User Centred Design

A starting journey in usability studies

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Welcome

- Lecturers:
  Flora Salim flora.salim@rmit.edu.au (Week 1-6, 11-12)
  William Lim william.lim@rmit.edu.au (Week 7-10, 12)
  + guest lecturers (Week 2, 6, 11)

- Head Tutor:
  William Lim

- Prac/Lab Tutor:
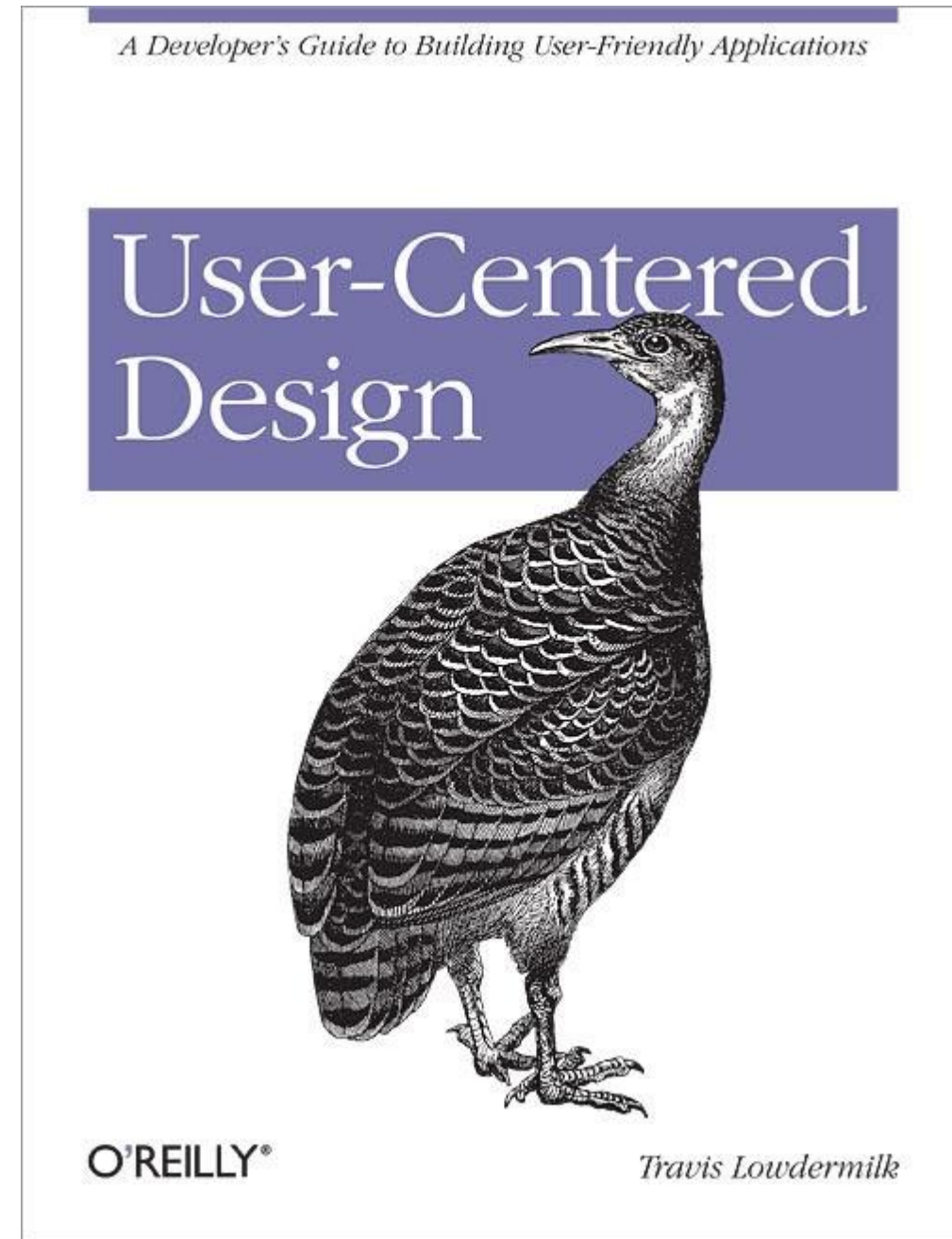 Sneha Anumalasetty sneha.anumalasetty@rmit.edu.au

Class Schedule

- Course delivery structure *weekly*

  – 2-hour lectures

  – 1-hour tute: cover the lecture content of the previous week, provide guidelines to assignments

  – 1-hour prac: hands-on work on tute material and assignments, prac tutor provide feedback to groups

My consultation time: after lecture and by appointment

Book?

- User-Centered Design
  - Cheap ($20 for eBook)
  - DRM free
  - Short
  - Good
- Influenced our lecture notes

A Developer's Guide to Building User-Friendly Applications

User-Centered Design

O'REILLY®

Travis Lowdermilk

Book?

• Don't make me think, revisited : a common sense approach to Web usability by Steve Krug

• 100 things every designer needs to know about people by Susan Weinschenk
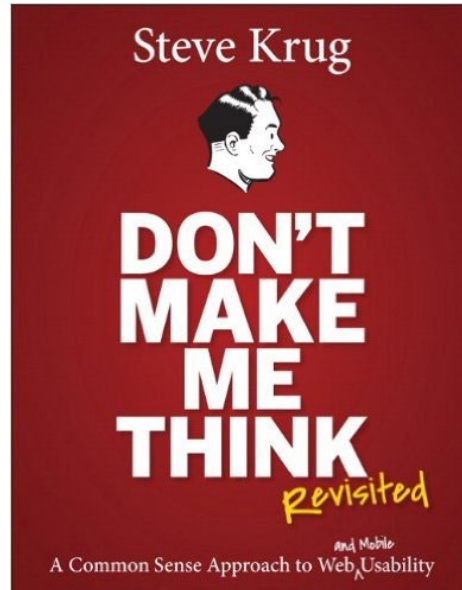
The importance of UCD course

- The important of UCD will be discussed today

- UCD skills will have an impact on your future courses:
  – Web programming
  – Mobile Application Development
  – Usability Engineering
  – Software Engineering-related projects / courses

- Improves employability
  – Most companies would like to see an edge in your skillset, and that includes UCD

Pay attention to lectures & come to pracs – why?

UCD covers two aspects: Theoretical and practical.

Most lectures are theoretical / conceptual, most pracs (tute-labs) are about applying the concepts learned in the lecture.

Pracs materials always follow the preceding week of lecture materials.

Both will be assessed

Overall Course Structure*

- All about users and working with users
  - Observation and user study
  - Designing with users
  - Prototyping and experimenting with users

- Design principles, patterns
  - Design heuristics, i.e. Nielsen
  - Design and interaction framework
  - Web Design patterns
  - Mobile design patterns
  - Accessibility and internationalisation

- Industry Guest Lecture(s)

*For week-by-week structure, see Canvas or Course Guide

Assessment Structure

Task	Percentage	Due Date
Weekly **Quiz**	5%	Weekly
Assignment 1 (20%) –User-centred survey	20%	Week 6
Mid-semester **Test**	15%	Week 7 (during lecture)
Assignment 2 (15%) – Prototype Design (Paper Prototype) Interface design, heuristics, and report	15%	Week 9
Final **Test**	15%	Week 12 (during lecture)
Assignment 3 (30%) –Mockup, Interaction and User Testing Working prototype, testing, and final report	30%	Week 14

Student Feedback

"I've always been decent at programming side of things, but never so good at thinking about the user side of things, **you've definitely given me a better idea of how to tackle programming challenges** and how to make sure that they reflect good usability as well particularly due to my enjoyment of web development and I will also begin to focus more heavily on mobile development as well I think. I am glad the subject was for early on and not later in the degree. "

What Sem 1 2020 students think about UCD course

"I like how this is not an entirely code-based course that doesn't require constant thinking about things from a programming perspective, but rather thinks from the perspective of the average consumer."

"The practical activities in tutorials were very useful in consolidating my understanding of the content of the course and how to do things."

"The tutorials were quite fun, and helped us prepare for what would be expected within the assignment."

The teachers (William & Flora) were great, knew what they were talking about and made the class interesting. The guest lectures were great.

The weekly "Hall of Shame" was also a great way for us to look for examples of UX mistakes in everyday life.

"The best aspects of this course is the efficiency and use of available technology to work around inconveniences caused by the quarantine."

"The weekly quizzes are a good revision opportunity."

Today's Learning Objectives

- To understand what is User Centred Design (UCD)

- To understand where does it fit in the usability sphere.

- To understand its relevance in the industry.

Why is UCD important

What can you get out of this course?

What is Usability?

- A trending word in today's IT development and design circles?

- Is in fact one of the oldest concepts.

- According to ISO, it is defined as "*The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.*"

What is Usability?

Jakob Nielsen's definition of usability

"Usability is a quality attribute that assesses how easy user interfaces are to use. The word "usability" also refers to methods for improving ease-of-use during the design process".

https://www.nngroup.com/articles/usability-101-introduction-to-usability/

Nielsen's Components of Usability

- **Learnability**: How easy is it for users to accomplish basic tasks the first time they encounter the design?

- **Efficiency**: Once users have learned the design, how quickly can they perform tasks?

- **Memorability**: When users return to the design after a period of not using it, how easily can they re-establish proficiency?

- **Errors**: How many <u>errors</u> do users make, how severe are these errors, and how easily can they recover from the errors?

- **Satisfaction**: How pleasant is it to use the design?

https://www.nngroup.com/articles/usability-101-introduction-to-usability/

Steve Krug's Attributes of Usability

- **Useful**: Does it do something people need done?
- **Learnable**: Can people figure out how to use it?
- **Memorable**: Do they have to relearn it each time they use it?
- **Effective**: Does it get the job done?
- **Efficient**: Does it do it with a reasonable amount of time and effort?
- **Desirable**: Do people want it?
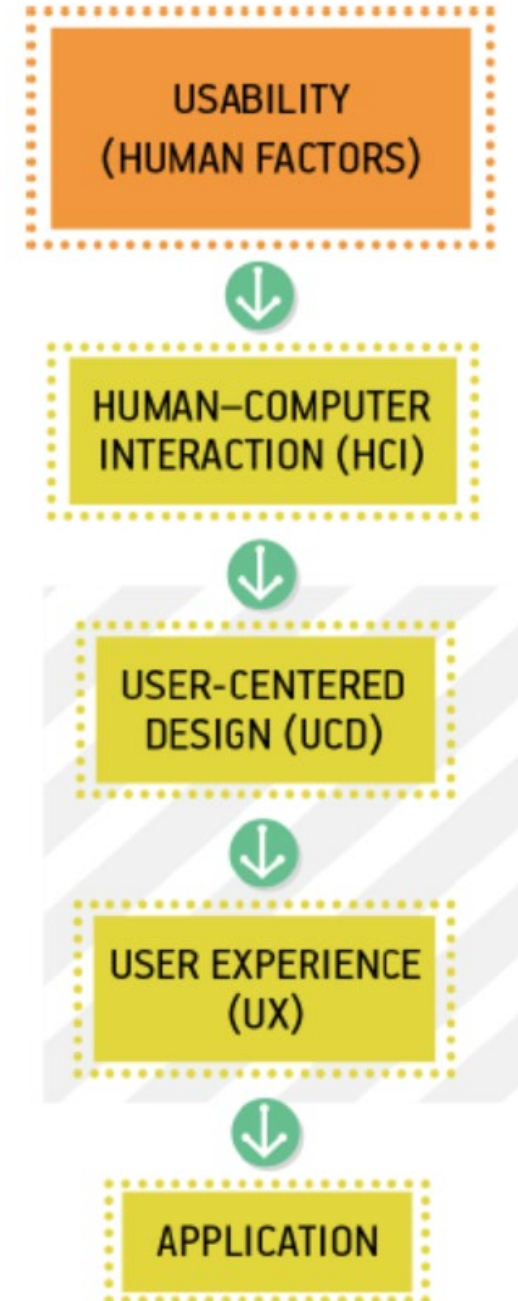- **Delightful**: Is using it enjoyable, or even fun?

Let's make a distinction

- Usability is not UCD
- Usability is a result, goal, a field (UE, UX)

- UCD is a methodology
- Usability is an outcome of UCD process

Some definitions

From Lowdermilk's book, User-centered design:

- HCI focuses specifically on humans interacting with *computing* products.

- UCD is a methodology used by developers and designers to ensure they're creating products that meet users' needs.

- UX is one of the many focuses of UCD. It includes the user's entire experience with the product, including physical and emotional reactions.

USABILITY
(HUMAN FACTORS)

HUMAN–COMPUTER
INTERACTION (HCI)

USER-CENTERED
DESIGN (UCD)

USER EXPERIENCE
(UX)

APPLICATION

In short

UCD is very simply, a **method**.

What about UX?

That's a more nebulous term.

But the most important thing is, it's **easier to pronounce than UCD.**

HOW UX WANTS TO BE SEEN

- Field research
- Face to face interviewing
- Creation of user tests
- Gathering and organizing statistics
- Creating personas
- Product design
- Feature writing
- Requirement writing
- Graphic arts
- Interaction design
- Information architecture
- Usability
- Prototyping
- Interface layout
- Interface design
- Visual design
- Taxonomy creation
- Terminology creation
- Copywriting
- Presenting and speaking
- Working tightly with programmers
- Brainstorm coordination
- Design culture evangelism

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Usability

Learning

Engagement

Empowerment

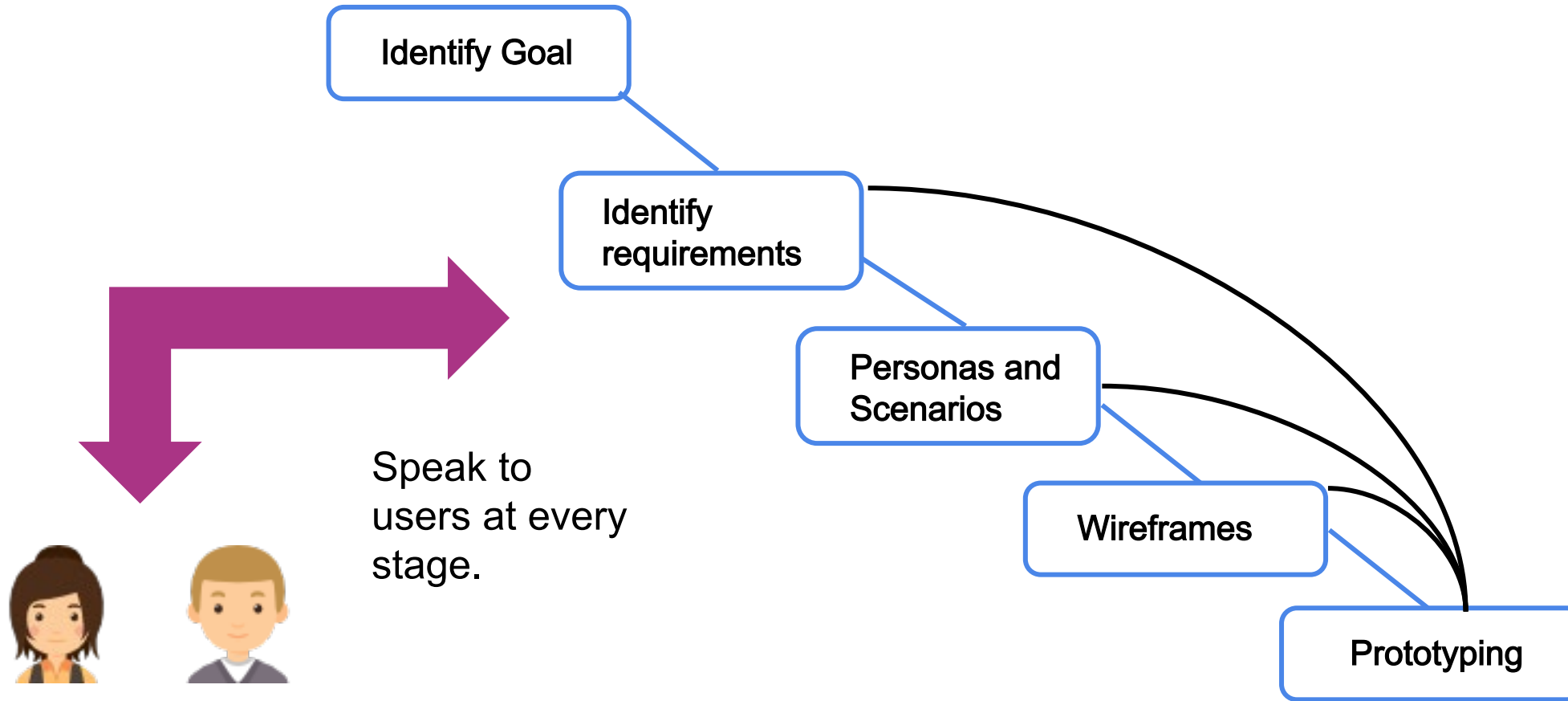How well a product communicates with the user on:
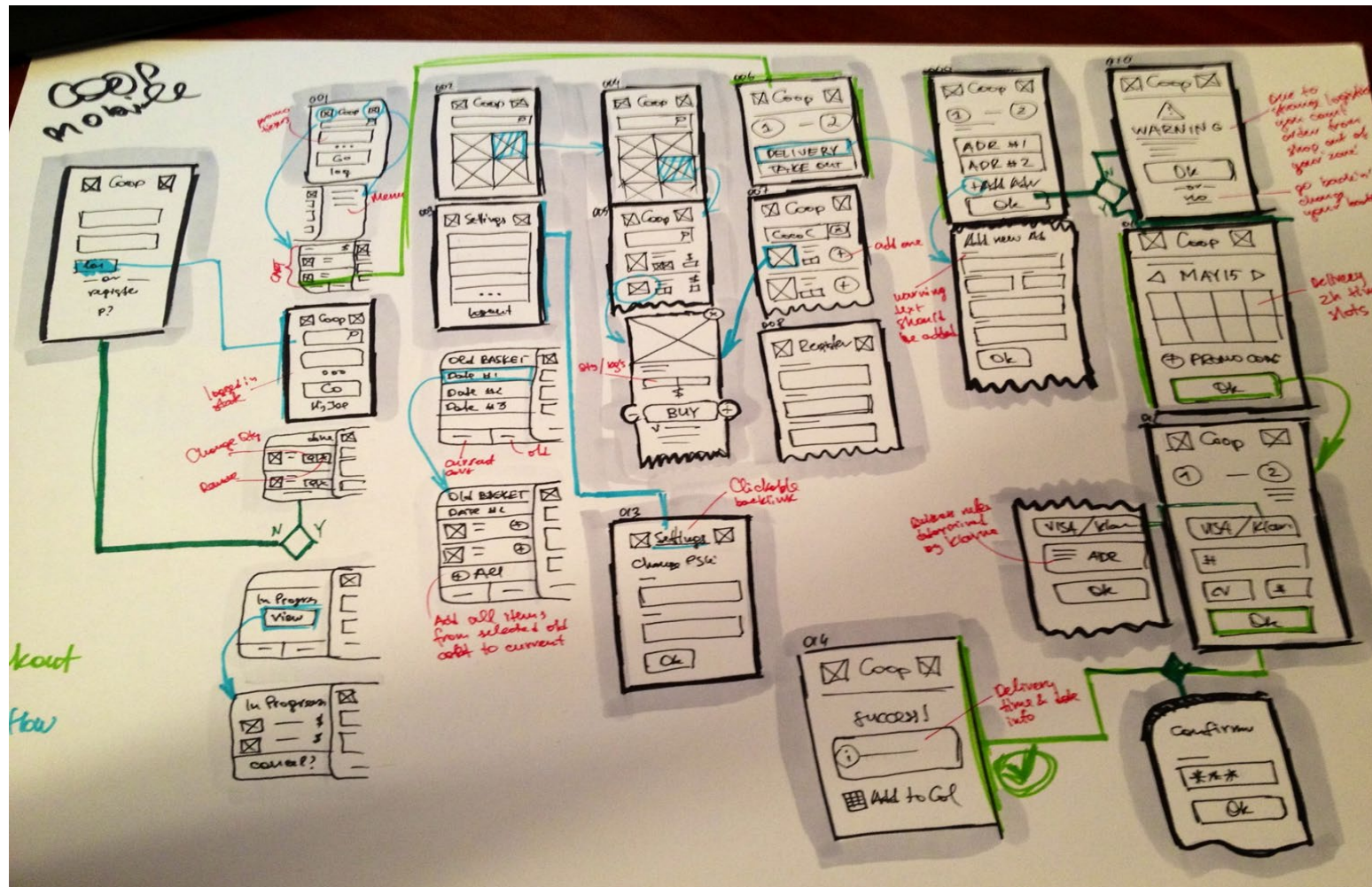
How to use me

to

How to use me to achieve your task

to

How well do you understand my role in achieving your goal.

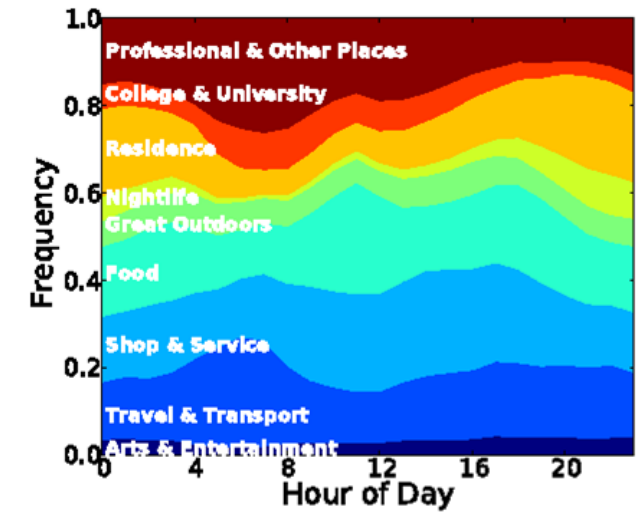# Overall Process

Identify Goal

Identify requirements

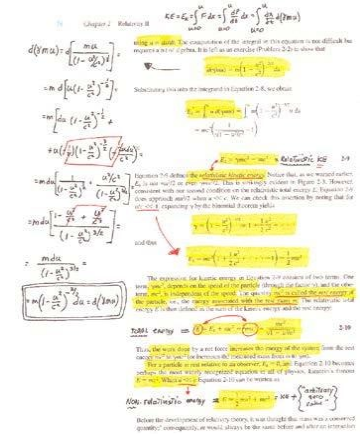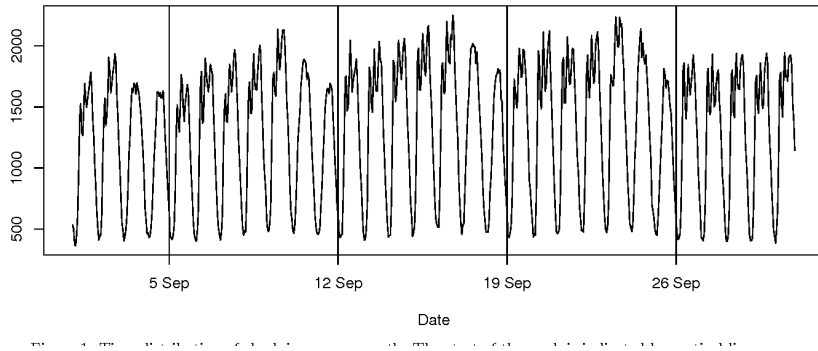Personas and Scenarios

Wireframes

Prototyping

Speak to users at every stage.

Prototyping

Analysing user behaviours
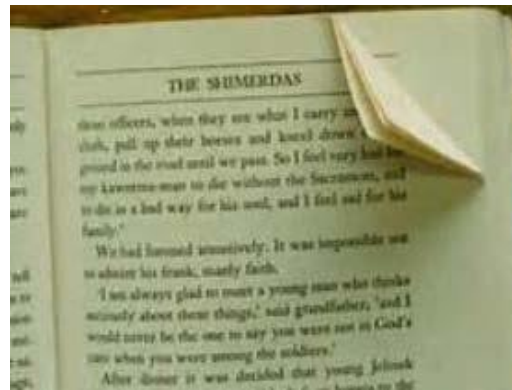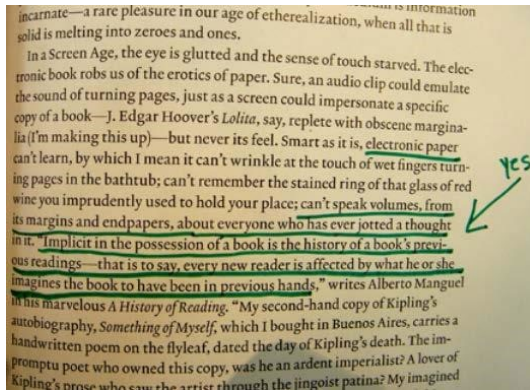
The chicken and egg of UX and UI

https://www.youtube.com/watch?v=2wZUTe70w1Y

Why do we care?

➔ About mobile app but it's more general

- Competition
- First impressions
- No compartmentalize quality
- Apps are everywhere
- Quality is not IT only

Facebook

Has a huge team for UX and invests a lot of resources in this sector. Why do you think?

The Like button

Facebook Reactions

Check out this video: https://www.ted.com/talks/margaret_gould_stewart_how_giant_websites_design_for_you_and_a_billion_others_too?language=en

Instagram

Their simple to use UI and UX propelled them far away and above established players like photobucket or flickr.

Users are lazy.

Humans are lazy.

Humans using different platforms have different behaviours.

The idea is...

We understand what are the processes involved in UCD **right now.**

We put into practice what we learn, via theory, guidelines and lessons learnt.

We understand the language, and take this into account whenever you are building anything, for clients or as a hobby.

Shifting the focus
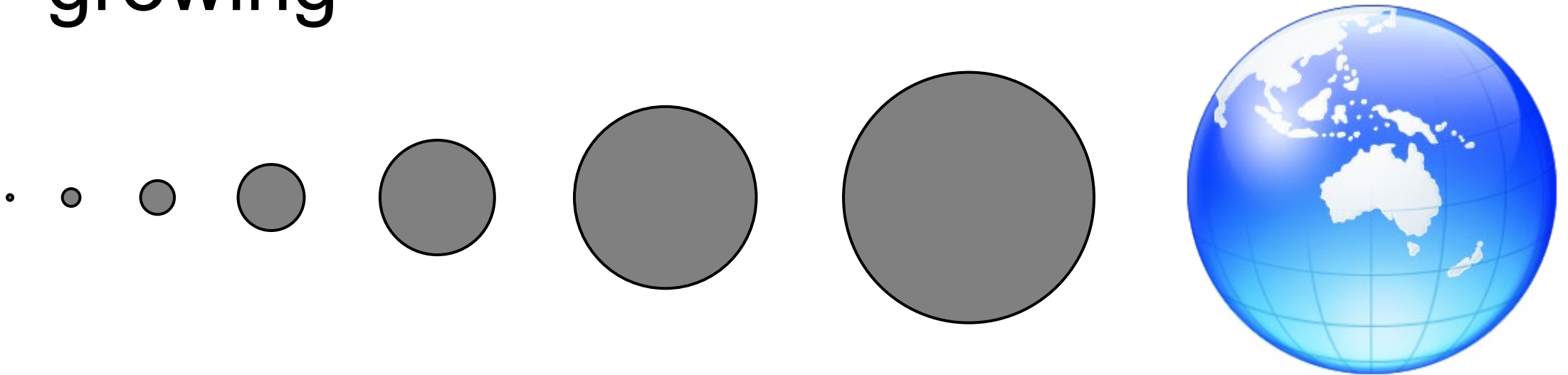
I don't build products, I build **experiences**

By

Understanding not only users' needs but also the tech and design requirements to meet those needs.

Users

Don't care about underlying issues (though they used to)

Users

- Do not care about technical details
- Not quite
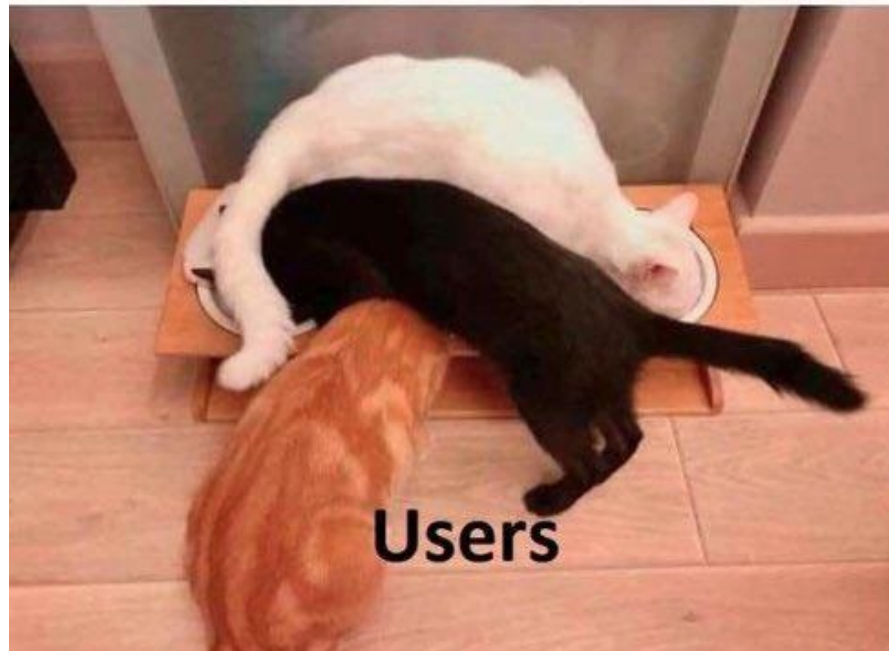 - They used to, but user population is growing

Most of all, users

- Sometimes does not know what they want.
  - How do we design for them?

Developer: Makes a simple, intuitive UI

Users

User Centred Design

- Is a method/process to improve usability

- To remove as much guess work as possible

- To work from the perspective of the user whenever it is relevant to do so

Because the goal is…

- To create a better user experience

- To continually work with users to understand what works best

- Example - Instagram

  - "*[Follow] what people love. If you just play user psychologist a little and you listen to your users and you see what they're focusing on and what they're ignoring…sometimes if you do what they're hinting…you should do because of their behavior, good things can happen.*"

But what does that mean?

- Let's journey back 5000 years. (No dinosaurs)
- Consider a bronze age stone dagger. (~2300 BCE)

Can you deduce…

- Which end is the cutting end? Why?

- Why are there ridges on the edges?

- How would you improve its usability?

Now how about something ubiquitous

- The humble nail

- It is obvious which end one should strike with the hammer

- Yet, consider the person who invented it.

  - What would be his thought process when he enlarged the flat end?

So back to computing…

- Usability is everywhere. The practice pervades itself in every tool, object you can use.

- The very design of this lecture hall, to

- the smartphones you are using right this moment, to

- the facebook status updates you are now checking, to

- the quick lock buttons on your phones when you heard me muttering the word facebook.

Usability is not just design

- Your websites being pretty is not the main goal here.

- The value of aesthetics change

- Like other things, your product can be pretty and flashy but is difficult to use.

Usability is not just design

- It is not only about making the best looking application
  – Google example

- It is not merely concerning the aesthetics

- Looks aren't everything. Well it certainly helps of course.

Example: Flash animations

- Were all the rage when flash first appeared.

- Most websites were literally not responsive to user input on purpose for 5-10 seconds after being loaded.

- Why would they have thought this is a good idea?

Our public transport friend

Count the number of arrows in this picture.

How long did it take for you to learn how to use this machine?

How long do you think it would take an elderly?

Would you rather top up your card at 7-11?

Consider another Melbourne staple

- Trams.

- Specifically, the old types where you had to pull an overhead cord if you wanted get off at the next stop.

- How did you learn that?

- Did you see someone else doing it?

- Or did you pull and see what happens.

How do you open this door?

How do you open this door?

How do you open this door?

Norman Doors

Why you often don't know whether to push or pull?

https://www.youtube.com/watch?v=yY96hTb8WgI

Norman Doors

Norman doors don't signify the right affordance.

When users perceive the doors, they often develop a mismatched mental model of how the door works

Affordance

First coined by James J. Gibson as:

all "action possibilities" latent in the environment, independent of an individual's ability to recognize them, but always in relation to agents (people or animals) and therefore dependent on their capabilities

Don Norman appropriated the term for HCI.
Norman's affordances *"suggest" how an object may be interacted with.*

(Wikipedia & The Design of Everyday Things)

What UCD is not

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Not a bug report

- It is not only a reactive process
  - Do listen to users, watch them

- It is in fact more effective when proactive

- Anticipation of user's needs

Programmers and UCD

- As programmers it is always tempting to seek out the HOW

- However we should ask WHY

- Implementing something cool is always great if you are always the only user.

- The quick and easy way to code things often leads to poor usability

Programmers and UCD

- Excel 2003

  - *"The sheet you are copying contains cells that have more than 255 characters in them. Copying an entire sheet truncates cells that contain more than 255 characters. To avoid truncation, copy the cells of the source sheet to the destination (rather than copying the entire sheet)."*

Not a waste of resources

- One of the fastest growing field in IT
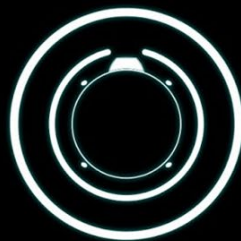
- Saves you time and money

Because it

- Reduces the probability of redesign later on

- Streamlines the testing phase of development

The biggest challenge?

It's not just the users…

- Those commissioning your app have no idea what they want

- What do you do?

To finish

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Interface Hall of Fame or Shame?

Submit these to the Canvas Discussion Board "Interface Hall of Fame or Shame" and I'll pick a couple to be discussed in the lecture

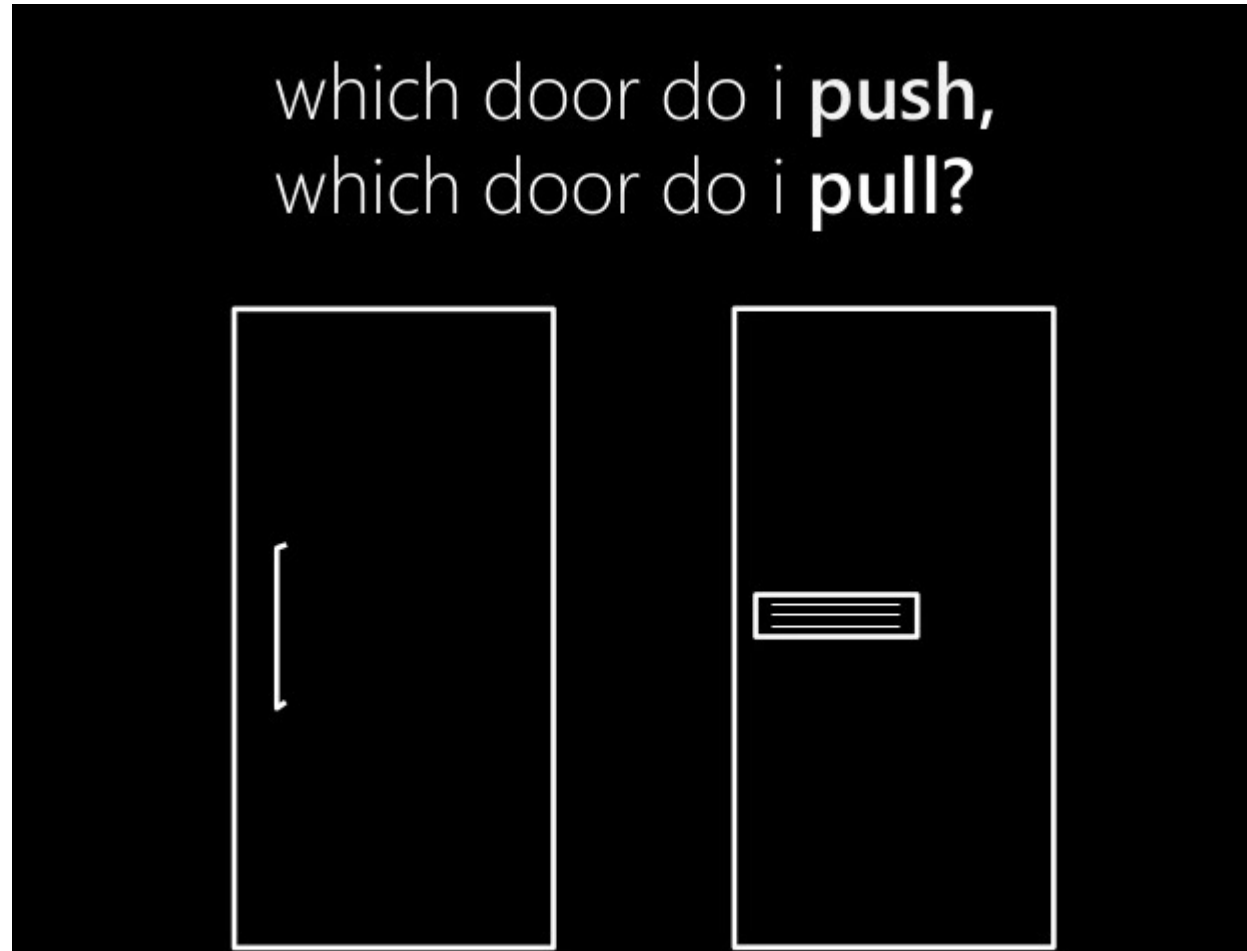# Interface Hall of Fame or Shame?

Interface Hall of Fame or Shame?

So to recap…

To understand what is User Centred Design (UCD)

To understand where does it fit in the usability sphere.

To understand its relevance in the industry.

How do you open this door?

which door do i **push,**
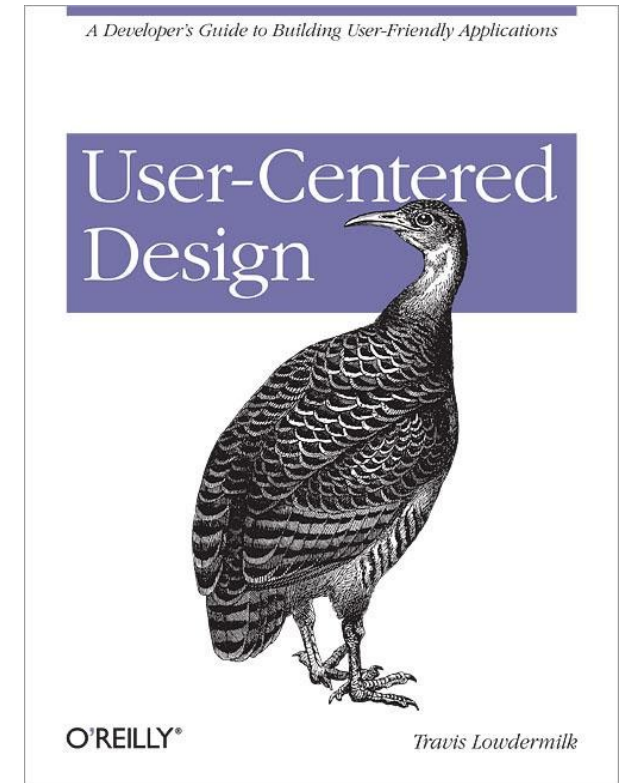which door do i **pull?**

Left Door   Right Door

Next week we will…

- Try to understand the importance of identifying the correct users

- Learn how to work with them towards a design objective

Suggested text reading

- Chapter 1: Our World Has Changed
- Chapter 2: What is User-Centred Design?

Possible books

- The Design of Everyday Things by Don Norman

- Smashing UX Design: Foundations for Designing Online User Experiences by Jesmond Allen & James Chudley

- Simple and Usable Web, Mobile, and Interaction Design (Voices That Matter) by Giles Colborne

- Interaction Design: beyond human-computer interaction by Yvonne Rogers, Helen Sharp, Jenny Preece

- And now for something completely different...

  - Make It So - Interaction Design Lessons from Science Fiction by Nathan Shedroff & Christopher Noessel