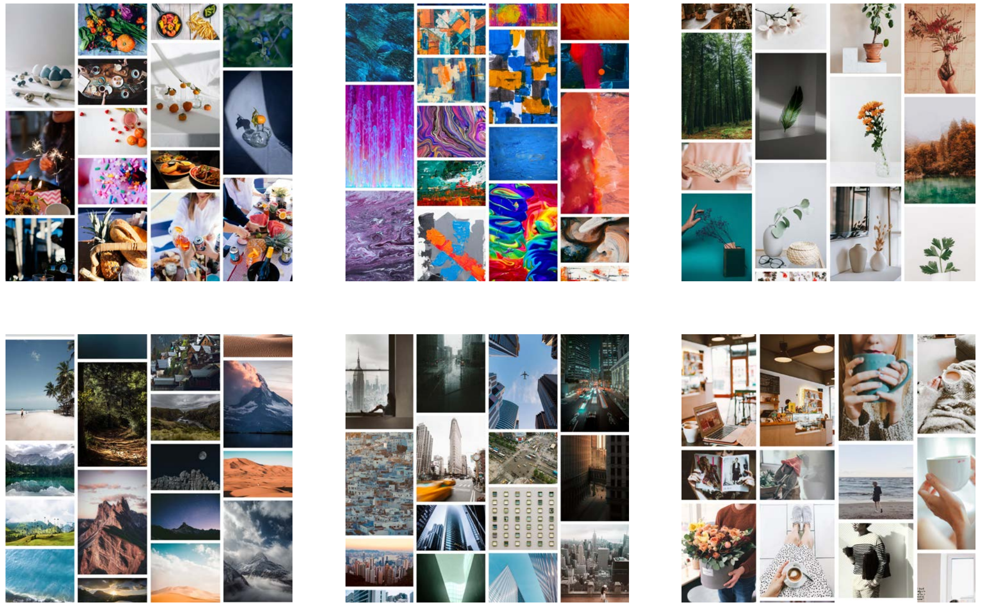


Figure 79. The six categories of photo libraries from which I chose the imagery for the patient interviews from. From Pexels. (https://www.pexels.com/)

Conducting the patient interviews

See Appendix 4 for all patient interview related material.

The position available for conducting the interviews was a table to the side of the main rehabilitation gym space (Figures 80 & 81). This meant I was not in the way of rehabilitation sessions, staff areas or the entrance. It was also convenient to be near the waiting area where patients were waiting to be taken back to their rooms. If patients enquired about my being there and were interested in participating in the interview, they were given a participant consent form to sign. All ethical protocols according to AUTE and Waitematā DHB were followed. Over three days, ten participants were interviewed.

Each interview was transcribed and created into a hand-written visualisation of the data (Figure 82). These were used to inform the design of the prototype. They helped demonstrate the importance of including patients in the visual design of a ward space.

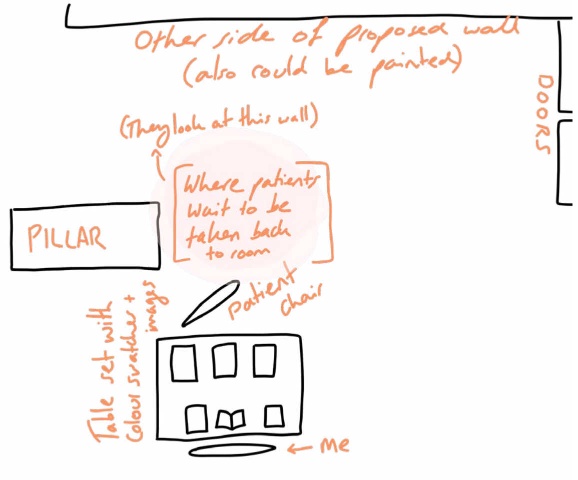


Figure 80. Illustration of where the interviews took place inside the AT&R ward.

Figure 81. Image of the table set up for the patient interviews in the AT&R ward.

Visualisation of the patient stories

Participant 1
Age: 88

Participant 2
Age: 76

Participant 3
Age: 89

Figure 82. Visualisation of the data collected from the patient interviews.

Visualisation of the patient stories

Participant 4
Age: 84

I'm part of a gardening club. Once we went to a flower farm, but we got there on the day they had CHOPPED them all! (laughs) - it was very funny - what timing.

I paint at home. I love painting things like this with wide open spaces.

This yellow brings me joy.

When I was in hospital lots, driving to see open landscapes was the best cure.

This takes me back to where I grew up.

I like images that are a bit abstract, but you can still make out what it is vuagely.

Participant 5
Age: 78

This reminds me of a boysenberry and blueberry icecream I loved as a kid.

I'd love this ward to feel more calming.

Country hills feel so open and fresh.

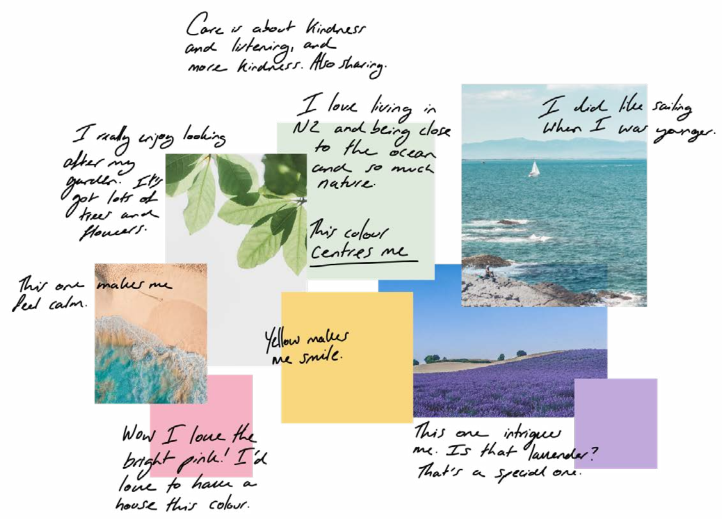
I think it's lovely to have soft colours like this minty one. It's fresh but calming.

I used to visit my aunt and uncle on a farm. It was lovely to be out in the fresh air.

I'm always up for a swim in the ocean... no matter how cold it is! The kids think I'm mad!

Wow I would love to visit this lavender field!

Participant 6
Age: 86



Care is about kindness and listening, and more kindness. Also sharing.

I love living in NZ and being close to the ocean and so much nature.

I did like sailing when I was younger.

I really enjoy looking after my garden. It's got lots of trees and flowers.

This colour centres me

This one makes me feel calm.

Yellow makes me smile.

Wow I love the bright pink! I'd love to have a house this colour.

This one intrigues me. Is that lavender? That's a special one.

Figure 82 (continued). Visualisation of the data collected from the patient interviews.

Reflection

Reflecting on the patient interviews, I concluded that the wall space had potential to be a tool for inspiring conversation between patients and staff. Sharing the documented stories from patients with the staff, there was a realisation that greater personal connections could be made, using the artwork as an initiator for conversation. This notion of building connection through a healthcare experience resonated with the findings of the co-design painting workshops when participants were asked what care meant and felt like to them. Trust, feeling like a valued individual, and having a support system were all comments that came up when discussing care. During the interviews, I heard life stories, memories, family experiences, and funny moments that were all inspired by the colours and images being shown. These were conversations that did not occur naturally between patients and staff during a rehabilitation session.

Questions such as “does this colour remind you of anything” or “when was the last time you saw somewhere with hills or ocean like that” lead to an abundance of further questions that helped to encourage conversation and meaningful moments with patients (see Appendix 8). These interviews helped me to understand that it was not just the physical visual change that brought care to a space, but the result of that artwork or design and how people chose to interact with it.

greater personal connections could be made, using the artwork as an initiator for conversation.

Ideation and painting

While analysing the colours (Figure 83) and images (Figure 84) that were spoken about favourably in the patient interviews (Figure 83), I used my own creative practice of painting to experiment with the data (Figure 85). This practice took place both during and after the Covid-19 lockdown and I found working with these colours and shapes, and the physical act of creating with my hands, helped to lift my mood in a time of anxiety.

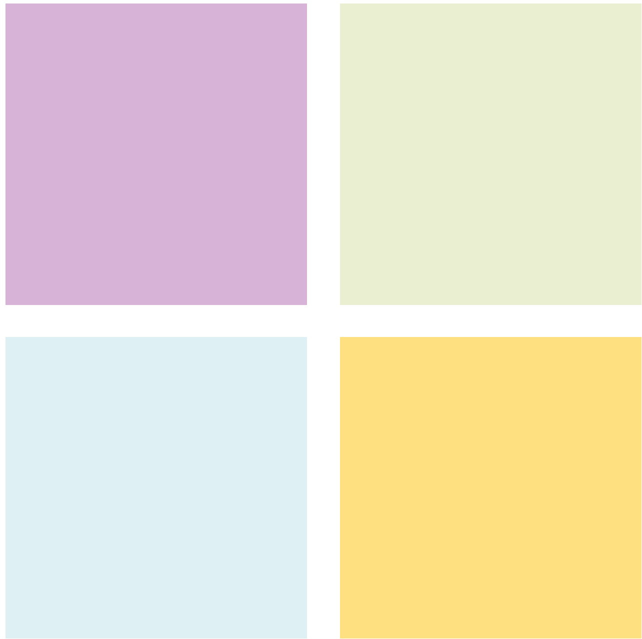
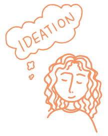


Figure 83. Colour palette created from the patient interviews.

Figure 84. Images with the most positive mentions from the patient interviews.



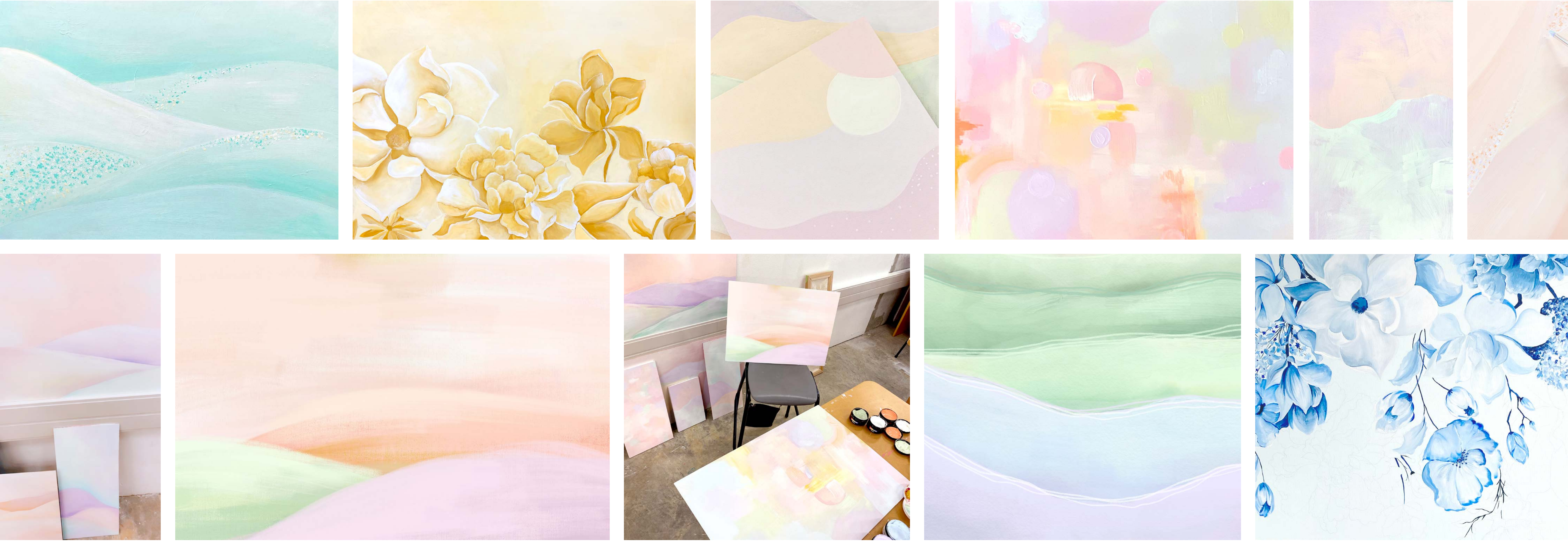


Figure 85. Photos of my studio space and paintings created based on the colour palette created as a result of the patient interviews (and the most popular images chosen by the patients). The paintings were lose representations of the subject matter so that they had more freedom to be interpreted personally by different viewers.

Prototyping

I used Photoshop to digitally place the paintings on the AT&R ward wall (Figure 86). This was helpful in allowing me to see how the painting might look at large scale, as well as providing material to show patients and staff for feedback.

Feedback

Of the prototypes I made, I chose one painting from each of the three key areas of focus (as determined by the patient interviews); landscape, flowers and abstract art. I took A3-sized wooden boards with the paintings on (Figures 87 & 88) to the AT&R ward and asked staff and patients to place a pink dot on the one they preferred, as well as writing one word describing how it made them feel or of what it reminded them (Figure 89).

Figure 86. Mock-ups of how a painting would look on the AT&R ward wall.

Figure 87. The three A3 paintings taken to the AT&R ward for feedback.

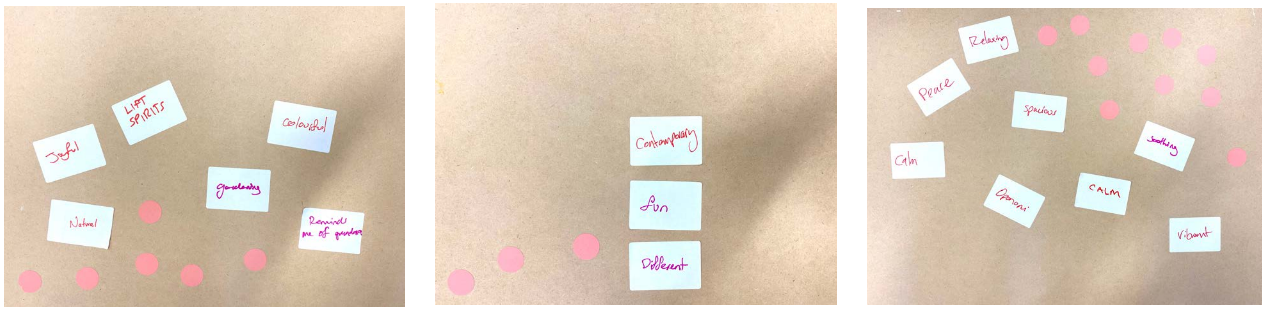


Figure 89. The back of the paintings showing pink dots for 'favourite choice' from staff and patients as well as the key words they associated with the paintings.

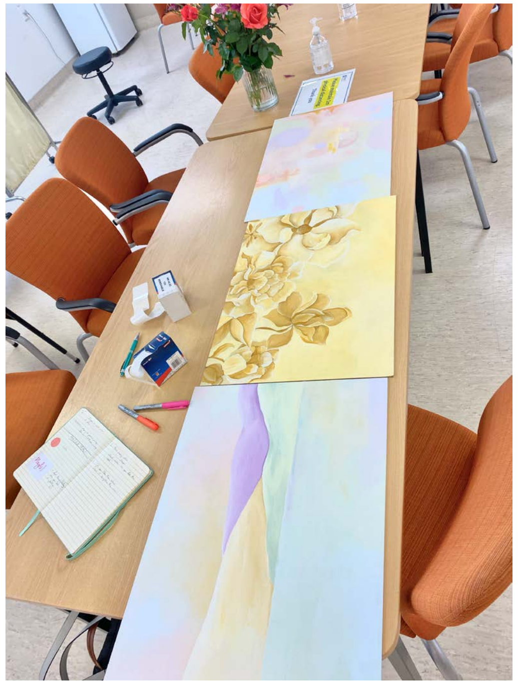


Figure 88. The set up for receiving feedback on a table in the AT&R ward.

Painting	Landscape	Floral	Abstract
Key Quotes	**Patients** The colours are very calm. This would look good at big scale. This reminds me of Opononi. I like the wide-open space this one has. **Staff** There would be lots to talk about with the patients on this one. Sometimes patients come in here feeling very agitated or frustrated so it would be nice if there was something that could help to make them feel calm or to take their mind off things. This is what I would hang on the wall but it might be a bit too modern for the patients.	**Patients** The brightness works well. Flowers are easily recognisable and really lift people's spirits. This is so bright and happy. I love flowers, they are my favourite gift. **Staff** There is already too much yellow in here, it could match it to the blue wall instead. This reminds me of the chair my grandma used to always sit in. It was a mustard yellow valor with big flowers all over it.	**Patients** I'm not sure what it is. What is it meant to be? I like the colours. It could look a bit out of place in here. The colours are happy. I like looking at it even though I do not know what it is. **Staff** It could really make the room pop. The abstract is the most fun Abstract is good. I like contemporary art.
Key Words	Calming, peaceful, relaxing, spacious, soothing and vibrant.	Colourful, gardening, joyful, natural and lifts spirits.	Fun, contemporary and different.

Table 4. Feedback from staff and patients on the three paintings.

Feedback

After speaking to staff, I asked what kind of questions they might ask patients if one of the paintings were on the wall (Table 5). I hoped to gain insight on how the paintings would provide opportunity for conversation between staff and patients.

Painting	Landscape	Floral	Abstract
Responses	Where does this remind you of? Where did you last travel to? Do you like the colours you see? Which is your favourite colour on here? Do you like being outdoors and in nature? What is your best adventure memory?	Do you like the colour of the flowers? Do you like gardening? Do you have a favourite flower? When was the last time you received flowers from someone? Do you give flowers to people often? What is your favourite colour of flower?	How many colours do you see? What shapes can you spot? Does it remind you of anything? What colour do you like the most on here?

Table 5. Feedback from staff on the types of questions they may ask patients while using the painting on a wall as a tool for conversation.

Reflection

This design exploration shows how a bespoke piece of art that has been influenced by patients may be beneficial to create greater connection between staff and patients. Furthermore, it shows the potential to help patients (and staff) feel like they are in a place of healing, positivity and how art might bring a moment of joy to their day. From the questions that the staff thought of when looking at each image it is clear that not only would the wall serve as a way of making the space feel different to how it currently does, it would also act as a tool for generating conversation between staff and patients. Meaningful conversation between the two parties may help to further cultivate an environment of care and joy, whether the patient likes the painting or not.

I aimed to identify colours that made people feel something. Emphasis was placed on creating meaningful conversation with prompt questions, and narrowing down the visual aids such as image cards and colour palettes. Through this process I hoped to create an interview that could be iterated and used again in a different area of the hospital.

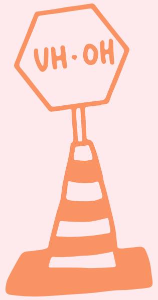
This case study also acted as a prototype for creating art in hospitals, with patients. Painting directly onto the walls of North Shore Hospital had not been done previously. Therefore, this project tested how this might be done, identified installation best practices, systemic barriers/ challenges and whether it was an effective way to improve staff and patient experiences.

Development of prototypes and final design

Based on the prototype feedback from 20 patients and staff in the AT&R ward, the landscape painted in pastel-toned colours (reminiscent of colours found in nature, e.g. blue sky/water, green grass/leaves, pink and purple fields of flowers etc), had the most positive responses. One staff member reported, “Sometimes patients come in here feeling very agitated or frustrated, so it would be nice if there was something that could help to make them feel calm or to take their mind off things” (personal communication, October 29, 2020). This was reinforced by several patients commenting on the openness and freedom felt while viewing the artwork. The choice of a nature-based landscape is also supported in Nature Therapy research. Berger (2002) describes Nature Therapy is a creative method that “perceives nature as being a partner in constructing a therapeutic setting” (p. 245) and it is of benefit to the elderly.

> "Sometimes patients come in here feeling very agitated or frustrated, so it would be nice if there was something that could help to make them feel calm and take their mind off things."

Ward staff member
(personal communication,
October 29, 2020)



Road-block

After arranging a time to paint the wall at the AT&R ward, a very fast succession of events led to the cancelling of the painting process. Factors such as requiring machinery to reach the full height of the wall, health and safety protocols, miscommunication, and the hierarchy of the hospital system were instrumental in this change of plan. Consulting AT&R ward staff provided a wealth of knowledge, feedback and thoughtful opinions. However, being an outsider, there was a lack of transparency about what and how decisions were being made. It appeared that there was confusion as to how (and who with) the appropriate relationship needed to be established, in order to successfully organise the painting process. Several staff at different levels in the organisation (including some who were very senior) showed support and reported there would be no problems, while others were more hesitant. A consequence of this was that on the day prior to the planned painting, I was informed that the project was unable to go ahead, with no explanation as to why.
Such issues have been reported through literature (Foucault, 1973; Groeneveld et al., 2018; Nakarada-Kordic et al., 2020; Reay et al., 2019), and highlight the difficulty of making change in hospital environments, particularly when it concerns art and design. Confusion on my behalf ensued, as the enthusiasm for a creative change to be made in the AT&R ward had been evident prior to this road-block, through communications I had had with several hospital staff (who were believed to be able to grant permission for the project to eventuate). Instances such as this suggest why change, particularly creative change, in hospitals is a lengthy process and requires a collaborative environment between designers and healthcare professionals in order to provide the best possible healthcare experiences for patients and staff (Jones, 2013).

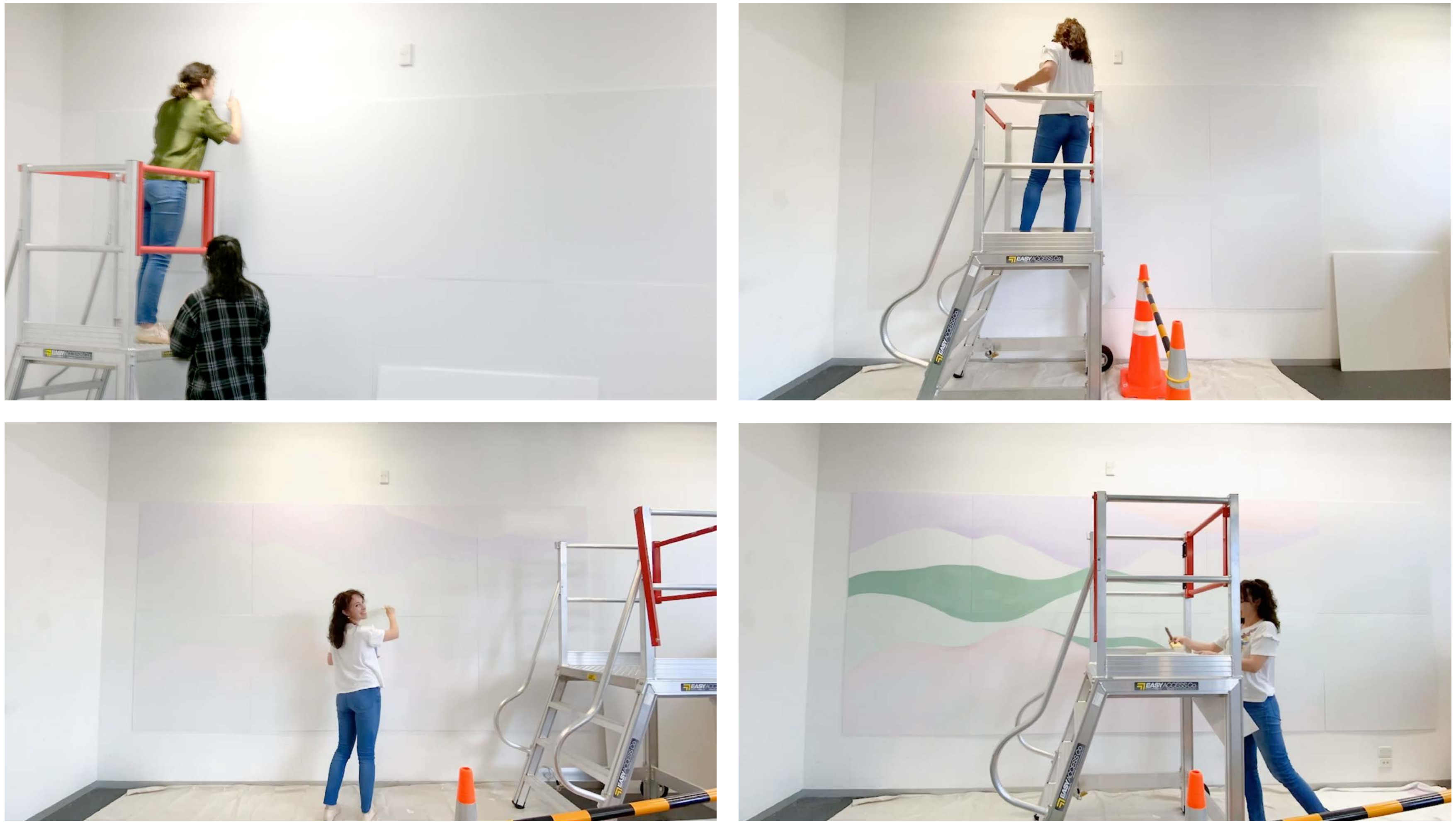
The solution

With the opportunity of painting on the wall in the ward no longer an option, I considered how a prototype might be done in order to emulate the scale and visual effect of the painting.
I wanted to be able to paint the intended concept on a temporary surface to allow for transportation to the hospital and to be placed in-situ. This would create the opportunity for further feedback from patients and staff, as well as the opportunity to show the potential transformation that may be achieved through co-designed art, and how this could bring more joy, energy and care to a ward space.

Ten one-metre by one-metre squares of white corflute plastic were purchased to create a total surface area measuring two-metres in height and five-metres in width (the actual size of the wall in the hospital rehabilitation gym). This material was chosen for its lightweight properties, smooth surface (ideal for painting onto) and ability to be easily cut into squares. The 'tile-like' concept allowed for ease of transport as well as application and removal from the wall. A large, plain white wall was identified in AUT's Good Health Design office and permission was given to be able to hang the corflute using Velcro backings. In the new site, the painting was able to be undertaken in the original time frame as planned with the hospital.

The positives to this solution were that the painting would be able to be tested in-situ without staff being worried about the logistics of having the painting done on site, including mitigating the associated risks (political and physical). It also meant the painting could be placed in other areas of the hospital to be used to further explore how choice of colour, shape, texture and hand-made artwork might improve patient and staff experience in other healthcare contexts and spaces. The downfall of this solution was that patients and staff did not experience seeing the wall being hand-painted, an act that had the potential to bring further conversation and delight to the space. It also meant that there was potential that the painting would not exist in the hospital space for long, and from an aesthteic view-point, the lines created by the connecting tiles interrupted the flow of the painting.

See Careful Painting Prototypes PDF for images and a video of the final concept.



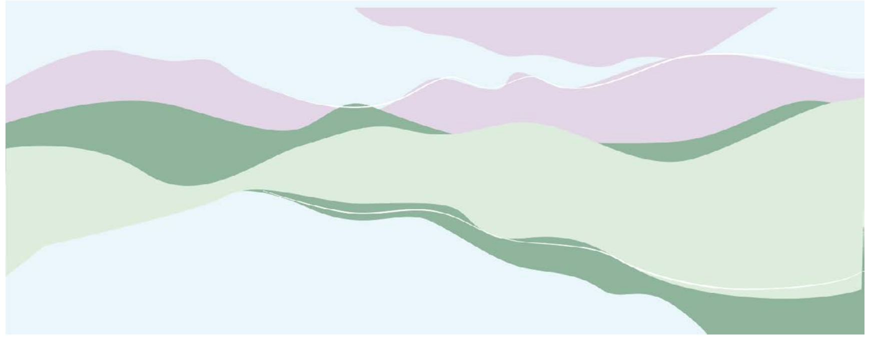


Figure 90. Photos of installing the 5m x 2m wall and starting the painting. To the left is the digial design plan that I created to use as a template for the to-scale wall.

Reflection

By creating an environment that is visually stimulating, by painting an artwork to inspire conversation and connection between staff and patients, there is potential to create “meaningful, purposeful and trusting relationships” (Kabadayi et al., 2020). These relationships help to form an important part of the previously discussed older adult care experience (OACE) (Kabadayi et al., 2020), as well as supporting the meanings of care as expressed by participants in the co-design painting workshops. The interviews conducted in this case study, as a form of co-design, created an opportunity for collaboration with staff and patients. This experience was meaningful to me personally. It meant that I was able to experience a depth of conversation using colours and images as a way to reveal memories about moments in life. The sharing of the stories created narratives for me to transfer “to art, from life” (Hardy, 1968, p. 5), in a prototype. It is hoped that the resulting painting, when installed in the AT&R gym space, will inspire further conversation between staff and patients. Human response to art is a recognised neurological event (Kapitan, 2014), therefore, this work has potential to evoke responses that lead to better patient experiences. This project was also a study into challenges in navigating creative projects through to completion in complex and risk-averse healthcare systems.

> “My argument is that narrative ... is not to be regarded as an aesthetic invention used by artists to control, manipulate, and order experience, but as a primary act of mind transferred to art, from life.”

Hardy (1968, p. 5)

Discussion

One of the ten aesthetics of joy identified in Fetell Lee's (2018) work is 'energy', the power of colour to change the way we feel in a space. Not only was colour a means of survival when humans were hunter-gatherers, foraging for nutrient-rich food, Fetell Lee (2018) argues, it is "energy made visible" (p. 19). Artists, designers and architects who use colour predominantly in their work often reflect on awakening human senses, and in turn, eliciting an emotional response from the viewer (Fetell Lee, 2018).

The Opportunity

This research explored how paint and colour may be used as an approach to designing empathetic communication in healthcare contexts. Through the development of a co-design painting workshop, followed by three health-specific case studies, several opportunities were provided to explore different approaches to engage patients, or users of healthcare, and the staff who work within the system.

The findings offered an insight into the potential for an aesthetic (and an approach) for communication in healthcare that is different to the current (and dominant) approach. Although, on the surface, this might seem in contrast with the current healthcare context, this aesthetically oriented concept, may in fact be more similar, than different. While hospital systems and processes (particularly with respect to innovation) are often perceived as hierarchical, bureaucratic, risk-averse, cold and clinical (Jones, 2013; Nakarada-Kordic et al., 2020), the ideal of person-centred care is being increasingly incorporated into healthcare practice. In a thematic analysis of qualitative datasets, Terry and Kayes (2020) identified themes in patient-centred care practices, some of which may relate to the co-design and art-based nature of this project. Within the theme of 'relational orientation in care' (Terry and Kayes, 2020, p. 2337), the relationship built between patient and clinician is treated as a priority (Terry and Kayes, 2020). This notion was supported in the findings of the co-design workshops where participants shared that 'good care' felt personal and required being treated as an individual, not a 'number' in a system. It also aligns with the concept behind the prototype for the AT&R ward wall. Healthcare staff and medical professionals often work with their hands to help patients heal, and build relationships with those in their care. This is their craft.

Reflecting on the discussions in the co-design painting workshops and the interviews with AT&R ward patients, it was evident that colour was a factor in being able to express an emotion non-verbally, or help memories surface in one's mind. Artistic elements such as colour, and themes such as nature "speak directly to our

> "In delivering care to patients
> we enter a space of joined-ness
> that is human in nature, recognising
> the qualities in each other that
> connect us in-the-moment."

Dennice Keegan (2014, p. 110)

unconscious minds, bringing out the best in us without our even being aware of it” (Fetell Lee, 2018, p. 9). By reflecting these findings in the prototypes created, I aimed to show how healthcare communication could more effectively, and creatively, use colour and painting to offer better patient and staff experiences. The co-design workshops and development of the painting toolkit showed how communicating through colour, shape and texture helped to generate meaningful conversation between participants in the research. The act of creating with paint and participating in an activity that brought about a child-like sense of play, allowed participants to think through metaphors, and explore a different mode of communication than to which they may have been accustomed. In addition to the act of painting, Eaves (2014) argues, “an art-centric aesthetic experience offers transformative power” (p. 148). This suggests that use of certain colours and evidence of the hand-made in healthcare environments may have the potential to communicate a sense of care that parallels the care that can be offered by healthcare staff.

The outputs of design thinking have the potential to bring positive change to an organisation (Lewrick et al., 2020). For designers working in the healthcare context, it is important to consider the nature of the medical information that needs to be communicated. Although it may not be appropriate for all healthcare information to be designed with an emotive undertone and underpinned by creative practice, there are opportunities where the information patients and staff receive, could be designed and communicated in a way that feels caring and joyful. A diverse audience may also benefit from hand-made, artful means of communicating (e.g. through illustration, painting, texture and colour). It challenges what can often be jargon-loaded, word-heavy documents for staff and patients. Lipton (2007) argues “communicating nonverbally to avoid language or reading barriers is a worthy goal” (p. 32), however, communicating through image or illustration must also consider the potential for multiple interpretation options and cultural differences of the viewers.

Bates (2014) discussed how incorporating nature and art in hospitals can reinvigorate a space that needs ‘humanising’ (p. 14). When reflecting on case study three, the findings of the patient interviews supported this notion, as imagery of landscapes and colours associated with nature were often preferred. My project sought to complete a painting directly onto the wall of the AT&R ward, a practice that had not previously been done at North Shore Hospital. This unfamiliar territory was difficult for both myself and the staff to navigate. Creativity was ultimately put on hold due to the extensive systems in place at the hospital in order to receive health and safety compliance, miscommunication between the different levels of staff hierarchy, and a decision to allow the project to go ahead was unresolved.

Challenges of creative practice in healthcare

This research showed how design approaches, that were different to the norm, were challenging to both those within the healthcare system and to me personally as the ‘outsider’ designer. This is with respect to feasibility and implementation, rather than ambition or aspiration. Many of those involved in this research (e.g. clinical and non-clinical staff, and patients), recognised the need to make a change to healthcare experiences using design (e.g. information design or artwork within the ward). They shared a desire to push the boundaries of what was possible. While recognising the bar was low, ultimately as a collective group, we were unable to overcome the system in place. There are many reasons for this that, when combined, made it tricky to forge a path toward successful implementation of the various opportunities. These included:

Time

The time it took to implement change in the hospital was beyond the timeframe of this Masters research project. The length of time was dependent on the numerous other factors mentioned here.

Priorities

It should be acknowledged that healthcare staff are often overloaded with tasks in order to adhere to the day-to-day requirements of working in a hospital. The systems they work within are also often heavy with admin, and priority is placed on essential needs rather than 'nice-to-haves' such as art and design.

Ethics

Ethical processes, both from within the university (AUTEC) and externally were in place to keep both the participants and researcher safe. These processes can create additional barriers to access or communication with potential research participants in a timely manner, and the application process took a considerable amount of time (months) to both complete and be approved. Although ensuring ethical research practice was essential (especially under Covid-19), the tension between this and timeframes to complete research were not always recognised.

Challenges with participants

In the context of case study one, the Deaf community had been over-researched in healthcare experiences and opportunities for improvement. However, there was a lack of evidence showing real change made in the healthcare system as a result of this research. It is understandable then, why there was hesitation from members of the Deaf community, to work with another hearing researcher/designer. Participant recruitment largely relied on hospital staff (to comply with ethics), which took a lot of the control out of my hands.

Research during a pandemic

The introduction of Covid-19 to Aotearoa/New Zealand resulted in months of lockdown and heightened health and safety protocols. It also affected the mental and/or physical health, anxiety levels, fatigue, and stress of those involved in this research (healthcare staff and potential participants), which was a contributing factor to slower communication and limited interaction. In addition, Covid-19 put additional pressure on healthcare systems, and staff focus was shifted to preparing for, and responding, to Covid-19 as their primary activity.

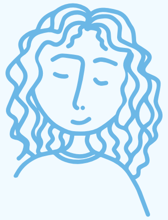
Healthcare systems and processes

Navigating hospital systems and processes as a researcher and/or designer is difficult, even for those experienced in doing so. This was made particularly hard when the project fell outside of what is considered business-as-usual for healthcare. There was also the risk that the staff who showed initial enthusiasm for the project fell into the mindset of 'it can't be done', because they often encountered, or were overwhelmed by, the barriers and processes (new and existing) within the healthcare system.

Being an outsider

There were many instances during this project when I was considered an outsider. I had not worked within the healthcare system prior to this study, which meant I was reliant on 'insiders' to progress projects in a meaningful way and champion the creative work. I am hearing (not Deaf), I am not in the 'older adult' age bracket (over 65 years of age), and I have not personally experienced a stroke. My 'outsiderness' often made it hard to build meaningful connections with someone on the inside who may have been able to help me progress, or who had established relationships with key decision makers.

Jones (2013) suggests that the "lack of consensus among players in a complex system is one of the biggest barriers to innovation" (p. 8). This was evident in each case study, all of which relied on professional and/or clinical staff to help progress any activity reliant on actors within the system. Early in this research, it became clear that even a small change in this healthcare context would be a challenge to achieve. This became even more evident with the impacts of Covid-19. Despite evidence of the positive benefits associated with creative practice in healthcare (observed both in the literature and this research), it was evident that "one subgroup's innovation is another subgroup's loss of control" (Jones, 2013, p. 8). As the researcher and designer, I experienced being in one 'subgroup', with the healthcare system being the other. Jones (2013) discusses the notion of the fear of loss of control, as evident in methods and approaches in healthcare settings. While this may be familiar for those who work in healthcare, it can create challenges for designers, innovators and researchers.



careful painting

Personal learning

Ings (2015) argued “it is the connection between people that we seek as designers, and it is through the use of our hands that we can make our work felt” (p. 185). After facilitating co-design workshops, I was reminded of this, as I sought to build connections with participants through the act of painting, in order to talk about topics that were often personal and emotional. Likewise, when I was designing the prototypes in this research, it was important that the work I created felt human through evidence of the hand at work. Through the case studies, I was encouraged by the feedback on the hand-made elements. When discussing the hand-painting of a large-scale wall (case study three), excitement, joy and participation was expressed by staff and patients. When harnessing the power of creating by hand and applying this to communication design, it is the “humanness that shines through, and this is the thing we so desperately crave…handmade objects are ultimately about direct and meaningful communication” (Ings, 2015, p. 185). I aim to continue using handmade techniques as a tool in co-design workshops to allow participants to express themselves in an abstract way, and to show that they can be a valued part of a creative journey.

I was challenged by designing with, and in, the healthcare system, where ‘road-blocks’ required continual navigation. This was made more difficult with the slow pace of the system to respond to requests that were not considered essential to patient health. When working in an established institution, I had to remain positive toward the potential impact of art and design, and creative practices for co-design, on healthcare. I was also challenged by entering this research as an outsider. I learned the importance of using the arts to create greater connections and improve the effectiveness of research between those who are on the outside and those who are experts of their experience. There is value in better understanding how this might be done more effectively so that researchers and designers can better support those they work with in healthcare to be more open to different approaches, rather than making decisions based on data from quantitative surveys. The gathering of such data does not often engage with people on an emotional or meaningful level.

I also learnt a huge amount through completing this research during Covid-19. It challenged the way health information could be communicated and opened my eyes to the effectiveness of seemingly unconventional means for delivery of health information. Social media, memes, infographics, poetry, music and dance, all kept the public up to date on the status of the pandemic locally and globally. However, these creative, arts-based ways of communicating showed more than just numbers and facts. I was reminded of the sense of ‘humanness’ when using the arts to remedy feelings of sadness, loneliness or anxiety, and to connect people through stories. The worldwide, pandemic-spanning ‘prototype’ that was happening organically, on challenging healthcare communication, was moving to be part of personally, and beneficial to this research. It demonstrated the power creativity and communication design had to guide people through a healthcare journey.

Limitations

Ideally, this research would include more data generation through greater engagement with end-users (e.g. case studies one and two) than was possible. It would also have been able to provide greater insight into the effect of a large piece of painted artwork in the AT&R ward (case study three), if the challenges mentioned previously had been overcome. It would be ethically and morally wrong to say that any of the designs in the case studies are in a completed state because involvement from the end-users is critical in human-centred design. The specific limitations of each case study are outlined below:

Case study one

Exploring communication design to improve part of the healthcare journey, would have been able to generate further iterations of the prototype after engaging with members of the Deaf community. In doing this, I would have been able to better understand the strengths and weaknesses of the proposed design. Running a co-design workshop using the painting toolkit with Deaf participants would have generated a significant amount of new knowledge, and would have enriched the decisions behind the communication design prototype. It would have also helped create buy-in for their use, if the idea was well received and eventually implemented.

Case study two

Ethical processes with regard to recruiting any participants who had experienced a stroke, meant prototypes could only receive clinician/researcher feedback. However, availability of the key 'inside' contact during 2020 became difficult as the transition to working from home occurred, as well as general Covid-19 lockdown side-effects.

Case study three

Because installation in the actual site did not occur during the timeframe of this Masters research, I was not able to get feedback on the final installation. It would have been beneficial to understand how patients responded to the artwork, how it changed, or contributed to, a moment in their healthcare experience, and what a large scale creative act might have done for people wanting to see aspirational change in the system.

As Devlin and Arneill (2003) discuss, designers within healthcare face many challenges to accommodate "sophisticated clinical interventions and complex medical technology while providing a humane, therapeutic environment" (p. 666). Despite the external limitations, this research initiated the creation of a range of prototypes that demonstrate the potential of an arts-based approach in healthcare information design and communication. I hope to continue to work with the hospital and clinicians to further develop these and gain feedback on how they might be able to be implemented so that longer-term evaluation can be done.

Next steps

This research has led me to consider where there might be further opportunities to use the developed painting co-design toolkit and workshop in a healthcare context, and beyond (e.g., schools and corporate workplaces). The workshop has the potential to allow opportunities for meaningful conversation on a variety of topics or challenging questions. With further research and testing, using different focus topics and questions, there is potential to use it for gathering valuable qualitative data. I would also like to place the 5m x 2m artwork in-situ at the AT&R ward in order to gather feedback from both staff and patients, while case studies one and two would preferably be developed with the inclusion of the end-users.

Conclusion

Care can be communicated in many ways, and the care shown by healthcare professionals to their patients deserves to be paralleled in the visual information and ward spaces for adult patients and staff. Bishop's 2002 study (as cited in Koller & McLaren, 2014) found that "patients believed that artwork made them feel happier because it was an indication that the organisation had a caring attitude" (p. 453). Completing this research during a pandemic highlighted that painting, illustrating and designing could be used purely to bring joy to someone's day and as an act of self-care. Art holds value in itself. It doesn't always require an agenda in order to be considered of value. Through the comments made at the co-design painting workshops, I considered what might happen if people embraced the concept of 'art for art's sake'. For me, this meant making something by hand simply for the sake of enjoying the process of making, rather than always being concerned with the outcome. Remaining creative during lockdown allowed me to stay positive and creatively navigate challenging times when I was forced, several times, to change my plans for this research. The potential for colour in art and communication design to inspire joy, and the humanness of the hand-made in modes of information delivery are evident and worthy of being further explored in the healthcare environment.

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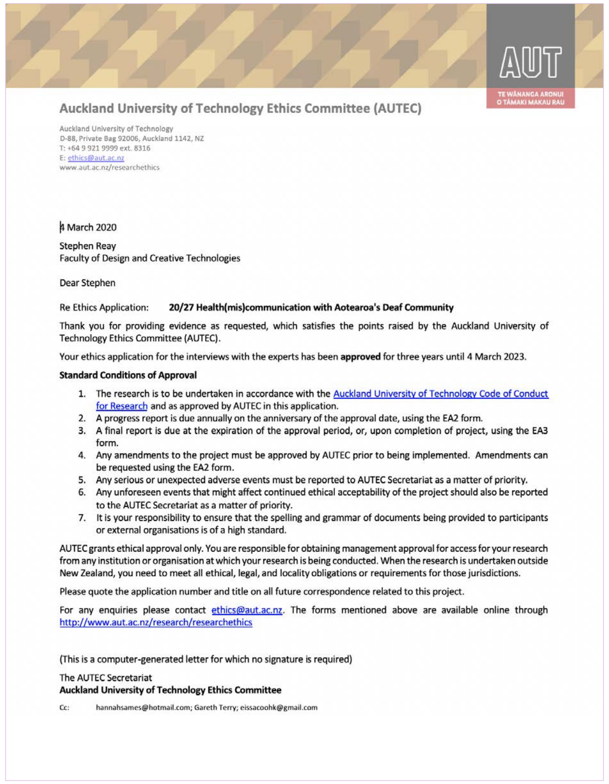
Appendices

Appendix 1 Ethics application 20/27
Appendix 2 Co-design workshop material
Appendix 3 Expert interview questions
Appendix 4 Patient interview questions

Appendix 1

Ethics Application 20/27
& Waitematā DHB Locality



Auckland University of Technology Ethics Committee (AUTEC)

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T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

4 March 2020

Stephen Reay
Faculty of Design and Creative Technologies

Dear Stephen

Re Ethics Application: **20/27 Health(mis)communication with Aotearoa's Deaf Community**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application for the interviews with the experts has been **approved** for three years until 4 March 2023.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted. When the research is undertaken outside New Zealand, you need to meet all ethical, legal, and locality obligations or requirements for those jurisdictions.

Please quote the application number and title on all future correspondence related to this project.

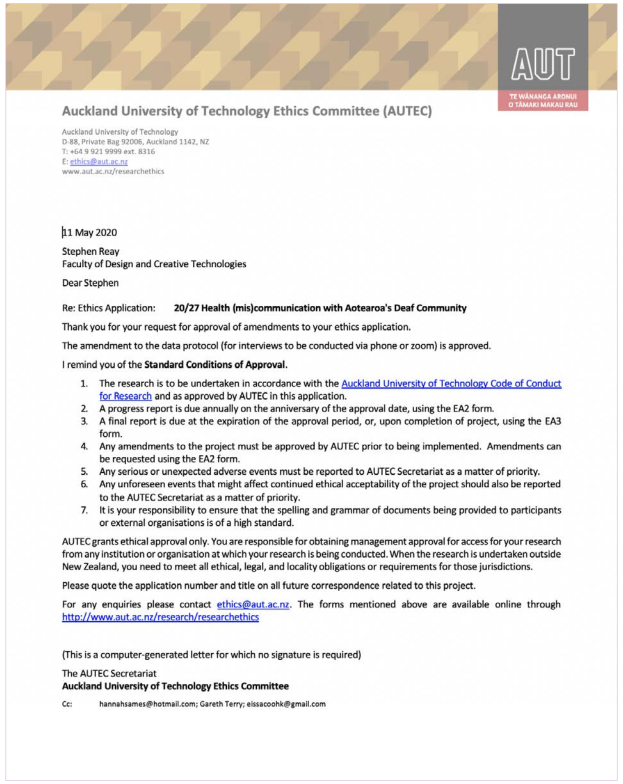
For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics

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

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: hannahsames@hotmail.com; Gareth Terry; eissacoohk@gmail.com

AUTEC for expert interviews



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11 May 2020

Stephen Reay
Faculty of Design and Creative Technologies

Dear Stephen

Re: Ethics Application: **20/27 Health (mis)communication with Aotearoa's Deaf Community**

Thank you for your request for approval of amendments to your ethics application.

The amendment to the data protocol (for interviews to be conducted via phone or zoom) is approved.

I remind you of the **Standard Conditions of Approval**.

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted. When the research is undertaken outside New Zealand, you need to meet all ethical, legal, and locality obligations or requirements for those jurisdictions.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics

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

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: hannahsames@hotmail.com; Gareth Terry; eissacoohk@gmail.com

AUTEC expert interview amendment due to Covid-19

Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

29 September 2020

Stephen Reay
Faculty of Design and Creative Technologies

Dear Stephen

Re: Ethics Application: **20/27 Health(mis)communication with Aotearoa's Deaf Community**

Thank you for your request for approval of amendments to your ethics application.

The next phase of the research (focus groups or expert interviews and creative practice) has been approved.

Non-Standard Conditions of Approval

1. In the Consent Form, add that focus groups have limited confidentiality.
2. In the Information Sheet, express that health information will not solicited for research analysis or be published. A sample card requesting this information is simply designed to see if you' find the card helpful. The cards will destroyed

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

I remind you of the **Standard Conditions of Approval**.

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
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Please quote the application number and title on all future correspondence related to this project.

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

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: hannahsames@hotmail.com; Gareth Terry; eissacoohk@gmail.com

AUTEC for interviews and focus groups using creative practice

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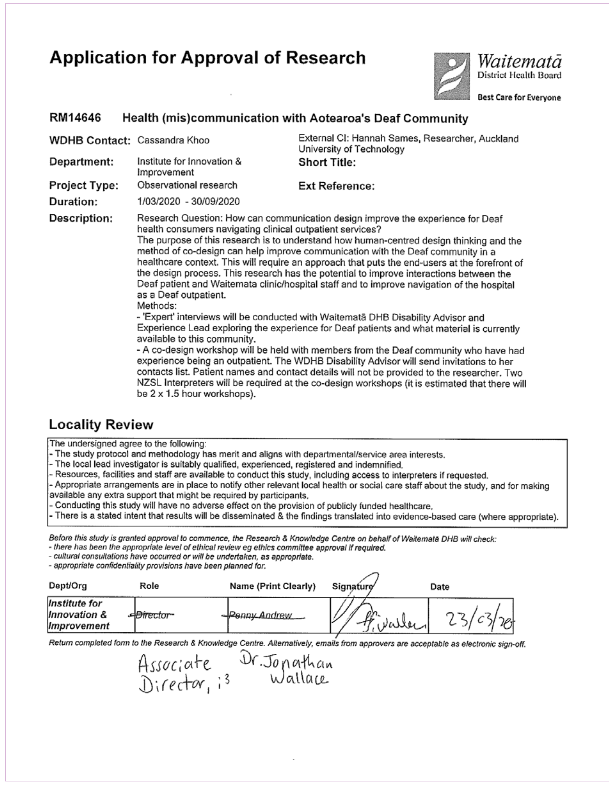


Application for Approval of Research

Waitematā District Health Board
Best Care for Everyone

RM14646 Health (mis)communication with Aotearoa's Deaf Community

WDHB Contact: Cassandra Khoo

External CI: Hannah Sames, Researcher, Auckland University of Technology

Department: Institute for Innovation & Improvement

Short Title:

Project Type: Observational research

Ext Reference:

Duration: 1/03/2020 - 30/09/2020

Description: Research Question: How can communication design improve the experience for Deaf health consumers navigating clinical outpatient services?
The purpose of this research is to understand how human-centred design thinking and the method of co-design can help improve communication with the Deaf community in a healthcare context. This will require an approach that puts the end-users at the forefront of the design process. This research has the potential to improve interactions between the Deaf patient and Waitemata clinic/hospital staff and to improve navigation of the hospital as a Deaf outpatient.
Methods:
- 'Expert' interviews will be conducted with Waitematā DHB Disability Advisor and Experience Lead exploring the experience for Deaf patients and what material is currently available to this community.
- A co-design workshop will be held with members from the Deaf community who have had experience being an outpatient. The WDHB Disability Advisor will send invitations to her contacts list. Patient names and contact details will not be provided to the researcher. Two NZSL Interpreters will be required at the co-design workshops (it is estimated that there will be 2 x 1.5 hour workshops).

Locality Review

The undersigned agree to the following:
- The study protocol and methodology has merit and aligns with departmental/service area interests.
- The local lead investigator is suitably qualified, experienced, registered and indemnified.
- Resources, facilities and staff are available to conduct this study, including access to interpreters if requested.
- Appropriate arrangements are in place to notify other relevant local health or social care staff about the study, and for making available any extra support that might be required by participants.
- Conducting this study will have no adverse effect on the provision of publicly funded healthcare.
- There is a stated intent that results will be disseminated & the findings translated into evidence-based care (where appropriate).

Before this study is granted approval to commence, the Research & Knowledge Centre on behalf of Waitematā DHB will check:
- there has been the appropriate level of ethical review eg ethics committee approval if required.
- cultural consultations have occurred or will be undertaken, as appropriate.
- appropriate confidentiality provisions have been planned for.

Dept/Org	Role	Name (Print Clearly)	Signature	Date
Institute for Innovation & Improvement	~~Director~~	~~Penny Andrew~~		23/03/20

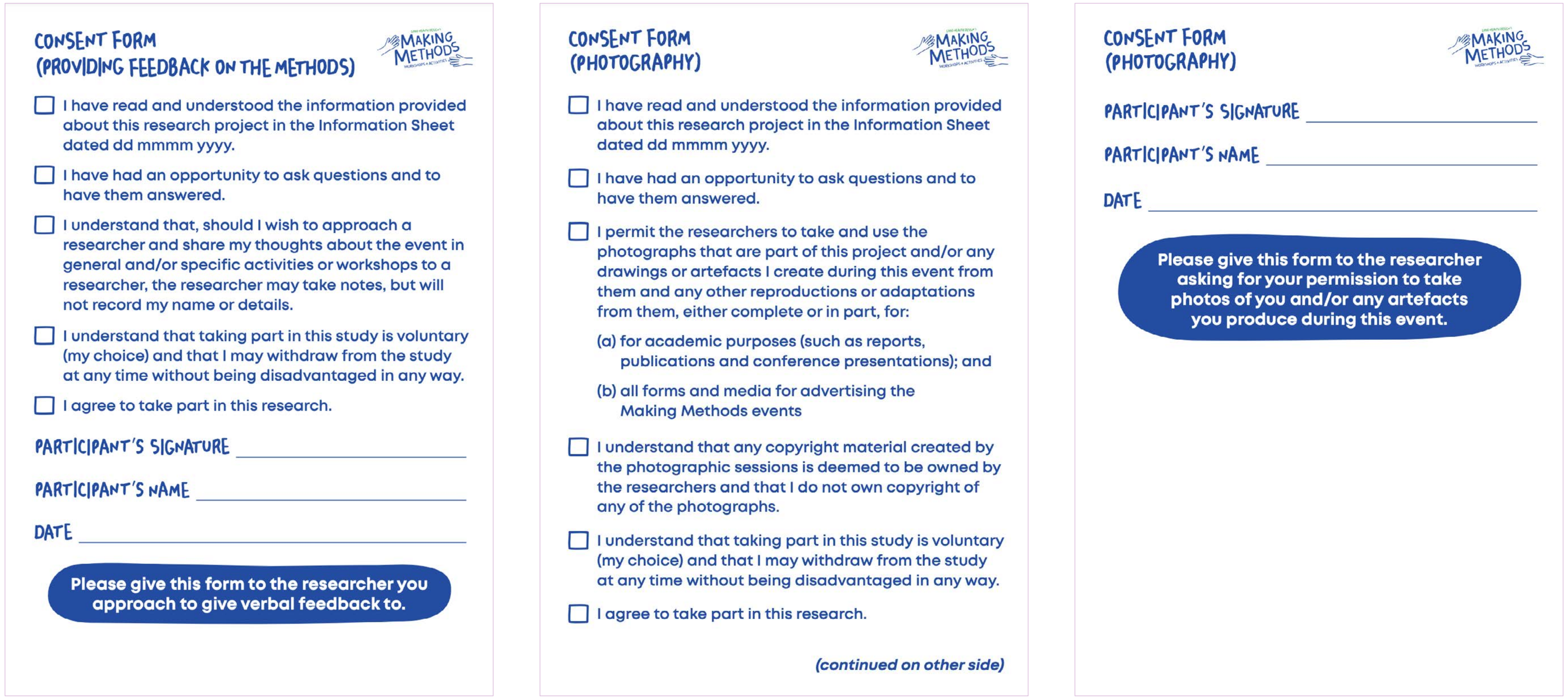
Return completed form to the Research & Knowledge Centre. Alternatively, emails from approvers are acceptable as electronic sign-off.

Associate Director, i3   Dr. Jonathan Wallace

WDHB Locality agreement and approval to conduct study with hospital staff

Appendix 2

Co-design workshop material



CONSENT FORM
(PROVIDING FEEDBACK ON THE METHODS)

☐ I have read and understood the information provided about this research project in the Information Sheet dated dd mmmm yyyy.

☐ I have had an opportunity to ask questions and to have them answered.

☐ I understand that, should I wish to approach a researcher and share my thoughts about the event in general and/or specific activities or workshops to a researcher, the researcher may take notes, but will not record my name or details.

☐ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.

☐ I agree to take part in this research.

PARTICIPANT'S SIGNATURE ______________________

PARTICIPANT'S NAME ______________________

DATE ______________________

Please give this form to the researcher you approach to give verbal feedback to.

CONSENT FORM
(PHOTOGRAPHY)

☐ I have read and understood the information provided about this research project in the Information Sheet dated dd mmmm yyyy.

☐ I have had an opportunity to ask questions and to have them answered.

☐ I permit the researchers to take and use the photographs that are part of this project and/or any drawings or artefacts I create during this event from them and any other reproductions or adaptations from them, either complete or in part, for:

(a) for academic purposes (such as reports, publications and conference presentations); and

(b) all forms and media for advertising the Making Methods events

☐ I understand that any copyright material created by the photographic sessions is deemed to be owned by the researchers and that I do not own copyright of any of the photographs.

☐ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.

☐ I agree to take part in this research.

(continued on other side)

CONSENT FORM
(PHOTOGRAPHY)

PARTICIPANT'S SIGNATURE ______________________

PARTICIPANT'S NAME ______________________

DATE ______________________

Please give this form to the researcher asking for your permission to take photos of you and/or any artefacts you produce during this event.

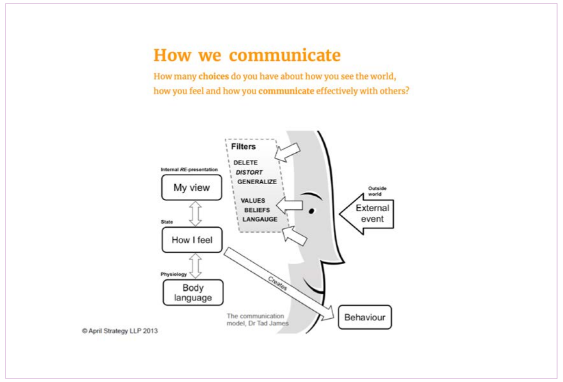
Making Methods Symposium participant consent forms

Appendix 2

Co-design workshop material

Haere mai

Welcome



How we communicate

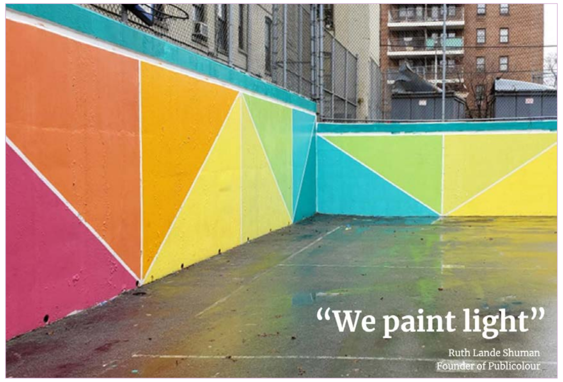
How many **choices** do you have about how you see the world, how you feel and how you **communicate** effectively with others?

The communication model, Dr Tad James

© April Strategy LLP 2013

"I've seen firsthand how aesthetics change people's attitudes and behaviour from the outside in."

Ingrid Fetell Lee
Former Design Director of IDEO New York



"We paint light"

Ruth Lande Shuman
Founder of Publicolour

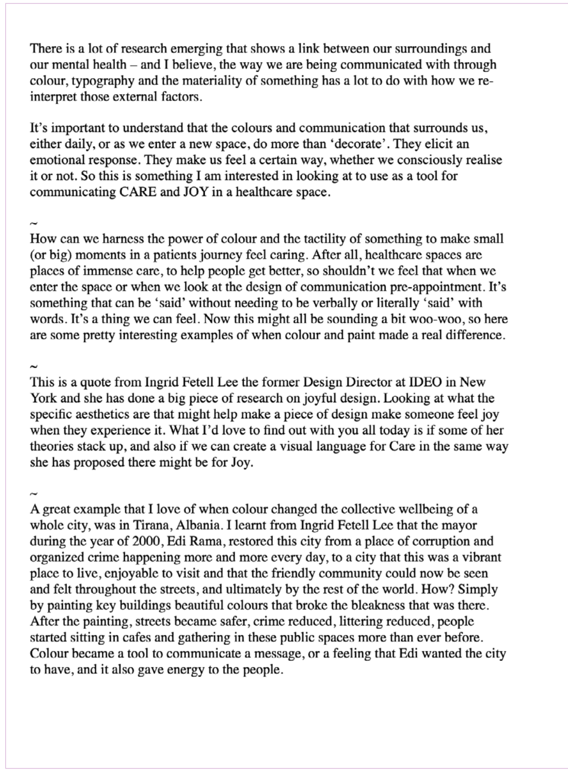
"Good color design will serve to improve the overall mood and well-being of people."

The impact of light and colour on psychological mood:
a cross-cultural study of indoor work environments
By Kuller, Mikellides, & Janssens

Digital slides shown on a tablet to accompany my workshop talk

Appendix 2

Co-design workshop material



There is a lot of research emerging that shows a link between our surroundings and our mental health – and I believe, the way we are being communicated with through colour, typography and the materiality of something has a lot to do with how we re-interpret those external factors.

It's important to understand that the colours and communication that surrounds us, either daily, or as we enter a new space, do more than 'decorate'. They elicit an emotional response. They make us feel a certain way, whether we consciously realise it or not. So this is something I am interested in looking at to use as a tool for communicating CARE and JOY in a healthcare space.

~

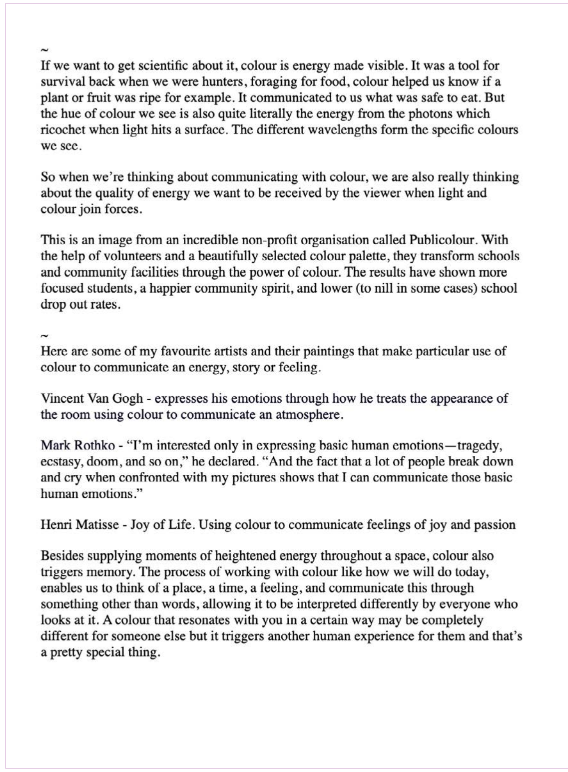
How can we harness the power of colour and the tactility of something to make small (or big) moments in a patients journey feel caring. After all, healthcare spaces are places of immense care, to help people get better, so shouldn't we feel that when we enter the space or when we look at the design of communication pre-appointment. It's something that can be 'said' without needing to be verbally or literally 'said' with words. It's a thing we can feel. Now this might all be sounding a bit woo-woo, so here are some pretty interesting examples of when colour and paint made a real difference.

~

This is a quote from Ingrid Fetell Lee the former Design Director at IDEO in New York and she has done a big piece of research on joyful design. Looking at what the specific aesthetics are that might help make a piece of design make someone feel joy when they experience it. What I'd love to find out with you all today is if some of her theories stack up, and also if we can create a visual language for Care in the same way she has proposed there might be for Joy.

~

A great example that I love of when colour changed the collective wellbeing of a whole city, was in Tirana, Albania. I learnt from Ingrid Fetell Lee that the mayor during the year of 2000, Edi Rama, restored this city from a place of corruption and organized crime happening more and more every day, to a city that this was a vibrant place to live, enjoyable to visit and that the friendly community could now be seen and felt throughout the streets, and ultimately by the rest of the world. How? Simply by painting key buildings beautiful colours that broke the bleakness that was there. After the painting, streets became safer, crime reduced, littering reduced, people started sitting in cafes and gathering in these public spaces more than ever before. Colour became a tool to communicate a message, or a feeling that Edi wanted the city to have, and it also gave energy to the people.



~

If we want to get scientific about it, colour is energy made visible. It was a tool for survival back when we were hunters, foraging for food, colour helped us know if a plant or fruit was ripe for example. It communicated to us what was safe to eat. But the hue of colour we see is also quite literally the energy from the photons which ricochet when light hits a surface. The different wavelengths form the specific colours we see.

So when we're thinking about communicating with colour, we are also really thinking about the quality of energy we want to be received by the viewer when light and colour join forces.

This is an image from an incredible non-profit organisation called Publicolour. With the help of volunteers and a beautifully selected colour palette, they transform schools and community facilities through the power of colour. The results have shown more focused students, a happier community spirit, and lower (to nill in some cases) school drop out rates.

~

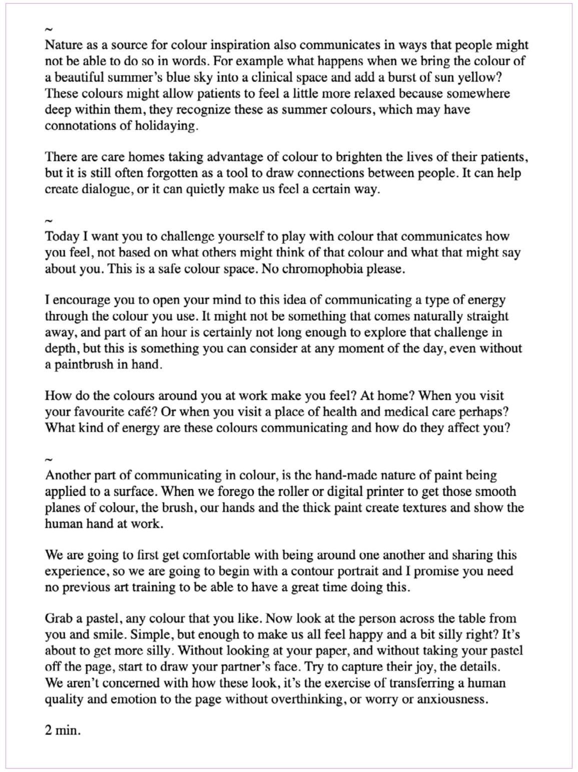
Here are some of my favourite artists and their paintings that make particular use of colour to communicate an energy, story or feeling.

Vincent Van Gogh - expresses his emotions through how he treats the appearance of the room using colour to communicate an atmosphere.

Mark Rothko - "I'm interested only in expressing basic human emotions—tragedy, ecstasy, doom, and so on," he declared. "And the fact that a lot of people break down and cry when confronted with my pictures shows that I can communicate those basic human emotions."

Henri Matisse - Joy of Life. Using colour to communicate feelings of joy and passion

Besides supplying moments of heightened energy throughout a space, colour also triggers memory. The process of working with colour like how we will do today, enables us to think of a place, a time, a feeling, and communicate this through something other than words, allowing it to be interpreted differently by everyone who looks at it. A colour that resonates with you in a certain way may be completely different for someone else but it triggers another human experience for them and that's a pretty special thing.



~

Nature as a source for colour inspiration also communicates in ways that people might not be able to do so in words. For example what happens when we bring the colour of a beautiful summer's blue sky into a clinical space and add a burst of sun yellow? These colours might allow patients to feel a little more relaxed because somewhere deep within them, they recognize these as summer colours, which may have connotations of holidaying.

There are care homes taking advantage of colour to brighten the lives of their patients, but it is still often forgotten as a tool to draw connections between people. It can help create dialogue, or it can quietly make us feel a certain way.

~

Today I want you to challenge yourself to play with colour that communicates how you feel, not based on what others might think of that colour and what that might say about you. This is a safe colour space. No chromophobia please.

I encourage you to open your mind to this idea of communicating a type of energy through the colour you use. It might not be something that comes naturally straight away, and part of an hour is certainly not long enough to explore that challenge in depth, but this is something you can consider at any moment of the day, even without a paintbrush in hand.

How do the colours around you at work make you feel? At home? When you visit your favourite café? Or when you visit a place of health and medical care perhaps? What kind of energy are these colours communicating and how do they affect you?

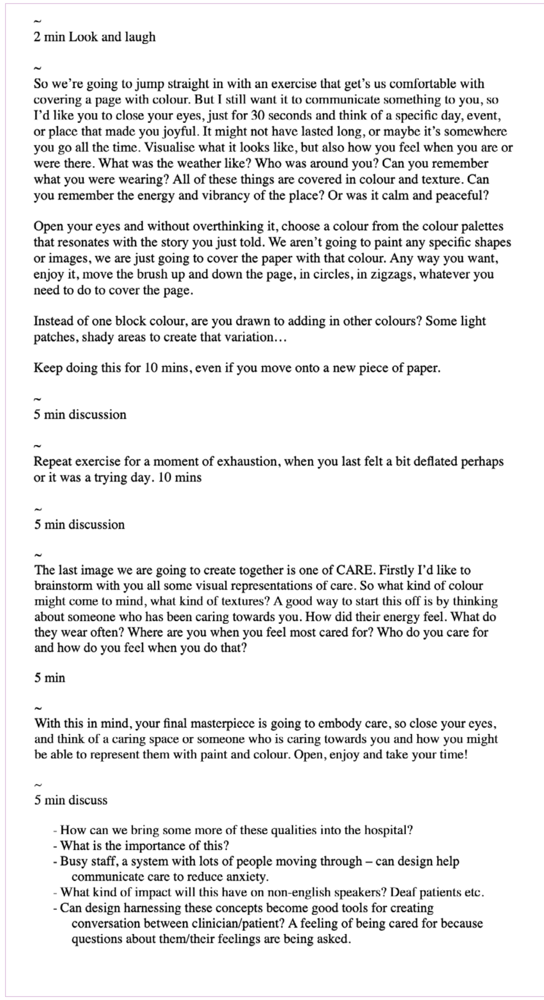
~

Another part of communicating in colour, is the hand-made nature of paint being applied to a surface. When we forego the roller or digital printer to get those smooth planes of colour, the brush, our hands and the thick paint create textures and show the human hand at work.

We are going to first get comfortable with being around one another and sharing this experience, so we are going to begin with a contour portrait and I promise you need no previous art training to be able to have a great time doing this.

Grab a pastel, any colour that you like. Now look at the person across the table from you and smile. Simple, but enough to make us all feel happy and a bit silly right? It's about to get more silly. Without looking at your paper, and without taking your pastel off the page, start to draw your partner's face. Try to capture their joy, the details. We aren't concerned with how these look, it's the exercise of transferring a human quality and emotion to the page without overthinking, or worry or anxiousness.

2 min.



~

2 min Look and laugh

~

So we're going to jump straight in with an exercise that get's us comfortable with covering a page with colour. But I still want it to communicate something to you, so I'd like you to close your eyes, just for 30 seconds and think of a specific day, event, or place that made you joyful. It might not have lasted long, or maybe it's somewhere you go all the time. Visualise what it looks like, but also how you feel when you are or were there. What was the weather like? Who was around you? Can you remember what you were wearing? All of these things are covered in colour and texture. Can you remember the energy and vibrancy of the place? Or was it calm and peaceful?

Open your eyes and without overthinking it, choose a colour from the colour palettes that resonates with the story you just told. We aren't going to paint any specific shapes or images, we are just going to cover the paper with that colour. Any way you want, enjoy it, move the brush up and down the page, in circles, in zigzags, whatever you need to do to cover the page.

Instead of one block colour, are you drawn to adding in other colours? Some light patches, shady areas to create that variation…

Keep doing this for 10 mins, even if you move onto a new piece of paper.

~

5 min discussion

~

Repeat exercise for a moment of exhaustion, when you last felt a bit deflated perhaps or it was a trying day. 10 mins

~

5 min discussion

~

The last image we are going to create together is one of CARE. Firstly I'd like to brainstorm with you all some visual representations of care. So what kind of colour might come to mind, what kind of textures? A good way to start this off is by thinking about someone who has been caring towards you. How did their energy feel. What do they wear often? Where are you when you feel most cared for? Who do you care for and how do you feel when you do that?

5 min

~

With this in mind, your final masterpiece is going to embody care, so close your eyes, and think of a caring space or someone who is caring towards you and how you might be able to represent them with paint and colour. Open, enjoy and take your time!

~

5 min discuss

- How can we bring some more of these qualities into the hospital?
- What is the importance of this?
- Busy staff, a system with lots of people moving through – can design help communicate care to reduce anxiety.
- What kind of impact will this have on non-english speakers? Deaf patients etc.
- Can design harnessing these concepts become good tools for creating conversation between clinician/patient? A feeling of being cared for because questions about them/their feelings are being asked.

Co-design workshop talk and timing plan

Appendix 3

Expert interview questions

Case Study One Expert Interview

- What is your experience with the Deaf community?
- Describe your work experience, and any expert advice for conducting research in the accessibility field, including sharing any best practice strategies.
- Could you tell me your thoughts on the Deaf community and equality in access to healthcare?
- What should DHBs and healthcare practitioners think about with regard to the Deaf community?
- What has been done to support access to healthcare for the Deaf community?
- What can you tell me about health literacy in the Deaf community?
- What programmes do you know of that support Deaf people and health literacy?
- Have any of these programmes or strategies been effective? Why/why not?
- Tell me about the information that Deaf patients are provided with to support their health needs.
- What is the positive and/or negative potential of a co-designed artefact to help with equality in the outpatient experience?
- What are the possible pitfalls of a co-designed artefact to help create some equality around the outpatient experience?
- What needs to be considered to most effectively include Deaf community members in co-design workshop activities?
- How should opinions and attitudes towards access needs be discussed and approached in a group setting.
- What are the challenges and opportunities you see for a collaborative co-design workshop with the Deaf community?
- Is there anything we haven't covered relating to the Deaf community, healthcare, and co-designing for accessibility?

Case Study Two Expert Interview

- Please provide an overview of your work experience (this may include what experience you have working with people who have a communication disability)
- Is there any advice you can share for someone conducting research in the accessibility field, including sharing any best practice strategies?
- Could you tell me your thoughts on equality in access to healthcare for those who have communication differences?
- What tools have you used (or do you see other practitioners use) to support engagement between patient and practitioner?
- What challenges have you seen (or do you foresee) arising with rehabilitation being carried out over video calls?
- Have any resources been made to assist either/both the patient and practitioner to work with a digital platform for rehabilitation?
- Have any of these resources or strategies been effective? Why/why not?
- Do you think the same connection between patient and practitioner can be made when experiencing rehabilitation on a video call?
- When patients experience difficulty reading, have you (or practitioners you have worked with) found value in other visual aids, such as imagery?
- What is the positive and/or negative potential of using co-design methods to design an artefact that may assist this area?
- What needs to be considered to most effectively include those with communication disability in co-designing a tool?
- How should opinions and attitudes towards access needs be discussed and approached in a group setting?
- Is there anything we haven't covered relating to the work you do, and co-designing for accessibility that you would like to discuss?

Case Study Three Expert Interview

- Please could you give me an overview of your work experience in healthcare.
- I am looking at how communication design might assist in creating a more empathetic and caring experience for patients, do you see this as being an area to improve in patient experience?
- Is there any advice you can share for someone conducting research in the design for healthcare field, including sharing any best practice strategies?
- What should DHBs and healthcare practitioners think about with regard to creating a patient experience that feels caring through the design of the environment or printed information?
- What tools have you used (or do you see other DHBs use) to support a positive patient experience?
- What is the process that is followed after receiving feedback from patients that suggests improving an area of the experience?
- Do you see design as being a tool that could help improve the experience for patients?
- What are your opinons on the role 'colour' plays in the design of hospital wards?
- What are the positive and/or negative potential of a co-designed artefact in the hospital?
- Is there anything we haven't covered relating to the work you do that you would like to talk about?

Appendix 4

Patient interview script

Hi there, my name is Hannah and I am a design student at AUT.

I am interested in the ways in which 'care' is communicated in healthcare through things like colour, imagery and language.

I believe the design of anything from the documents we are given to read, to the space around us has the opportunity and possibility to make us feel a certain way and believe that this is particularly important in a hospital.

I would like to ask you a few questions around the kind of themes of visual design you might be interested in, or resonate with, and also to know about your thoughts towards some colours.

The interview questions will take about 10 minutes. If this sounds like something you would be interested in participating in I ask that you please read and sign this participant consent form. Thank you.

I would like to know a little more about what you would like to see on the rehabilitation gym wall to make this space feel a bit more engaging for patients spending time here during their rehabilitation journey.

Imagery Questions

- Which image stands out to you?
- Why is that?
- How does this image make you feel?
- What else does this make you think of? (associated imagery)
- Which image is most uplifting to you?
- Why is that?
- Can you please choose an image that makes you feel a sense of joy?
- Why is that?

Colour Questions

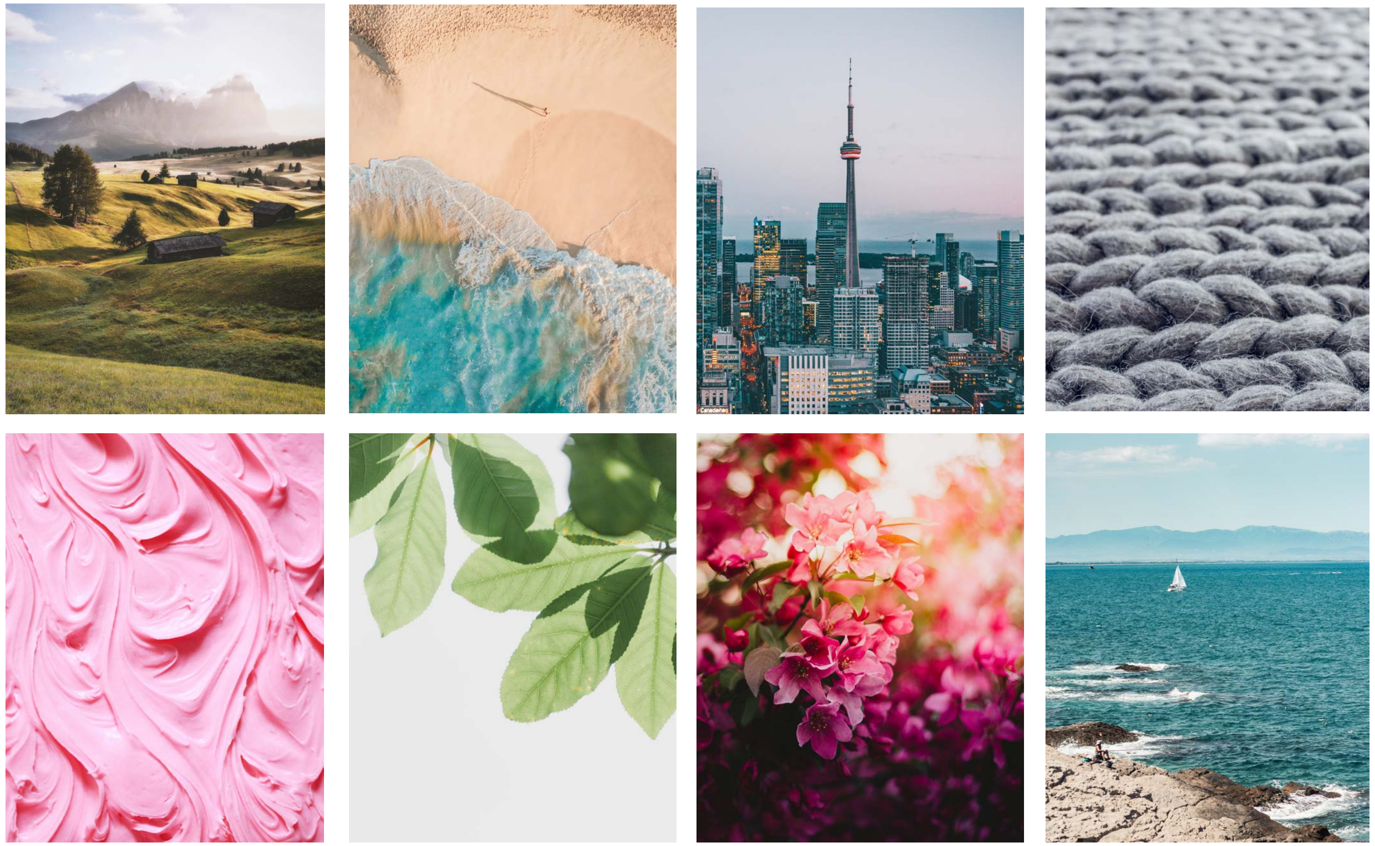
Please take time to look at the colour swatches on the table.

- Do you have a favourite colour here?
- Why did you choose that one? Does it remind you of anything?
- If that colour was a scent what do you think it would smell like?
- If that colour was a sound, what would it sound like?
- Which colour do you think goes well alongside the main colour you have chosen?
- Why is that?
- What do you think about colour changing the way we feel in a space?
- If someone you knew was having a hard day and you wanted to send them a note of encouragement, which colour would you choose to use for the note paper?
- Why is that?
- What does the word 'care' mean to you?
- Which colour here would you choose to represent 'care'?
- Why is that?

Appendix 4

Patient interview material

Colour swatches shown to patients



Images shown to patients

careful painting

Hannah Sames