Finding your way with Design Thinking at the University of Sydney

Abstract

In 2013, the University of Sydney Library invited Anne Melles and Yasmin Moore from Monash University Library to deliver a workshop on Design Thinking (DT) and its applicability to the academic library setting. DT draws on a diverse range of disciplines to provide a methodological framework for user-centred problem-solving. Following the workshop, a small group was formed to investigate the way in which users move through various spaces within the library (physical and virtual), and to track their experience, broadly described as 'wayfinding'. Primary aims of the Wayfinding group were to:

A. Experiment with DT as a way of identifying user needs and propose user-driven solutions in relation to wayfinding, and
B. Develop tools and processes to help colleagues look at user behaviour from a fresh perspective.

The group conducted a series of surveys to find out what 'wayfinding' meant to library staff. This produced a working definition that guided later activities. A literature scan uncovered methods for uncovering user requirements (McGinn & Kotamraju, 2008; McQuaid, Goel, & McManus, 2003; Vyas, De Groot, & Van Der Veer, 2006). These methods included developing personas which are rich descriptions of users that allow 'designers' to step outside their own knowledge domain and see a situation from the user's point of view. Personas were developed utilising several streams of data, including the University's statistical reports, the recently completed University of Sydney Library Client Survey 2013 (Insync Survey),[1] and focused observation of library users. Further analysis of the Insync Survey data guided the creation of 'scenarios' in which users attempt to 'find their way' to complete a task. Personas and scenarios were then brought together to create rich narratives of user journeys through library space. Common themes and issues were then extrapolated from these narratives.

In applying DT principles to wayfinding, the Wayfinding group was able to propose more intuitive services grounded in the user experience. The Wayfinding group shared insights with other library project groups, helping colleagues to employ DT in the development of their projects. One instance of such collaboration informed the composition and placement of touchscreens to enhance user navigation in the library.

Introduction

Libraries are currently facing enormous challenges in terms of helping clients navigate rapidly changing online and spatial environments. The University of Sydney Library consists of 11 physical locations and offers a wide variety of services (both in person and online) to a broad range of users. In an attempt to identify innovative ways to approach the issues that arise within this varied and changing situation, Anne Melles and Yasmin Moore from Monash University Library were invited to present a workshop to library staff in 2013 on Design Thinking (DT). DT draws on discourse from a range of disciplines to provide a methodological framework for user-centred problem solving (Dorst, 2011). The purpose of this hands-on training was to provide staff with an overview of DT as an approach to creative

[1] The University of Sydney Library Client Survey 2013 was conducted in May/June of 2013 by Insync Surveys Pty Ltd. "The primary objective of the survey is to provide the Library with a way to identify key client concerns" (Insync Surveys, 2013, p. 5). The results of the survey are benchmarked against other CAUL and CONZUL libraries that have been surveyed over the last two years, providing a benchmark from which to drive service improvements.

problem solving, and how it could be applied to library specific concerns. Library staff attending the workshop agreed that the broad theme of 'wayfinding' was a central issue for our organisation, and a group was formed to investigate implementing DT methodologies with a focus on wayfinding.

This paper outlines the experiences of the project group applying DT principles and methodologies within a library setting. Discussion will focus on how the group went about finding a definition for the term 'wayfinding' within a library context; how they the used DT to research users and user needs; and how they applied these results, along with DT principles, to a small project. The primary objective of the authors is to describe the process of implementing DT and wayfinding within a library, and to reflect on the successes and lessons learned.

How Design Thinking was explored

The group's first goal was to develop an understanding of DT by using the methodology throughout the lifecycle of the project. This involved moving through one or more of the five stages of DT (Figure 1) as first described by the d.school at the Institute of Design at Stanford (2010):

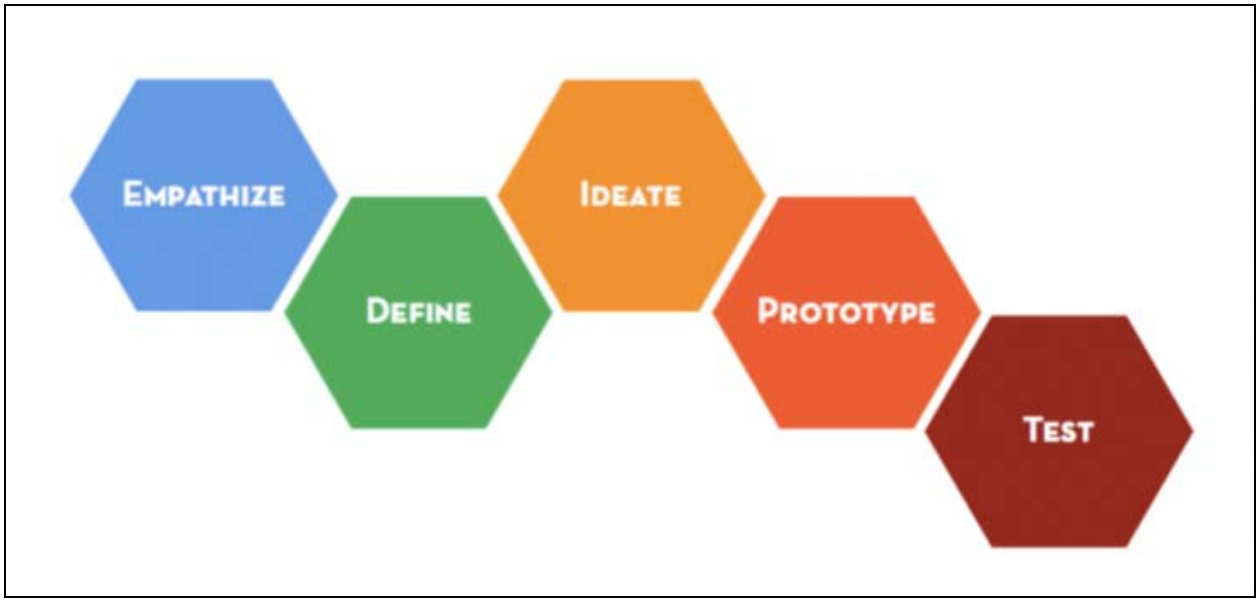


Figure 1. *d.school wayfinding stages [source: http://dschool.stanford.edu/dgift/].*

While the DT process is represented as a series of stages or steps, it is also characterised as cycle (Sato, Lucente, Meyer, & Mrazek, 2010, p. 45). Viewing the process as a cyclical activity underlines the idea that design solutions are contextually bound rather than permanent and fixed (Brown & Katz, 2009, pp. 16-17). For example, print card catalogues were only considered an ideal solution to collection access until the advent of computers. Solutions need to be revisited as the environment or user needs change.

The initial step was to empathise with our clients, who at this stage constituted library staff. However, at this early phase in the process, we lacked a clear definition of wayfinding. There was thus a need to precisely define wayfinding within the context of the Library. To avoid making assumptions, we surveyed library staff, inviting them to say what wayfinding meant to them. We also wanted to know what they thought were the most significant wayfinding issues facing the Library. Involving library staff at the beginning of the project – ideally in its

scoping phase – was crucial in fostering engagement across the library and increasing project 'buy-in' (Peccei, 2013; Beugre, 2010).

We surveyed staff then collated the responses in Microsoft Excel for analysis. We used a web tool called Tagxedo (www.tagxedo.com/), which visualises word frequency as font size, to generate a word cloud.

Using this data and verbatim comments from the survey, we were able to forge the following definition of 'wayfinding'.

Wayfinding:

> *Is the way in which structural, environmental and graphical elements are employed to provide informational cues to users that enable them to orient themselves, navigate their virtual and physical environment, and successfully achieve their goals.*
>
> *Is an intuitive and logical schema that provides users with a pain-free experience, regardless of their situational expertise; they do not have to "think like a designers" (Massanari, 2010, p. 405).*
>
> *Is clever direction*
>
> *Will provide avenues for exploration and serendipity – providing direction not only when a destination is known, but also when a destination is unknown. It is anticipatory and will enrich the user experience.*

After concluding the critical definition phase, we returned to the Empathise stage to better understand how library users experienced wayfinding. The experience of moving back and forth in the DT stages motivated the group to explore ways to better represent these reflexive loops. The group adapted the traditional DT loop diagram to emphasise the flexibility in movement through various stages in the process (Figure 2).

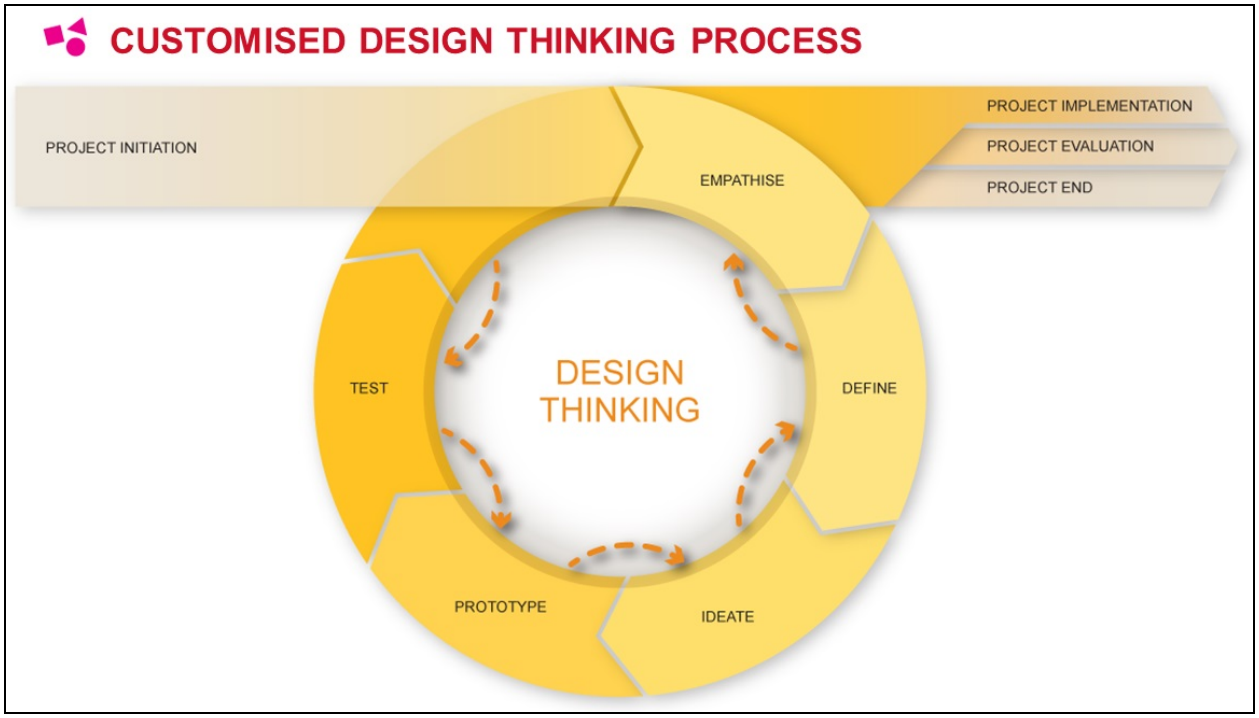


Figure 2. *Modified DT loop.*

The group also added steps to the beginning and end of the DT loop. These steps marked the Project Initiation stage as well as Implementation, Evaluation and End stages of the project. The modified DT loop also facilitated the delivery of results within our organisation's transient project-work group structure. Development of these additional stages was informed by exploration of common process stages in project management cycles (Project Management Institute, 2013).

Understanding our users

Once we had defined wayfinding and its specific use-value for library staff, we set about evaluating the impact of wayfinding on library users. Crucial to the DT approach to problem solving is the need to develop an understanding of users and their goals beyond demographic statements and stereotypes (Blomkvist, 2002, pp. 1-2). Understanding the processes through which users of a system (or product or service) achieve their goal/s underpins all aspects of the DT process – from the empathising stage through to prototyping and testing (Leifer, Plattner, & Meinel, 2011, pp. 52-53). While it is not possible for most project teams to test how every user of a system might behave when faced with a particular scenario, "deep user insights…(can be gained) through observation, empathy, and immersion in the user's context" (Seidel, 2013, p. 21), and assisted through the development and use of user archetypes called 'personas'.

Personas are narrative descriptions of user archetypes that incorporate personal traits, aptitudes, context, and motivations, for which a proposed system is designed (Massanari, 2010). Once created, personas enable project teams to imagine how various user archetypes might interact with the proposed system when trying to achieving goals, and aid the team in designing more user-centred solutions (Heather, 2003). To this end, persona development can be seen as functioning in the Empathise and Define stages of the DT process, and the subsequent use of personas in the Ideate, Prototype and Test stages. To increase internal stakeholder empathy with personas, a photograph of a real person is commonly included as part of the narrative; as Wodtke (cited in Massanari, 2010, p. 408) suggests, "the more real your personas are, the more likely you are to care about their successes or failures and the more likely you are to design a good experience for them".

There is extensive research on the benefits of using personas as part of a user-focused approach to problem solving (Miaskiewicz, 2011, p. 425). Such benefits include revealing and challenging long-held organisational assumptions about users and their needs, and focusing service development on user goals (Miaskiewicz, 2011).

While it is possible to create personas without the use of real data (McGinn, 2008) it is unlikely that the designers of a system are the intended audience (Massanari, 2010). As Nielsen (2013, p. 4) states, "It is important to remember that we always design to someone that is different from ourselves." The best project outcomes are therefore more likely to be achieved through the use of personas that have been developed using real data such as ethnographic studies, observation and demographic statistics (McGinn, 2008). Without real data, personas can tend toward stereotypes of users, which ultimately limits user-centred innovation (Grudin, 2006). For example, if we were to assume that all undergraduate students are digital natives and thus proficient in the use of new information technologies, we would run the risk of alienating a large set of clients who do not fit this mental image. Even among the more confident users of information technologies, several individuals, or groups of individual users, may not use them efficiently. Real people are more complex than stereotypes, and it is this complexity that personas attempt to capture (Pruitt, 2003).

Personas can also be an excellent way to convey “a broad range of quantitative and qualitative data” (Pruitt, 2003, p. 1) to stakeholders.

McGinn (2008) states that a common problem in the development of ‘realistic’ personas is that they are not always based on real user data, or, in cases in which they are, the data has not been collated using appropriate sampling methods. To develop the personas for our project, we made use of a range of data available through the University’s Planning and Information Office, the Library’s Management System, the University of Sydney Library Client Survey 2013 (Insync Survey), and an interview with a student.

To standardise persona development across the group, we developed a persona template adapted from templates available from the web.[2] The template was tested and further refined over the course of the project (Figure 3). Several personas were created to represent different user types of the Library. Each persona was given a personal story, or “context scenario” (Kerr, 2014, p. 261), connecting the projected user’s goals to the Library.

Figure 3. *Persona template, modified over the course of the project.*

To develop realistic, Library-specific scenarios within which the personas would interact, the group used verbatim comments made by respondents to the Insync Survey. This was a labour-intensive task that required the group to identify responses related to wayfinding, which were then collated in a spreadsheet. Comments related to wayfinding included approaches to locating books, navigating the Library website, and finding free study spaces. The comments were grouped to form clusters of similar wayfinding needs, and these clusters then became a set of broad scenarios that provided our personas with a specific purpose for engaging with the Library.

[2] For example http://guides.lib.wayne.edu/content.php?pid=405169&sid=3316259 and http://wireframes.linowski.ca/2011/03/persona-template/).

Detailed narratives were created for each persona to test how they might go about achieving the tasks presented in the broad scenarios. By combining a persona with a specific scenario, designers are able to create “a narrative that [allow] people [stakeholders] to see (and hopefully vicariously feel) what customers experience as they try to accomplish their goals” (McQuaid, 2003, p. 122). As each persona is different, possessing various competencies and inhabiting various situational contexts, personas may achieve similar goals in different ways. However, this does not mean that a broadly applied user-centred solution to a problem cannot be achieved. While it is true that different personas (and people) will go about achieving goals in different ways, a primary group of user requirements often emerges when multiple personas are put through the same scenario. Secondary needs can also be identified and can highlight issues that may present a significant problem if not remedied (Kerr, 2014).

To increase the amount of potentially useful data generated, the group created two narratives for each persona-scenario interaction. These narratives were created to conceptualise a persona’s experience when the system either responded well or poorly to their actions. By hypothesising how a persona might approach a given scenario and generating two separate narratives of their experience, we were able to generate a list of ‘pain points’ or impediments to goal attainment, as well as ideas to add value to services. To generate our list of user requirements, we analysed the narratives of several personas and recorded the needs in a spreadsheet. We further analysed the data and grouped together repeated or similar needs. The most frequently identified needs were determined to be the most important for our users, and were prioritised accordingly (Figure 4).

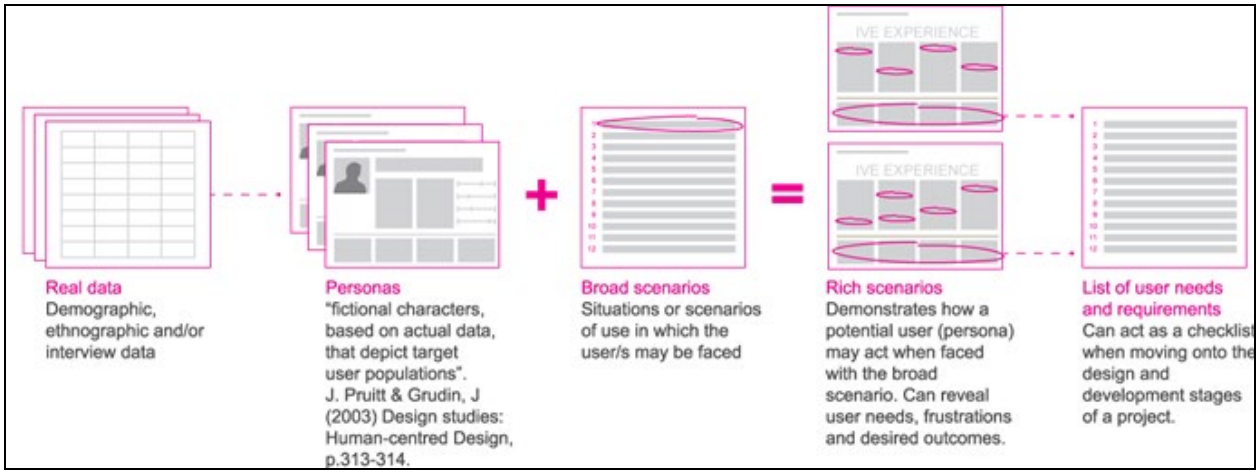


Figure 4. *The persona development process employed by the group.*

It is important to bear in mind that personas do not remove the focus of user-centred design from real users (Massanari, 2011). Personas are a tool that allows designers to investigate multiple design possibilities throughout the design process; however they do not substitute for actual user testing and prototyping (Liedtka & Oglivie, 2010, p. 7). Personas allowed us to safely test how users might operate within the library system/s to achieve their goals, and to conceptualise how features and/or deficiencies in the system/s impacted on their experience.

As mentioned previously, one of our project goals was to enable other library staff to understand and begin to incorporate DT principles in their work. As part of our DT dissemination strategy, we presented our work-in-progress at two separate staff seminars. Following our final presentation, a colleague approached us to see if we’d be interested in providing DT advice to her project group. Her group was in the early stages of developing

content for touchscreens that would be placed in various libraries. This project is the focus of the prototype discussed in the following section.

Decisions about the design of a system should be “driven by data rather than opinion”, and assumptions about users should be put “out in the open where they [can] be scrutinized definitively” (Liedtka, 2014, p. 44). To ensure that the development of our personas was not derived from assumptions, the group incorporated data from a range of sources. We analysed data from the University's Planning and Information Office and Library records to identify the number of clients in each client category:

Potential 2014 clients identified from University of Sydney statistics	
Undergraduates (first to final year)	33505
Postgraduates (coursework)	14523
Postgraduates (research)	4517
Staff (professional)	4062
Staff (academic)	3465
Additional 2014 clients identified from Library records*	
Alumni	1535
Community	1075
Educational associates	804
Affiliates	227
* records created after 21/10/2014 are not included	

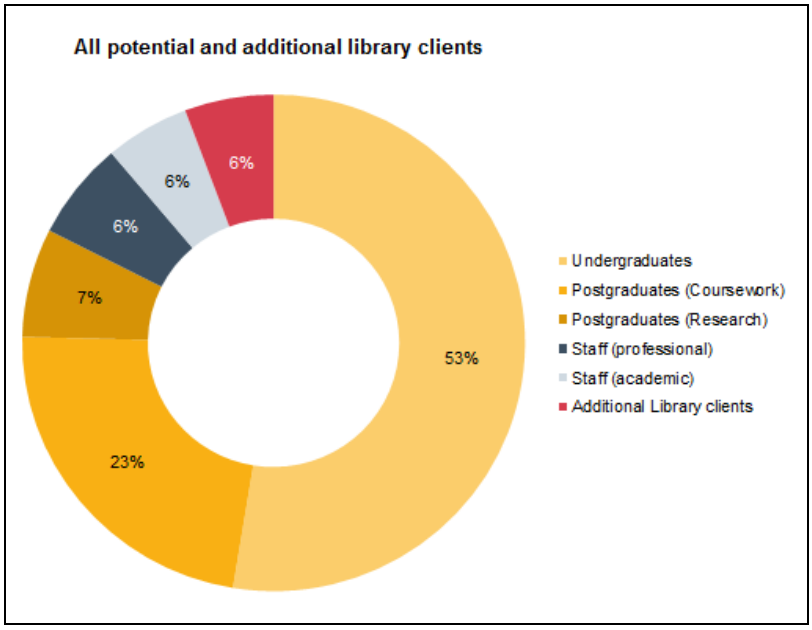
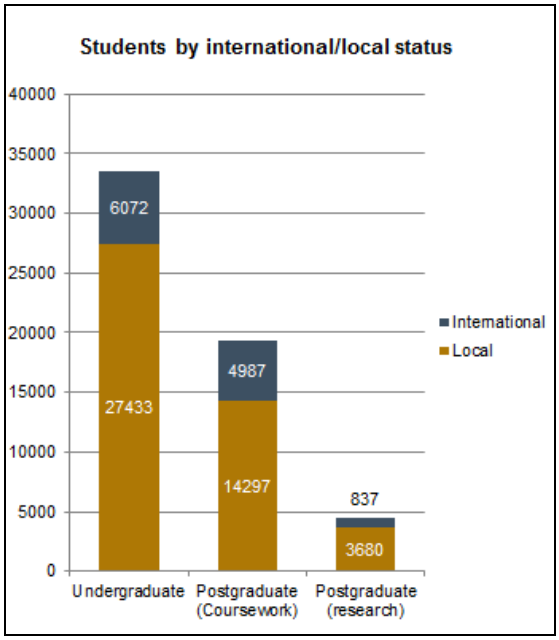


Figure 5. *Library client groups.*

As students represented the largest client group, we further analysed the student cohort data by international/local and full time/part time status.



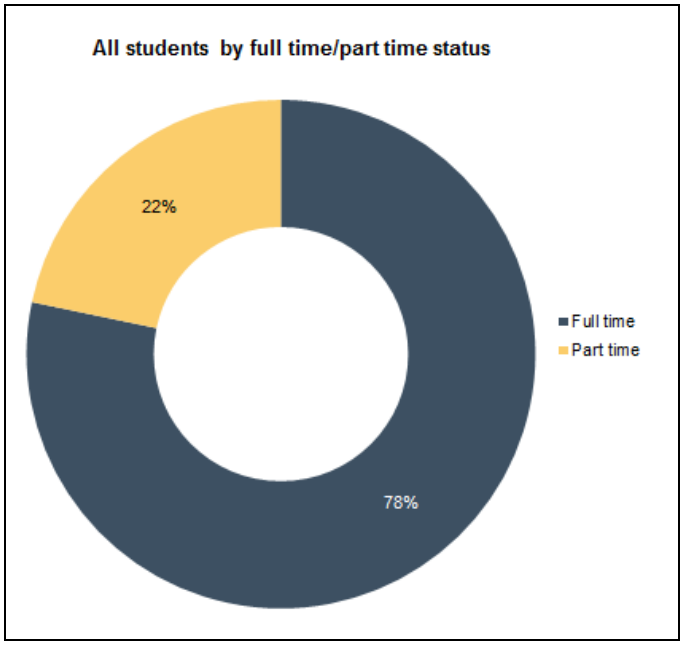


Figure 6. *Student cohort analysis.*

This analysis enabled us to decide how many personas were required for each client type. For future projects, we would use this data to create a sampling strategy to determine how many individuals we would need to interview from each category in order to identify behavioural patterns that would feed into the creation of personas.

Nineteen personas were developed:

- Seven undergraduates
- Three coursework postgraduates
- One research postgraduate
- One professional staff
- Six academic staff
- One additional client

Six academic personas were developed to account for the distinct sub categories within this group, such as research appointments, casual tutors, and teaching/research appointments. One academic persona was developed using interview data. As more real data was used to shape this persona, thus reducing bias, incorporating real data into the persona development process will be championed in further projects. All personas included a narrative to flesh out their personality and motivation for interacting with the Library, and were peer-reviewed by the group.

Figure 7. *Sample of personas developed.*

Broad scenarios were identified from the Insync Survey:

Persona:

- Has a citation and needs to locate the source
- Wants to find general area about subject X
- Has a call number for an item and needs to locate it
- Wants to borrow an item
- Wants to find a quiet study space
- Needs to print/photocopy
- Needs to get an item from another library
- Wants to find a group discussion room
- Needs research assistance (H-index, literature search and reference management).

Two narratives were developed for each persona that conceptualised how they might go about achieving the scenario goal. The narratives tested what the persona would experience when the library system facilitated or did not facilitate the achievement of their goal.

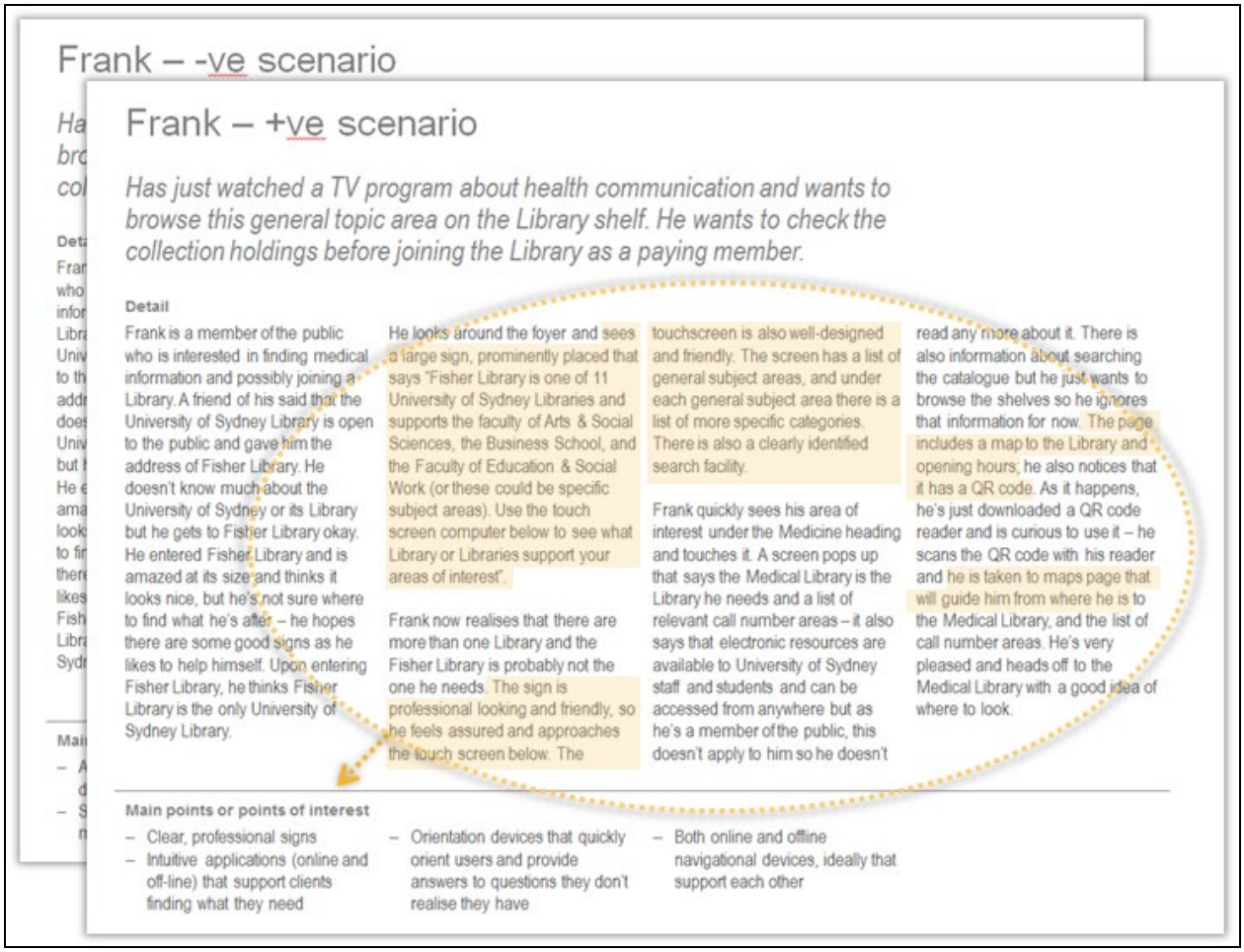


Figure 8. *Sample of two narratives created for one persona.*

Similar themes emerged when several personas were run through the same scenario. These formed the basis for our user requirements list.

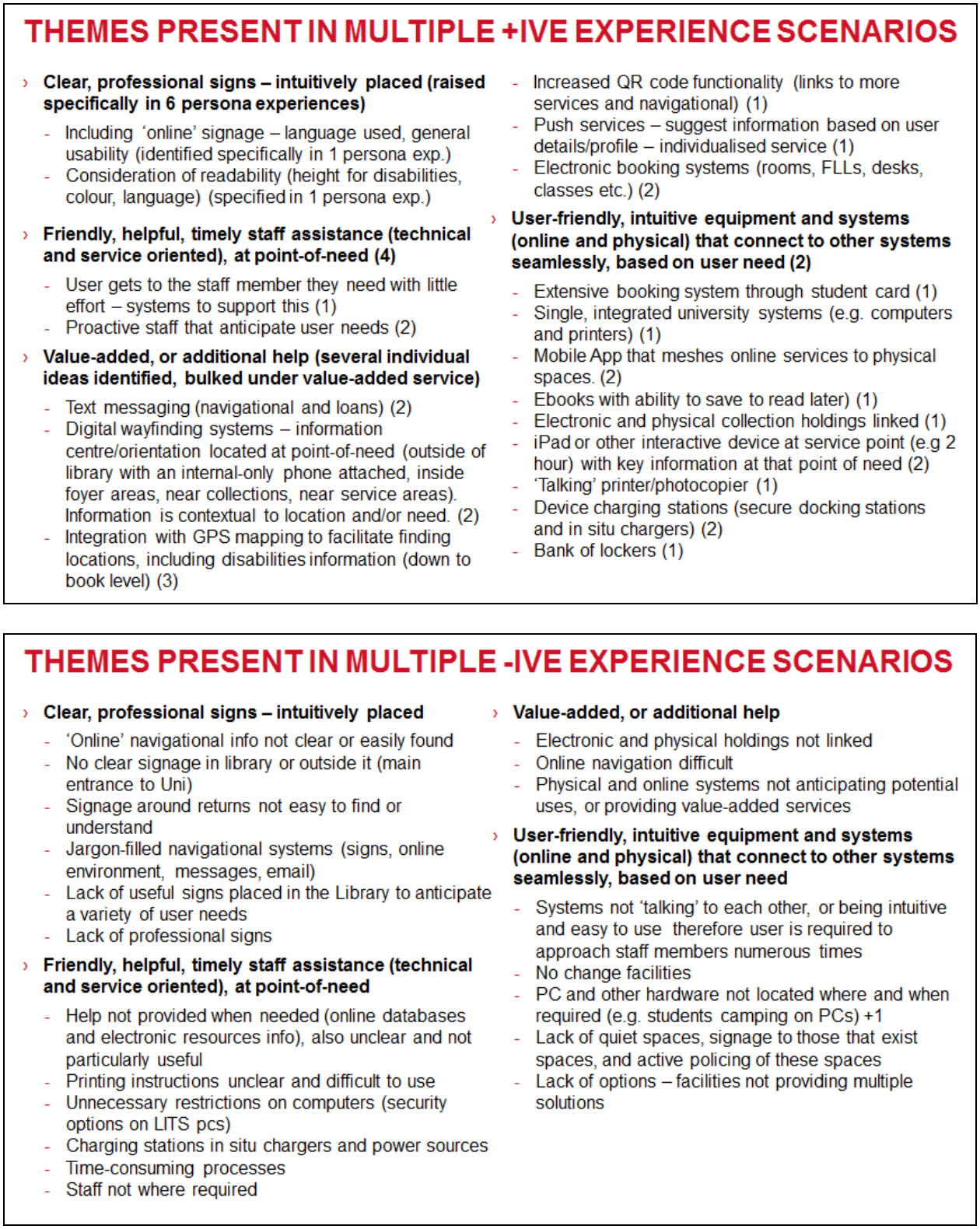


Figure 9. *Themes identified in persona narratives serve as user requirements.*

Following our user requirements analysis, it became clear that the most important wayfinding issue to address was 'clear, professional signage – placed intuitively to meet user needs'. This category included online and offline 'signage', language, placement, and anticipatory systems.

Touchscreen prototype

The Wayfinding group's collaboration with the Touchscreen group was an ideal opportunity to prototype how the Library could improve its signage through DT. From the outset of our involvement with the Touchscreen group, it was clear to all stakeholders that we were to function as DT consultants rather than drivers of the project. This meant that we could guide the direction of the project and make recommendations, but not make or implement executive decisions. Specifically, we aided the group in empathising with users and defining user needs. The process of helping other staff ground their project in DT principles crystallised our own understanding of DT methods.

Our first task was to determine the settings for the touchscreens. The University of Sydney Library is distributed among 11 physical locations, and we wanted to ensure that a representative cross-section of libraries were sampled. Ultimately we implemented the survey in four settings: the Fisher, SciTech, Medical and Nursing libraries. In addition to considering the spread of subject areas represented in our sample, we considered variables such as the size, physical layout, and geographic location of each library. We were interested to discover whether different client groups were interested in different things, and whether a library's composition and location affected results. Triangulating our data enhanced the robustness of our study (Denzin, 1970, p. 301).

In keeping with the integral Empathise stage of the DT process, our second task was to understand what users would like on the touchscreens. Initially, the Touchscreen group planned to ask clients to choose which topics they were interested in from a predetermined list. However, the Wayfinding group suggested that this approach made too many assumptions about what clients wanted, especially in light of the fact that we were rolling out the touchscreens in multiple locations, and that a diverse mix of clients would be surveyed. Instead, we suggested asking clients to nominate what they would like, thereby enabling themes to emerge from the data. This inductive approach not only complies with DT theory (Leifer et al., 2013, p. 5), but qualitative research best practice (Bryman, 2012, pp. 26-27).

We needed to employ a data collection technique that captured the ideas of clients entering the physical spaces of these libraries, not those who solely interact with our website. Consequently, an online survey was inappropriate in this context. After scouring the research literature for inspiration, we discovered a study in which the researchers used a flipchart survey to gauge client feedback about library spaces (Pierard & Lee, 2011). The idea of implementing a flipchart survey was appealing to us in a number of respects: it was simple to both design and execute, was relatively inexpensive, and contained a social dimension. Indeed, this mode of data collection would enable participants to "see, respond to, and build upon one another's comments" (Pierard & Lee, 2011, p. 197). We structured our questions such that they were open-ended and deliberately adopted a friendly, informal tone to encourage participation (Figure 10).

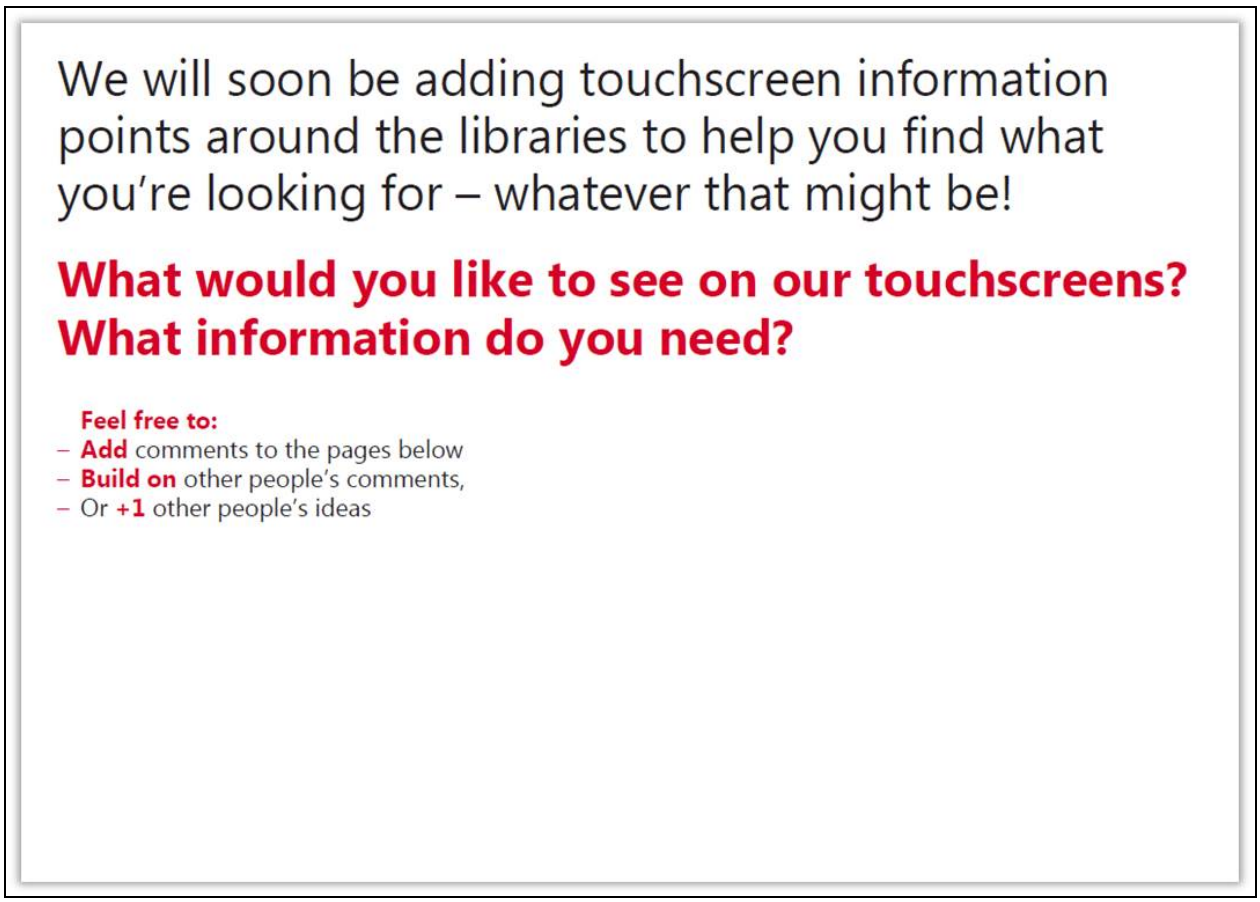


Figure 10. *Flipchart survey.*

We ran the survey from 18 to 24 November 2013. The exact number of respondents was impossible to determine due to the fact that clients could make as many suggestions as they liked, and some clients only chose to 'agree' with comments that had already been made rather than contributing original content. Overall, across the four libraries surveyed, a total of 129 unique comments were made.

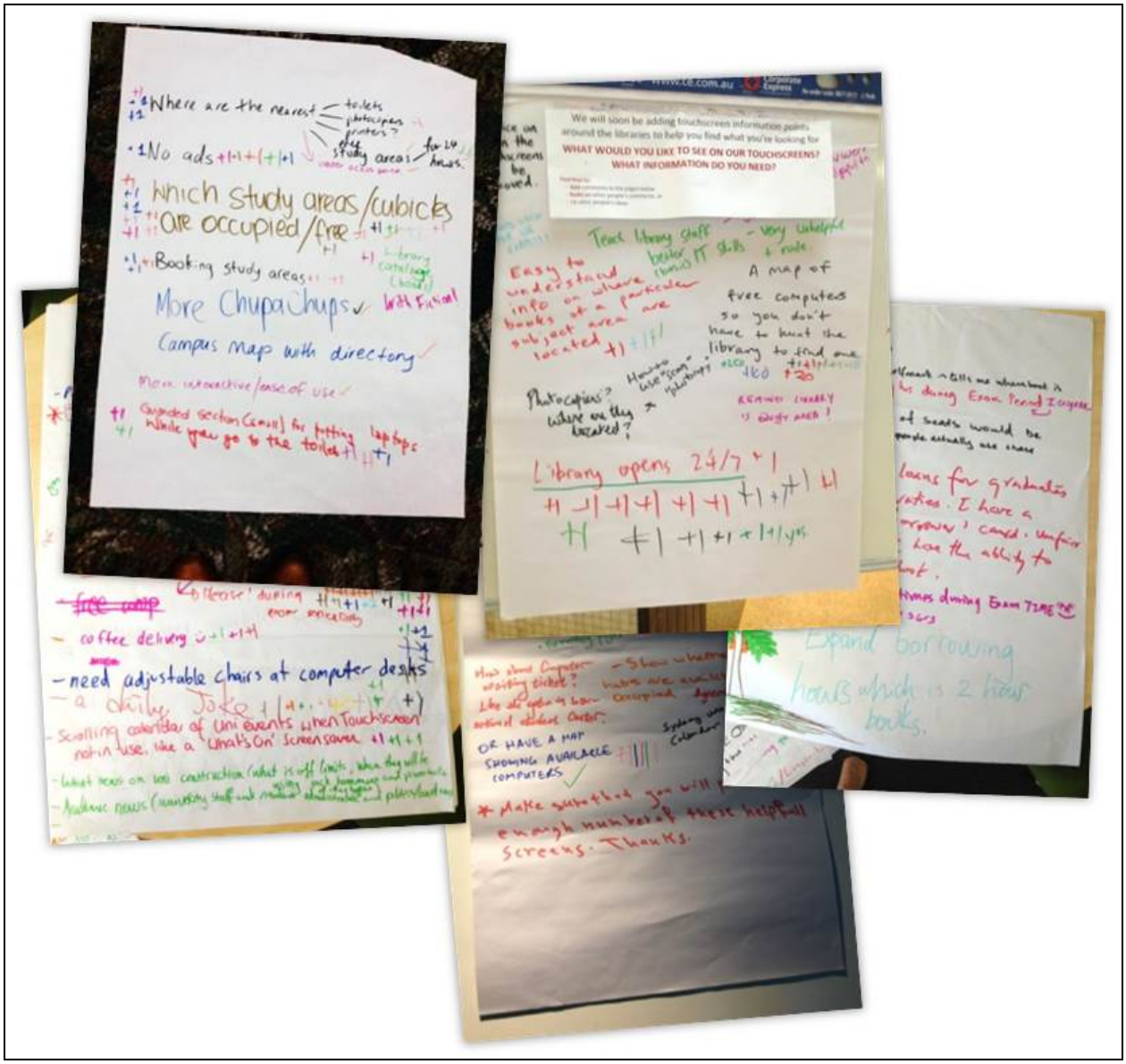


Figure 11. *A selection of responses to the flipchart survey.*

At the conclusion of the survey, we photographed each sheet and tabulated the data, ensuring that comments from each library were initially kept separate in case themes unique to particular locations could be identified. Due to the relatively small-scale of this project, the process of tabulating data was not onerous. However, if a larger-scale project were to be initiated in the future, we would be interested in employing technology such as electronic whiteboards and OCR software to automatically tabulate data. Once all comments from each library as well as '+1s' (similar to 'likes' on Facebook) were compiled, we collated this data into a central spreadsheet to identify universal themes.

To complement the flipchart survey, we undertook a concurrent observation study in the SciTech Library to determine the ease with which clients were able to navigate their way through library spaces. It was impossible to make judgements about whether clients ultimately found what they were looking for, unless they actually approached the information desk and asked specific questions. However, we could speculate on the ease of their experience by taking note of the following:

- How quickly did clients move through the space? Did they linger in particular areas?
- What did their demeanour indicate? Did they appear frustrated, neutral or pleased? This necessitated familiarisation with the research literature on interpretations of body language (Wharton, 2009, pp. 1-3).

We recorded these observations in a reflection diary, taking note of the time of day as well as any interactions with library staff. In conjunction with the results from the flipchart survey, our notes helped identify navigational pain points for clients, which in turn helped clarify what should be included on the touchscreens.

In addition to investigating what clients wanted on the touchscreens, we wanted to discover where touchscreens should be located to ensure they were encountered at the clients' point of need. We were mainly interested in whether particular traffic routes into, out of, and within library spaces were more heavily used than others. We initially considered using photocopied maps of library spaces to track client movement, but the thought of needing to preserve and collate data recorded on paper was unappealing. Moreover, we ideally wanted to overlay all observed paths, and a paper solution did not lend itself to this outcome. A digital tool was more conducive to our purpose. We ultimately discovered an iPad app called 'People Watcher', which enables the observer to track participant movements and add behaviour data points and research notes in real time (Dalton, Dalton, Hölscher, & Kuhnmünch, 2012). A small-scale observation study using People Watcher was undertaken at the Medical Library on 14 and 19 November, 2013. Forty-two observations were made.

The flipchart survey, as part of the Define stage of the DT process, enabled us to identify what users wanted from the touchscreens (Figure 12). Similar themes emerged at each library surveyed, indicating that the composition and design of touchscreens should be the same at each location. In addition to making comments related to the touchscreen, clients also commented on library resources, services and facilities more generally. Several clients also offered comments that could be construed as frivolous, such as "train timetable", "good luck for the exam", "a daily joke", and "maybe a Wii or an XBox or 2?" While it would be easy to dismiss such comments as unrelated to our purpose, we tried to interpret all feedback constructively. For instance, the train timetable comment reminded us that we shouldn't consider library spaces in isolation to the broader campus and local community infrastructure. Similarly, the comment relating to gaming consoles may indicate an underlying need for more 'relaxation' zones in our libraries, an essential design consideration according to some commentators (Thornburg, 2014).

	A	B	C	D	E
1	What information do our clients want to be able to access on a touchscreen?		Libraries surveyed: Fisher / SciTech / Nursing / Medical		
2					
3	**Comment**	**# of +1**	**# of ticks**	**Additional notes / comments**	**Library**
4	**Touchscreen-related comments**				
5	Where the books are				Fisher
6	Easy to understand info on where books of a particular subject area are located	3			
7	Where books for subject areas are located	2		Including other libraries	Fisher
8	Library map: put in book mark - tells me where book is				Fisher
9	Quick guide on which books are where				Fisher
10	Where there are free study spots	2			Fisher
11	Need a sign showing where in Fisher/rest of campus the free study seats are -- like a carpark meter, e.g. "4th floor, 3 spaces"	2			Fisher
12	Group study spaces (available ones)	1		Yes!, I agree, Ditto, 'smiley face'	Fisher
13	Desks on level 2 free				Fisher
14	Where/how many available computers				Fisher
15	Available seating in the upper levels (where/how many)	1	4		Fisher
16	How many computers are free on each level		1		Fisher
17	How many computer are free and where	12			Fisher
18	Computer availability - how many? Where?	8			Fisher/SciTech
19	No. of available computers and roughly where they're located				
20	showing available computers in the library				SciTech
21	A map of free computers so you don't have to hunt the library	6			
22	Which computers are available to use? Which ones are free? (Parking lot)	1			Fisher
23	available computers	1 + thumb up			SciTech
24	how about computer waiting tickets like the system in international student centre	7		or have a map showing available computers	SciTech
25	to find one				
26	Empty number of seat would be nice (but how would people actually use these info points)				Fisher
27	Where the free computers are in the library	1			
28	visual map of library with book index	2		free computer with the map / showing call no. ranges in each section	SciTech
29	Maps	1			
30	Maps showing where other libraries are				SciTech
31	Good luck for the exam				
32	How to use "scan" "photocopy"				
33	Photo copiers - where are the located				
34	Nearest Catalogue Computer	1			Fisher

Sheet1 Sheet2 Sheet3

Figure 12. *A snapshot of comments received in the flipchart survey.*

In terms of feedback related to the touchscreen, two prominent themes emerged. Firstly, clients desired real time data relating to the availability of library facilities, particularly computers and study spaces. They didn't simply want to know where study rooms were located, but which ones were currently in use. This related to the second major theme, which was the desire for graphical representations of library resources and facilities. Clients weren't simply looking for explanatory text – they wanted to see, for example, where the books about architecture were located in that particular library, and be able to pinpoint the precise location of available computer terminals.

As mentioned, many of the comments made by clients were unrelated to the touchscreen *per se*, but were nonetheless relevant to library staff. The overwhelmingly popular response was to open libraries for 24 hours a day, 7 days a week. We fed such data back to all project teams across the University Library on the assumption that it may be useful in other contexts. Fisher Library opened a 24 hour study zone in August 2014; our data provided part of the rationale for this measure.

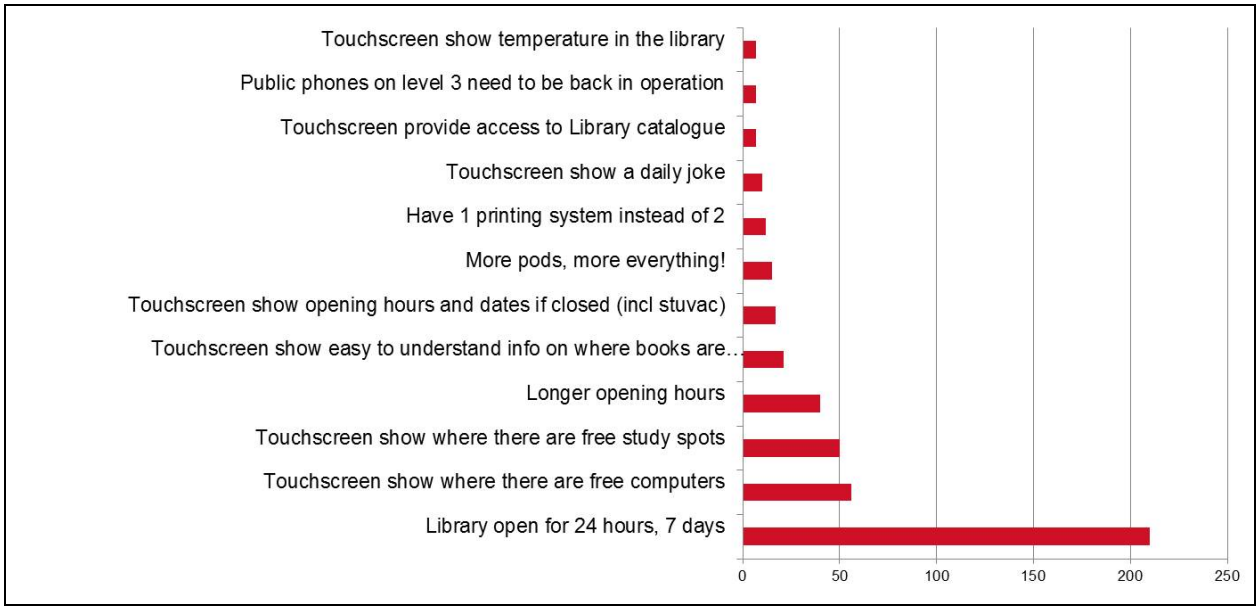


Figure 13. *Most popular suggestions gathered from the flipchart survey.*

In addition to telling us what clients wanted on the touchscreens, the flipchart survey tacitly told us what they *didn't* want. For instance, one of the touchscreen options initially proposed by the Touchscreen group was 'library exhibitions'. This was not suggested at all in the flipchart survey, indicating it shouldn't be included on the touchscreens.

Our concurrent observation study conducted in the SciTech Library revealed a number of navigational pain points. Many clients:

- Couldn't locate the returns chute, despite the observation period coinciding with the end of the academic year
- Were unable to differentiate between printers, photocopiers and scanners
- Assumed there was only one printer in the Library – the device directly in front of the Information Desk. In fact, there are two other printers located near the training rooms on the far side of the Library.

These observations all seem to indicate an underlying problem with signage in the Library. The observation relating to the returns chute perhaps also indicates a flaw in the initial design of the space. We realised that the capacity to highlight these facilities graphically should be incorporated into the design of the touchscreens.

Our observation of Medical Library clients revealed some interesting insights into client behaviour:

- Upon entering the Library, many clients first headed to the bathroom
- A significant number of clients did not use the Library's computers (as indicated by journey start and end points plotted in desk areas)
- Questions at the Information Desk on both occasions related to Medical Library opening hours, reinforcing the data we obtained from the flipchart survey
- People seemed to know where they were going (as indicated by the speed at which clients were walking, and a lack of pauses and backtracking).

Legend:
Orange = Journey start
Brown = Journey end
Yellow = Question asked
Blue = Pause

Figure 14. *Plotted client journeys, as recorded by the People Watcher app.*

The results seemed to indicate that in this particular library a touchscreen should be installed just to the right of the end of the passageway adjacent to the information desk. This would capture the majority of traffic heading towards the toilets. However, it is important to note that our sample was small and that conducting observation at a different time of year may yield vastly different results. Indeed, given this study occurred at the end of the academic year, it would be fair to assume that most clients were already spatially familiar with the Medical Library. Moreover, the size and layout of this library arguably limited the number of routes clients could take. We deliberately chose to trial People Watcher in a relatively small library so we could better familiarise ourselves with the technology. However, it would be instructive to conduct a similar study in a larger library that had many more potential traffic routes.

Conclusion

DT, effectively a creative approach to problem solving, places the user experience at the centre of the process. By incorporating DT strategies, libraries can ensure that clients remain integral to the design and delivery of services. DT is not always an easy or intuitive process, and dedicated staff time and effort, management support, and staff willingness to question long standing assumptions is required for its continued success.

The achievements of the project included defining ‘wayfinding’, documenting a DT process that suited our needs, developing tools and processes which have been shared with other colleagues, creating an archive of personas, and prototyping our tools and processes in collaboration with colleagues to implement touchscreens in the Library. Through using DT to explore wayfinding, we learnt that:

- DT needs to be run in conjunction with a project management framework
- Involving staff at the beginning of the project increases engagement and project buy-in
- DT is a time intensive process
- DT is a practice that requires reflection throughout every phase of a project
- Carrying through with the DT method from the inception of a project until its conclusion will help ensure that users are maintained as a central focus throughout
- As users are the focus of DT, being open to having your ideas challenged is essential
- Fiction can never replace real data or usability testing
- All data can be reused in a variety of contexts; it is therefore important to ensure that it is discoverable and shared with others
- Explaining DT to staff outside the project helped us refine our persona development processes, and further embed user-centred problem solving at an organisational level.

In applying DT principles to wayfinding, the Wayfinding group was able to propose more intuitive services grounded in the user experience, and identify themes that may not have surfaced otherwise. For example:

- By developing personas and scenarios as part of the DT process, we not only identified aspects about the Library that impacted negatively on the user experience, but aspects about adequately working services that could be changed to enhance the user experience. In this sense, DT functioned as a mechanism for both creative problem-solving and continuous service improvement
- By keeping users at the heart of the design process we were presented with ideas of which we hadn’t conceived. For example, by selecting a data gathering tool that permitted qualitative responses, we gathered a range of responses we had not anticipated. Some of these responses, while not necessarily related to the questions being asked, helped the group gain further insights into what our users need from the Library, which was overwhelmingly 24/7 access to Library computers. The data gathered by our group in regard to 24/7 access to Library computers was used by another project team to put a case together for increased Library hours, and in mid-late last year, 24/7 access to a section of Fisher Library was achieved.
- By creating personas we were better equipt to make decisions that took into account the complexities of real people – for example, users can be experts in some domains and novices in others. The process of ‘storytelling’ and detailing how personas interacted with the Library helped crystalise this idea for us, and provided us with insights to how our services can be best designed to meet the needs of our users.

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