

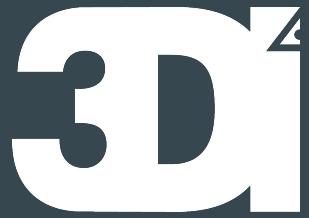
# Increasing Technological Capability

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+Acumen x IDEO  
Human-Centered Design Course

Team: 3Díì Design  
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# Inspiration Phase



Our team (3Díì) decided to form our own design challenge. After collaborating on ideas, we formed this research question:

# How might we increase the capacity to use technology in order to benefit those in need?

...

Whether the need is:  
better access to technology or increase technological skill

# What Influenced our Design Challenge?

- Technological waste - planned obsolescence coupled with excessive production leads to unused technology (e.g. extra/spare mobile phones lying around).
- There are people with limited access to technology whether they can't afford to use it (digitally excluded) or do not possess the skills to use it (assistance required).
- Potential to recycle huge amount of technological waste to provide access to people in need.
- Community engagement - potential for capable teachers to educate others with need and willing to learn.

# What We Did

## Interview Guide

### Interview Guide

Objective: Investigate issues and needs regarding access to technology - skills training and tools.

#### 'Open General' Questions

##### Do You Have a Phone?

Yes	No
How often do you use it?	Why don't you have a phone?
What do you use it for? How does it make your life easier?	Do you think you need a phone? How would it make your life easier?
Identify: Potential Phone Donor	Identify: Potential Phone Recipient
Are you willing/able to donate a working phone?	Do you lack access to a mobile phone?
No? What reservations keep you from donating?	Would you be willing to accept a donation?

#### 'Then Go Deep' Questions

Identify Skill (capacity to teach or learn)	Identify Skill (capacity to teach or learn)
What do you use your phone for?	Have you ever used a mobile phone?
How long have you been using a phone for?	What would (or have) you use(d) it for?
Have you ever had to help someone use their phone, or have had to ask someone for help?	Have you ever helped anyone or needed help from others to use a phone?

Potential Teacher	Potential Student	Potential Teacher	Potential Student
Do you have spare time to teach others?	Have you ever had the opportunity to be educated on how to use a phone?	Do you have spare time to teach others?	Have you ever had the opportunity to be educated on how to use a phone?
Do you think you could teach others?	Would you spend time to learn how to use phone if classes were available?	Do you think you could teach others?	Would you spend time to learn how to use phone if classes were available?
Would you be willing to volunteer time?	Would you pay for this service?	Would you be willing to volunteer time?	Are you willing to accept a phone as payment for your services?
No? What could incentivise you to volunteer?	Would you donate a working phone in exchange for this service?	No? What reservations do you have about this potential service?	

# Who we spoke to?

Trying to identify:

- Those who can increase the technological capacity of others (potential teachers and donors)

We interviewed 11 people (our friends and family) to gain insight and test assumptions about our design challenge



# Who we spoke to?

Trying to identify:

- Those who can benefit from an increased technological capacity (those in need)

We contacted a homeless shelter for an expert opinion about vulnerable people's access and use of technology



# Where we visited?

Bermondsey Dump Transfer Station (Toronto) was an analogous location that demonstrated a high degree of waste.



# Ideation Phase (Synthesis)

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After conducting initial research our team began to synthesize the findings, discovering these 4 themes:

# Time



Insight Statement:

spontaneous volunteering is more common - no need to schedule a time.

How Might We:

create an accessible place that people can go to and use during their spare time to 'drop-in' and teach/learn on their schedules?

# Education



Insight Statement:

people who displayed a confidence/competency in using technology and were generally ‘more tech savvy’ seem more willing to teach.

How Might We:

provide and encourage opportunities for people who are willing and able to teach others in need to utilize their capacity to do so?

# Location



Insight Statement:

libraries are becoming less about books and more about helping the community.

How might we:

utilize these communal spaces to create an ‘education hub’ for people to teach and learn?

# Money



Insight Statement:

incentives other than money  
were sought after.

- Looks good on a resume.
- Good cause, helping others.
- Would exchange teaching if they could learn something themselves.

How Might We:

incentivize teaching (educating others) with alternatives to direct payment? (even if the service they are providing may cost money)?

# Ideation Phase (Prototyping)

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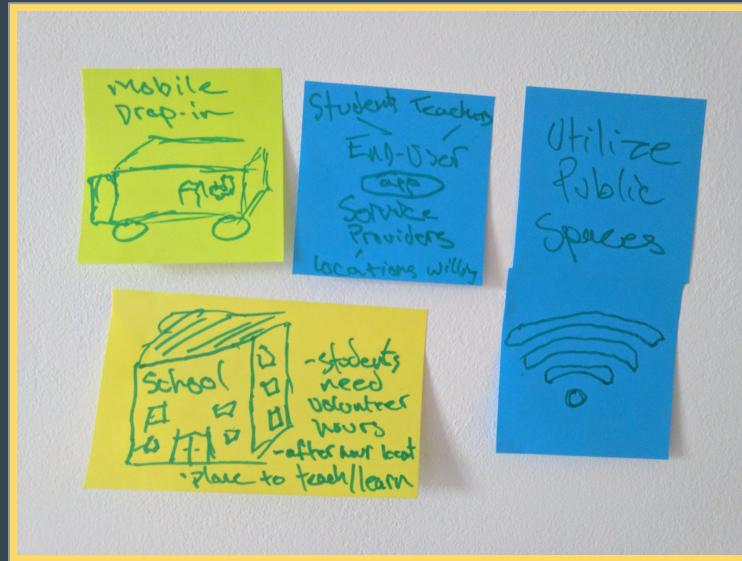
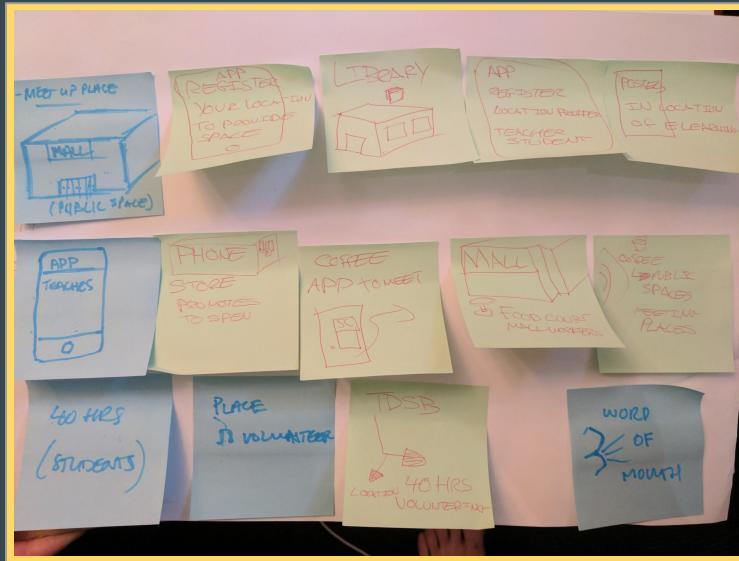
After synthesising our ideas, we had a brainstorm session to think of a solution to these HMW questions and began prototyping

# Brainstorming



Insight: Spontaneous Volunteering is more common - no need to schedule a time.

HOW MIGHT WE create an accessible place that people can go to and use during their spare time to 'drop-in' and teach/learn on their schedules?

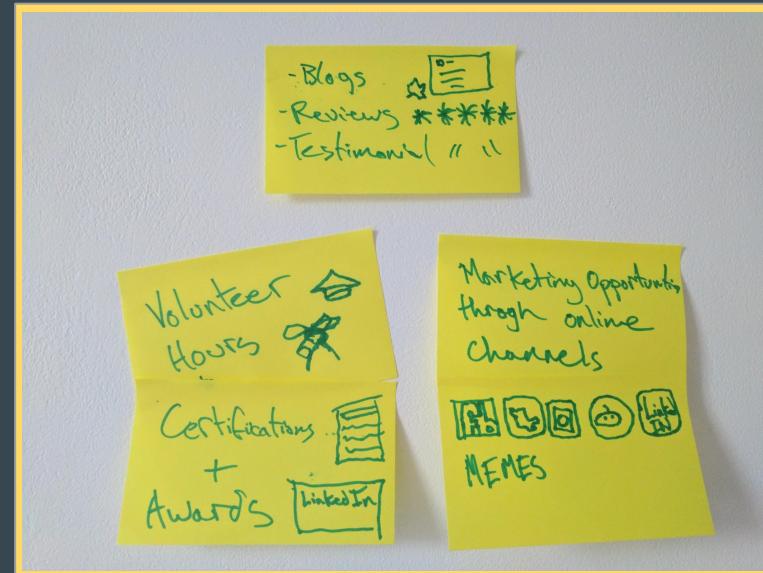
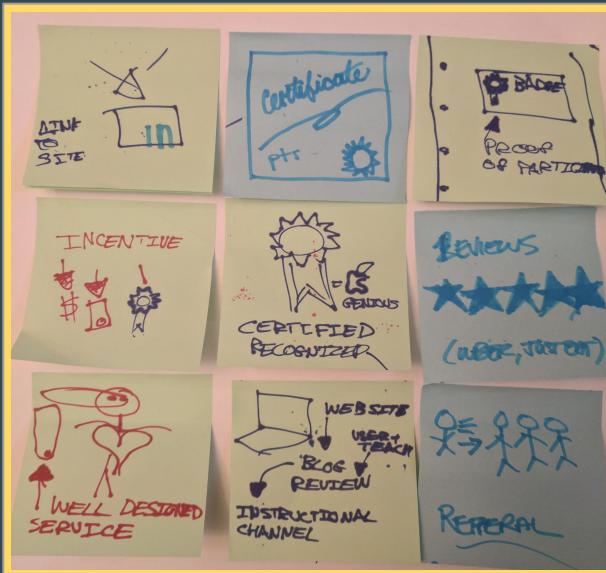


# Brainstorming



Insight: 'more tech savvy' seem more willing to teach.

HOW MIGHT WE provide and encourage opportunities for people who are willing and able to teach others in need to utilize their capacity to do so?



# Brainstorming



Insight: libraries are becoming less about books and more about helping the community.

HOW MIGHT WE utilize communal spaces to create an 'education hub' for people to teach and learn?

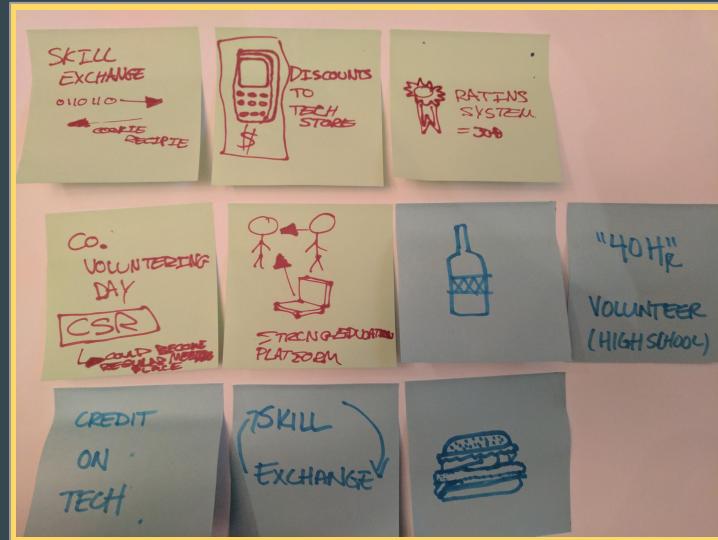


# Brainstorming



Insight: Incentives other than money were sought after.

HOW MIGHT WE incentivise teaching (education others) with alternatives to direct payment? (even if the service they are providing may cost money)



# Outcome of Brainstorming Session

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We narrowed our ideas down to the four most innovative and achievable. The synthesis of these ideas revealed the interconnectedness of each theme and a potential solutions to our design challenge.

# Mobile Application

Our most innovative idea was to create an application as a direct channel for teachers and students to register as users to find a location to teach/learn, set up 'hubs', schedule meetings, review and engage with other users.

Communal spaces with access to wifi and necessary furniture/equipment would become made available on the app as 'education hubs' to schedule 1-to-1 appointments, hold drop-ins, classes and workshops.



# Certification

Certification is a means to guarantee quality service is being provided (whether it is for the teacher or an 'education hub').

Certifying teachers would enable them to hold some form of merit.

Certified education hubs would allow for end-users to recognize safe places with furniture and wifi.



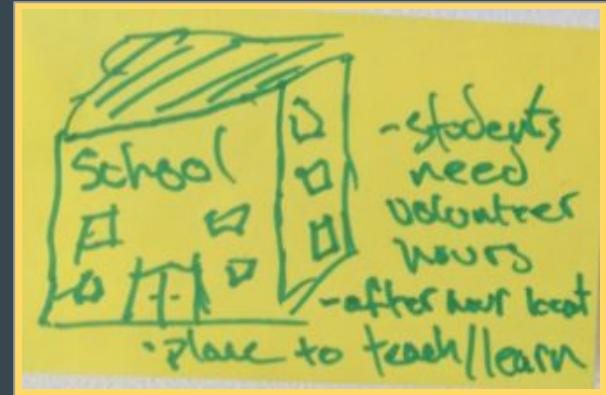
# Volunteer / Merit / Self-Interest

If teaching (volunteer) hours were made available on the app, it would be useful in providing documentation for those who need to complete community service.

Student could give feedback/rating of teacher and vice versa.

Help others in need (feel good/gratifying).

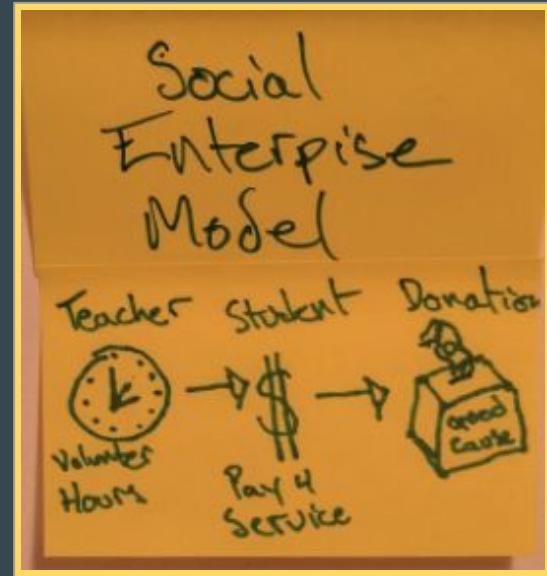
It looks good on resume.



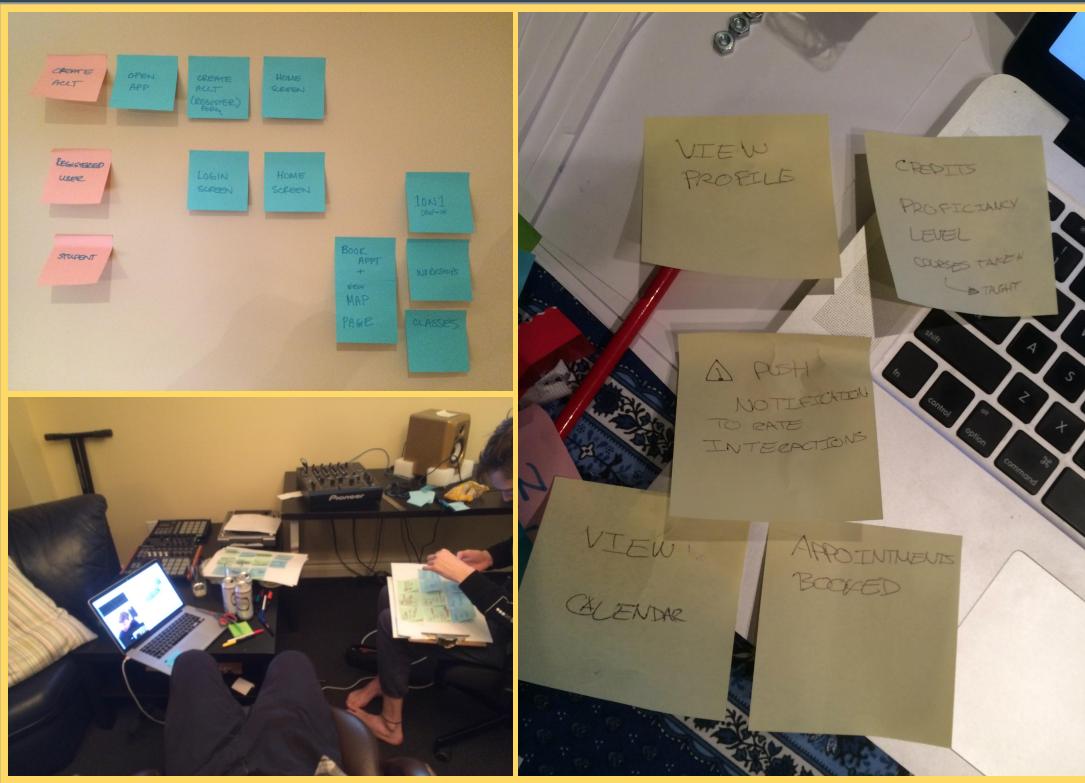
# Social Enterprise Model

The service could be run as a commercially driven not-for profit system, where users could pay for services run by volunteers who in turn could have a say on the good cause the money accrued from their community service goes to.

Partner with charities that work with vulnerable people (homeless, refugees, elderly, etc.) to provide free services for those in need.



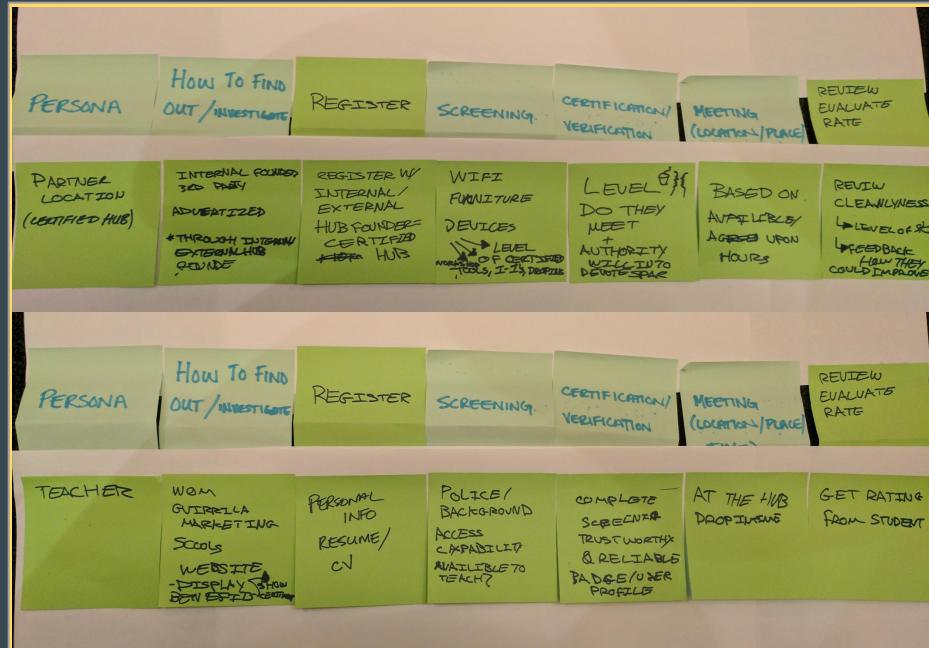
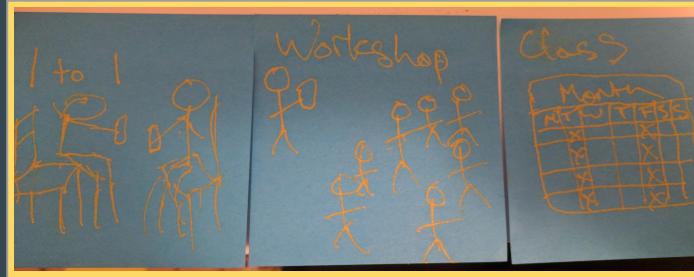
# Story-mapping, Wireframing, and Prototyping



# Storymapping

4 personas were developed through stakeholder journey maps based on gathered research and insights to understand the interactions users need from the system.

The journeys provide a roadmap for the next wireframing phase.



The image shows a Trello board titled "Storyboard" designed for a course on Human Centred Design. The board is organized into several columns:

- Personas:** A column containing four cards for different user groups: "Hub Founder" (1 card), "Partner Location" (1 card), "Teacher" (1 card), and "Student" (1 card). Each card includes a photograph of sticky notes on a wall.
- How to Find Out/Investigate:** A column listing various methods for gathering information:
  - Initial 'Hub' Founders will need to take initiative as early adopters, we would need to be the first to pilot
  - Word of mouth
  - See another hub
  - Stumble upon app or website (google search volunteer)
  - Referrals
  - Community online forum for hub founders to discuss share and learn
- Register:** A column detailing the process of registration:
  - Introductory/Induction Pack with all relevant information and Application Forms (relevant to persona)
  - Initial 'Hub' founder will need to engage with potential partner location and outreach to register teachers/students
  - Enter personal information and proficiency level
  - Enter personal and business information
- Screening:** A column describing the screening process:
  - How are potential end-users (teachers and students) and service-providers (hub founders and communal spaces) discovered about the potential opportunities to take advantage of?
  - How does one register as an end-users (teachers and students) and a service-providers (hub founders and communal spaces)
  - How are potential end-users (teachers and students) and service-providers (hub founders and communal spaces) screened to make sure they are fit for purpose (access/availability/capability)?
- Certification/Verification:** A column detailing certification and verification:
  - How are potential end-users (teachers and students) and service providers (hub founders and communal spaces) certified/verified to ensure needs are able to be met
  - Assurance of Following a Particular Ethos to use technology for its benefits and prevent harm (code of conduct, contract, explicit values to be followed)
- Meeting (Location/Place/Time):** A column asking how meeting locations and times will be accessible to people who cannot yet use their mobile device.
- Review/Evaluation/Rate:** A column for adding a card.

# Storyboard

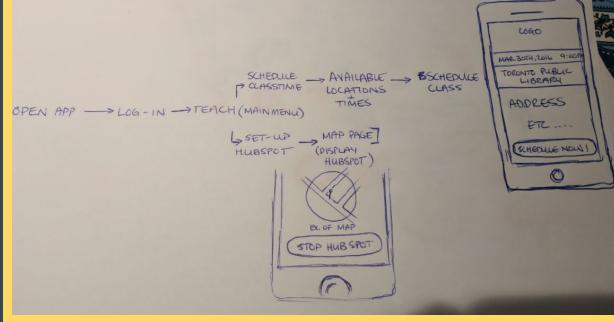
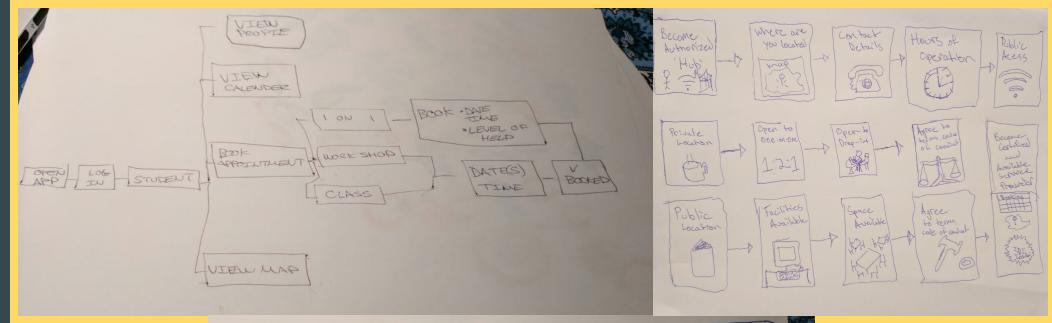
After identifying 4 potential user groups (Personas) of the app, we mapped out potential journeys in a storyboard and utilised trello to visualise the storymap.

Using digital tools like trello has enabled our team to collaborate even when not physically co-located.

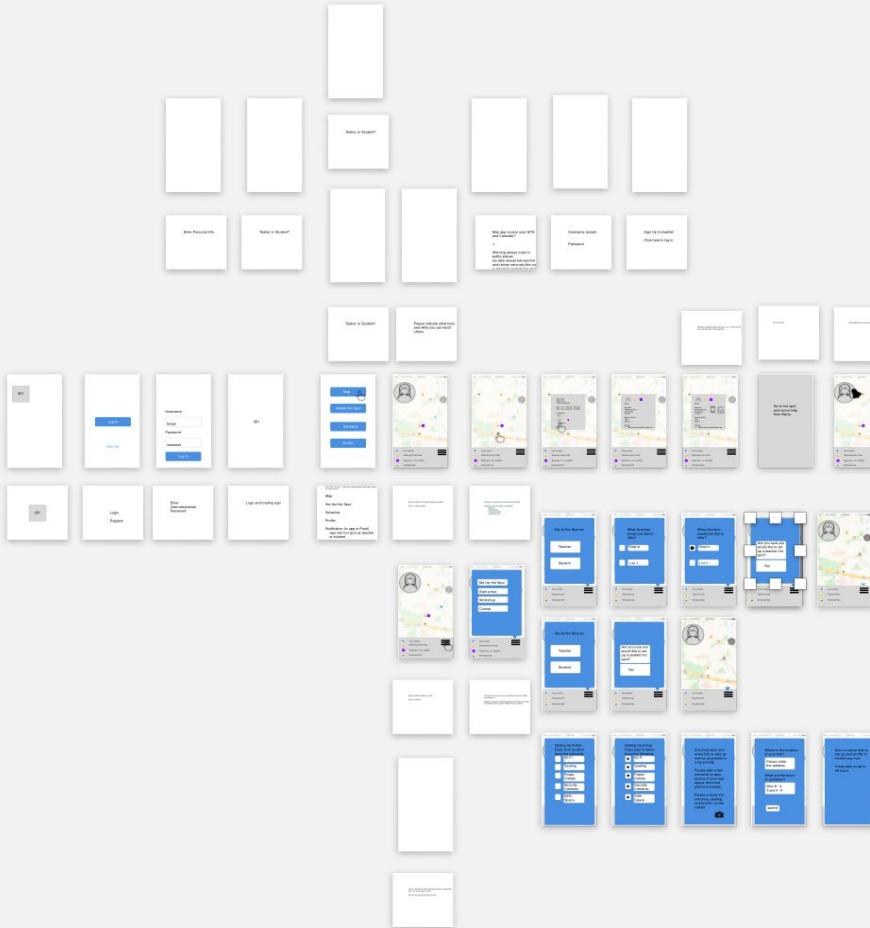
# Wireframing

Wireframing provided an exciting opportunity to design the system in accordance to the feedback from our initial research.

The tool was helpful because while working with pen and paper new ideas could be generated and incorporated into the prototype on the fly.

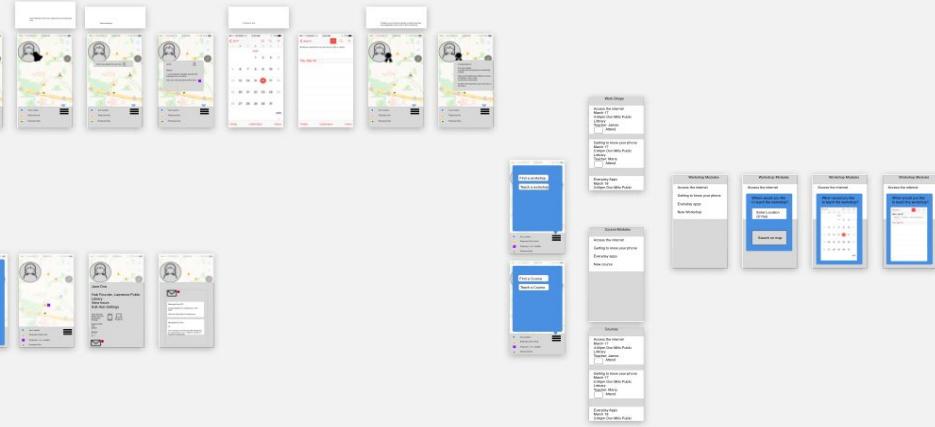


# Wireframe Refinement



Low fidelity paper wireframes were a great tool for understanding the user journey from the developer point of view and quickly generating improvements as a group.

We refined the wireframe using sketch to incorporate changes and amalgamate prototypes made by different group members and user feedback from early prototype testing.



# Functional Prototype

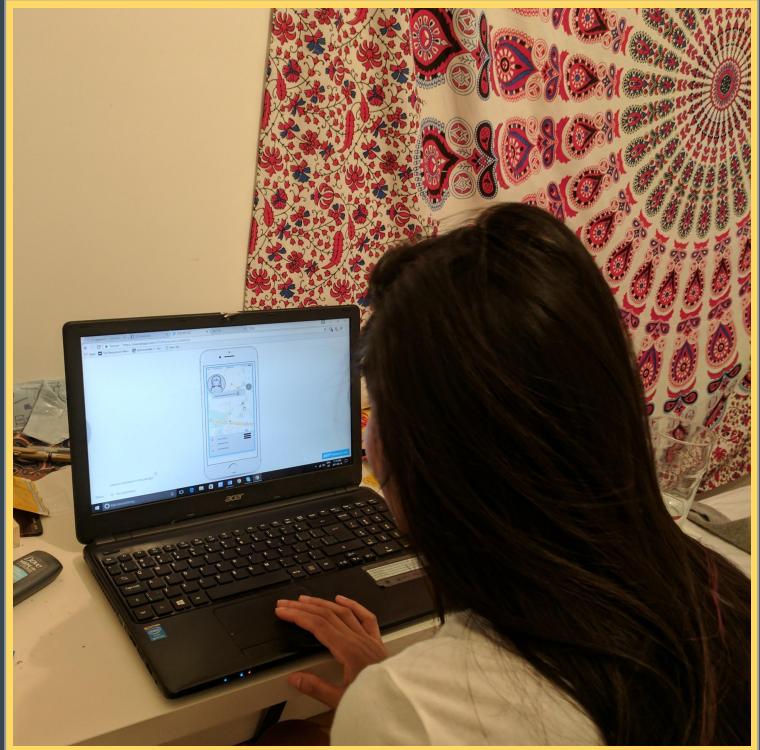
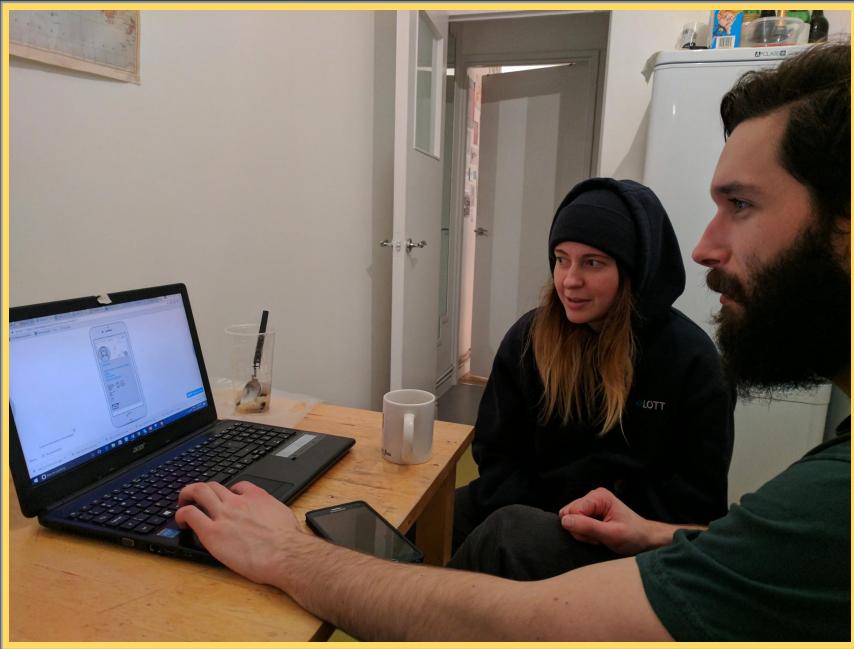
Based from our wireframe we decided to created a high-level clickable prototype of the App.

We never imagined that the course would take us this far, but seeing value in human-centered design we decided to test our prototype on potential users.



# Testing

We tested the prototype of the app with people we originally interviewed...



and we received valuable feedback.

# Feedback - Concerns

Flexibility, able to take a crash course.

Questioning ratings - should it be public? Is there a choice to be public or private feedback? Ability to hide/show reviews in constructive feedback system?

How do you know these people are vetted and certified?

Too technical - what if it was for creative skills and digital arts.

Appealing if more customizable to meet the aims of certain groups with outlying needs (safe space, safe space badge,)

# Feedback - Suggestions

Badges shown on profile represent time devoted to learning or teaching.

Gamification - point system would encourage more use - add up points to get lesson - spend points. Pay for point system was suggested, although nobody was interested in paying for it.

Course time should sync with phone calendar.

Display hours and skills through badges.

Good way to get volunteer hours.

# Next Steps

Start High fidelity prototype / private beta test with specialized target users (knowledge providers and knowledge receivers), finding partner locations to pilot as ‘hubs’.

Although we did not look into technological waste there are ways to facilitate its integration into the program. For example, incorporate tech donation boxes at ‘hubs’ (incentives for helping process e-waste).

Follow similar model for repair hubs and certified repair teachers (that have access to soldering irons, mini-screwdrivers).

# Concluding Reflections

Overall it is impressive to see such deep development over the course of a relatively short time. Skills were practiced or learned for the first time and the value of human centered design became clear as the course developed. The 3Di team is thrilled to have come this far with the fidelity of the output and quality of feedback far exceeding expectation.

We have discussed moving this project forward in a meaningful way and as such are open to criticism, discussion and potential collaboration. If you are interested in engaging us please don't hesitate - we would love to hear from you.