



FACULTY OF HEALTH SCIENCES

UNIVERSITY OF CAPE TOWN

Using design thinking and community engagement to create improved human-centred health solutions

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Digital Health Maturity

“Digital maturity is the extent to which digital technologies are used as enablers to deliver a high-quality health service” (Flott et al., 2016)

How well is digital health performing at providing better health care?

The focus of this talk about how can we design with intent provision from the start.



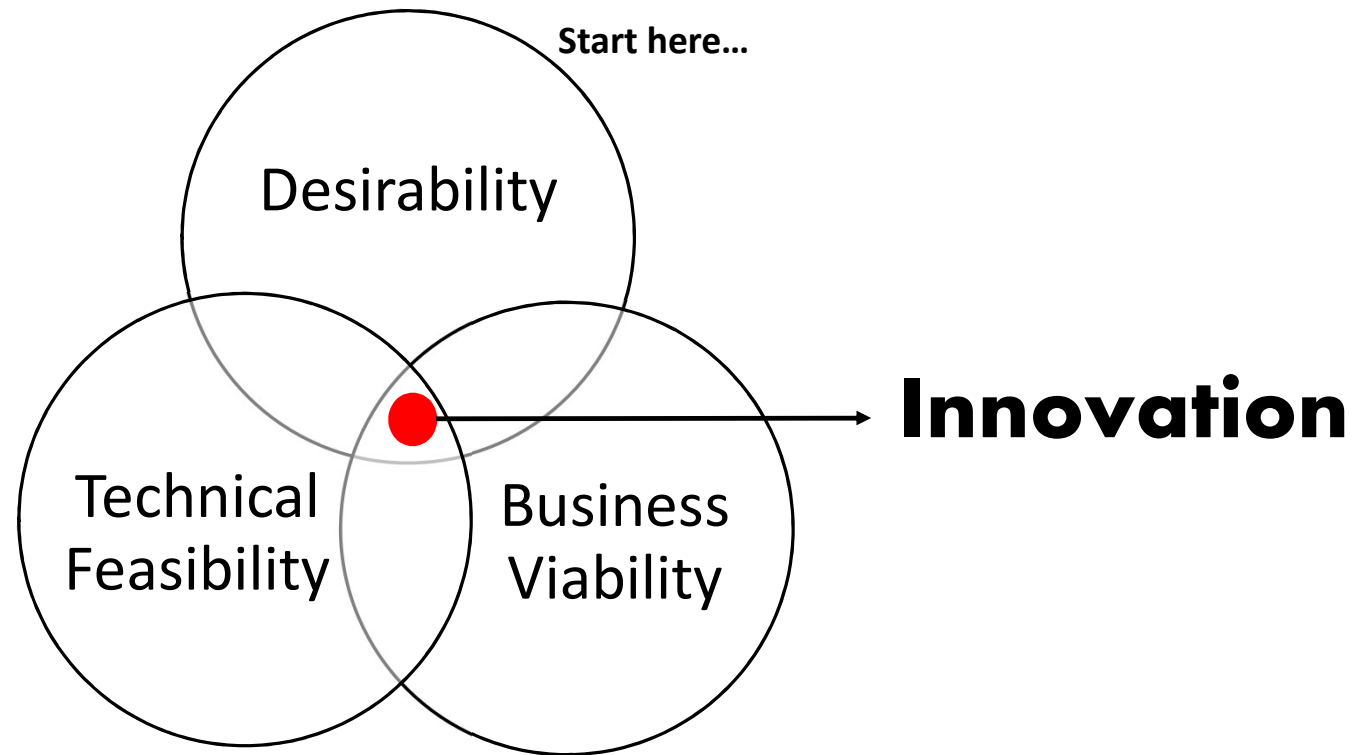
Quotes

- “Creating better value...” , “Broader value..” Ashleigh Theophanides
- “There’s an app for that” Martin Weiss
- “I wish I knew you were working in my clinic”

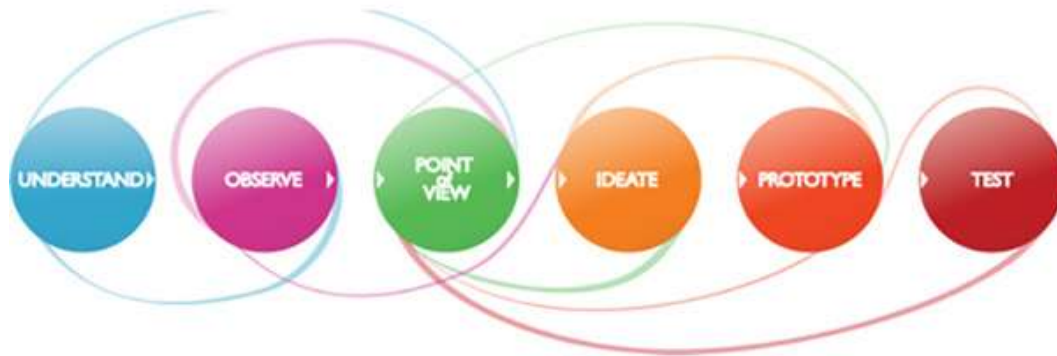
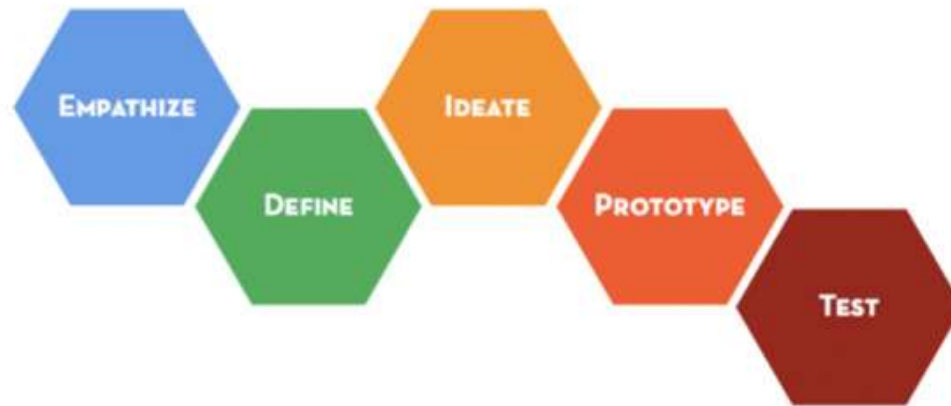


Design thinking

“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



Design thinking

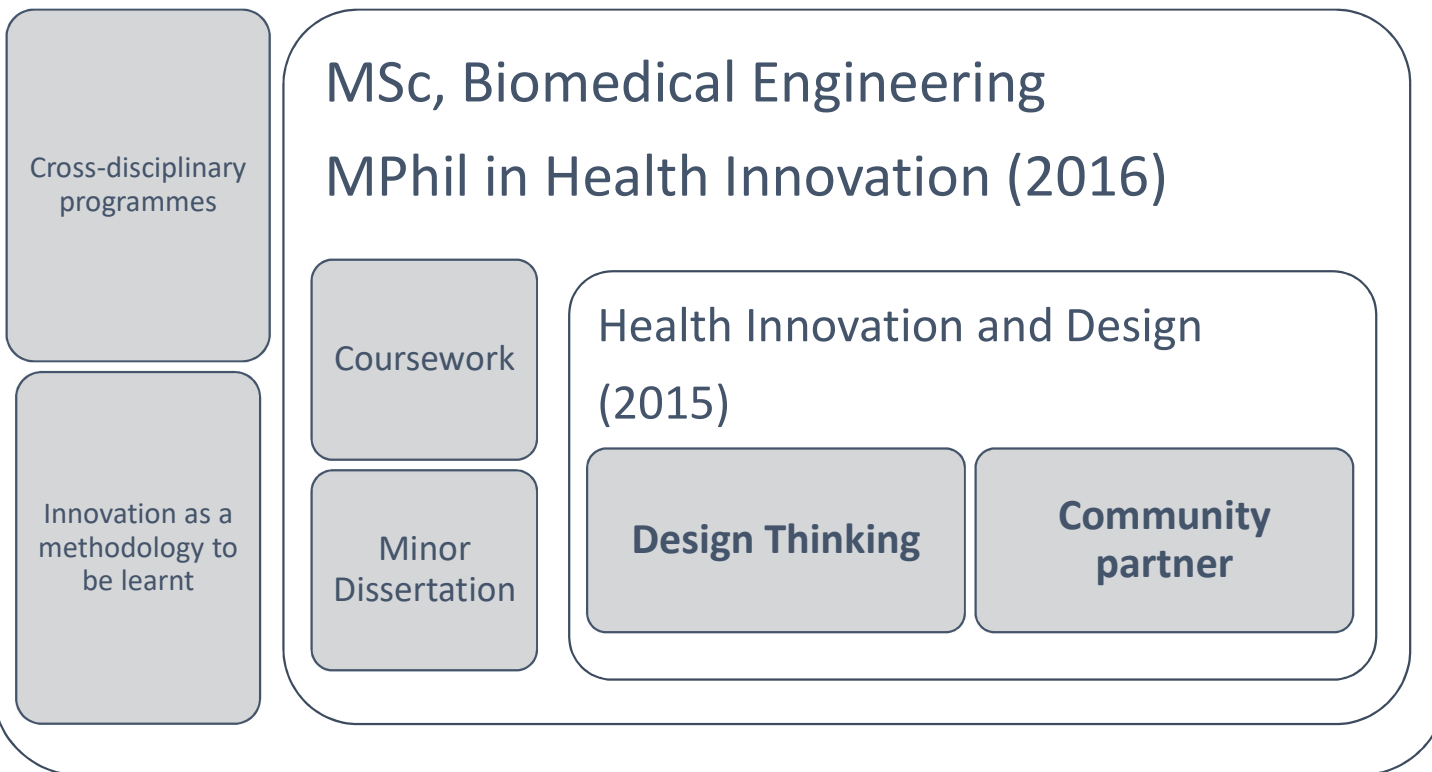


**Hasso Plattner School of
Design thinking, Potsdam**

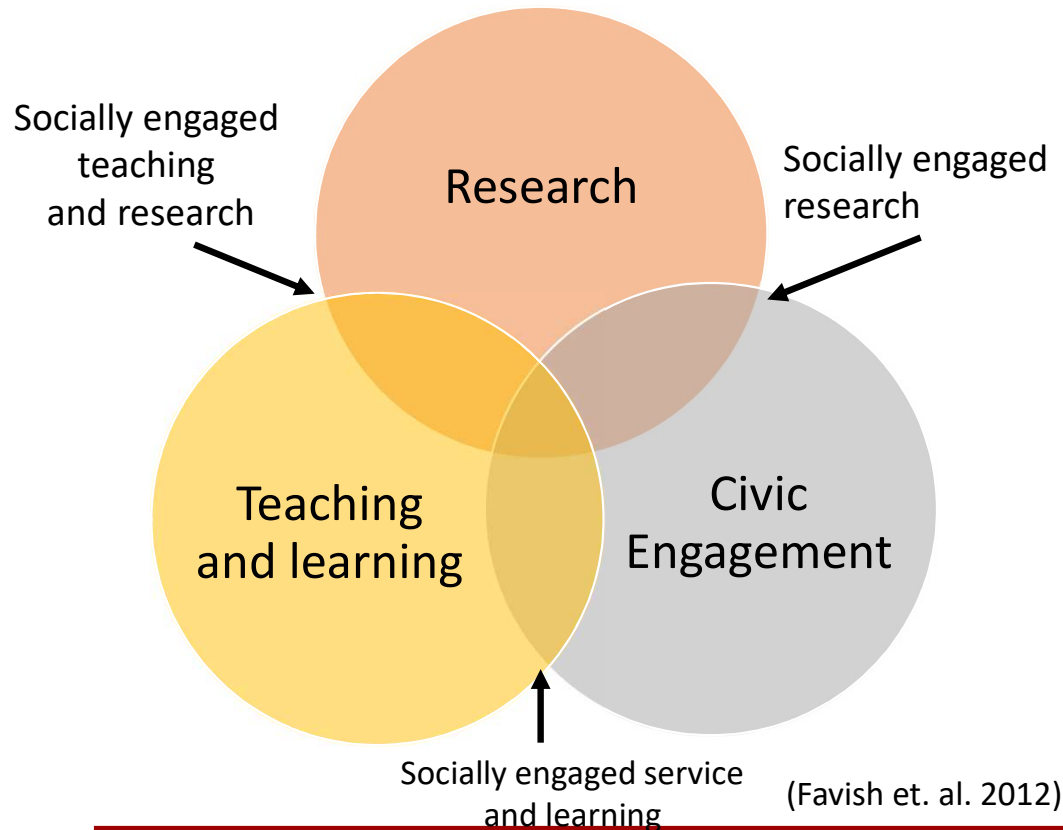
dschool, Stanford

dschool, UCT (2016)

Health innovation at the University of Cape Town



Engaged Scholarship

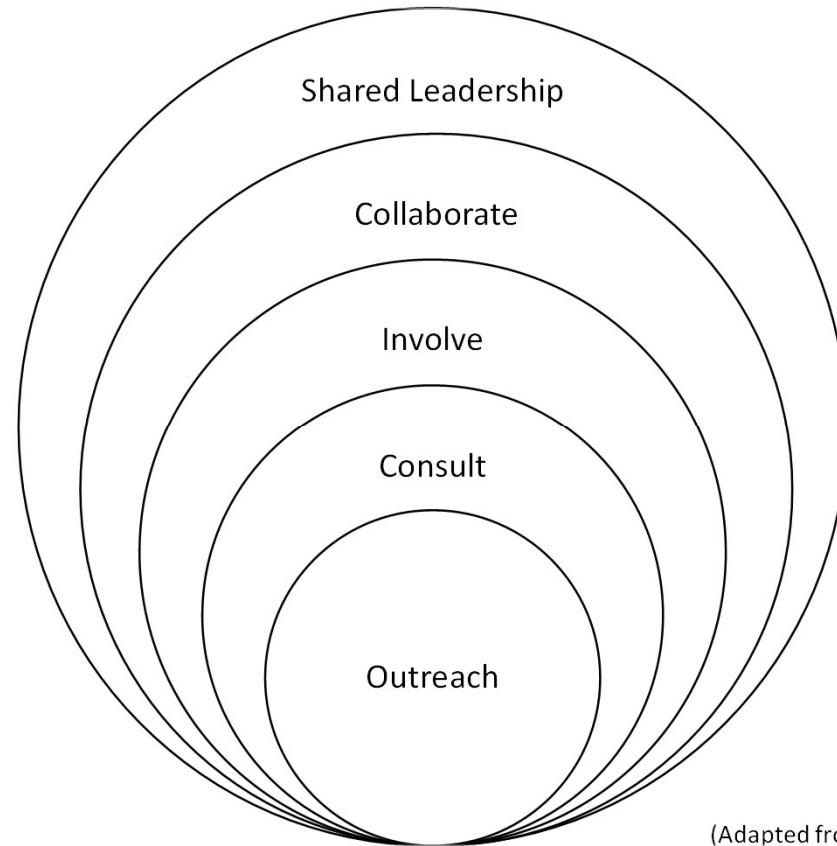


- **“...utilisation of an academic’s scholarly and/or professional expertise, with an intentional public purpose or benefit (which demonstrates engagement with external (non-academic) constituencies...”** (UCT Social Responsiveness Policy)

“Research needs to engage with those it seeks to influence” Oswald et al., 2016



Community engagement continuum



(Adapted from the Principles of Community engagement. McCloskey et al., 2011.)

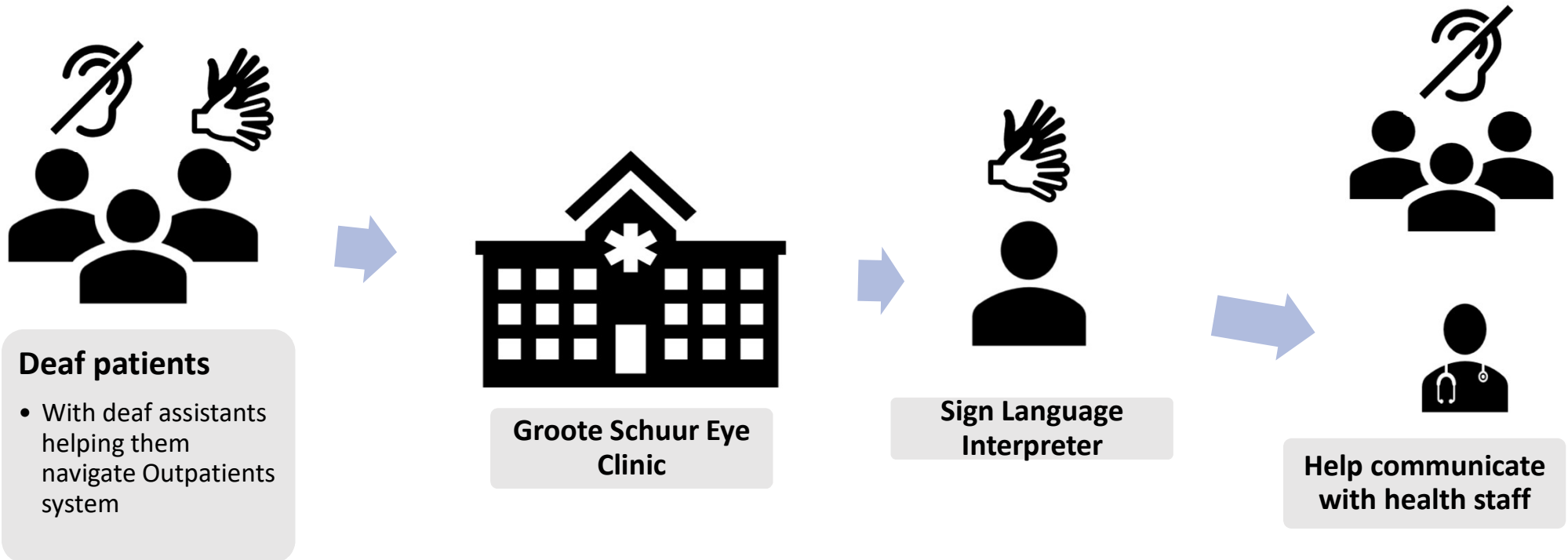


Sign Language Interpreter Project

- Existing Project in collaboration Dr. Marion Heap from the Health and Human Rights Programme in Public Health at UCT
- Trained South African Sign Language Interpreters
- Provided interpreters to the patients at the Eye Clinic
- Why there?
- For the Deaf the eyes are their main form of communication and it needs to be cared for.



Current situation



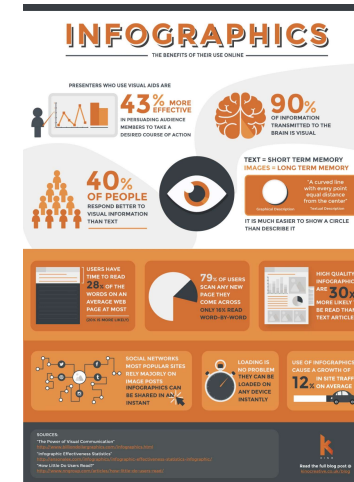
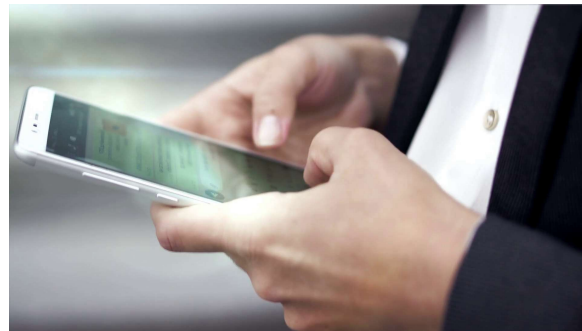
Challenge statement

- This statement is determined by myself and Dr. Heap to direct the scope of the project and what we wanted to focus on.

Redesign the way in which Deaf patients access healthcare services at the Groote Schuur Eye Clinic in a world where the use of sign language is limited.



Ideas/solutions

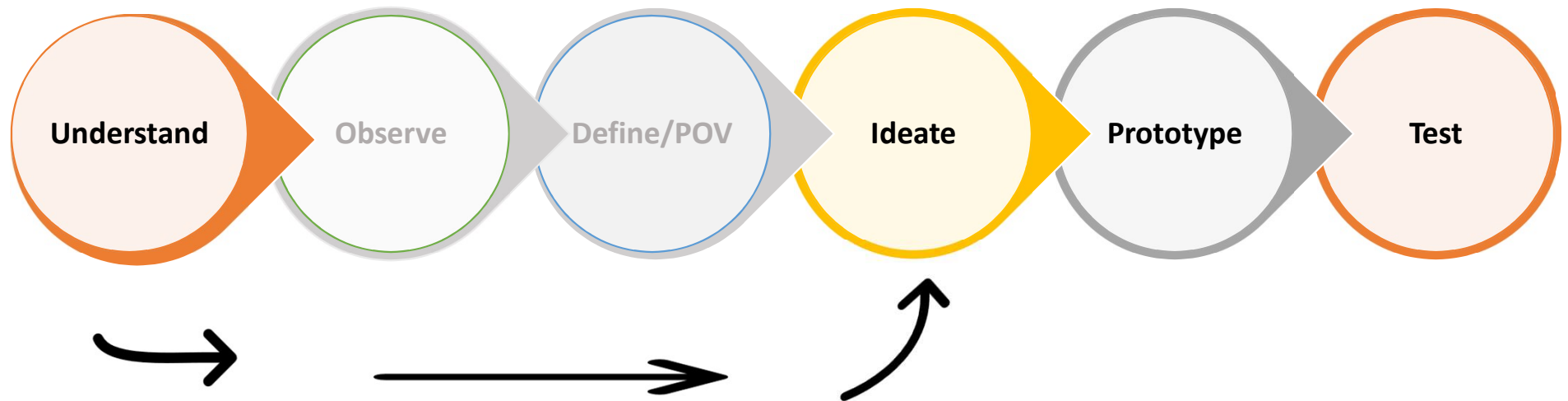


What does this elicit?

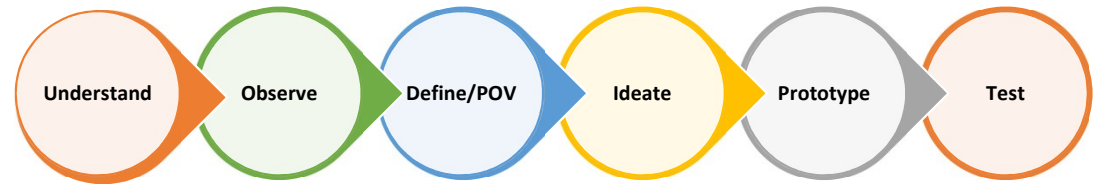
- Solutions 😊
- Students came up with speech-to-text technology ideas, writing technology
- People learning sign language
- Infographics
- Gloves



Design thinking



Understand



- We conducted interviews
- We had a quick one hour lesson to learn the alphabet
- It was hard!
- We were given sign names
- Here developed **empathy**, really understanding our users

We met...	They told us...	We found this interesting...
Thumi, a 30 year old woman who is Deaf	<ul style="list-style-type: none"> • Reading and writing takes long. • We can't ask questions without an interpreter 	The Deaf does not have the same level of reading and writing as we thought.
Riyan, a 30+ male who lives with his parents	<ul style="list-style-type: none"> • His mother is his interpreter • Embarrassing for him to have his mother at his doctors appointment 	Interpreters offer confidentiality.

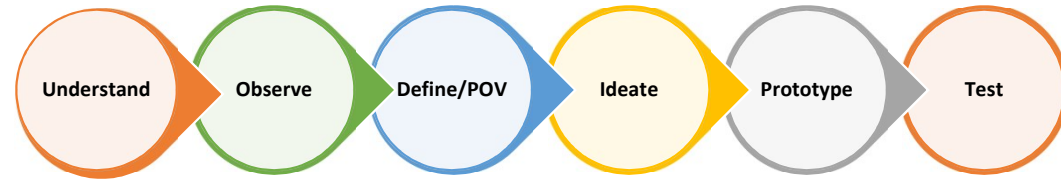
- **Interpreters create a more productive and inclusive experience.**
- **Lack of adequate access to interpreters affects the level of care that deaf patients receive.**

Value of insights

- Clinician at Eye Clinic “If you looking for numbers...”
- Reframing of problem statement based on real insights



Define/Point of View

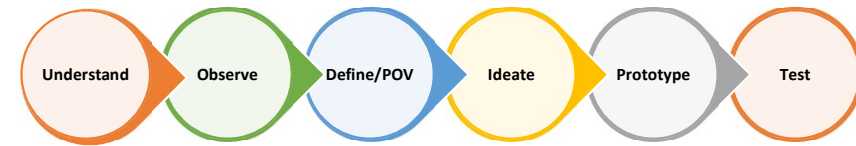


- Reframe challenge based on the needs of the user
- That YOU discovered or observed

“A deaf patient needs a convenient way to communicate, in a world where there is a heavy reliance on interpreters, for relaying information on healthcare”



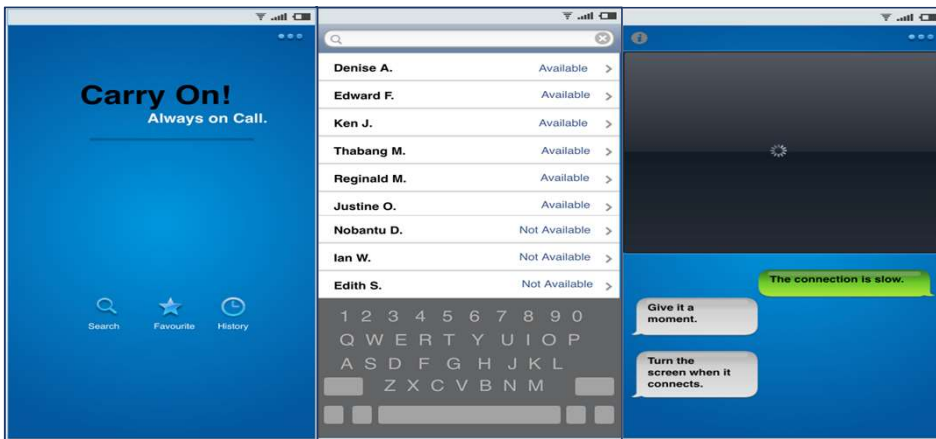
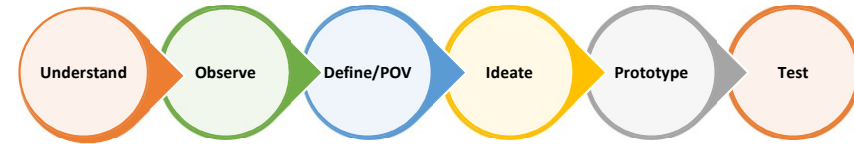
Ideation



- Increase access of Sign Language interpreters through video calling



Prototype

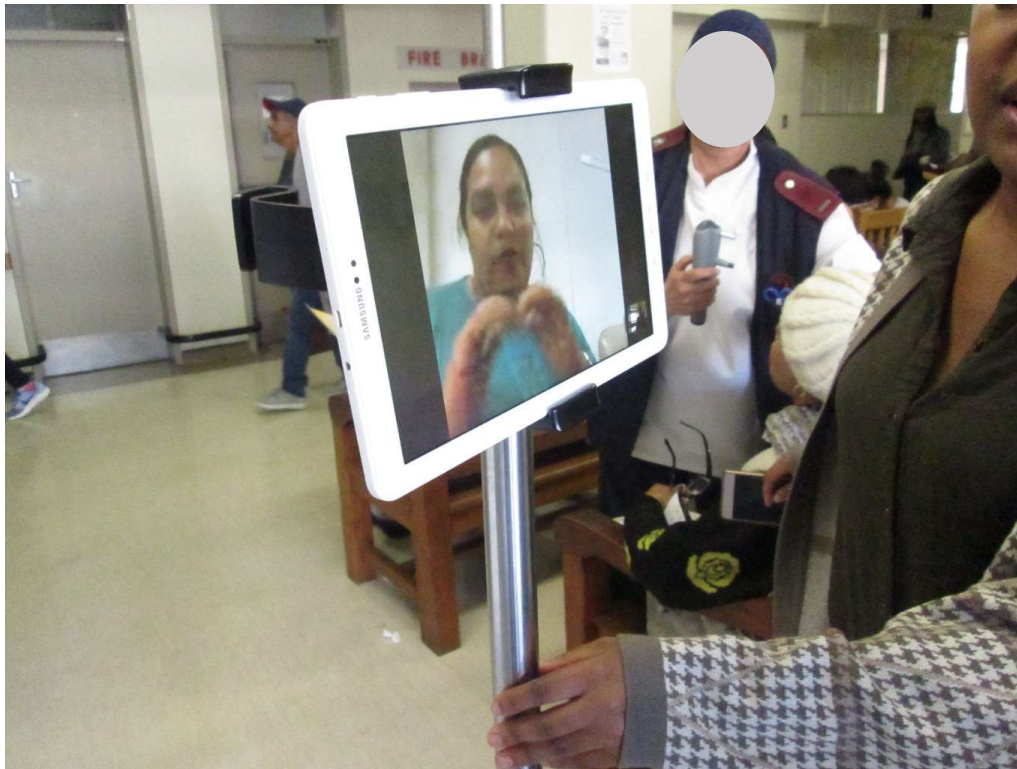
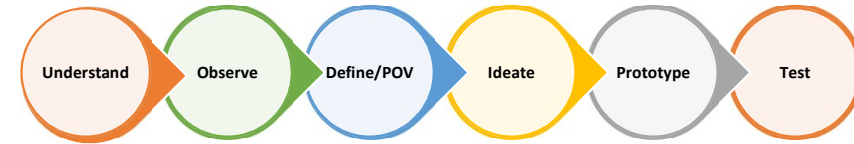


Mobile app interface

Basic hardware requirements to communicate via sign language



Test



- Increased access of interpreters through the mobile application was deemed desirable by deaf users
- Mobile connectivity and reliable mobile services across South Africa are still a problem



Deaf patients

- With deaf assistants helping them navigate Outpatients system

Groote Schuur Eye Clinic

Sign Language Interpretation via video calling

Help communicate with health staff



Future work

- Usability of **hardware** requirements: e.g. mobile device size, mobile stand for hands-free use, sound quality and connectivity
- WiFi **connections** and installations of mobile base stations
- **Concept** document for a mobile application that will support video calling to sign language interpreters
- **Business case** to make the costs involved more accessible to the Deaf community
- **Support** from the public health facilities for such a service and providing necessary infrastructure



- **Design thinking provides a way of addressing the needs of deaf communities by including their voice in the design of health-related innovations**



Community engagement- 4 Years

- Knowledge Co-op at UCT
- Neighbourhood Old Age Home – NOAH
- Aging population is a reality

- How do we design for them?
 - Rapidly changing technologies
 - South African perspective



Challenge areas

- Hearing loss in the Elderly
- Nutritional Anaemia
- Medication Adherence
- Improving Health and Well-being



Hearing loss

**What we
thought...**

**What we
discovered...**

Google Glass

**Tech-enabled
hearing aids**

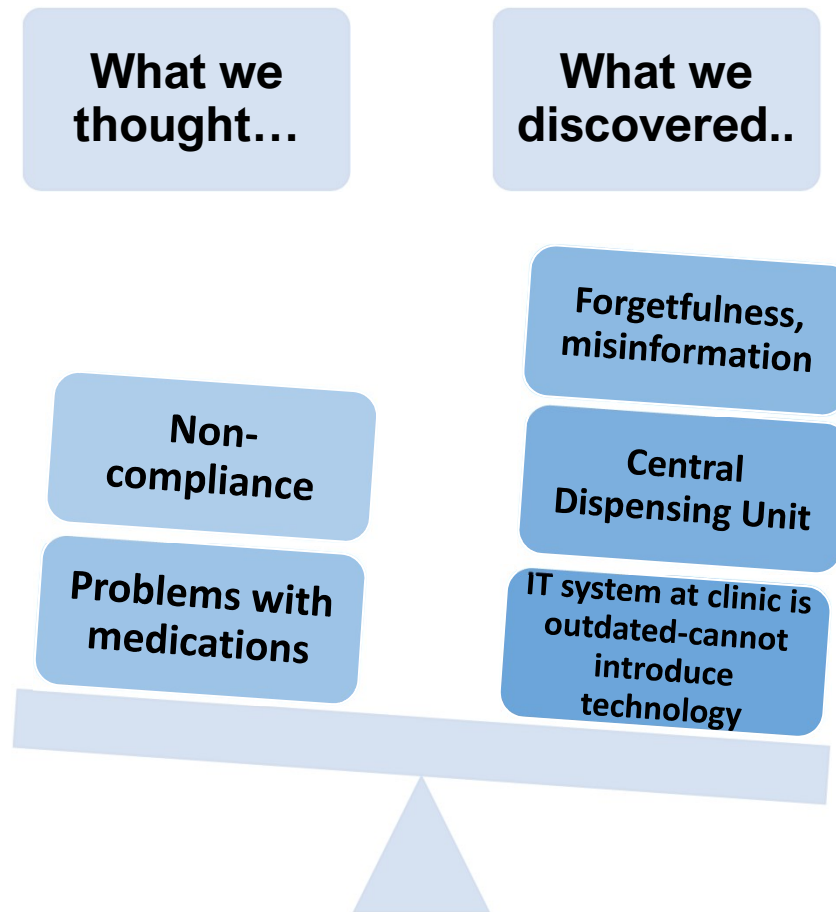
**Stigma of
appearing old**

**Refusing to take
up referrals to
Audiologists**

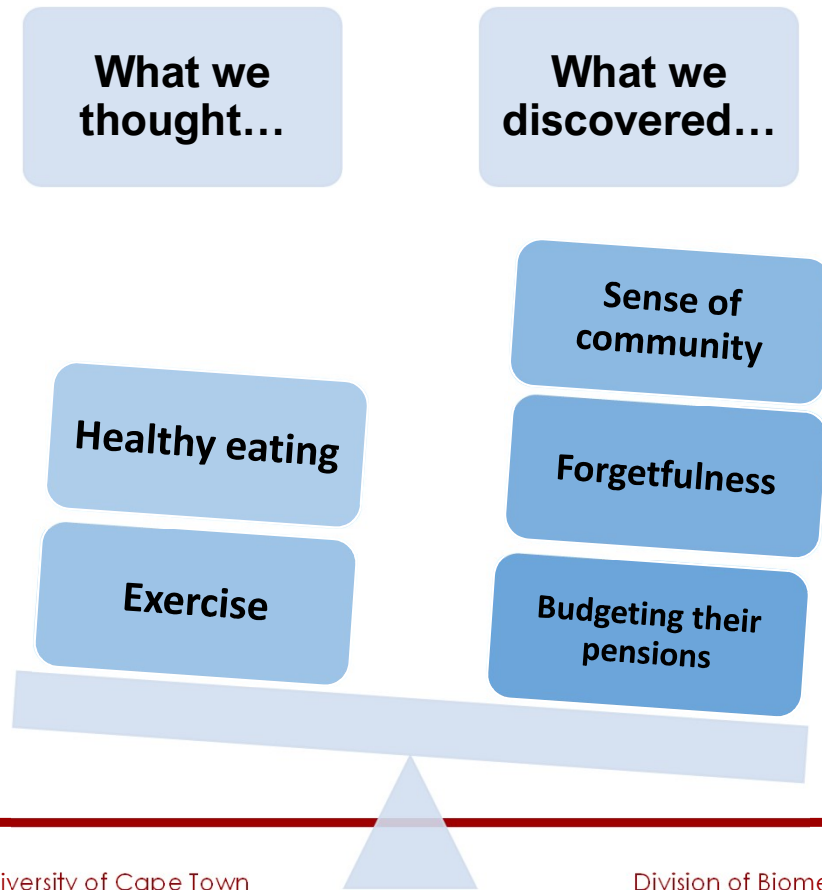
**Denial of their
hearing loss**



Medication Adherence



Improved Health and well-being



Solution-Reminder system around routine activities

- Paper
- Audio-CDs
- Audio-Smartphone
- Voice Interface eg. Alexa/Google Home

Acknowledgments

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- Prof. Tania S. Douglas

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- Shirley Pendelbury- Engaged Scholarship Programme
- Ada Kennedy – Neighbourhood Old Age Homes
- Dr. Marion Heap – Public Health

