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Task Analysis

Today

- Tools to understand tasks
- How to group information
- Bonus: UX careers

Update on project

- Next step: Submit project ideas (by Sunday at 5pm)
- We’ll post projects on Monday
- You will bid on projects by next Friday at noon
- We’ll assign project groups before next Sunday

Big questions in user-centered design

- Who are our users? (user analysis)
- What do they do? What do they want to do? (task analysis)
- Where and how do they do it? (environmental analysis)

Tasks

- How to talk about tasks
- Task analysis
- Learning about tasks

What is a task?

What is a task?

- Something that someone does
  - Or attempts to do
- Usually a multi-step processs
- Often (in our case) involving some tool or technology

Why we analyze tasks

- Our goal in creating user interfaces is to support people in performing tasks
- So, we want to know…
  - What users' tasks are
  - How they think and talk about them
  - What steps are required

When we get it right

- Design interfaces that support tasks that are new to us

- Learn how to avoid mistakes
  - “It’s a huge pain to upload an assignment in Moodle”
  - “I can’t figure out how to join a group in Canvas”

- Optimize tasks so they can be done faster, more efficiently, with fewer errors

Talking about tasks

- Tasks have a **goal**
- Tasks may have **prerequisites**
  - Things you need to **know** or **have** to complete that task
- Tasks have a series of **steps** that the user follows

- Example: buying shoes
  - What are some possible goals?
  - What do you need to know?
  - What do you need to possess?
  - What steps do you follow?

Thinking about goals

- Goals are often more complex than they seem
  - e.g. goal of buying shoes is to get shoes
  - These options both satisfy that goal:

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- In most cases, we need to learn more about the task in order to support it

Subtasks and hierarchical tasks

- Tasks are hierarchical, made up of subtasks
  - Example: getting a book from the library

- Tasks may have branching paths, loops, ordering
  - Go to the nearby coffee shop;
    if the line is long, go to the other one
  - Wash the dish.
    If clean, put it in the drying rack.
    If still dirty, keep washing
  - To get ready in the morning,
    brush your teeth and shower (in any order)

Task language

- It’s important that our UI reflect how users think about tasks, not just how the system sees them

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- Example: From the system view, no difference between messaging another student or instructor. But contacting the instructor is listed under **help.**

When we get it wrong

- Tasks are not described in the user's language; user can't find them
- Tasks are sequenced incorrectly; ask for the wrong information at the wrong time
  - e.g. Ask for credit card before the user chooses what to buy
- Tasks are inefficient; has extra steps

Representing tasks

- Model tasks via **hierarchical task analysis (HTA)**

- We can represent tasks as a diagram; or as pseudocode

Task models

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Tasks as pseudocode

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- The format doesn’t really matter,
  as long as we capture steps with enough detail,
  rules for navigating through plan

How to learn about tasks

- Observation
- Interviews
- Examining existing UIs and documentation
- Examining help forums

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Learning from the internet

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Interviewing about tasks

- Start by asking about a typical version of task:
  - “Tell me about how you made breakfast this morning.”
- Ask follow-up questions to learn more about the process
  - Is the order the same every time? Does it have to be?
  - When are things done differently? Why?
  - How are exceptions handled?

Example: class search

Example: class search

- What is the first thing we do when searching for a class?
- Multiple entry points

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What to do with task models?

Using task models

- Build interfaces that match users' view of tasks
  - UI shows common tasks
  - Includes users' language
- Use task models to assess an existing user interface
  - Via a **cognitive walkthrough**

Cognitive walkthrough

- A **heuristic** method for analyzing the usability of some system
- Tested by designers (or expert assessors) instead of typical users
- Assuming we have a good task model, we can assess a UI for its ability to support that task
- Assess the “guessability” of the UI

How to perform a cognitive walkthrough

1. Load application
2. Choose one task
3. For the first step of the task, assess the current page of the UI for the task
   - Is it obvious how to take that step?
   - Are there any misleading elements?
   - (Take notes about any potential issues)
4. Take the next step(s) and continue

Cognitive walkthrough questions

- At each step, ask:
  - Will the user try and achieve the right outcome?
  - Will the user notice that the correct action is available to them?
  - Will the user associate the correct action with the outcome they expect to achieve?
  - If the correct action is performed; will the user see that progress is being made towards their intended outcome?

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CW
worksheet

CW example

- Task: apply to CU’s Economics program
- Steps?

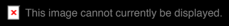
Notes from our walkthrough

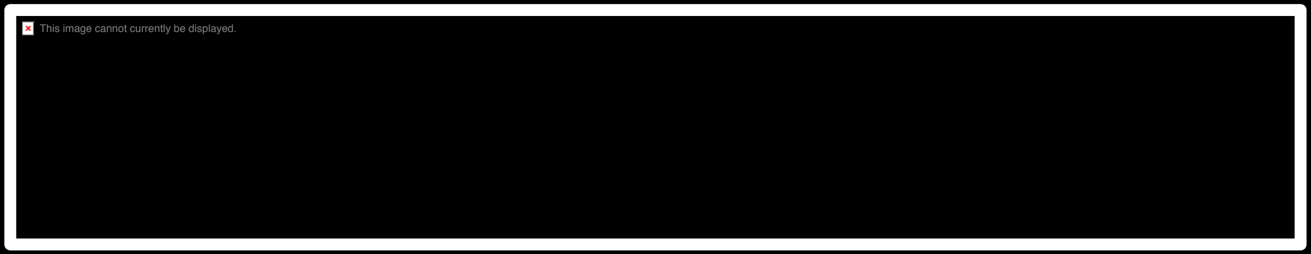
One more tool

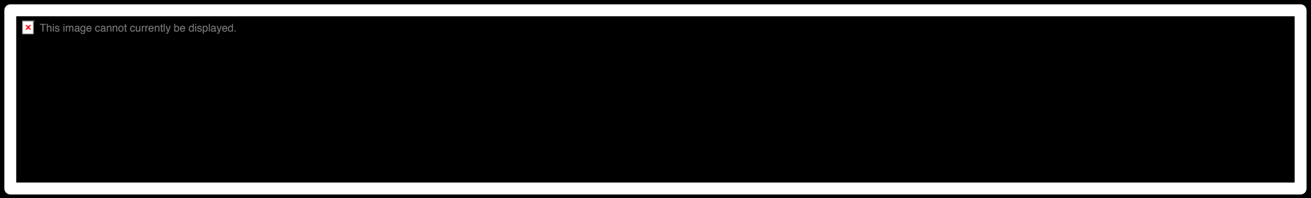
- Affinity diagramming / card sorting

The problem

- How to organize collections of static information?
- Which categories? How many?







How many menu items?

- Some “folk wisdom” about this…
- 7 items (+/- 2)
  - This corresponds to our working memory capacity
  - But little scientific evidence for this particular rule
  - Might be a good approximation anyway

Menu design strategies

- Menu items can describe the type of information

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- … or who it's for

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- … or tasks

- Depends on specific application. What is purpose? Who uses it?

Technique: affinity diagramming

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Affinity diagram

- Useful for all kinds of things!
  - Identifying primary tasks
  - Identifying user categories about the world
  - Grouping similar functionality
  - Analyzing data from interviews, surveys

- Big idea: identify the themes and clusters in disorganized data

- Can be done by design team, or users

Affinity diagramming

1. Enumerate all of the ideas that you have; write each on a Post-It

2. Put post-its on the wall

3. Arrange into logical groups

4. Label the groups

Similar to “card sorting”

Affinity diagramming

- Let’s come up with a new mobile app for the supermarket
- Identify tasks

Practice with your neighbor

- Identify as many tasks as possible for your design (4 minutes)
- Identify 3 primary categories (4 minutes)
- If time remaining: do an HTA for one of your tasks

Next class

- Talking about users
- Project planning