From industry to academia: user-centred design driving library service innovation

Sue Mehrer
Deputy Librarian, Cambridge University Library

Andy Priestner
Futurelib Programme Manager, Cambridge University Library
What can academia learn from industry?

Cambridge University Library
We need to create services that people now expect
What is user-centred design?

“Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.”

Tim Brown, President and CEO of IDEO

“Design thinking is a deeply human process that taps into abilities we all have but get overlooked by more conventional problem-solving practices. It relies on our ability to be intuitive, to recognize patterns, to construct ideas that are emotionally meaningful as well as functional, and to express ourselves through means beyond words or symbols. Nobody wants to run an organization on feeling, intuition, and inspiration, but an over-reliance on the rational and the analytical can be just as risky. Design thinking provides an integrated third way.”

https://www.ideo.com/about
Why needs AND behaviour?

‘What people say, what people do and what people say they do are entirely different things’

Margaret Mead
anthropologist
(1901-1978)
Design techniques are used extensively in industry but are still relatively new to the HE sector.

What if we applied them in Cambridge?

• Seeking to uncover latent needs and practices by observing the behaviour of a community of individuals by following ethnographic and UX (User eXperience) research approaches

• Harnessing the insights derived from the process to design products, spaces and services based on evidence
First steps

Research with students

- Diary studies with 25 x 1\textsuperscript{st} year undergraduates exploring their study behaviour
- Depth interviews with 25 x 2\textsuperscript{nd} and 3\textsuperscript{rd} year undergraduates on study routines
- Short Walk-up interviews with 112 library users on use of library spaces and services

Research with academics

- Participatory shadowing of 10 academics to understand their daily activities
- Contextual interviews with 25 academics on research activities and publishing

https://flic.kr/p/fuGmZu
First Outputs: Student Personas

Meet our personas...

Katrina
“I don’t know how people even find time…”

David
“Being president of my JCR will help get me a job at a top firm”

Matias
“I want to do well, but I want to enjoy my life here too.”
**First outputs: Academic personas**

### Wants to be the expert

**Julia, 54**

"I want to be the expert that people look to when they think of my field. Reaching the right audience is key."

**Background Information**
- **Departmental position**: Professor
- **Discipline**: History and Philosophy of Science
- **Title of work**: *...
- **Published**: Journals, books, conferences, media

**Key Characteristics**
- Market-handicapped
- Ogilvies academic network
- Seeks external support

**Publishing approach**
- **Strategy**
  - Focus on impact
  - Engages with readers

**Influences and motivations**
- IFI
- Career
- Status
- Technology
- Seeking
- Influenced
- Mentor
- Innovation
- Expertise

### Wants to change the world

**Ivan, 62**

"I publish now to influence the world, not to influence my career; I just want to be read."

**Background Information**
- **Departmental position**: Senior Fellow
- **Discipline**: N/A
- **Title of work**: *...
- **Published**: Journal, book, conference, blog, Twitter

**Key Characteristics**
- Reaches out to the world
- Advocates blogs
- Connects through social media

**Publishing approach**
- **Strategy**
  - Focuses on impact
  - Engages with readers

**Influences and motivations**
- IFI
- Career
- Status
- Technology
- Seeking
- Influenced
- Mentor
- Innovation
- Expertise

---

**As a professor with a lot of experience, I want to get recognized for my work and get rewarded with funding. My reputation is everything.**

**What motivates me**

I want to be recognized for my expertise and raise the profile of the department in academic circles and the community at large. This helps us secure additional industry funding and get more people in the department valuable exposure. I focus a lot of effort on my research group which continues to receive excellent funding. Having a great track record of winning grants is great for my career.

**Where I want to go**

My career and reputation mean everything to me. I regularly consult in industry and was thrilled to be asked to appear on Question Time and Radio 4 last year. Getting my work noticed by a big newspaper is my next goal.

**My approach**

I have established relationships with my publishers. My work needs to be read by the right people. What are they going to do next? I want to make sure that once we're publishing in themes, it's there. I publish regularly but recently decided to concentrate on writing books as those impact is greater for both my reputation and the department.

I recently started using social media to promote my work and ideas on my blog. I can use it as a positive tool for tracking citations and impact factor, but I don't want my blog to become too much, yet. It's important that the information is understood in context. I've been a bit of a naysayer to journals sharing quotes out of context before and I want churlish copy. They are more tangible and protect me if the online version disappears.

**What frustrates me**

Published articles need to be peer reviewed, which is a lengthy process. I need to know my work will be read.

**What I think about Open Access**

The current system works perfectly well until you see how we need to change. I'm apprehensive about Open Access. I'm worried people will take my material out of context and lose its meaning. When knowledge is freely available people don't respect it as much.

I'm nervous about licensing issues. Arranging licensing and paying for them is always a chore. There is very little help and it all gets a lot more complex with Open Access.

**Why are they a challenge?**

Julia has entrenched publishing strategies and established relationships with publishers. Introducing new methods will cause resistance. She needs to know the care will still achieve her goals and meet RCUK compliance with Open Access.
First outputs: User journey maps and ‘pain points’

Mid-career, solo researcher
Lecturer, Humanities

“If I got offered a professorship somewhere else I don’t think I’d take it. Everyone is here because they want to do research and Cambridge has fantastic resources”
First outputs: Experience map

Research & publishing experience map

- **Change the world**
  My goal is to reach and affect the widest possible audience, including the public, policy makers, industry as well as academics. My attitudes and publishing strategies reflect this goal.

- **Excellent mentor**
  My goal is to provide the best possible foundation of experience and skills for the researchers whom I have responsibility for. My attitudes and publishing strategies reflect this goal.

- **Explore my field**
  My goal is to explore my field. The process of discovery and refining my proposition is everything to me. Publishing as such, is not central to my work and my attitudes and publishing strategies reflect this.

**Genesis & Pre-publication**
- Triggers
- Hypothesis, research, writing, speaking, preparation and submission to a publisher

**What academics do from genesis to publication of research**
- **The expert**
  My goal is to become the acknowledged expert in my field. The benefits accrued through this will permeate throughout my department and discipline. My attitudes and publishing strategies reflect this goal.

**With the publishers**
- The work is submitted to the peer review process

**Post-publication**
- The work has been published

---

**Solo researcher activities**

**Research & writing experience map**

- **IP**
  - Researching
  - Writing and publishing
  - Intellectual property

**Post-publication**
- Publishing
- Sharing
- Repeat
Futurelib: an embedded research programme

An ongoing research programme adopting user-centred design techniques to carry out detailed exploration of the current user experience of Cambridge libraries.

Undertaking a range of simultaneous projects in collaboration with a design consultancy and drawing on the time and expertise of library staff in order to conduct qualitative research based on ethnographic methodologies.

Regularly generating ideas for, and designing, new products and services to shape a user-focused ecosystem which better integrates digital and physical resources, services and environments.

Project managed and coordinated by a dedicated staff team.

http://www.lib.cam.ac.uk/research/futurelib-innovation-programme
Rapid prototyping

Futurelib is underpinned by design industry approaches in the way it brings products to its library market.

Whether we are creating or testing a new interface, a new space, or a new service we will take a prototyping approach: an early model, or release of a product built to test a concept or process.

We also prototype at great speed, iterating and building on our initial designs as new information and feedback comes to light.
Minimum viable product

A product that has enough features gathered from research to ensure its deployment and use, ahead of continued development

Benefits of a ‘MVP’:

• Test a product hypothesis with minimal resources
• Reduce investment of time, money and effort, through fewer hours of engineering and committee discussion
• Gets product to customers ASAP
• Generates early buy-in
• Accelerates learning about the solution
• Allows you to ‘fail forwards’

https://flic.kr/p/8ZBnHD
Futurelib case study: Spacefinder

A web-based product that shows Cambridge users study spaces inside and outside of libraries that matched their specific study and facility requirements at any one time e.g. study alone in silence; work with background noise; find a private room for group work.

Developed over the summer of 2015 and first deployed as a pilot in October 2015.
Futurelib case study: Spacefinder

Ethnographic research:
Diary studies with students; tracking of their movements around the city with a running app; interviews with them about their needs

Idea generation:
Interviews with experts; idea generation workshops with librarians; identify emerging themes
Futurelib case study: Spacefinder

Spacefinder is conceived: a way of both meeting study preferences and promoting the abundance of hidden and underused library spaces in Cambridge. Simple pen and paper wireframe drawings are made to show how it might work.
Futurelib case study: Spacefinder

Further research:
Collaborative design workshops are held with students to find out more about their professed study preferences

First prototype:
A *faux* smartphone app version of Spacefinder is tested with students ahead of further iteration
Futurelib case study: Spacefinder

User interface design:

Interface is designed based on user feedback and testing. Crucially it doesn’t contain all features that have been requested - it is the minimum viable product that will be the pilot web service with which we will launch.
Futurelib case study: Spacefinder

Parker's Piece
This wide open space is located between Mill Road and the centre of town, and is easily accessible by foot or bike. There are trees and benches around the edges of the common, and various eateries nearby including cafes and chairs at one.

The Free Press
A small, cozy pub that is quiet during the day and lively in the evening.

Geography Library - Computer Area
A small area with computing facilities includes an exhibition area showcasing some of the research carried out by members of the department.

Geography Library - Reading Room
Futurelib case study: Spacefinder

26 Oct 2015

The website that'll change your studying life forever

Story: Jemima Jobling  Twitter: jemima_jobling

OCTOBER 21, 2015

Related Stories

Books: Busting the Myths in Oxbridge Fiction
OCTOBER 25, 2015

Books: The Top 10 Free Books for Kindle
OCTOBER 17, 2015

Books: A literary foundation: The wisdom of children's books
MAY 13, 2015
Futurelib case study: Spacefinder

“I wanted to write personally, to thank you for Spacefinder, and tell you how useful students are already finding it. This is an achievement which shouldn't be underestimated. I thought you might be amused to know that the general response has been one of sheer astonishment that the University have helped produce something so up-to-date and relevant to student life!”

Poppy Logan
(Cambridge University Students Union – Welfare and Rights Officer)
Futurelib case study: Spacefinder

Statistics:
12,968 sessions in 8 months
38% of users are returning visitors
Average session duration: 2m 49s

Version 2:
Released in time for third term with further iterations, based on usability testing and user feedback; colour-coding of pins; enhanced search results; more images; more searchable facilities; improved information for disabled students
Futurelib case study: Spacefinder
Futurelib case study: Spacefinder
Some overall Futurelib findings

- Spaces with a range of intensity gradients
- Spaces as buffers between home and work to extend length of stay/increase endurance
- Space provision for "multi-medium" work (space provision)
- Option to reduce personal space requirements during peak periods/high demand
- Positive zoning/signage of areas without being prohibitive
- A range of space types to increase endurance = productivity
- Changes of scenery (variety)
- Longer stay environments need more space provision per person
- Primary, secondary, tertiary activity provision
- Spaces with different degrees of transience
Complexity

These research approaches reveal a highly complex and sometimes contradictory picture of our users’ lives

- Sophisticated and nuanced way of understanding context and culture

- It takes time to process the findings from the large complex datasets we have collected, but the occasional nuggets of gold we find make it all worthwhile
Futurelib research surfaces findings relating to health & wellbeing

- Students need a choice of environments in order to maintain wellbeing.
- Strong correlation between productivity and wellbeing.
- We need to consider our users’ lives holistically. As Lorcan Dempsey said: ‘we should be talking about the library in the life of the user, not the user in the life of the library’
‘You couldn’t make this stuff up’

During Futurelib research projects we are regularly surprised by our findings …

• most students use Spacefinder, a GPS technology–enhanced service, from a laptop or PC

• kitting out an informal space for social breaks with sofas and finding that users preferring to sit at desks

• conversely, users wanting to conduct serious study (e.g. data analysis) sitting comfortably on a sofa
Small changes, or interventions, may seem insignificant but they can actually elevate the user experience from satisfaction to delight.

e.g. during ‘Protolib’ our library spaces prototyping project…

- a potted plant
- a task lamp
- a blanket
- a cushion
- a welcome mat
- a vase of flowers

http://www.lib.cam.ac.uk/research/futurelib-innovation-programme/protolib
We can move quickly

Futurelib is conducted at relative breakneck speed and that is key to its success

- our projects are never longer than 5 months, this prompts strict timetabling to keep us all on track and deliver findings
- we can enjoy a short-term intense focus on a topic and really deepen our understanding
- the approach is more akin to start-ups than to the more traditional way of working in large, well established HE institutions
This is NOT about us

This approach is ALL about the user, much more so than standard user research methods

• it is not about what we think, or what we can imagine, or even what our users think, it’s about finding out what our users are doing and responding to that

• the data we collect stands as a robust evidence-base that makes us confident about the decisions we take as a result

• crucially, we are discovering what ours users really value and how we can help them better fulfil their goals
Thank you.

Sue Mehrer  
Deputy Librarian, Cambridge University Library

Andy Priestner  
Futurelib Programme Manager, Cambridge University Library