1 - Video Game

Well behaved. Violent / non-violent. Short. Can be inexpensive ($7) and played on your phone.

1.1 - In-Class Discussion with grade
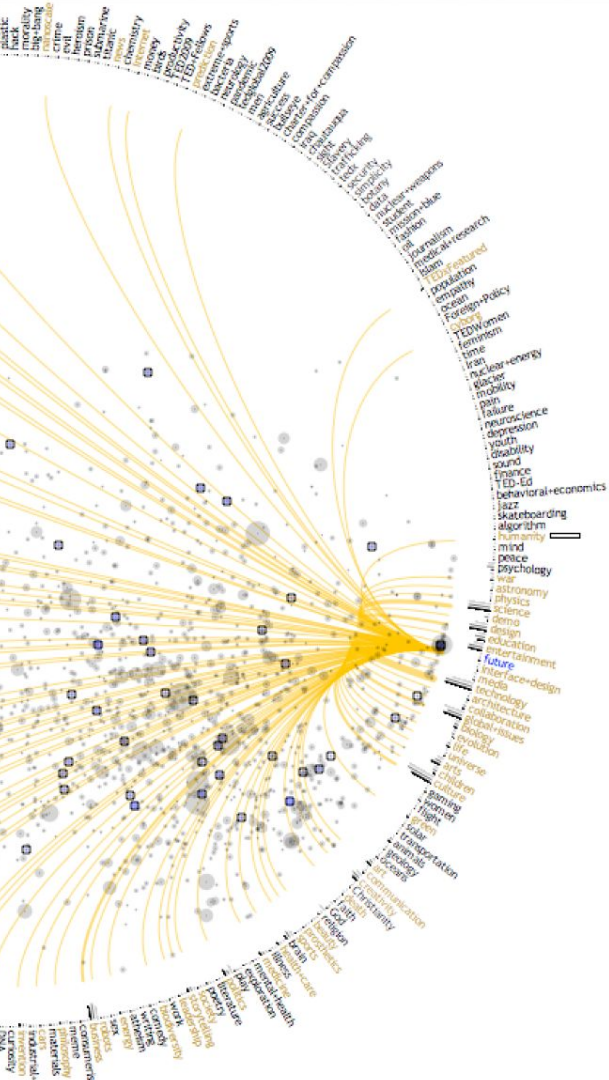
1.2 - Zoom Discussion with grade
(will be on a Friday 3pm)

2 - Essay

4 different interactive visualizations with 4 sentence response to each prompt.

No cost, browser only needed.

Tell me which option, which game, and which discussion via Zulip!

Design Research

A Samuel Pottinger
Stat 198: IDSV
Mar 17, 2025

Why design research?

We've learned about encoding devices, tasks, domains, patterns, and so much more.

What are the right questions to ask within a data visualization, what are the most important variables that we should include, how should we prioritize our encoding devices?

The answer lies in understanding the user.

However…

This is not a class on user research methods in human-centered design.

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That can often span many lectures or even full courses.

My goal today is just to give you a sense of how it is done and give you one specific tool that can be useful for visualization measurement and evaluation.

Employing some of these techniques may involve ethical considerations and training depending on the circumstance.

What is design research?

See Links…

What is design research?

Catching up with Jane Fulton Suri: In the design of physical products, the goal was to create an object that effectively **signaled its function** to the user. Other designers focused on the **meaning** people placed on **artifacts, rituals, and behaviors** and how to incorporate those **interactions** into their work. In Scandinavia, designers began including the **end user** in the process early on, focusing on **co-creation**. As the practice of human-centered design became more defined, the various ways people solved for design challenges came together into a more comprehensive approach, and IDEO pulls from many of these ideas today.

A brief glimpse at underpinnings

We have a cultural and experiential lens through we we observe the world and this includes visualizations (diagrammatic thinking).

The question is if we can, without judgement, learn about the experiences of others (design empathy).

We center outside and often lived expertise to understand experiences but also how symbols including objects get meaning within those experiences and social systems (symbolic interactionism).

> **Talking to users:** **the basics of a user interview.**

Group activity: try out the user interview.

Observing users: the basics of a contextual inquiry.

Think-Aloud: the basics of measurement / evaluation.

Co-design: another option.

Leave it open ended, follow them.

User interviews may be used in learning about a product, population, system, process, etc. Try to ask open ended questions which allow the user to guide you to new topics:

- **Why** are those goals important?
- **Who** works with you on those goals?
- **How** did those deadlines get set?

Who, what, when, where, and why are all helpful but why, who, and how can be particularly generative.

Leave it open ended, follow them.

Learning about a thing but also the context of that thing:

- Can you **describe** your day **yesterday**.
- What did you **feel** going through that process?
- Why is that **good or bad** and **how do you know**?
- What **causes** that to happen?
- **How often** does that happen?
- What **tools** do you use to accomplish this goal?
- How do you **collaborate** on this with others?

It is best to ask about specific and, when possible, recent actual events.

Some techniques

Echoing: You said that it was difficult to use, why is that the case?

Silence: ...

That's interesting redirect: That's interesting thank you. I also wonder if you could tell me about...

Advice to someone else: What would you tell someone else who is thinking of using this software in the future?

Advice to past self: If you could give your past self advice, what would you say?

End with magic wand: If you change anything about this, what would it be?

Some things to avoid

Dead ends: is that your preferred software -> why is that your preferred software.

Judgement: why is this tool is difficult to use -> how does it feel to use this tool?

Leading: what have you done to improve this process -> has the process changed over time?

Avoid the double-barrel: what do you like and dislike about this tool -> what do you like about this tool? what do you dislike about this tool?

Today

Talking to users: the basics of a user interview.

> **Group activity: try out the user interview.**

Observing users: the basics of a contextual inquiry.

Think-Aloud: the basics of measurement / evaluation.

Co-design: another option.

Find a partner, ask about a class.

Find another partner here in the room (can make a group of 3 if needed). **Ask them about a class that you haven't taken.**

- Why did they take it?
- What was their perception of the outcome of having taken the course?
- Why did they have that perception?

Talking to users: the basics of a user interview.

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It's kind of like a user interview but in **action**.

The goal is to observe a specific **situated experience**.

The **primary goal is to observe** and ask non-disruptive questions.

Best when in the course of **regular activity**.

Go with a **beginner's mind** and **without judgement**.

Talking to users: the basics of a user interview.

Group activity: try out the user interview.

Observing users: the basics of a contextual inquiry.

> Think-Aloud: the basics of measurement / evaluation.

Co-design: another option.

Lots of options for measurement and evaluation

Strategies for Evaluating Information Visualization Tools:
Multi-dimensional In-depth Long-term Case Studies

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ABSTRACT

After an historical review of evaluation methods, we describe an emerging research method called Multi-dimensional In-depth

In the term "Multi-dimensional In-depth Long-term Case studies" the *multi-dimensional* aspect refers to using observations, interviews, surveys, as well as automated logging to assess user performance and interface efficacy and utility. The *in-depth*

Please go through this tutorial and while doing so, **please try your best to think aloud**.

Please go through this tutorial and while doing so, **please try your best to think aloud**.

Task-Centered User Interface Design:
A Practical Introduction
by Clayton Lewis and John Rieman

Copyright 1993, 1994: Please see the"shareware notice" at the front of the book.

Talking to users: the basics of a user interview.

Group activity: try out the user interview.

Observing users: the basics of a contextual inquiry.

Think-Aloud: the basics of measurement / evaluation.
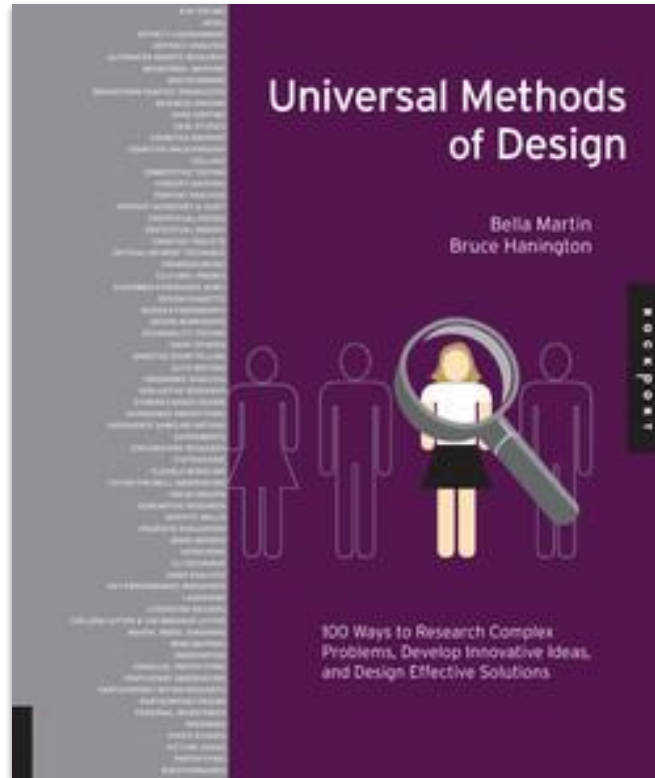
> Co-design: another option.

About co-design

Break down the distinction between users and designer, instead invite in **partners**.

Allow others to **fundamentally guide process** in conceptualization and design.

Often works well when you can make a **long term repeated relationship**.

Can be effective for more involved feedback, especially for **expert tools**.

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