Wayfinding for health seeking: Exploring how hospital wayfinding can employ communication design to improve the outpatient experience

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Abstract: This project explores how a design-led approach can be used to improve health seekers’ wayfinding experiences within a public hospital. It questions how communication design might support and empower wayfinding health seekers. Whilst addressing physical wellness, hospitals often overlook the high levels of stress, anxiety and uncertainty that come with this particular environment. Currently within healthcare, there is an institutional shift toward providing patient-centred care, so that the patient’s voice can be heard in the process of designing services and solutions. The vulnerabilities of health seekers within healthcare contexts mean that there is a greater need for meaningful communication. A Children’s Outpatient Department was used as an environment to explore the challenges that people face when negotiating complex environments when the attention is focused on their own, or their family’s healthcare journeys. By constraining the research initially to a specific location, full-scale in-situ prototypes were able to be installed to enhance engagement with design research and help generate deeper insights around wayfinding contexts. Thus a holistic approach to outpatient wayfinding was able to be developed, that emphasised the broader healthcare experience of the individual, and demonstrated how a design solution may support and guide this journey. Rather than investigating the environment in isolation, there was a consideration of multiple channels of wayfinding communication. These channels are crucial to prepare and support wayfinding at different stages within a journey. Wayfinding solutions should aim to empower health seekers by communicating information in ways that enable confidence and informed decision-making. The designed wayfinding solutions demonstrate the importance of cohesive and staggered information that reflects the health-seeking journey. Throughout the development and testing of these solutions, there was an
emergent need to emphasis the supporter role (parents and caregivers) when health seeking in a children’s outpatient environment due to the complexity of wayfinding tasks. Stakeholder relationships were critically important in undertaking this design-led research and testing the feasibility of designed solutions. Through probes, prototyping and project collaboration, the designs produced were able to respond to real problems, to test assumptions and validate the need for change in on-going wayfinding projects within hospital environments.

Keywords: Design-led, Healthcare, Wayfinding, Patient Experience, Communication Design

1. Introduction

“Designing for care brings a holistic and systemic design perspective to the complex problems of healthcare.” (Jones, 2013, p. 8).

Major events such as births, deaths, and diagnoses occur daily within a hospital environment. While various forms of wayfinding and health-related information are present within hospitals, they do little to demonstrate empathy or address the needs of the health seekers. The public hospital space often serves the efficiency of its staff, by focusing on their ability to provide care for patients’ physical wellbeing. In contrast, the emotional toll on health seekers that accompanies their major life events is often overlooked (Carr, 2011; Khan, 2009). Physical illness and emotional wellbeing are often viewed as unrelated entities in terms of healing, with little consideration for the often mentally exhausting journey through health systems. Consequently, health systems generally lack holistic approaches to healthcare and wellbeing (Jones, 2013, p. 3).

When a whole-person approach is taken to designing solutions, it can contribute to better health outcomes (Evans & McCoy, 1998; Ulrich, 1991, p. 97). However, the majority of design-based research into hospital design relates to inpatient rather than outpatient experiences. As healthcare moves toward increasing outpatient treatments, a gap in the knowledge has developed about those aspects that improve experiences. Recommendations are often focused on shorter waiting times and modern furnishings (Arneil & Devlin, 2002; Becker & Douglass, 2006). Good first impressions are vital, and wayfinding, being the first encounter employed for finding the appointment location, can be a significant part of this.

This paper is centred around an opportunity that arose in a central city New Zealand hospital to explore how a design-led approach might improve the health seeker wayfinding experience. More specifically, there was an interest in exploring how communication design\(^1\) could be employed to support wayfinding health seekers. Within the organisation, wayfinding had been identified as an area for improvement, and a committee of stakeholders was established. This research aimed to inform this emerging program of work, in demonstrating opportunities of wayfinding improvement. A Children’s Outpatient Department was used as an area of investigation to prototype and evaluate solutions due to upcoming renovations. As future wayfinding opportunities were explored for the hospital, communication and collaboration with staff in the hospital was vital. Healthcare staff often

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\(^1\) Communication design is a more contemporary definition for graphic design that embraces a strategic approach to designing solutions (Saldanha, 2003). Due to the relatively recent nature of the term, at times when citing texts graphic design may be used, however communication design is used to describe the practical output of the research.
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have little familiarity working with designers, a human-centred design process, design-led solutions, and as a result often have limited understanding of the potential these could offer.

1.1 Wayfinding and emotional wellbeing

Wayfinding is a multi-disciplinary field that intertwines the roles of environmental psychology, geography, anthropology, architecture and environmental design (Passini, 1980). Known by a variety of names, wayfinding continues to be the most prominent classification in terms of navigation in the built environment (Gibson, 2009). The first to discuss wayfinding as a subject in its own right, Passini (1980), defines it in relation to decision-making, as an approach for problem-solving within space and facilitating efficient navigation to a desired destination. Mollerup (2013) builds on this initial definition stating: “Wayfinding is what we do when finding our way [within] unknown quarters. Good wayshowing is user-led, [and] built on how we practice wayfinding” (p. 6). Broadly speaking, wayfinding concerns persuading the user (the decision maker), to trust and follow given cues with confidence to their end destination.

Vision is typically used to make sense of our surroundings as we seek distinctive forms to create a ‘sense of location’ (Golledge, 1992). Lynch (1960) suggests a “good environmental image gives its processor an important sense of emotional security” (p. 4). Thus, wayfinding supports users and contributes to feelings of ease within an environment (Gibson, 2009). For wayfinders, anxiety typically occurs when they become disoriented or uncertain of their current direction, usually in an unfamiliar place (Gibson, 2009). Stress and anxiety can be caused by inadequate information, or if already present, this emotive state can cause a lack of focus and the misreading of wayfinding cues (Golledge, 1992). Further, when poor wayfinding occurs, it can reflect negatively on the overall experience of an organisation (Mollerup, 2013; Passini, 1996). Thus, wayfinding is ideally designed for first-time users, anticipating needs to reduce creating potential anxiety or frustration.

Arneill & Devlin (2002) identified that patients judge quality healthcare based on what they know, such as their experience of the environment and staff interaction, rather than on clinical procedures. While person-to-person interaction is vital, the environment facilitates a first impression of the service and continues to support the experience when the staff are busy, unavailable, or when patients are waiting. A study investigating stress and anxiety within hospital clinic found by increasing medical and service information, patients became more autonomous–meaning less staff time was required due to fewer patient demands (Nelson-Schulman, 1984).

1.2 Wayfinding beyond the environment

Lawton (1996) discusses the variability between individuals and orientation, stating that individuals focus on different types of information, at different points in the journey. Berger (2009) further argues no single medium should be used support the entire wayfinding journey. Having a broader understanding of the spatial environment, placemaking can express itself in a variety of forms. Calori & Vanden-Eynden (2015) discuss signage, placemaking and interpretation (context specific approaches) as aspects wayfinding design specific to experiential graphic design practice. The text explores these various aspects of design, and how these should be considered when executing a wayfinding project.
When planning wayfinding systems, a journey map is often necessary to show the different steps and decision points one must make in order to reach the destination (Berger, 2009). This goes beyond entering the facility, extending to the first point of contact with the organisation (Berger, 2009). The prepared wayfinder is always favoured, as they have already begun building their cognitive map and, therefore, have an initial understanding of the space and wayfinding tasks prior to arriving (Mollerup, 2013, p. 68). Whilst most do not plan for short journeys, it is nonetheless helpful within complex environments, as is common in the case of healthcare institutions (Mollerup, 2013, p. 68).

Pre-visit material such as verbal information, printed collateral, maps and the Internet can enable health seekers to plan getting to their required location (Mollerup, 2013, p. 68). In this, it is important to coordinate communication across various mediums providing consistency, for example using the same names and terminology (Gibson, 2009).

Wayfinding can impact experiences either positively through communication (or negatively with a lack thereof). Encompassing the end-to-end journey of an experience, wayfinding employs a variety of communication mediums which can cover various locations and distances. As outpatients physical contact with the hospital environment is limited—often over an extended period of time between appointments and referrals—alternative approaches to wayfinding using communication design (beyond the environment) may be required.

2. Tools and methods

As this study is person-focused and has the potential to effect change with an organisation, collaborative frameworks were employed to engage health seekers and staff in the design process. Beginning with user needs, human-centred design embraces empathy and complexity, considering all factors that affect the design solution (IDEO, 2015). However, both end users and stakeholders are viewed in the same, rather than separate realities (Durall & Leinonen, 2013). Participatory design provides a collaborative mindset, outlining methods for designing alongside users in order to build ideas and problem-solve together (Sander & Stappers, 2014). Using both HCD and participatory design approaches, the process moves beyond simply empathising, to engaging and collaborating with end-users and stakeholders—which is vital in instigating sustainable change.

Travis (2009) discusses the importance of ‘Early and continual focus on users and their tasks’ (p. 19) in a HCD process. The experience map is both person and solution focused, as it analyses the current and potential futures journeys of the end user (Young, 2015). Investigating the end-to-end experience of the service, a patient role-play, observation and photo documentation revealed a snapshot of the health seeker journey, to, and within, the department. Interviews were conducted with staff to gather context to patient journeys, problems, and historical processes. From these, graphics were developed to communicate the entire journey of the Children’s Outpatient Department, from first contact with the service to leaving the hospital.

Prototyping is an attitude and an output, as it is a process for generating and reflecting on tangible ideas by allowing failure to occur early (Milligan & Rogers, 2006; IDEO, 2015). This approach serves as a platform of focused discussion around an artefact, to test and challenge the status quo as it allows others to experience something that had not previously existed (Standers & Stappers, 2014, p. 6). To demonstrate and test ideas, prototyping was continually employed—evolving from low to high
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fidelity solutions (Figure 1). Health seekers and staff evaluated prototypes (to varying degrees of participation). Due to the limited timeframe of the study, health seekers reviewed wayfinding signage through surveys, whilst hospital stakeholders participated in collaborative workshops to review the multi-component design solution. Whilst surveys were ineffective due to a low response rate, stakeholder workshops proved successful. By basing workshops around a patient role play exercise, stakeholders could better understand the design and intended user experience, making it easier to problem solve together as we explored the feasibility of design solutions.

Figure 1. An efficient way to test ideas, these prototypes of patient wayfinding letters were brought to presentations and meetings with stakeholders. The artefact helped to communicate ideas that challenged the status quo of the hospital, and traditional understanding of wayfinding i.e. signage.

As noted by Sanders and Stappers (2014) “Iterative prototyping can be viewed as ‘growing’ early conceptual designs through prototypes into mature products (or services, environments, experiences, etc.)” (p. 6).
3. Documentation

3.1 Current state

Within the children's outpatient department, wayfinding was often given verbally by staff, and health seekers often did not know when they had arrived at their destination (Figure 2). The route to the department was complex and unintuitive, with multiple stages and levels. Overwhelming visual stimuli and poor placement made it difficult to identify important communication (Figure 3). Whilst wayfinding in the hospital was challenging, limited parking was the biggest source of complaint and stress. Staff stated it was common for health seekers to arrive late, in some cases missing appointments due to issue with parking, or misreading appointment letters (Figure 4). Those arriving at the department were often regular patients due to ongoing conditions. However, despite regular visits, it was common for health seekers to be unaware of department support services, e.g. family information or play room for children.

Figure 2. The entranceway to the Children’s Outpatient Department is cluttered with pamphlets, and ad hoc signage. The ‘Outpatients’ entrance is poorly lit, with low contrasting colours.
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3.2 The end-to-end experience

The experience map began outlining the wayfinding tasks that needed to be completed for health seekers to arrive for an appointment (Figure 5). Factors such as information provided, and health
related phenomenon were analysed against the journey (following insights from role-play, observation, expert interviews etc.), to explore impact these could have on the success of wayfinding tasks (Figure 6). Through highlighting points of stress and anxiety in the outpatient experience, it identified wayfinding as a means to an end—to reach your appointment prepared and on time. Thus when executed well, wayfinding allows health seekers to focus on why they are really here—to receive care.

Figure 5. The current outpatient experience was documented from referral to the service, to leaving the building after consultation. Tasks were divided between patient (child) and supporter (parent/guardian) as it was quickly realised that due to the complexity of wayfinding tasks the supporter would be the primary decision maker.
3.3 Designing solutions

Designing for the first time user, there was a focus on easing potential anxieties at the beginning of the journey—in particular communicating hospital processes. For example, the least amount of information was given when referred to the service, despite being first point of contact. Pre-visit prototypes were addressed to the entire family, but aimed at the supporter, due to complexity of tasks.

As ongoing appointments are common in outpatient care, we explored how to better support the primary reason health seekers are here. Opportunities for invention during and between consultations were identified, such as providing a place to write questions before the consultation, notes during, and a check list for actions after—also highlighting the departments support services.
Using a placemaking approach, as opposed to more traditional signage, we explored how a ‘sense of place’ could be visually cohesive across a variety of communication channels e.g. signage and pre-visit information (Figure 7; Figure 8). This cohesion was vital as it coordinated information, tone of voice, and visual cues.

Figure 7. To counteract the visually loud environment in the hospital, bold immersive cues sketched over photographs of the space. The pixel-like treatment of windows and tiles throughout the building was used as a basis for designs.

Figure 8. The use of pixel treatment extended from the environment (Figure 9) to icon use. The aim of this was to create cohesion in all wayfinding collateral through a single visual language. As noted by Gibson (2009, p. 98), “Symbols can also establish a sense of place while functioning as wayfinding tools”.

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5 By building a branded experience alongside a wayfinding solution, a more holistic experience can occur (Gibson, 2009, p. 70).
3.4 Testing prototypes

To evaluate the prototyped wayfinding journey through the Children’s Outpatients Department, the wayfinding signage was installed in the hospital for two weeks. This required the approval of stakeholders prior, due to being in the public eye (Figure 9).

![Figure 9. When prototyping signage, the blue vinyl was easy to remove and appeared high quality.](image)

To gain feedback from health seekers on the environmental prototype, a survey in the outpatient reception was installed. However, the survey response was low (n=26), with contradictory feedback. Impressions of the entrances were inconclusive due to confusion of where the main entrance was. Many participants were unsure of what they were being asked to evaluate, not recognising the install or mistaking for other signage. Those who successfully identified the prototype suggested making the install larger, and more impactful.

Role-play with hospital stakeholders and designers was conducted to review the prototyped journey. This was over two sessions in small groups of 3–4, with a balance of hospital staff and designers. The aim of this was to maximise the possibility of engagement with busy staff and explore appetite for design solutions. Feedback focused on the importance of using simple language, logical structure to content, with clear purpose of designs. The value of the prototype approach (especially the appointment letter) was highlighted, however cost was a primary concern.

Health seeker and stakeholder feedback was analysed and consolidated to inform the following final wayfinding designs. This multi-faceted design solution—whilst not implemented—aimed to demonstrate on a local scale what the wayfinding opportunities could be when addressing the end-to-end experience.
3.5 Final prototype

Design solutions holistically explored the experience of wayfinding through healthcare, by considering both the emotional, and functional aspects of the design. When navigating complex hospital processes and environments, there was a focus on demonstrating how to reduce opportunities for stress and anxiety. In the outpatient department the referral was identified as the point in the service with the most uncertainty regarding what happens next in the process, as these are often given verbally by clinicians. As the first point of contact with the service, the document that was developed outlines the referral process, timeframe for the appointment confirmation, and contact details for queries—providing direction through hospital procedures (Figure 10).

The revised appointment letter reflects the holistic consideration of the wayfinding experience presented in two parts: essential information to navigate to the appointment, and information and prompts related to the consultation. Recommendations for parking, and patient services are highlighted where previously there was little information. Instructions are clear as each document explicitly states how it is to be used, for example numbering each communicates which to use first i.e. you must reach the hospital first in order to receive your care (Figure 11).
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Figure 11. The appointment letter pamphlet format creates columns, allowing for clear separation of information cues. Key information for health seekers, such as poor health prior to the appointment and maximum waiting times are highlighted in red to emphasise their importance.

The Children’s Outpatient Department signage ranges from large, immersive cues to explicit information. These align with visual cues from the pre-visit material, inspiring confidence that one is on the correct path. For example, the simplified arrow was large scale and placed repetitively along the route, matching the arrow on the redesigned appointment letter (Figure 12).
Figure 11. Final wayfinding insitus.
4. Discussion

Initially the scope of this research considered only the environment of the department. However, through discovering pain points in the service e.g. finding a car park, then the department itself, and the resulting stress and anxiety—the scope was reframed to explore how design may address these broader wayfinding problems.

Through using a constrained area to prototype and test potential wayfinding solutions, opportunities for improvement could then be communicated back to the organisation. This allowed for the sharing of a wayfinding approach that extends beyond signage, to consider the wider impact of communication experiences. Due to the nature of healthcare, wayfinding requires a higher degree of support due to complexity of wayfinding tasks and the emotional toll of this particular context.

4.1 Wayfinding and the healthcare experience

Healthcare has a strong bias toward the use of quantitative data for measurements of success (Jones, 2013). In contrast, design favours a more explorative and generative approach focusing on the qualities of the human experience (Swann, 2002; IDEO, 2015). Within design and health there exists a disciplinary gap, as health professionals often lack the appropriate skills for executing an impactful design solution, or designers lack knowledge about the complicated and high demands of the health context. While wayfinding is a multi-disciplinary field, a communication design approach is taken in this study, with particular attention being paid to preparation of the health seeking journey. This contrasts with traditional wayfinding approaches, where the environment is generally the focal point of the output (Berger, 2012; Mollerup, 2013).

Wayfinding within healthcare goes beyond simply navigating through an environment. This is due to the historical bias for designing systems, processes and environments around the efficiency of staff, with the result being that the hospital is both structurally and mentally difficult to navigate (Carr, 2011; Jones, 2013; Rooke, Tzortzopoulos, Koskela & Rooke, 2009). Viewing the whole person beyond a diagnosis is a rising trend; patient-centred care is beginning to change healthcare’s approaches to services, environments and experiences (Golembiewski, 2015). A holistic approach considers external factors of health and wellbeing, for example, the stress and anxiety of navigating the complexities inherent in the healthcare system. Thus, when designing communication, it must encompass the breadth of health seeker experiences, from an initial introduction to the healthcare system, to leaving the consultation and beyond. Such communication reflects the health seeking journey and the tasks therein; for example, this may be an abstract goal (achieving wellbeing), or a more detailed one (advising about peak times within the parking building).

Placemaking using environmental graphic design provides an opportunity for communicating a sense of location, identity and consistency in relation to the space and service (SEGD, 2015). Consistent communication provides similar cues, making it efficient to recognise relationships across different platforms to indicate what is relevant to the viewer (IAI, 2013). In situations where various mediums of communication occur across a significant amount of time (i.e., up to three months), cohesive information and design cues across solutions are vital. Due to a ad hoc environment and lack of an established, flexible wayfinding system, a visual system was created for this study. Whilst it was not implementable, it served as an exemplar of a consistent communication system of various mediums. However, this consistency was difficult to test, due to it being an isolated prototype within a visually domineering pre-established environment.
4.2 Stakeholder engagement

The design-led approach favours working from the ground up, from establishing the problem to building a solution, and continually questioning assumed understandings (Laurel 2003; Swann, 2002). When reflecting on the outpatient department research projects, the children’s hospital general manager stated:

[Our] work with...students [has] made me really reflect on how much healthcare speak and medical-speak we use. It’s been...good having students ask [very] practical and sensible questions... [like] ‘why would you send a letter like that to a patient?’ [types of questions made me really think about] how we communicate... [that is], as something that has meaning beyond [attending] an appointment. These things seem really simple now, but haven’t necessarily been part of our thinking previously” (Maddren, 2015 December 10).

As this was the first collaboration of this nature with the children’s hospital, the organisation was unfamiliar with the potentials of design. As such, the solutions from this research were initially regarded as provocative, however grew to engaging as support for the project developed (Figure 14). Regular critique and feedback sessions with key stakeholders was crucial to the building of these relationships. Due to the constraints of working within a traditional, hierarchal organisation, it was not possible to apply a collaborative design approach without first gaining the trust and partnership of staff and decision-makers within the hospital.

Figure 15. Stakeholder engagement was initially through regular meetings and formal presentations of current findings and designs. Role-play workshops helped stakeholders to experience the journey from a health seeker perspective, and collaborate on refining designs. As significant changes were needed to improve the hospital’s wayfinding, this exercise highlighted the potentials, scale, and limitations of wayfinding improvements.

Throughout the process, the problem was continually reframed, and designs iterated accordingly as new information and understanding emerged. Due to the collaborative and real-world nature of the
project, there was often a tension between balancing the design process (the focus on making and understanding the user) and stakeholder buy-in. Due to the case study approach to the prototype, it was realised that wayfinding on this local scale could not be replicated across multiple locations. This was due to focusing on a wayfinding journey in isolation, rather than how multiple destinations work together and are prioritised in a level, building, or campus.

Prototypes provided form to a concept that did not previously exist (Standers & Stappers, 2014) and therefore served as a communication tool from designer to stakeholder, and stakeholder to staff, where the tangible object could be talked to without the designer being present. Prototypes became a vital communication tool, demonstrating to stakeholders the opportunities and benefits of holistically considered wayfinding, in contrast to the healthcare’s traditional disparate approach to problem solving. Thus, the wayfinding journey is considered a crucial component of the whole healthcare experience, rather than a siloed function isolated to signage.

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