Picking Project Teams & Design Discovery: Task Analysis

Hall of Fame or Hall of Shame?

Hall of Fame!

• Flexible sort
• Icons change if saved a house
• Understands “neighborhoods”

Outline

• Review
• Project teams
• Tasks analysis questions
• Administrivia
• Picking tasks

Readings

• What did Engelbart mean by bootstrapping?
  – building tools to build better tools & testing them on yourself as you go along
• What was NLS?
  – oNLine System
• Features of NLS?
  – mouse, groupware, client-server, windows, version control, hypertext, 2d editing, context-sensitive help, …
Design Process: Discovery

- Assess needs
  - understand client’s expectations
  - determine scope of project
  - characteristics of customers & tasks
  - evaluate existing practices & products

Discovery
Design Exploration
Design Refinement
Production

Review

- Know thy user & involve them in design
- Contextual inquiry
  - way to answer the task analysis questions
  - interview & observe real customers
  - use what model to get them to teach you
    - the master-apprentice model to get them to teach you
- Experience Sampling Method (ESM)
  - way to get self-report data where?
    - in situ

Project Team Ideas

- Let’s hear 1 minute from each proposer
- At the end rank the top 3 projects you’d like to work on
- Don’t pick groups with your friends
- Groups will be on web site by end of day
  - get together soon & start talking
  - contextual inquiry assignment due next Tue. (online today)

Project Title

1. Augmented Fashion (Scott Kuehnert)
2. Being More Social (Kim Brown)
3. Seeing Carbon (Phil Pasqual)
4. Style Matcher (Denise Tseng)
5. Personal Health (Linda Hee & Katherine Huleran)
6. Creative Reflection (Alex Hansen)
7. Fashionable New What? (Kimberly Dierhmann)
8. Home Energy Monitoring (Prathi Prasad)
9. Social Agent Nice Guy (Niki Lee)
10. Mobile Language Tutor (James Landay)

Why Task Analysis?

- System will fail if it
  - does not do what the customer needs
  - is inappropriate to the customer
  - “the system must match the customer’ tasks”

- Can’t we just define “good” interfaces?
  - “good” has to be in context of users
    - might be acceptable for office work, not for play
    - infinite variety of tasks and customers
  - guidelines are too vague to be generative
    - e.g., “give adequate feedback”

Task Analysis Questions

- Who is going to use the system?
- What tasks do they now perform?
- What tasks are desired?
- How are the tasks learned?
- Where are the tasks performed?
- What’s the relationship between customer & data?
Task Analysis Questions (cont.)

- What other tools does the customer have?
- How do users communicate with each other?
- How often are the tasks performed?
- What are the time constraints on the tasks?
- What happens when things go wrong?

Who?

- Identity
  - in-house or specific customer is easy
  - need several typical users for broad product
- Background
- Skills
- Work habits and preferences
- Physical characteristics
  - height?

Who (Link)?

- Identity?
  - people who ride Link
    - business people, students, disabled, elderly, tourists
- Background?
  - may have an ATM or credit card
  - have used other fare machines before
- Skills?
  - may know how to put cards into ATM
  - know how to buy Link tickets

Who (Link cont.)?

- Work habits and preferences?
  - use Link 5 days a week
- Physical characteristics?
  - varying heights \(\Rightarrow\) don’t make it too high or too low!

Task Analysis

- Find out
  - who customers are
  - what tasks they need to perform
- Observe existing work practices
- Create scenarios of actual use
- This allows us to try out new ideas before building software!
  - get rid of problems early in the design process
Talk to Them

• Find some real customers
• Talk to them
  – find out what they do
  – how would your system fit in
• Are they too busy?
  – buy their time
  • t-shirts, coffee mugs, etc.
  – find substitutes
  • medical students in training

What Tasks?

• Important for both automation and new functionality
• Relative importance of tasks?
• Observe customers, see it from their perspective
  – on-line billing example
  • small dentists office had billing automated
  • assistants were unhappy with new system
  • old forms contained hand-written margin notes
    – e.g., patient A’s insurance takes longer than most, etc.

How are Tasks Learned?

• What does the customer need to know?
• Do they need training?
  – academic
  – general knowledge / skills
  – special instruction / training

Where is the Task Performed?

• Office, laboratory, point of sale?
• Effects of environment on customers?
• Users under stress?
• Confidentiality required?
• Do they have wet, dirty, or slippery hands?
• Soft drinks?
• Lighting?
• Noise?

What is the Relationship Between Customers & Data?

• Personal data
  – always accessed at same machine?
  – do users move between machines?
• Common data
  – used concurrently?
  – passed sequentially between customers?
• Remote access required?
• Access to data restricted?

What Other Tools Does the Customer Have?

• More than just compatibility
• How customer works with collection of tools
  – Ex. automating lab data collection
  • how is data collected now?
  • by what instruments and manual procedures?
  • how is the information analyzed?
  • are the results transcribed for records or publication?
  • what media/forms are used and how are they handled?
How Do Customers Communicate with Each Other?

- Who communicates with whom?
- About what?
- Follow lines of the organization? Against it?
- Example: assistant to manager
  - installation of computers changes communication between them
  - people would rather change their computer usage than their relationship [Hersh82]
  - now I’ll bet it is the opposite!

How Often Do Customers Perform the Tasks?

- Frequent customers remember more details
- Infrequent customers may need more help
  - even for simple operations
  - make these tasks possible to do
- Which function is performed
  - most frequently?
  - by which customers?
  - optimize system for these tasks will improve perception of good performance

What are the Time Constraints on the Task?

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

What Happens When Things Go Wrong?

- How do people deal with
  - task-related errors?
  - practical difficulties?
  - catastrophes?
- Is there a backup strategy?

Administrivia

- Attendance
courseware.stanford.edu
  - Register (use UW NetID)
  - Updates there (including videos & slides)
- Anyone still need an add code?
- We will send you assignment #2 & teams later today
  - meet by tomorrow & start working on it!

Involve Customers to Answer Task Analysis Questions

- Customers help designers learn
  - what is involved in their jobs
  - what tools they use
  - i.e., what they do
- Developers reveal technical capabilities
  - builds rapport & an idea of what is possible
  - customer’s can comment on whether ideas make sense
- How do we do this?
  - observe & interview prospective users in workplace, home, or in the field!
Selecting Tasks

- Real tasks customers have faced
  - collect any necessary materials
- Should provide reasonable coverage
  - compare check list of functions to tasks
- Mixture of simple & complex tasks
  - simple task (common or introductory)
  - moderate task
  - complex task (infrequent or for power customers)

What Should Tasks Look Like?

- Say what customer wants to do, but not how
  - allows comparing different design alternatives
- Be very specific – stories based on facts!
  - say who customers are (use personas or profiles)
    - design can really differ depending on who
    - characteristics of customers (job, expertise, etc.)
    - forces us to fill out description w/ relevant details
  - example: file browser story
- Some should describe a complete job
  - forces us to consider how features work together
  - example: phone-in bank functions

What Should Tasks Look Like (cont.)

- Write up a description of tasks
  - formally or informally
  - run by customers and rest of the design team
  - get more information where needed

Manny is in the city at a club and would like to call his girlfriend, Sherry, to see when she will be arriving at the club. She called from a friends house while he was driving, so he couldn’t answer the phone. He would like to check his missed calls and find the number so that he can call her back.

Using Tasks in Design

- Rough out an interface design
  - discard features that don’t support your tasks
  - or add a real task that exercises that feature
  - major screens & functions (not too detailed)
  - hand sketched
  - at least 30 sketches on the current assignment!
- Produce scenarios for each task
  - what customer has to do & what they would see
  - step-by-step performance of task
  - illustrate using storyboards
  - sequences of sketches showing screens & transitions

Scenarios (cont.)

- Scenarios are design specific tasks aren’t
- Scenarios force us to
  - show how various features will work together
  - settle design arguments by seeing examples
  - only examples → sometimes need to look beyond
- Show users storyboards
  - get feedback
Caveats of User-Centered Design Techniques

• Politics
  – "agents of change" can cause controversy
  – get a sense of organization & bond w/ interviewee
  – important to get buy-in from all those involved
• Customers are not always right
  – cannot anticipate new technology accurately
  – job is to build system customers will want
    • not system customers say they want
  • be very careful about this (you are outsider)
    – if you can’t get customers interested in your hot idea, you’re probably missing something
• Design/observe forever without prototyping
  – rapid prototyping, evaluation, & iteration is key

Summary

• Task Analysis questions:
  – Who is going to use the system?
  – What tasks do they now perform?
  – What tasks are desired?
  – How are the tasks learned?
  – Where are the tasks performed?
  – What’s the relationship between customer & data?
  – What other tools does the customer have?
  – How do users communicate with each other?
  – How often are the tasks performed?
  – What are the time constraints on the tasks?
  – What happens when things go wrong?
• Selecting tasks:
  – real tasks with reasonable functionality coverage
  – complete, specific tasks of what customer wants to do

Further Reading

Task Analysis & Personas

• Books
  – User and Task Analysis for Interface Design by Joann T. Hackos, Janice C. Redish
  – The Inmates are Running the Asylum by Alan Cooper

Next Time

• Lecture
  – Design Sketching

• Readings
  – Pg. 135-151 from Buxton’s Sketching User Experiences
  – The Discipline of Teams
  – Tips for Working Successfully in a Group by Randy Pausch