

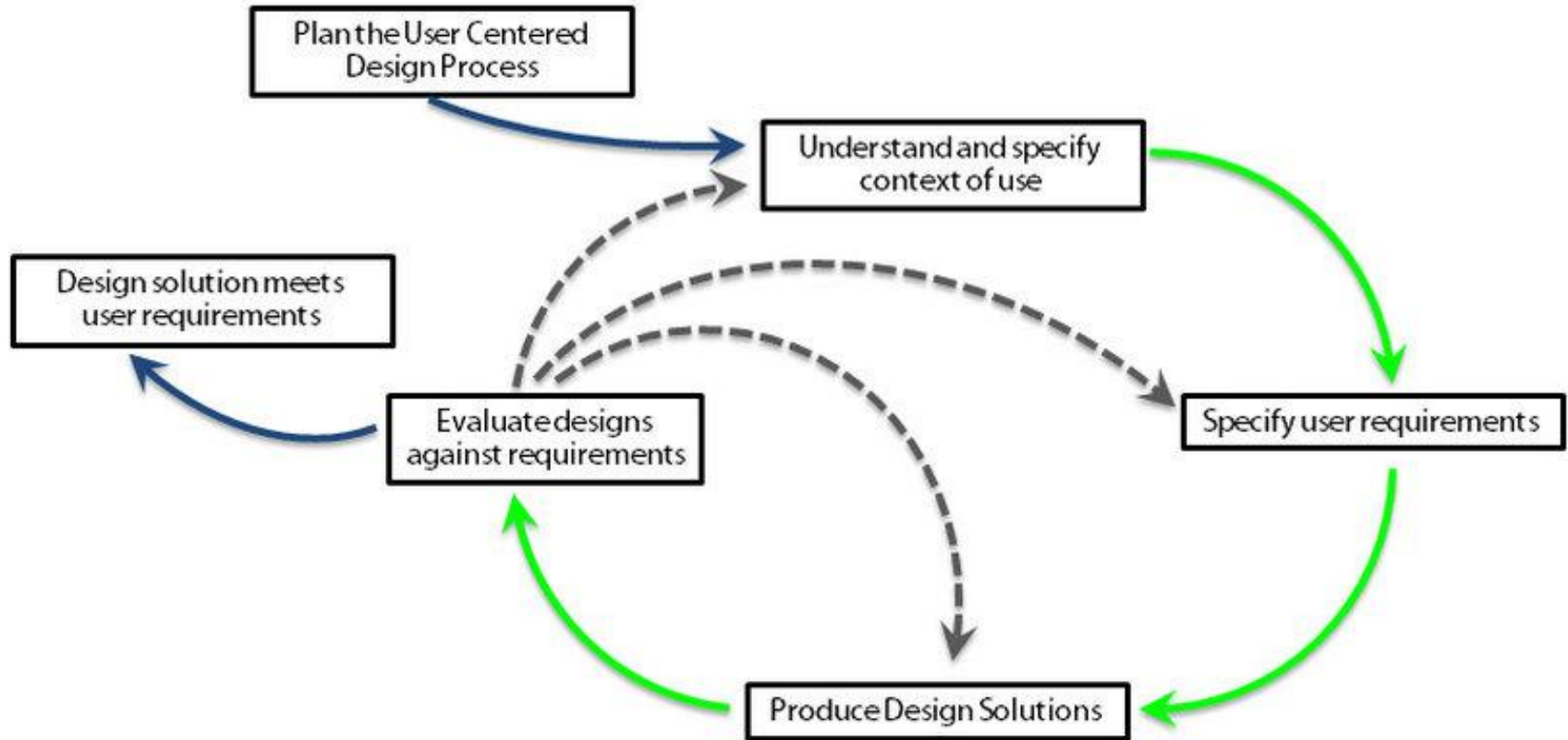
# SENG 310

## Lecture 4 - May 15th, 2023

# Human Centered Design

# Understanding People is Important!

- Assumptions
- Depending on user groups, their needs and pain points may be different
- Cultural differences may play a role
- Talking to people may reveal bias we may have accidentally introduced into your design
- People make errors i.e., mistakes and slips, and knowing about them can help us better design our interfaces
- To avoid false consensus effect



# The HCD Process is:

1

Purposive

Is based on a specific problem or objective

2

Inquisitive

Seeking new knowledge

3

Informed

Conducted from an awareness of people, context, and past research

4

Methodical

Planned and conducted in a disciplined manner

5

Communicable

Generate and explain results that can be understood, tested and verified by others

# Types of Research

# Based on the Type of Data Collected

## Qualitative

Relies on collecting and analyzing non-numerical information such as behaviours, emotions, and actions.

Example questions:

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Relies on gathering and analyzing numerical data to answer the research questions.

Examples questions:

How many times do people click on “forget password” button?

How many people like to use the calendar feature in outlook?

How many times do people use feature X compared to Y?



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How many times do people use feature X compared to Y?

## Mixed Methods

This method uses both qualitative and quantitative data to answer the research the research questions.

Examples questions:

How frequently do people switch between physical and digital formats for books and what are the common challenges they face?

# Based on the Timeline

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## Summative

This research is done towards the end of the implementation phase wherein you evaluate to learn if the user needs or goals are met.

Typically you can compare and contrast the formative and summative results to measure the success of your project.

The data collected in formative or summative research can be qual/quant/mixed.

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In this case, we learn about people's behavior by observing them. This can help us learn about people's mental models and interaction techniques.

People don't always consciously take action, therefore, one has to both listen and observe to understand the WHAT and WHY aspects of people's interaction.

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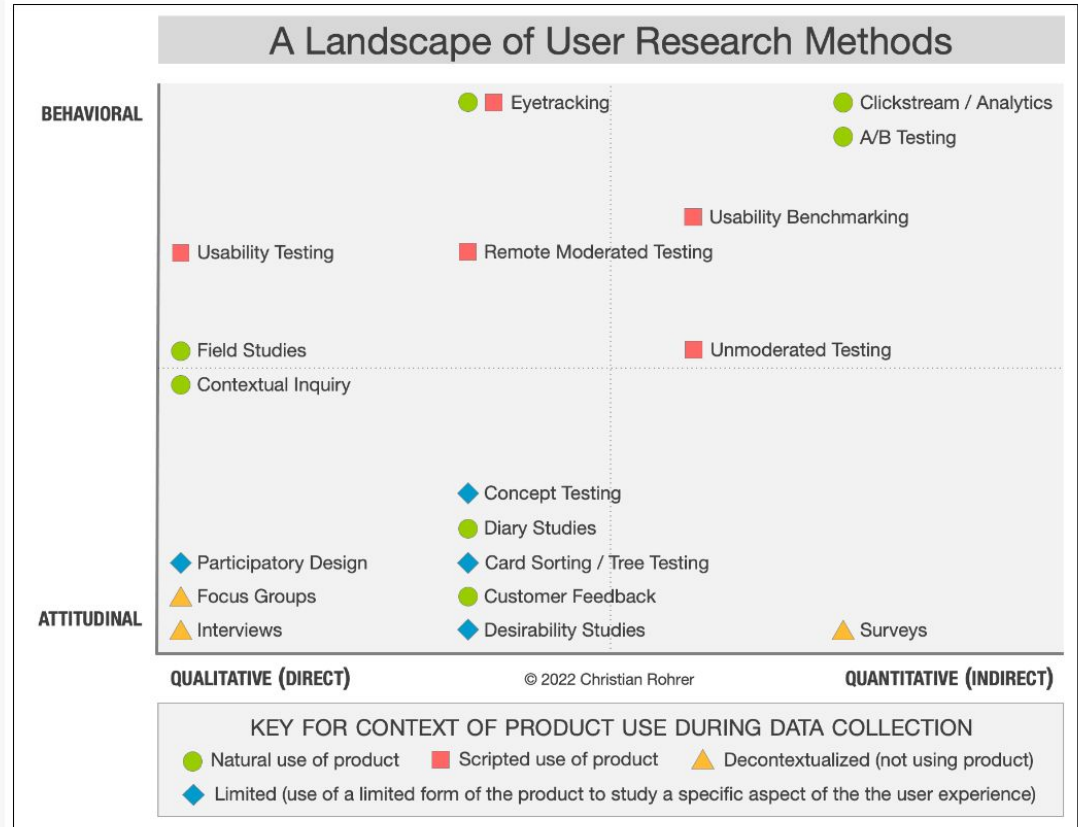
Typically both types of research are involved in HCI projects

# Mapping the Landscape of User Research Methods

# Primary Research

You will use:

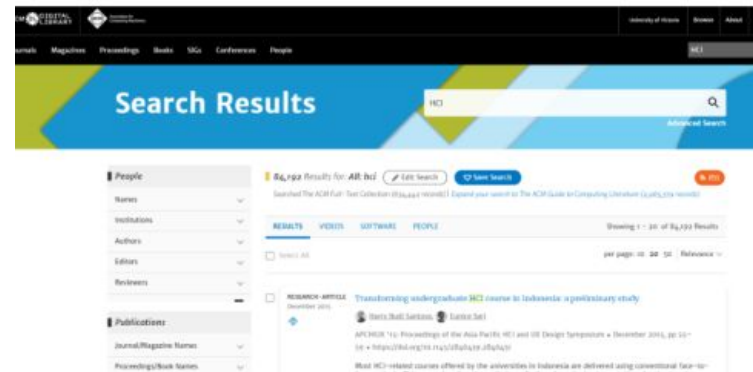
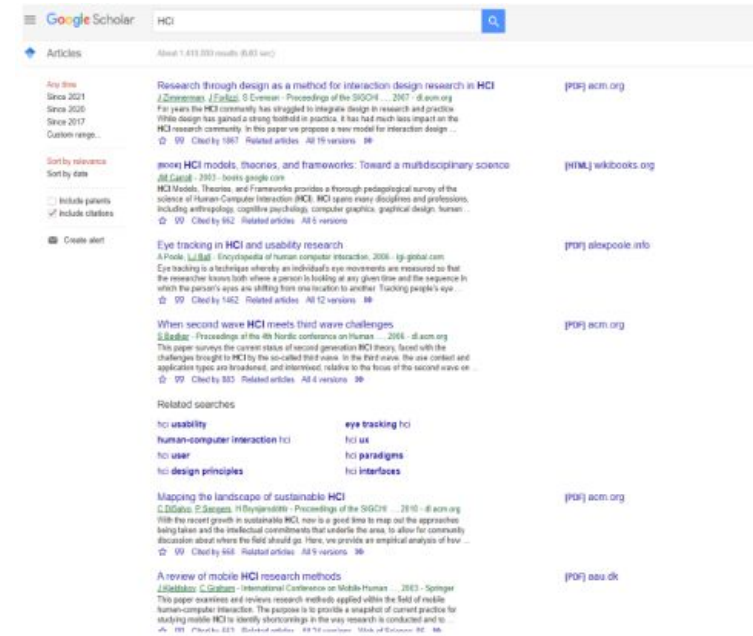
- Interviews
- Ethnography
- Diary studies



*Each dimension provides a way to distinguish among studies in terms of the questions they answer and the purposes they are most suited for. The methods placed in the middle of the quantitative–qualitative axis can be used to gather both qualitative and quantitative data.*

# Secondary Research

- Involves looking at research articles, books, patents, formal reports generated by academic researchers, companies or the government using tools such as Google Scholar, IEEE Xplore & ACM library
- Gain broader insights from similar research conducted in different places with different demographics
- Tweak your methodology by knowing the strengths and weakness of previously conducted research



# Ethics of Conducting HCI Research

# Milgram Experiment

<https://www.youtube.com/watch?v=Kzd6Ew3TraA>



# Three Simple Questions Regarding the Human Subjects

- **Baumrind, Diana, "Some Thoughts on Ethics of Research: After Reading Milgram's 'Behavioral Study of Obedience', American Psychologist, 1964, 19: 421-423**
- Were volunteers taken advantage of?
- Did it cause permanent psychological damage?
- What kind of counseling is required?

"From the subject's point of view, procedures which involve loss of dignity, self-esteem, and trust in rational authority are probably most harmful in the long run and require the most thoughtfully planned reparations, if engaged at all".



# ETHICS FRAMEWORK

Respect for Persons

Concern for Welfare

Justice



The screenshot shows the Government of Canada website with the following elements:

- Header:** Government of Canada / Gouvernement du Canada, Canada.ca | Services | Departments | Français.
- Navigation:** Panel on Research Ethics, Canada logo, search bar.
- Menu:** Policy, Education, Interpretations, Grants.
- Breadcrumbs:** Home > Policy > TCPS 2 (2018).
- Section Title:** TCPS 2 (2018) – Chapter 1: Ethics Framework.
- Table of Contents:**
  - A. Importance of Research and Research Ethics
  - B. Core Principles
  - C. How to Apply This Policy
- Section A: Importance of Research and Research Ethics**

The search for knowledge about ourselves and the world around us is a fundamental human endeavour. Research is a natural extension of this desire to understand and to improve the world in which we live.

The scope of research is vast. On the purely physical side, it ranges from seeking to understand the origins of the universe down to the fundamental nature of matter. At the analytic level, it covers mathematics, logic and metaphysics. Research involving humans ranges widely, including attempts to understand the broad sweep of history, the workings of the human body and the body politic, the nature of human interactions and the impact of nature on humans – the list is as boundless as the human imagination. For the purposes of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS or the Policy), research is defined as an undertaking intended to extend knowledge through a disciplined inquiry or systematic investigation.

There can be no doubt that research has greatly enriched and improved our lives. Significant advances in human understanding in the social sciences, humanities, natural sciences, engineering and health sciences have been made as a result of research involving humans. A fundamental premise of this Policy is that research can benefit human society. In order to maximize the benefits of research, researchers must have academic freedom. Academic freedom includes freedom of inquiry, the right to disseminate the results of that inquiry, freedom to challenge conventional thought, freedom to express one's opinion about the institution, its administration or the system in which one works, and freedom from institutional censorship. With academic freedom comes responsibility, including the responsibility to ensure that research involving humans meets high scientific and ethical standards that respect and protect the participants. Thus, researchers' commitment to the advancement of knowledge also implies duties of honest and thoughtful inquiry, rigorous analysis, commitment to the dissemination of research results, and adherence to the use of professional standards. There is a corresponding responsibility on the part of institutions to defend researchers in their efforts to uphold academic freedom and high ethical, scientific and professional standards.

[https://ethics.gc.ca/eng/tcps2-eptc2\\_2018\\_chapter1-chapitre1.html](https://ethics.gc.ca/eng/tcps2-eptc2_2018_chapter1-chapitre1.html)

# ETHICS BOARD

Every university in North America typically has its own ethics committees that approve applications for studies with human participants. UVic has one too. SENG 310 has an ethics application which was approved and we **must adhere** to the points listed in it.

See the Ethics module called “Ethics Material”

# CONSENT FORM

You need to get **consent** from your participants indicating that they agree to participate in the study. Example consent form in the Ethics Material folder

Consent form tells people about what is involved in the study. **No deception**

Your participants should be 18 and fully capable of giving consent. **Do not force** anybody to participate

There should not be **power-over** relationships

There should be **no risk** (social, physical, economic, emotional) for the participant

Participants can **withdraw and ask to delete** their data at any time

# RECRUITMENT EMAIL

Send recruitment letters via email (template in Ethics Material folder) to 3-4 people and then recruit 1-2 based on **first-come-first-serve-basis**

Each team member will recruit 1-2 participants. If you send invites to 4 people but only 1 responded, that's okay, just work with that one participant. **Don't force** others. You will have enough participants as a team eventually.

# HANDLING PARTICIPANT DATA

Data will be reported **anonymously**. For example, P1 said.., blur faces

Ensure **confidentiality**. Do not post or share identifying data

**Make sure you read the ethics materials (application and consent form) carefully and consult your TA or me when in doubt**

# Example Scenario

What is the ethical problem(s) with this scenario?

Jeff is running an experiment he wants to record on video. He starts a video tape behind a one-way mirror and then invites the participant into the lab. He then asks the participant to perform a task with a prototype he has developed...

# Example Scenario

What is the ethical problem(s) with this scenario?

Dr. Smith has an experiment he wants to run for his research. He is currently teaching SENG 311, so to find participants he recruits students from his class.

# Example Scenario

What is the ethical problem(s) with this scenario?

Christina is conducting an interview with Alex about an online clinical case management system.

*Christina: could you tell me about your ethnicity?*

*Alex: I do not want to disclose that.*

*Christina: Your answer is really important for this study.  
I'd really like you to talk about this*



# Data Collection Methods - Intro

## ETHNOGRAPHY

Researchers observe or interact with people in their real-life environment for gaining a deeper understanding of people, their context, actions, process etc.



# Data Collection Methods - Intro

## INTERVIEWS

It is a qualitative method where researchers and designers engage in a conversation with people to learn about their motivations and experiences.



# Data Collection Methods - Intro

## DIARY STUDIES

It is a method that asks people to take charge of recording their activities and reflections over a certain period of time but with the aim of answering a research question.

