07: Task Analysis

April 16, 2024
Project Status

2c: Design Research Check-In due Yesterday

Looking Forward

2d: Design Research Review due Thursday
2e: Task Review due Monday
2f: Design Check-In due Wednesday
2d: Design Research Review

Core Components:

- Eight Research Findings / Design Insights
- Themes and High-Level Insights
- Task Analysis Questions

EXP:

- Conduct an “Uncommon Method” you proposed in 2b EXP

If you did not do 2b EXP:

- Pick from Card Sorting OR Personal Inventory
- Must include Methods Details / Rationale
Design Research Reminders

You are not doing science
You seek design insight,
not knowledge, truth, or generality

Do the best design work you can
Follow design opportunities as they arise!
We designed the project sequence, but be flexible

Capture and keep your raw work products
Dedicate a note keeper, consider recording
Our collection is minimal, but you will want them
Objectives

Be able to:

Describe how taking different perspectives on design research data can help to surface design insights.

Given design research data, be able to analyze that data in terms of people and their tasks.

Describe personas, their purpose, how and why we emphasize design research data in their creation.

Define and describe relationships between tasks, personas, and scenarios.
The Average User?

“Classic” (read: BAD) design practice:
Design for the central 80% of the population,
and handle the other 20% later
The Average User?

“Classic” (read: BAD) design practice:
Design for the central 80% of the population, and handle the other 20% later

Don Norman:
Some problems are not solved by adjustments or averages: Average a left-hander with a right-hander and what do you get?

Andrew Robinson:
When your head is in a refrigerator and your feet on a burner, the average temperature is okay. I am always cautious about averages.
The Average User?

Graph: WorldWarWings
Turning Insights into Designs

Not EVERY design insight can (or should!) make it into your final design

Which begs the question:

How the hell do I figure out what to design for??
Affinity Diagrams

Generated during group session

Each observation, idea, note to a post-it

Notes are hierarchically organized into themes, based on project focus
Affinity Diagrams

Joint interview structure
Developing Models

Distilling models that summarize data
Highlights gaps in understanding, identify breakdowns

Many types of models
  e.g., Flow, Sequence, Artifact, Cultural, Physical
  None is perfect, they highlight different things

No model is perfect or guarantees insight
But each may surface a different perspective
Each model advances assumptions regarding what is important
Flow Model: Creative Work

- **Test user**
  - Run software and use documentation
  - Report all problems

- **Problem reports**
  - Discussion of problems

- **Documentation**
  - Drafts for review
  - Discussion of assignments
  - Discussion of review

- **Editor**
  - Check drafts for accuracy, consistent layout, grammar, and terminology
  - Assign writing tasks

- **U2 (Documentation writer)**
  - Create documentation from specifications and the actual product
  - Validate documentation with developers and the actual product
  - Test all examples

- **Marked-up drafts**
  - Discussion of system problems
  - Discussion of review

- **Developer**
  - Write the software
  - Review documentation for accuracy and completeness

- **Product versions**

CSE 440 – Introduction to HCI
Today: “Task Analysis”
Sequence Model: Doing Email

Intent: Handle emergencies

Trigger: Return to the office
Scan message list for important message—Use sender, subject
Choose urgent message
Read message about unhappy user
Decide more info needed
Make phone call

Hard to put off issue of unhappy user

Intent: Get back to people easily

Leave phone message
File in phone folder
See list of messages
Choose message 9: subject indicates university news relevant in department
Read message
Delete message
See message 10 automatically
Read message 10
Sequence Model: Equipment Audit

- Assigned to do equipment audit
  - Retrieve required form from database
  - Print form
  - Collect data at site
  - Record data on paper form
  - Type data into form on computer
  - Print completed form
  - Leave hardcopy of form with customer
  - Send electronic form to supervisor
  - Store electronic form on form database

CSE 440 – Introduction to HCI
Today: “Task Analysis”
Cultural Model: Developer

- Marketing: Our new features are top priority. If I say do X, you figure out what that means.
- Competitors: We have 50 new features; catch up.
- U9 (Developer): You aren’t our primary user, we’ll fix bugs for you in our own time. Our technology is standard, use it even if it doesn’t work.
- Base technology group: Our bug reports are top priority.
- Customer support:
Artifact Model: Calendar

- Past (seldom accessed)
- Future (quick access)

- Scheduled events
- Unscheduled but associated with the day
- Reminders (storage with quick access)

- Business cards (storage for later)
- Rubber band

Meetings
Appointments
Reminders
Strike out a day
Notes
Never used
Approximately a 5 minute walk. If doing an audit at a site under construction, then safe path frequently changes and may need to wait for construction equipment to pass.

Physical Model: Work Site

- Maybe outside
- Large area (up to square mile)
- Tight spaces
- Climbing
- Awkward positions
Five-Stage Model of Personal Informatics

Li I., Dey A., Forlizzi J. CHI 2010. “A Stage-Based Model of Personal Informatics Systems”
Five-Stage Model of Personal Informatics

20 years old

Has a family history of heart disease

Wants to be more active

Does not know how, because she is busy

Li I., Dey A., Forlizzi J. CHI 2010. “A Stage-Based Model of Personal Informatics Systems”
Preparation
Collection

Li I., Dey A., Forlizzi J. CHI 2010. “A Stage-Based Model of Personal Informatics Systems”
Integration

Li I., Dey A., Forlizzi J. CHI 2010. “A Stage-Based Model of Personal Informatics Systems”
Reflection

Li I., Dey A., Forlizzi J. CHI 2010. “A Stage-Based Model of Personal Informatics Systems”
Action

Walk in park instead of watching TV

Li I., Dey A., Forlizzi J. CHI 2010. “A Stage-Based Model of Personal Informatics Systems”
A Model of Lived Informatics

Extends 5-stage model to surface additional opportunities and challenges in lifecycle

Returning to a tool (e.g., short/long lapse)

Changing tools (e.g., due to burden)

Changing goals (e.g., due to discovery)
Parallel Journeys Framework

Cancer care journey

PHASE 1
Screening and diagnosis

PHASE 2
Information seeking

PHASE 3
Acute care and treatment

PHASE 4
No evidence of disease

Psychosocial care journey

PHASE 1
Identification of patients with depression

PHASE 2
Initial psychosocial assessment, diagnosis, and rapport building

PHASE 3
Active depression treatment

PHASE 4
Maintenance and relapse prevention planning

Jina Suh, Spencer Williams, Jesse R. Fann, James Fogarty, Amy M. Bauer, Gary Hsieh. CSCW 2020. Parallel Journeys of Patients with Cancer and Depression: Challenges and Opportunities for Technology-Enabled Collaborative Care

CSE 440 – Introduction to HCI
Today: “Task Analysis”
Developing Models

Distilling models that summarize data
  Highlights gaps in understanding, identify breakdowns

Many types of models
  e.g., Flow, Sequence, Artifact, Cultural, Physical
  None is perfect, they highlight different things

No model is perfect or guarantees insight
  But each may surface a different perspective
  Each model advances assumptions regarding what is important
Designing with Tasks

We will primarily emphasize designing with **tasks**

...remember those?
Recap: Intro to Task-Based Design

L02: Design Language 101
Norman’s Execution-Evaluation Cycle

**Gulf of Execution**

1. **Goals**
2. **Form Intention**
3. **Develop Action Plan**
4. **Execute Actions**

**Gulf of Evaluation**

1. **Evaluate Goals**
2. **Interpret State**
3. **Observe State**
4. **System Change**

Recap
L02: Design Language 101
Bridging the Gulfs

Gulf of Execution: “How do I do it?”
Commands and mechanisms need to match the goals, thoughts, and expectations of a person

Gulf of Evaluation: “What does it mean?”
Output needs to present a view of the system that is readily perceived, interpreted, and evaluated

Tasks are a useful model for understanding and describing what people are trying to do
Intro to Task-Based Design

A **Task** represents *something that a user is trying to accomplish*

A task can be:

*Based on a Long- or Short-term Goal*

- **Long-term goal:** Brad wants to get in shape by working out more
- **Related Tasks:**
  - “Track physical fitness progression”
  - “Schedule more workouts”

- **Short-term goal:** Nina wants to go see a movie right now
- **Related Tasks:**
  - “Find nearby theaters”
  - “Learn what movies are playing”
Intro to Task-Based Design

A **Task** represents something that a user is trying to accomplish

A task can be:

**Oriented around an outcome in any part of the System**

- **Goal:** Be able to read in a dark room
- **Related Tasks:**
  - “Increase the light in the room”
  - “Find the book on a smartphone with a lit screen”
  - “Acquire night-vision”
Intro to Task-Based Design

A **Task** represents something that a user is trying to accomplish

A task can be:

*Composed of Other Tasks*

<table>
<thead>
<tr>
<th>Long-term goal:</th>
<th>Increase the light in the room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtasks:</td>
<td>“Determine if opening the curtains would fix this”</td>
</tr>
<tr>
<td></td>
<td>“Learn if there are lamps in the room”</td>
</tr>
<tr>
<td></td>
<td>“Turn on a lamp”</td>
</tr>
</tbody>
</table>
Tasks Matter

System will fail if:

- It is inappropriate for the person
- It does not meet a person’s needs

Your design research will emphasize getting to know people and their needs

Can you then just make ‘good’ interfaces?
Why Task Analysis?

‘Good’ has to be interpreted in the context of use
  Might be acceptable in office, but not for play
  Infinite variety of tasks and customers

Guidelines are too vague to be generative
  e.g., “give adequate feedback”
  Can be used to critique, but not to generate
Why Task Analysis?
Why Task Analysis?
Why Task Analysis?

Is there a context where this actually makes sense?
Why Task Analysis?

Is there a context where this actually makes sense?
Why Task Analysis?

Task analysis is a lens on the information you obtain through design research methods. Use what you learned in your research to answer the questions in the task analysis.

Project sequence orders the two, but in practice you should iteratively decide how to best draw upon all relevant methods throughout a process.
11 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 is the relationship between people & data?
What other tools do people have?
How do people communicate with each other?
How often are the tasks performed?
What are the time constraints on the tasks?
What happens when things go wrong?
Question 1

Who is going to use the system?

Identity

- In-house or specific customer is more defined
- Broad products need several “typical” consumers – more on that later!

Background

- Existing systems, training
  - Values (remember VSD?)

Skills

Work habits and preferences

Physical characteristics and abilities
Seattle Parking Meter
Seattle Parking Meter

Who is going to use the system?

Identity?

“People who park in Seattle”
Businesspeople, students, older adults, tourists

Background?

Have used parking meters before
May have an ATM or credit card
Have used other fare machines before
Seattle Parking Meter

Who is going to use the system?

Skills?
- May know how to put cards into ATM

Work habits and preferences?
- Park several times a week, a month, a year

Physical characteristics and abilities?
- Varying heights, do not make it too high or too low

Anything else?
Today: “Task Analysis”
There are limits, a tradeoff in this design
Non-Textual Communication
Non-Textual Communication

Is this actually “Knowledge in the World”?

CSE 440 – Introduction to HCI
Today: “Task Analysis”
Tangent: “The User Should Know...”

Be VERY careful when assuming what knowledge a user has AND how they will use it

- Learned it once ≠ Knows it now
- What happens if they “Didn’t get the reference”? Might be distracted, might not have all the info available
- NEVER assume you’re the user’s #1 priority

*Pissed off guy at the construction site on Brooklyn: here’s to you!*
Question 2 and Question 3

What tasks do they now perform?
What tasks are desired?

Important for both automation and new functionality
Relative importance of tasks?
Observe people, see it from their perspective

Automated Billing Example
  small dentist office had billing automated
  assistants were unhappy with new system
  old forms contained hand-written margin notes
  e.g., patient’s insurance takes longer than most
More prominent than ‘just another column in a spreadsheet’
Question 4

How are the tasks learned?

What does a person need to know?

Do they need training?
  academic
  general knowledge / skills
  special instruction / training
Tangent: On Tutorials

What Tutorials Are Good At:
- Teaching a user a conceptual model of a system
- Translating a user’s existing model to the specifics of a new system

What Tutorials ARE NOT Good At:
- Teaching a user every feature they can use
- Ensuring a user has any idea what’s going on the NEXT time they use a system
Tangent: On Discovery

“Well if I can’t use a tutorial, how am I supposed to teach my user all the features that exist in my tool?”

Who here knows every feature in Photoshop?

Learning features is HARD, especially for infrequently used applications

My opinion (often):

Cutting a feature > complicating learning
Question 5

Where are the tasks performed?
- Office, laboratory, point of sale?
- Effects of environment on customers?
- Are people under stress?
- Confidentiality required?
- Do they have wet, dirty, or slippery hands?
- Soft drinks?
- Lighting?
- Noise?
Question 6

What is the relationship between people & data?

Personal data
- Always accessed at same machine?
- Do people move between machines?

Common data
- Used concurrently?
- Passed sequentially between customers?

Remote access required?
Access to data restricted?
Does this relationship change over time?

Patient-provider curation example, Fitbit example
Question 7

What other tools does a person have?
More than just compatibility

How customer works with collection of tools
  Automating lab data collection example:
  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?
Question 8

How do people communicate with each other?
Who communicates with whom?
About what?
Follow lines of the organization? Against it?

Old Email Adoption Example, Contrasted to Current Expectations
Question 9

How often are the tasks performed?
Frequent use likely remember more details
Infrequent use may need more help
   Even for simple operations
   Make these tasks possible to accomplish

Which function is performed
   Most frequently?
   By which people?
   Optimizing for these will improve perception of performance
   Careful about initial use scenario
Question 10

What are the time constraints on the tasks?

What functions will people be in a hurry for?

Which can wait?

Is there a timing relationship between tasks?

Target example, versus Pregnancy in Web Search
Question 11

What happens when things go wrong?

How do people deal with
  task-related errors?
  practical difficulties?
  catastrophes?

Is there a backup strategy?

What are the consequences?
Combine with Other Methods

Personas
Concept Mapping
Competitive Analysis

“If you want to create a product that satisfies a broad audience ..., logic will tell you to make it as broad in its functionality as possible to accommodate the most people. Logic is Wrong.”
Personas

Archetypal character meant to represent a group of people in a role who share common goals, attitudes, and behaviors when interacting with a particular product or service.

NAME: Vivica Parker
AGE: 32
OCCUPATION: Journalist
PROFILE:
- Born in Washington, DC
- Lives and works in New York City (far from family)
- Lives by herself in a small apartment
- Has a driver's license
- Calls parents and older brother on weekends
- Works for an online art magazine and is currently in charge of writing a blog about graffiti. In order to do that she needs to do the following tasks:
  - Walk/drive around the city
  - Take pictures
  - Talk with artists and keep record of that info (place, time, people)
  - Work day/night
  - Share the collected information with editor and magazine's readers

INTERESTS:
- Amateur theater actress since she was 23
- Travel and merge in different cultures
- Architecture

ACTIVITIES:
-Did research on ancient Egyptian architecture
- Member of the Art Society of NY

TECH EXPERIENCE:
- Basic knowledge about operating systems
- Uses the Internet frequently either for personal or business purposes

TECH ATTITUDE:
- Always open to new technology, but she feels annoyed with complex applications and discards them very often
- Tends to feel numb using the latest high-tech gadgets and needs time to get used to them

GOALS & SITUATED BLOGGING NEED:
- Needs to keep track of her location and time when she (a) finds and photographs graffiti and street art for her blog and (b) conducts audio interviews of artists and enthusiasts
- Needs to have a quick way of keeping track of content gathered from separate locations in order to post articles before editorial deadlines
Personas

Purpose

Empathy: characters to engage and relate to
Focus: can focus on specific people and needs, versus always attempting to design for everybody
Communication: conveys range of data, can help make assumptions more explicit

Multiple Types

Primary, Secondary, Supplemental, Customer, Served, Negative
Personas

Goals

Life Goals: personal aspirations
  e.g., to retire before the age of 50

Experience Goals: how to feel with a product
  e.g., to be competent while using the product

End Goals: tangible outcomes with a design
  e.g., to be updated about finances over last month
Personas

Roles

Personas do not necessarily equal roles
   e.g., parent, doctor, programmer, actor

People can have multiple roles

People in a role can have different needs and goals
   e.g., new programmer vs. experienced programmer
   e.g., parent of 1 vs. parent of 8
   e.g., oncologist vs. podiatrist
Personas

Critical to avoid using stereotypes as personas

“The whole point in creating personas is to get past our personal opinions and presuppositions.”
Goodwin, 2002

Not a substitute for design research, but a tool for summarizing and conveying that research

Collect design research data
Segment people
Create personas for segments
Personas

Parxat Practical
Primary Motivation to acquire phone: I got my mobile phone to make calls when I am away from work or home.
Associated motivation: I got a good price on my phone and mobile phones are cheaper than landlines.

Parxat’s Goals for MoSoDirectory
- Would test recommendations for professional help such as plumbers and computer maintenance.
- Would like to create a public repository for his computer club.
- Enjoys the multiplicity of friends.

Parxat likes his computer club.
Friends through work.

Key Significant Differences
- Does the phone for work calls
- Bought his mobile phone at a gift
- Tech savvy compared to other gamers

Personal Information
- Age: 40 years
- Profession: Drove and manages computer game club with eight computers.
- Lives in the capital city of Baltimore
- Has a wife and his son named
- Russian: Can speak and read fluently
- Primary Home Language: English
- Primary Work Language: Russian
- Background: He has a degree in economics focused on foreign econ policies.
- Industry: Software & IT services
- Issue: SICK in a season (April 1980)

Technical Information
- Internet user: Yes, at least occasionally.
- Length of use: 8 years
- Internet access: 2 days a week.
- Where used: Most often at friend’s Internet cafe.
- Computer User: Yes
- New User: Never
- Number of times a day at work
Cable or Satellite TV: Yes
Name: John Pralke
- Mobile Phone Use
Length of use: 2 months
- How acquired: Bought the phone near home.
- How often: Usually a few times a day.
- Some personal calls, 40% work calls
SMS: Yes; 10% voice, 30% text
Finding a mobile phone: Concerned that mobile phone activity is monitored.
Would use his phone very much if he did not have to follow it to a scale of 1-10.
Applicable mobile phone access is too expensive.

Shirin Social
Primary Motivation to acquire phone: I like people to reach me at all times.
Associated motivation: My friends all have mobile phones.

Key Significant Differences
- Does the phone to primarily social friends
- Socially stuck to land mobile access to no expenses
- Recruit new friends

Personal Information
- Age: 26 years
- Profession: Student and studies part time as a bartender in a local cafe.
- Lives in the capital city of Baltimore
- Has a wife and an out-of-towner. She also has around 20 close friends.
- Russian: Can speak and read fluently
- Primary Home Language: English
- Primary Work Language: Russian
- Background: She has a full time student status at the University of Central Asia studying business administration.
- Issue: September of a season (September 1976)

Technical Information
- Internet user: Yes, at least occasionally
- Length of use: 8 months
- How often: About once a week
- Where used: Most often at internet cafes.
- Computer User: Yes
- New User: Never
- Number of times a week at school
Cable or Satellite TV: Yes
Home Landline: Yes
- Mobile Phone Use
Length of use: 8 months
- How acquired: Given the phone by a social friend
- How often: Several times a day.
- Few personal calls, 30% work calls
SMS: Yes; 10% voice, 30% text
Finding a mobile phone: The least likely of any group to find that mobile phones are too expensive.
Feels that mobile phones are important to her future career.

Personal Profile
- "I am only in one or two situations where mobile phones are useful to me. In the office, I have a landline. At home, I have a landline. I don’t see the value in having a mobile phone." [1]
- For those who do not have a landline at home, a mobile phone is a very important device that helps them stay in touch with their friends and family. However, she would like to see more affordable mobile phone contracts for those “middle class”, people like her.
- There is only one landline in a community building in her village that costs at 30 PM every day.
- While she herself is not tech savvy, she does not see the interest or computers. However, she recognizes the importance of technology for her daughters, and would like to have a computer at home when they are in school.

Robert and his wife rely on their friends and family to find special events to complete services they need. Recently, he received a message from a friend and used the social network, asking, “Is it better to use someone through your own channel?”

Raza’s Goals for MoSoDirectory
- Would be more likely to find a recommendation for services that have made a website.
- Would want to access the service without using text.
- Would like to find recommendations of professionals for other members of a group.
- Groups she would join: Family, neighbors.
- Mobile Phone Use
Length of use: 12 months
- How acquired: Way given the phone by the brother
- How often: Twice a day.
- Few personal calls, 30% work calls
SMS: Yes; 10%, voice, 30% text
Finding a mobile phone: Very satisfied with the mobile phone she has.
Feels that mobile phones are important to her future career.

CSE 440 – Introduction to HCI
Today: “Task Analysis”

Personas

Parxat Practical
Primary Motivation to acquire phone: I got my mobile phone to make calls when I am away from work or home.
Associated motivation: I got a good price on my phone and mobile phones are cheaper than landlines.

Parxat’s Goals for MoSoDirectory
- Would test recommendations for professional help such as plumbers and computer maintenance.
- Would like to create a public repository for his computer club.
- Enjoys the multiplicity of friends.

Parxat likes his computer club.
Friends through work.

Key Significant Differences
- Does the phone for work calls
- Bought his mobile phone at a gift
- Tech savvy compared to other gamers

Personal Information
- Age: 40 years
- Profession: Drove and manages computer game club with eight computers.
- Lives in the capital city of Baltimore
- Has a wife and his son named
- Russian: Can speak and read fluently
- Primary Home Language: English
- Primary Work Language: Russian
- Background: He has a degree in economics focused on foreign econ policies.
- Industry: Software & IT services
- Issue: SICK in a season (April 1980)

Technical Information
- Internet user: Yes, at least occasionally.
- Length of use: 8 years
- Internet access: 2 days a week.
- Where used: Most often at friend’s Internet cafe.
- Computer User: Yes
- New User: Never
- Number of times a day at work
Cable or Satellite TV: Yes
Name: John Pralke
- Mobile Phone Use
Length of use: 2 months
- How acquired: Bought the phone near home.
- How often: Usually a few times a day.
- Some personal calls, 40% work calls
SMS: Yes; 10% voice, 30% text
Finding a mobile phone: Concerned that mobile phone activity is monitored.
Would use his phone very much if he did not have to follow it to a scale of 1-10.
Applicable mobile phone access is too expensive.

Shirin Social
Primary Motivation to acquire phone: I like people to reach me at all times.
Associated motivation: My friends all have mobile phones.

Key Significant Differences
- Does the phone to primarily social friends
- Socially stuck to land mobile access to no expenses
- Recruit new friends

Personal Information
- Age: 26 years
- Profession: Student and studies part time as a bartender in a local cafe.
- Lives in the capital city of Baltimore
- Has a wife and an out-of-towner. She also has around 20 close friends.
- Russian: Can speak and read fluently
- Primary Home Language: English
- Primary Work Language: Russian
- Background: She has a full time student status at the University of Central Asia studying business administration.
- Issue: September of a season (September 1976)

Technical Information
- Internet user: Yes, at least occasionally
- Length of use: 8 months
- How often: About once a week
- Where used: Most often at internet cafes.
- Computer User: Yes
- New User: Never
- Number of times a week at school
Cable or Satellite TV: Yes
Home Landline: Yes
- Mobile Phone Use
Length of use: 8 months
- How acquired: Given the phone by a social friend
- How often: Several times a day.
- Few personal calls, 30% work calls
SMS: Yes; 10% voice, 30% text
Finding a mobile phone: The least likely of any group to find that mobile phones are too expensive.
Feels that mobile phones are important to her future career.

Personal Profile
- “There are only a few services provided, but not enough for middle class people – it would be a price of 1.5% of the price of one. The service area is the one area that gives the mobile phones a more expensive opportunity for them.”
- For those who do not have a landline at home, a mobile phone is a very important device that helps them stay in touch with their friends and family. However, she would like to see more affordable mobile phone contracts for those “middle class”, people like her.
- There is only one landline in a community building in her village that costs at 30 PM every day.
- While she herself is not tech savvy, she does not see the interest or computers. However, she recognizes the importance of technology for her daughters, and would like to have a computer at home when they are in school.

Robert and his wife rely on their friends and family to find special events to complete services they need. Recently, he received a message from a friend and used the social network, asking, “Is it better to use someone through your own channel?”

Raza’s Goals for MoSoDirectory
- Would be more likely to find a recommendation for services that have made a website.
- Would want to access the service without using text.
- Would like to find recommendations of professionals for other members of a group.
- Groups she would join: Family, neighbors.
- Mobile Phone Use
Length of use: 12 months
- How acquired: Way given the phone by the brother
- How often: Twice a day.
- Few personal calls, 30% work calls
SMS: Yes; 10%, voice, 30% text
Finding a mobile phone: Very satisfied with the mobile phone she has.
Feels that mobile phones are important to her future career.

CSE 440 – Introduction to HCI
Today: “Task Analysis”
Personas

Parxat Personas Data Detail

Personas: Personas are the main important persons with 35% of the survey respondents.

Goals: The Personas are the main important persons with 35% of the survey respondents.

Task: The Personas are the main important persons with 35% of the survey respondents.

Shrin Personas Data Detail

Personas: Personas are the main important persons with 35% of the survey respondents.

Goals: The Personas are the main important persons with 35% of the survey respondents.

Task: The Personas are the main important persons with 35% of the survey respondents.

Reza Personas Data Detail

Personas: Personas are the main important persons with 35% of the survey respondents.

Goals: The Personas are the main important persons with 35% of the survey respondents.

Task: The Personas are the main important persons with 35% of the survey respondents.

CSE 440 – Introduction to HCI

Today: “Task Analysis”
Combine with Other Methods

Personas

Concept Mapping

Competitive Analysis
Combine with Other Methods

Personas

**Concept Mapping**

Competitive Analysis

- Personas
- Concept Mapping
- Competitive Analysis

- Method 16
Combine with Other Methods

Personas
Concept Mapping
Competitive Analysis
Project Status

2c: Design Research Check-In due Yesterday

Looking Forward

2d: Design Research Review due Thursday
2e: Task Review due Monday
2f: Design Check-In due Wednesday
Selecting Tasks

Real tasks people have faced or requested
as supported by your design research
collect any necessary materials

Should provide reasonable coverage
compare check list of functions to tasks

Mixture of simple and complex tasks
easy tasks (common or introductory)
moderate tasks
difficult tasks (infrequent or for power use)

Easy / Moderate / Hard Tasks: Not Required, Could be Useful
What Should Tasks Look Like?

Say what person wants to do, but not how
allows comparing different design alternatives

Be specific, stories based in concrete facts
say who person is (e.g., using personas or profiles)
design can really differ depending on who
give ‘names’ (allows referring back with more info later)
characteristics of person (e.g., job, expertise)
story forces us to fill in description with details

Sometimes describe a complete “accomplishment”
forces us to consider how features work together
Today: “Task Analysis”
Task: **Park in a New Neighborhood**

Peter is going to brunch on a Sunday with his roommates. He is trying a new place he found on Yelp. He has the address for the place and he is using his phone’s GPS for directions. He leaves the apartment with his roommates at 8:30am and he wants to beat the crowd so they won’t have to wait in line. He is driving a Toyota Corolla that he has owned for five years. It is a rainy day and he doesn’t have an umbrella.
Hierarchical Task Analysis

Steps of the task execution (detailed in a hierarchy)

determine destination  drive to destination  locate parking spot  secure parking spot  park

enter address in GPS  follow directions  arrive at destination

...
Hierarchical Task Analysis

Steps of the task execution (detailed in a hierarchy)

- park in new neighborhood
  - determine destination
  - drive to destination
  - locate parking spot
  - secure parking spot
  - park
    - enter address in GPS
    - follow directions
    - arrive at destination

... Or step back a level and motivate ridesharing
Using Tasks in Design

Rough out an interface design
- discard features that do not support your tasks
- or add a real task that exercises that feature
- major elements and functions, not too detailed
- hand sketched

Produce scenarios for each task
- what person does and what they see
- step-by-step performance of task
- illustrate using storyboards
Scenarios

Scenarios are design specific, tasks are not

Scenarios force us to
show how things work together
settle arguments with examples
but these are only examples,
and may need to look beyond flaws

Show people storyboards

topic for next Tuesday
Tasks, Personas, and Scenarios

**Task:** a design-agnostic objective

**Persona:** a fictional person with a backstory

**Scenario:** narrative that demonstrates a persona completing a task using a particular design

**Use Case:** in software engineering, describes requirements using one or more scenarios
Tasks in Your Projects

Say what is accomplished, not how

Real tasks that people currently encounter, or new tasks your design will enable

Reasonable coverage of the interesting aspects of your problem and your design space

Range of difficulty and complexity
- Park in a New Neighborhood (near the zoo)
- Park in a New Neighborhood (Friday night in Ballard)
- Park in a New Neighborhood (at the airport)
07: Task Analysis

April 16, 2024
PS: Plantr Task Analysis
Plantr Task Analysis

Example abbreviated task analysis
  Be sure to see other examples on website

As with models, no question promises insight
Plantr Task Analysis

1. Who is going to use the system?

Anyone who owns indoor plants is a potential user of Plantr. All of the plant owners that we interviewed forgot to water their plants at some point regardless of age, experience, and background. Even Lucy, who spent most of her time at home because she worked from home, struggled with timely watering.
Plantr Task Analysis

2. What are the currently possible tasks?

When people purchase a plant, they often look up information about the proper lighting and temperature conditions for their plants. Additionally, people must find out how much and how frequently to water and fertilize their plants.
Plantr Task Analysis

3. What are currently unavailable, desired tasks?

People want a way to remember to water and care for their plants. Forgetting to water plants was the most cited reason for plant death, and the only task that participants in our inquiries mentioned completing on a regular basis.
Plantr Task Analysis

4. How are tasks learned?

Most people learned how to take care of their plants through trial and error. Some consulted the Internet, nursery staff, or friends for more information on plant care.
Plantr Task Analysis

5. Where are the tasks performed?

Tasks like watering and fertilizing are performed at the plant's location. People keep plants in their workplace, like Jack, or at home, like Lucy and Caroline. Getting information about plant care was performed in a variety of places. People who consult the Internet could be anywhere with a platform that supports web browsing. Those who go to the nursery to talk to plant experts are required to go to a specific location to talk to someone in person.
Plantr Task Analysis

6. What is the relationship between a person and data?

We identified three different types of data: a plant’s current state, information about plants, and data that reflects the person’s plant care history.

A plant's current state is data on the moisture level of its soil and the general appearance of the plant (e.g., color, stiffness/limpness of leaves). People use this information to determine the plant's needs. Caroline and Lucy watered their plants when the soil felt dry or the leaves began to droop.
Plantr Task Analysis

People consulted various plant care information databases when they wanted to know how to care for their plants.

People used their personal history of plant care to determine how to take care of plants. Caroline said that she used to underwater plants, but she learned from her mistake and now tries to water them more often. People also base their buying decisions based upon their plant care history. Caroline noted that she tries to buy plants that require minimal water.
Plantr Task Analysis

7. What other tools do people have?

Caroline, Lucy, Jack, and Kacy all have phones and computers. People also have a water source, pots, and soil for their plants. Most people probably have access to a nursery or library.
Plantr Task Analysis

8. How do people communicate with each other?

Plant owners communicate on online forums and message boards. People who happen to be in the nursery at the same time might talk to each other about plant care. Likewise, people who have friends with indoor plants may share plant care tips.
Plantr Task Analysis

9. How often are the tasks performed?

Watering is performed with a frequency between twice a week (Jack) and twice a month (Caroline). Fertilizing is performed less frequently, between once every two weeks to once every three months. Plants do not become sick often enough to make a good estimate about how often people try to get help.
Plantr Task Analysis

10. What are time constraints on the tasks?

Plants must be watered with some regularity, so if people do not water their plants for long enough, the plants will start to die. Likewise, if plants are in need of attention for other reasons - pH imbalance, environment too dry - and they do not receive attention within some amount of time, they will die. Watering, caring, and learning how to care for a plant takes time. People who are very busy might not have the time or attention required for plant care.
Plantr Task Analysis

11. What happens when things go wrong?

When plants became "sick", people take action, seek help, or ignore the problem until the plant dies. When people forget to water plants, they usually notice that the plant needs water and give it water. Sometimes people may not realize that a plant needs water until it is too late.