Understand Your Users

Think about **purpose**, not technology

- allows you to **solve a problem**, not create a new one
- people need to know **why** they **need** your product
- **features are useless without purpose**

Watch: [The art of innovation | Guy Kawasaki](https://www.guylk.com/2020/12/09/the-art-of-innovation/)
Value Proposition

A promise of the value you can deliver; a sharp product definition that highlights the key aspects of it.
Understand your users

Translate needs into functionalities

Create design ideas

Prototype design

Test & Evaluate

Build final version
Your Users

User groups
- Set of characteristics
  - Based on statistics
  - General

Personas
- Fictional character
  - Based on statistics
  - Specific
User groups

Your Users

Set of characteristics
Based on statistics
General

Demographics:
- Age & Gender
- Country & Language
- Education
- Occupation
- Residence
- Income
- Family status
- Size of a family
- ...

Other Characteristics:
- Means of transportation
- Music preferences
- Hobbies
- Food preferences
- Device preferences
- Fashion & clothing style
- Haircuts
- Sport preferences
- ...

...
Your Users

Personas

Best practice: 3-5 different personas

- Persona Group
- Fictional name
- Job titles and major responsibilities
- Demographics (age, education, family status, etc.)
- The goals and tasks when using the product
- Physical, social, and technological environment

Fictional character
Based on statistics
Specific

Important for:

- Building empathy and relating to users
- Communicating design goals
- Staying focused of design goals
- Supporting decision-making

Reading: The origin of personas by Alan Cooper
Your Users
Your Users

Participants

Representation of user groups

Diverse but generalisable

Balanced around key differences

How many?
Why You Only Need to Test with 5 Users

by Jakob Nielsen

\[ N \left(1 - \left(1 - L \right)^n\right) \]

Where \( n \) is a number of users, \( N \) is the total number of usability problems, \( L \) is the proportion of usability problems discovered while testing a single user. The typical value of \( L \) is 31\%
Why You Only Need to Test with 5 Users by Jakob Nielsen
Your Users

- Representation of user groups
- Balanced around key differences

Participants

- Diverse but generalisable
- How many?

For this course 3-5 participants
Your Users

Ethics
Why would the university have ethics requirements for a course?

Always respect participants! Including their:
- Time
- Attitude and environment
- Desire for privacy

University has a formal process for Ethics. They consider:
- Recruitment
- Voluntary participation
- Confidentiality and anonymity
- Risks/benefits
- Fully informed consent

Process and protections ensure study is done correctly with proper forethought
Principles:

- Respect for human dignity
- Respect for free and informed consent
- Respect for vulnerable persons
- Respect for privacy and confidentiality
- Respect for justice and inclusiveness
- Balancing harms and benefits
- Minimizing harm
- Maximizing benefits

Research Ethics Board (REB) at Waterloo can:

- Approve, reject, propose changes, or terminate any work with human subjects by members of the university. **This includes you.**
- REB consists of five members (both men and women)
  - One member knowledgeable in ethics
  - Two members have expertise in fields covered by REB
  - One member knowledgeable in biomedical law
  - One member from outside university
  Goal is breadth – want a balanced perspective on projects being examined
Informed Consent:
- Full Disclosure
- Comprehension
- Voluntariness
- Competence
- Agreement

Voluntariness:
- Subjects can refuse to answer and can stop participating at any time
- If they say they don’t want to participate, their involvement is done
- Never, ever push subjects for information they cannot or do not want to disclose

Partial consent:
- They can consent to all or part of process
- Consider consent forms
- Make them aware of selective exclusion
Understanding:
Motivations
Typical Behaviour
Struggles
Environment
Social context
Language...

Exploratory Study
Observe

Understand Your Users

User study

Register Features

Ask Questions
Field

Lab

Quantitative
- Fixed & measurable reality
- Analyzed numerically and statistically

Qualitative
- Dynamic & descriptive reality
- Analyzed by themes

Field
- Natural Environment
- Uncontrolled

Lab
- Artificial Environment
- Well Controlled

Behavioural
- What people do

Attitudinal
- What people think / feel
**Data Triangulation**
- One question - several methods
- Cross verification

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**Natural Environment**
- Uncontrolled

**Artificial Environment**
- Well Controlled
Understand Your Users: Exploratory Studies

- Generalizability of outcomes
- Trustworthiness of measurement

Validity of Research Design

- External Validity
- Internal Validity
Understand Your Users: Exploratory Studies

Validity of Research Design

External Validity
- Selection of the sample
- Size of the sample
- Experimental Situation
- Time of the study

Internal Validity
- Consistency of instruments
- Reactivity

Generalizability of outcomes

Trustworthiness of measurement
Understand Your Users: Exploratory Studies

Validity of Research Design

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Generalizability
- Time of the study

Consistency of instruments
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Selection of the sample
- Generalizability of outcomes
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Understand Your Users: Exploratory Studies

Reactivity

- Hawthorne (observer) effect
- Expectancy effect (expectancy bias)
- Conformity effect
- Social desirability effect
Cognitive (Mental) model

Understand Your Users: Exploratory Studies

Exploratory Study

- Motivational system
- Contextual knowledge & beliefs
- Cognitive (Mental) model
Cognitive (Mental) model

Understand Your Users: Exploratory Studies

Exploratory Study

Motivational system
- Goals and tasks ("need")
- Desirability ("want")
- Emotional charge ("fears", frustration, pleasure, etc.)

Contextual knowledge & beliefs
- A cognitive representation (understanding) of how something works / organised
- Based on previous experience & believes; defines reasoning

Cognitive (Mental) model
Understand Your Users

Exploratory Study

Goals

Hypotheses

There is a product

There is NO product

Open mind

General directions