

CS 315 – Intro to Human Computer Interaction (HCI)

A decorative graphic consisting of several horizontal lines in shades of blue and white, extending across the width of the slide below the title.

Task Analysis

Task Analysis Questions

1. Who is going to use the system?
2. What tasks do they now perform?
3. What tasks are desired?
4. How are the tasks learned?
5. Where are the tasks performed?
6. What's the relationship between user & data?
7. What other tools does the user have?
8. How do the users communicate with each other?
9. How often are the tasks performed?
10. What are the time constraints on the tasks?
11. What happens when things go wrong?

1. Who is going to use the system?

- Identity
 - Need several typical users for broad product
- Background/Skills
 - Knowledge users already have and rely on to perform task
- Values, Likes/Dislikes
- Personal Characteristics
 - Education
 - Literacy
 - Physical abilities
 - Age

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Talk to them

- Find some real users
- Talk to them
 - Find out what they do now
 - How would your system fit in?
- Are they too busy?
 - Buy their time
 - Treats!

Old and new tasks

- Old
 - The way people do things now
- New
 - The way you anticipate them doing things in the future
- Observe
 - Pick the most important tasks
 - Remember you're guessing about future tasks

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How are the tasks learned?

- What does the user need to know?
- Do they need training?
 - Book/manual information
 - General knowledge / skills
 - Special instruction / training
- Experience, level of education and literacy
 - 8th grade is often reasonable in broad design contexts

Where is the task performed

- Office, laboratory, point of sale, home?
- Effects of environment on users?
 - Lighting, sound, comfort, interruptions, water
- Social influence of environment
 - Rituals, sacred places
- Effects of other people?
 - Rushing safety, privacy
- Under stress?

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Data Relationships

- Personal data
 - Privacy
 - Always accessed at same machine?
 - Do users move between machines?
- Common data
 - Handling and processing
 - Used concurrently?
 - Passed sequentially between users?
- Remote access required?
- Access to data restricted?

Other tools

- Users work with collection of tools
 - Cell phone
 - Home PC
 - Tablet
- Can you use other tools to facilitate interaction?

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How do users communicate?

- Who communicates with whom?
- About what?
- Follow lines of the organization? Against it?
 - **Example: assistant to manager**
 - Installation of computers changes communications between them
 - People would rather change their computer usage than their relationship

How often are tasks performed?

- Frequent users remember more details
- Infrequent users need more help
 - But don't make it tedious
- Which function is performed
 - Most frequently? By which users?
 - Optimizing system for these tasks will improve perception of good performance

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Time constraints

- What functions will customers be in a hurry for?
- Which can wait?
- Is there a timing relationship between tasks?

When things go wrong

- How do people deal with
 - Errors?
 - Practical difficulties?
 - Catastrophes?
- Is there a backup strategy?

Identifying Tasks

Identifying Tasks

- Real tasks users have faced
 - Collect any necessary materials
- Should provide reasonable coverage
 - Compare check-list of functions to tasks
- Mixture of simple & complex tasks
 - Easy task
 - Moderate task
 - Difficult task

What should tasks look like

- Say what user wants to do, not how user would do it
- Often very specific
 - Forces us to fill out description with relevant details
 - Say who the users are (user personas)
- Some describe a complete job
 - Forces us to consider how features work together

Using tasks in design

- Write up a description of tasks
 - Formally or informally
 - Run by users and rest of design team
 - Get more information where needed
- Produce scenarios covering each task
- Rough out an interface design

Using tasks in design

- Write up a description of tasks
- Produce scenarios covering each task
 - Three types
 - Task based
 - Elaborated
 - Full-scale
- Rough out an interface design

Using tasks in design

- Write up a description of tasks
- Produce scenarios covering each task
 - Three types
 - Task based:
 - Jill is traveling to Seattle for her job next week and she wants to check on the amount she can be reimbursed for meals and other expenses
 - Elaborated
 - Full-scale
- Rough out an interface design

Using tasks in design

- Produce scenarios covering each task
 - Three types
 - Task based
 - Elaborated:
 - It's Friday afternoon and Joe is flying to Sydney. He doesn't have enough money for a taxi to the airport, and he's running late.

He goes to the local ATM and identifies himself.

He specifies that he wants \$100 from his savings account. He'd like the money in \$20 notes so that he can give the taxi driver the correct change.

He doesn't want a printed receipt, as he doesn't bother keeping track of transactions in this account.

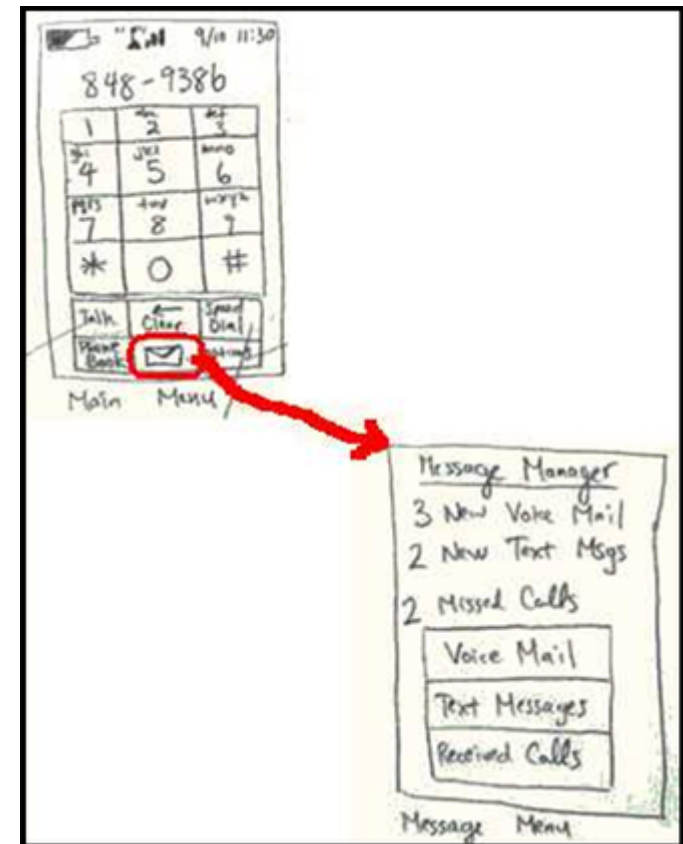
- Full-scale

Using tasks in design

- Write up a description of tasks
- Produce scenarios covering each task
 - Three types
 - Task based
 - Elaborated
 - Full-scale:
 - Often done after roughing out the design
- Rough out an interface design

Full-scale scenarios

- Scenarios explain, tasks explain what
- Scenarios force us to
 - Show how features will work together
 - Settle design arguments by examples
- Use storyboards
 - Sequences of sketches showing screens
 - Actions customers can take



Contextual Inquiry

Goals

- Get inside the user's head
- See their tasks the way they do
- Neither pure observation nor pure interview

Master-Apprentice Model

- Allows user to teach us what they do
 - Master (the user) works & talks
 - We interrupt to ask questions as they go
 - Each step reminds master of the next
 - Better than asking user to summarize work habits

Principles: Context

- Conduct inquiry in a normal work environment
- People summarize, but we want details
- Keep it concrete when people start to abstract
 - “We usually get reports by email”, ask “Can I see one?”
- Look for skipped steps and ask users to fill them in

Principles: Partnership

- Stick with master-apprentice
 - Avoid interviewer/ interviewee
 - Above all, don't "teach"!
- Partnership allows more apprentice interaction
 - Okay to be a designer and interrupt!
 - ... but go back "in role"

Principles: Interpretation

- Good facts only the starting point
 - Design based on interpretations
- Validate & rephrase
 - Check interpretations with user
 - Be committed to hearing what the user is really saying

Principles: Focus

- You need data about specific tasks
 - Steer conversation to stay on useful topics
- Respect triggers (flags to change focus / understanding)
 - Shift of attention
 - Treat every user utterance as a potential clue to something important

Users

- “... nothing any person does is done for no reason; if you think it’s for no reason, you don’t yet understand the point of view from which it makes sense.”
- “Take the attitude that nothing any person does is unique to them, it always represents an important class of customers whose needs will not be met if you don’t figure out what’s going on.”