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USERS & TASKS

human-computer interaction

CSE 440 WINTER 2015

University of Washington

JAN 20 - WEEK 3 - TUESDAY

Data gathering/design discovery

get information from the user

ask them

observe them

make them observe themselves

Data gathering/design discovery

get information from the user

ask them	observe them	make them observe themselves
Interviews		
Questionnaires		

Data gathering/design discovery

get information from the user

ask them	observe them	make them observe themselves
Interviews *Questionnaires*	*Ethnography* *Passive observation* *Think-aloud*	

Data gathering/design discovery

get information from the user

ask them	observe them	make them observe themselves
Interviews	*Ethnography*	*Experience sampling*
Questionnaires	*Passive observation*	*Diaries/logs*
	Think-aloud	

Data gathering/design discovery

get information from the user

ask them

observe them

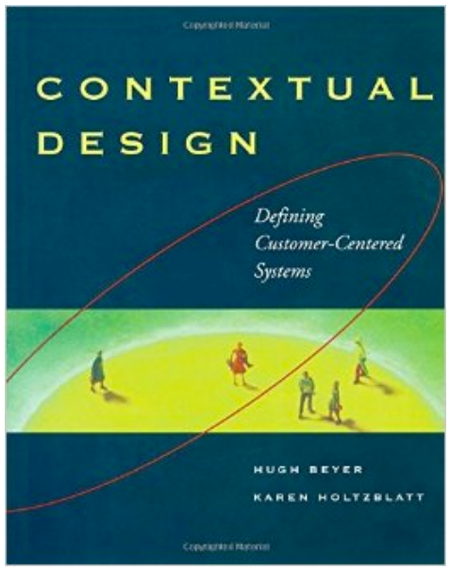
make them observe themselves

Contextual inquiry

go where the user performs the task

observe the user perform the task

talk to the user **in context**



Contextual inquiry

- **Context:** Go where the user works
- **Partnership:** Apprentice/Mentor
- **Interpretation:** Validate understanding
- **Focus:** Get useful info

commit to challenging your assumptions,
not validating them

be like aliens observing earth

Today

- Recap CI, questions, examples
- Understanding and describing **users**
- Understanding and describing **tasks**
- CI check-in

Example 1: Parking

Finding parking in a congested area is stressful and often the result of pure luck. Drivers waste time and money circling a parking lot only to park a respectable distance away from their destination. With the current parking system, thousands of gallons of gasoline are wasted. To help resolve the issue of parking congestion, we propose an application that allows a tool to aid drivers in finding vacancies by getting information from the parking lot database ... By providing drivers with an efficient means to find parking we can reduce carbon emissions, relieve the stress of parking, and feed the economy while saving time and money.

The problem

Tools/practices

Users

Tasks

Example 1: Parking

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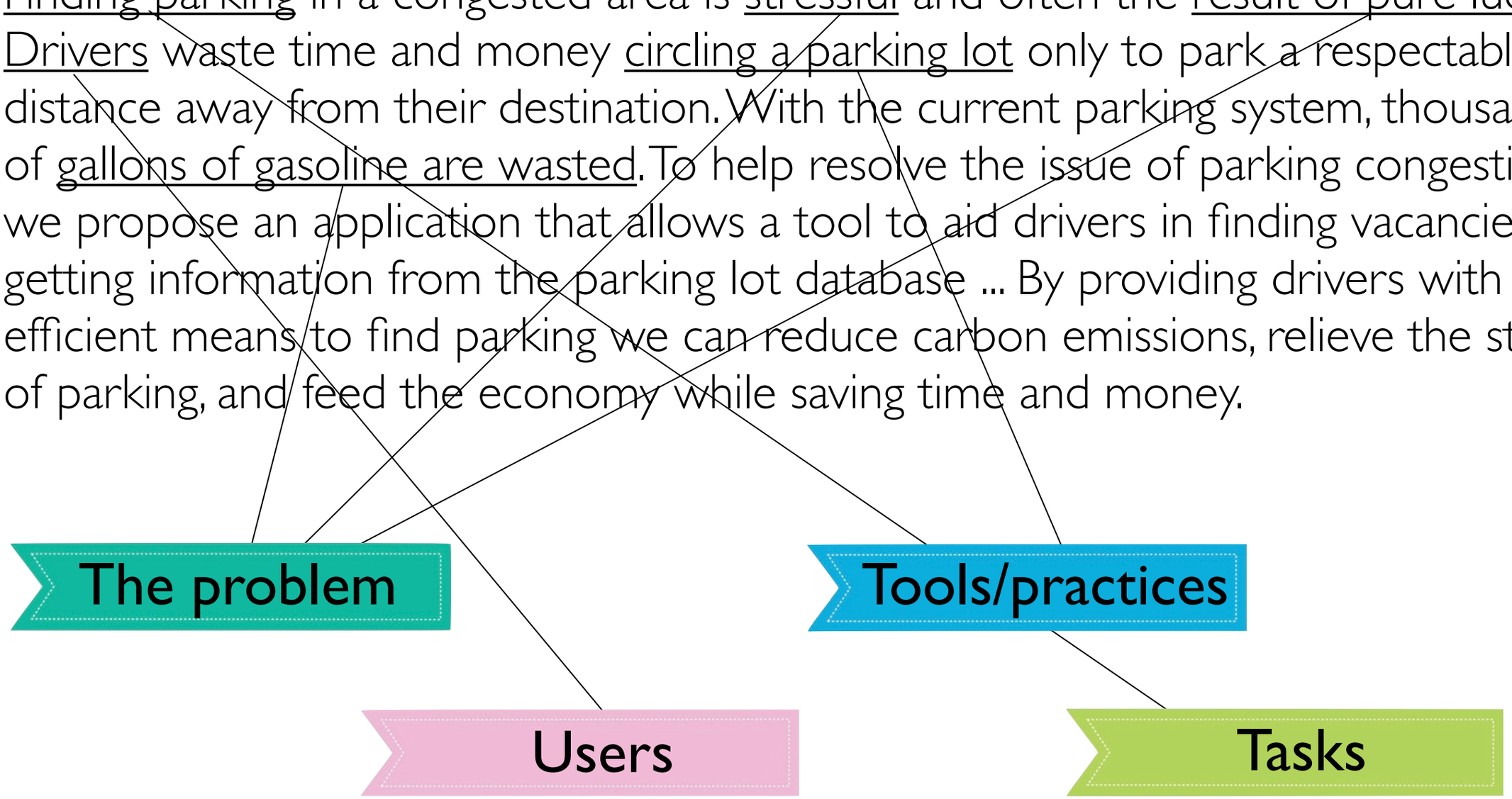

Example 2: Taking care of plants

Many people like having plants in their home or office, but often forget to attend to their needs on a regular basis. While most people know basic plant care, they tend to not plan their plant care in advance. Nearly everyone who takes care of plants has had a plant die. The chief cause is forgetfulness, specifically when the plant owner forgets to water their plant. The second main cause is the lack of knowledge regarding the plant's specific needs, which can lead to improper care, placement in harmful environments, and disease.

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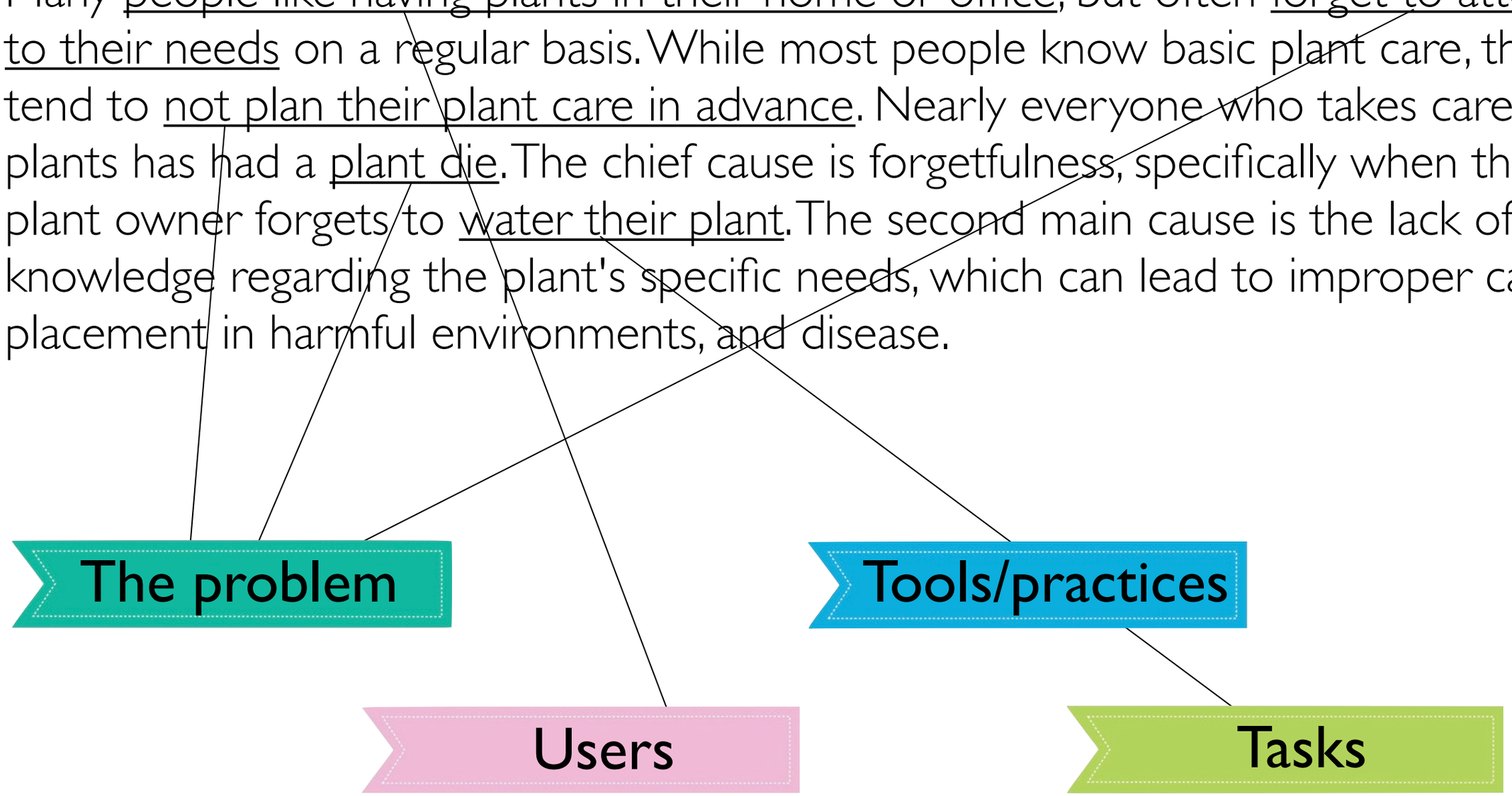

Users versus stakeholders

- Primary stakeholders (the actual users)

- Secondary stakeholders: will interact with the system but less than primary
- Facilitators: maintain or develop the design
- Indirect stakeholders: affected by the use

Users versus stakeholders

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- Indirect stakeholders: affected by the use

may still inform design!

Users versus stakeholders

- Primary stakeholders

  drivers (who need to park)

- Secondary stakeholders

- Facilitators

- Indirect stakeholders

Users versus stakeholders

- Primary stakeholders

  drivers (who need to park)

- Secondary stakeholders

  people in the car, at destination, parking lot staff

- Facilitators

- Indirect stakeholders

Users versus stakeholders

- Primary stakeholders

  drivers (who need to park)

- Secondary stakeholders

  people in the car, at destination, parking lot staff

- Facilitators

  design team & engineers who will implement

- Indirect stakeholders

Users versus stakeholders

- Primary stakeholders

  drivers (who need to park)

- Secondary stakeholders

  people in the car, at destination, parking lot staff

- Facilitators

  design team & engineers who will implement

- Indirect stakeholders

  people in other cars

Users versus stakeholders

- Primary stakeholders

  plant owners

- Secondary stakeholders

- Facilitators

- Indirect stakeholders

Users versus stakeholders

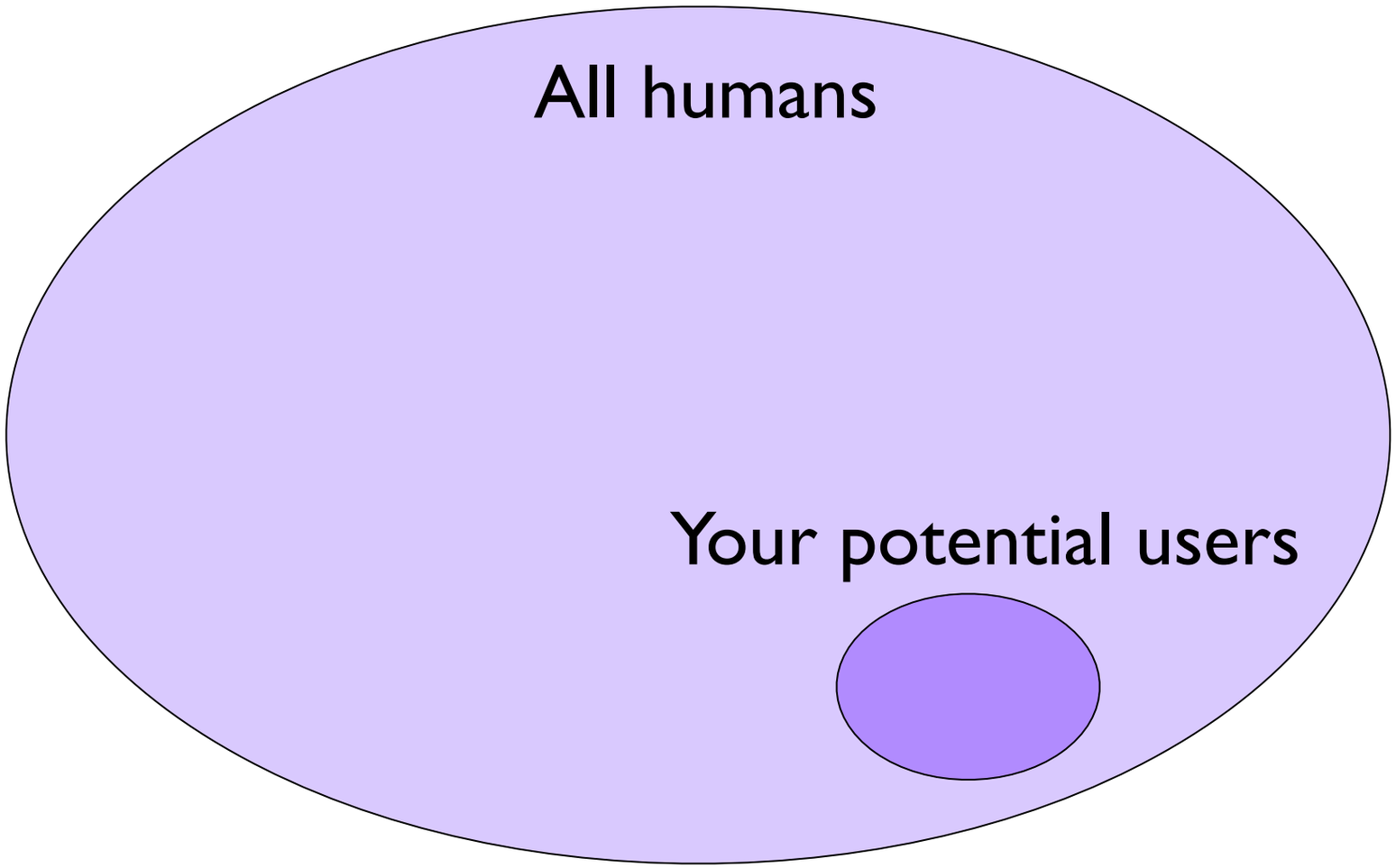
- Primary stakeholders
- Secondary stakeholders
- Facilitators
- Indirect stakeholders

Users versus stakeholders

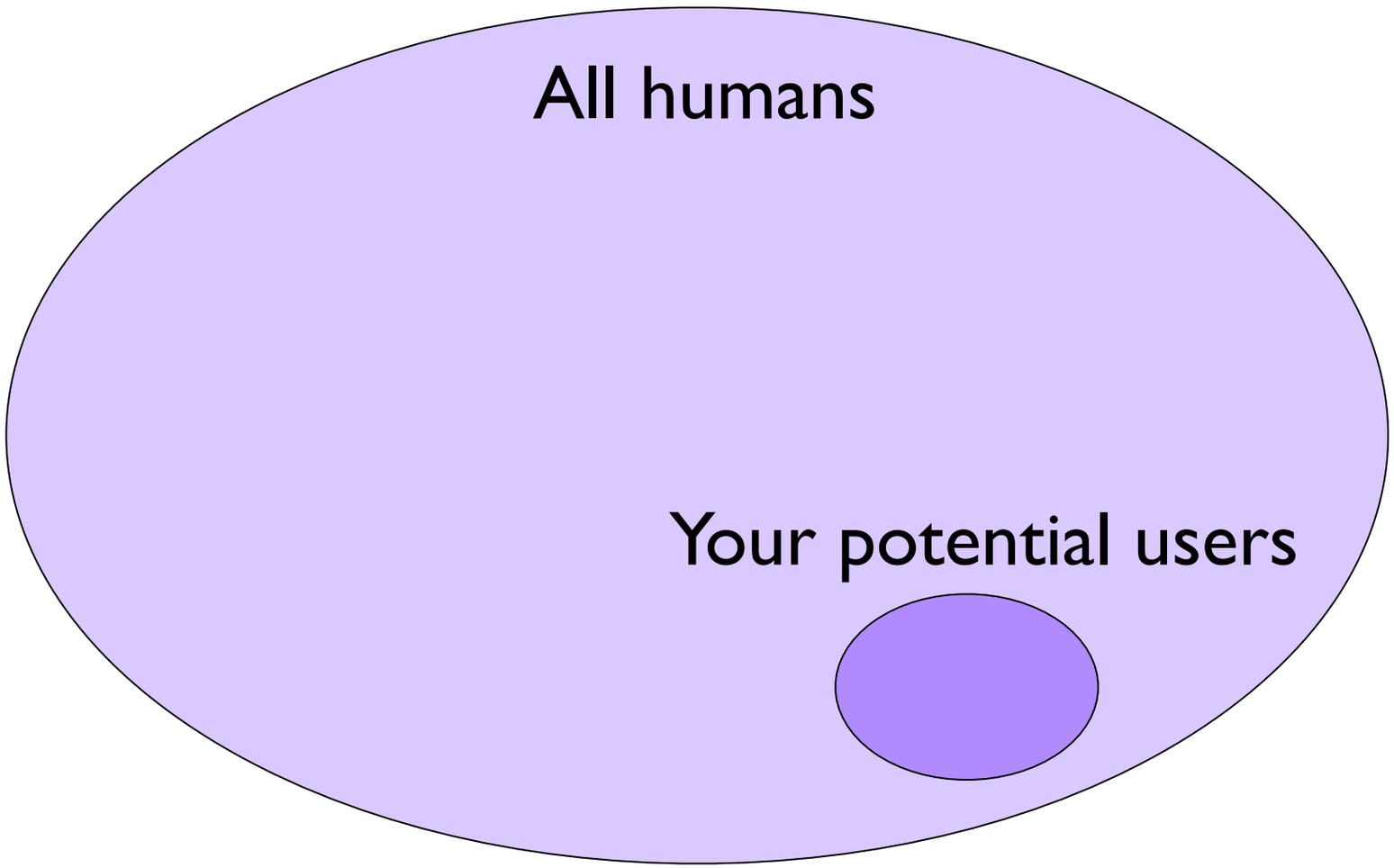
- Primary stakeholders
- Secondary stakeholders
- Facilitators
- Indirect stakeholders

Make sure you understand how much they matter!

Describing users

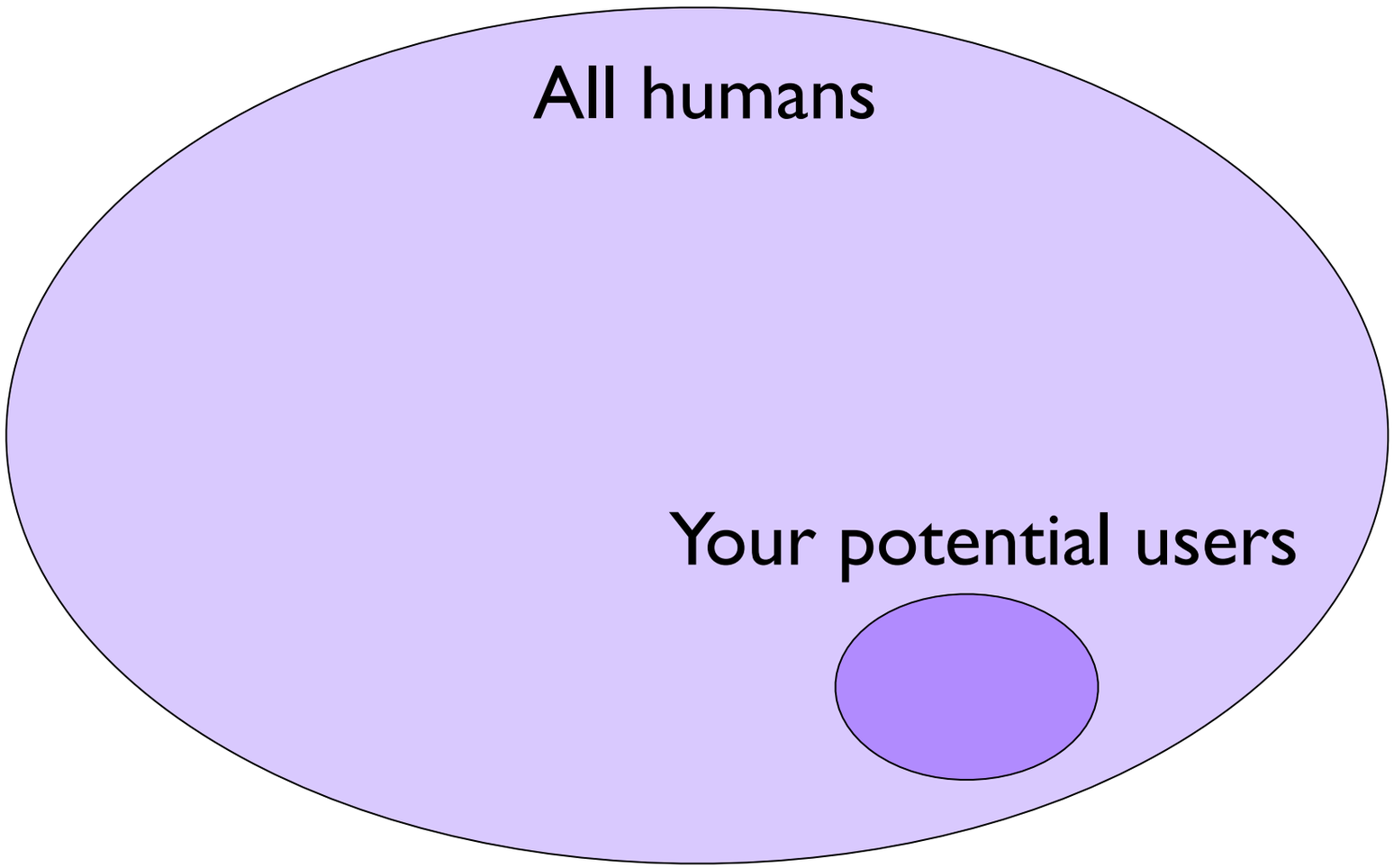


Describing users



What is common to them?

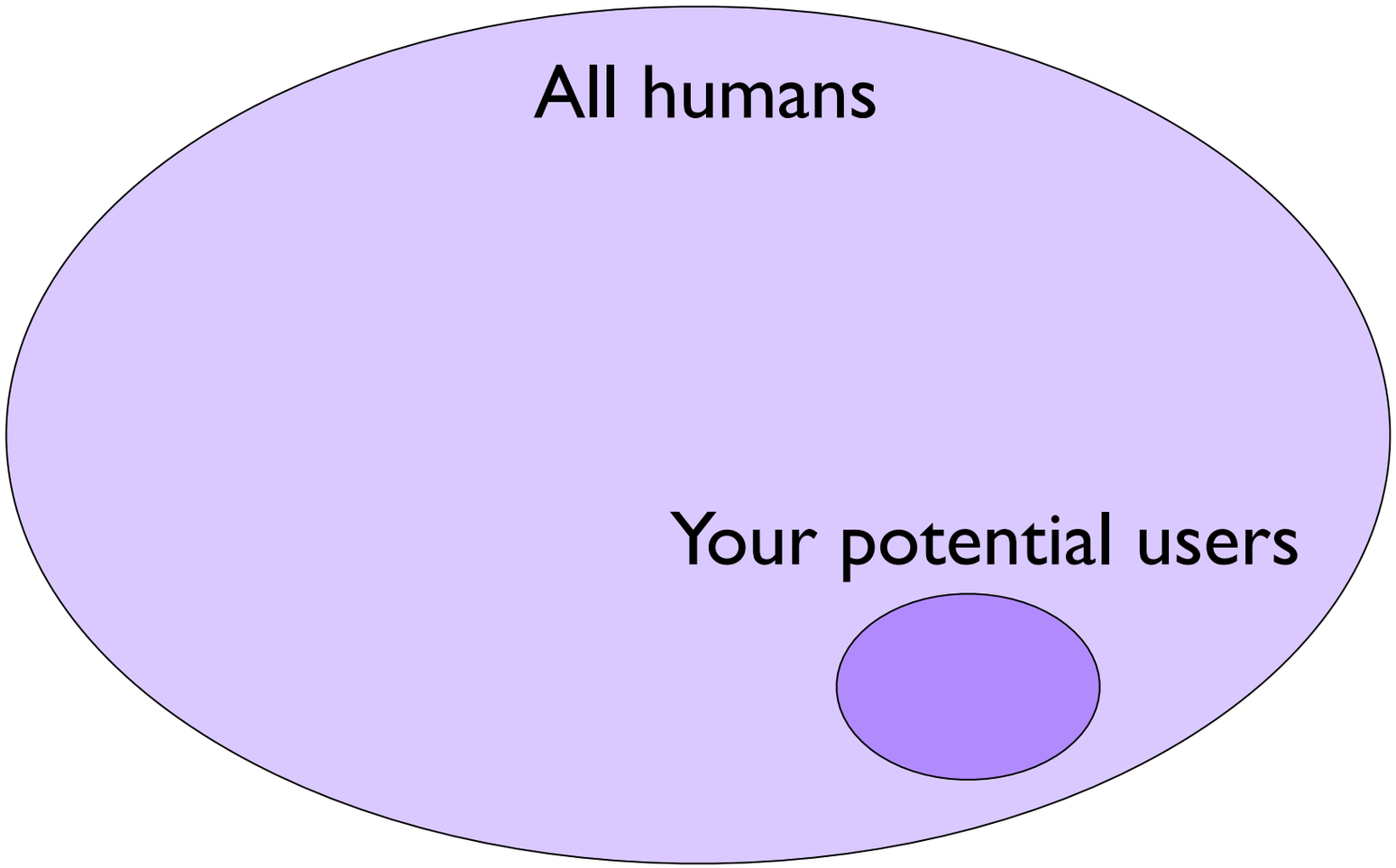
Describing users



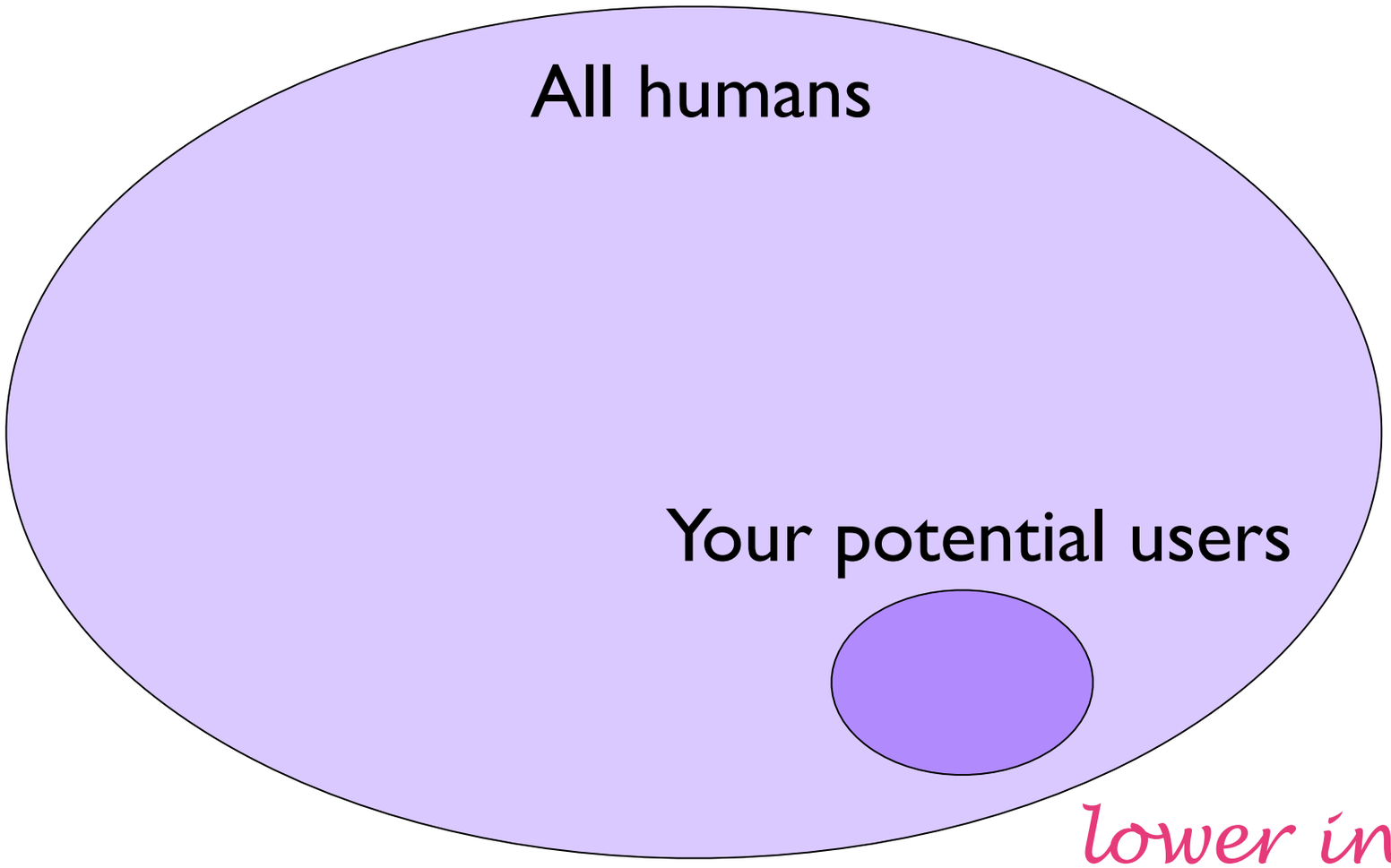
What is common to them?

What distinguishes them from others?

Describing users

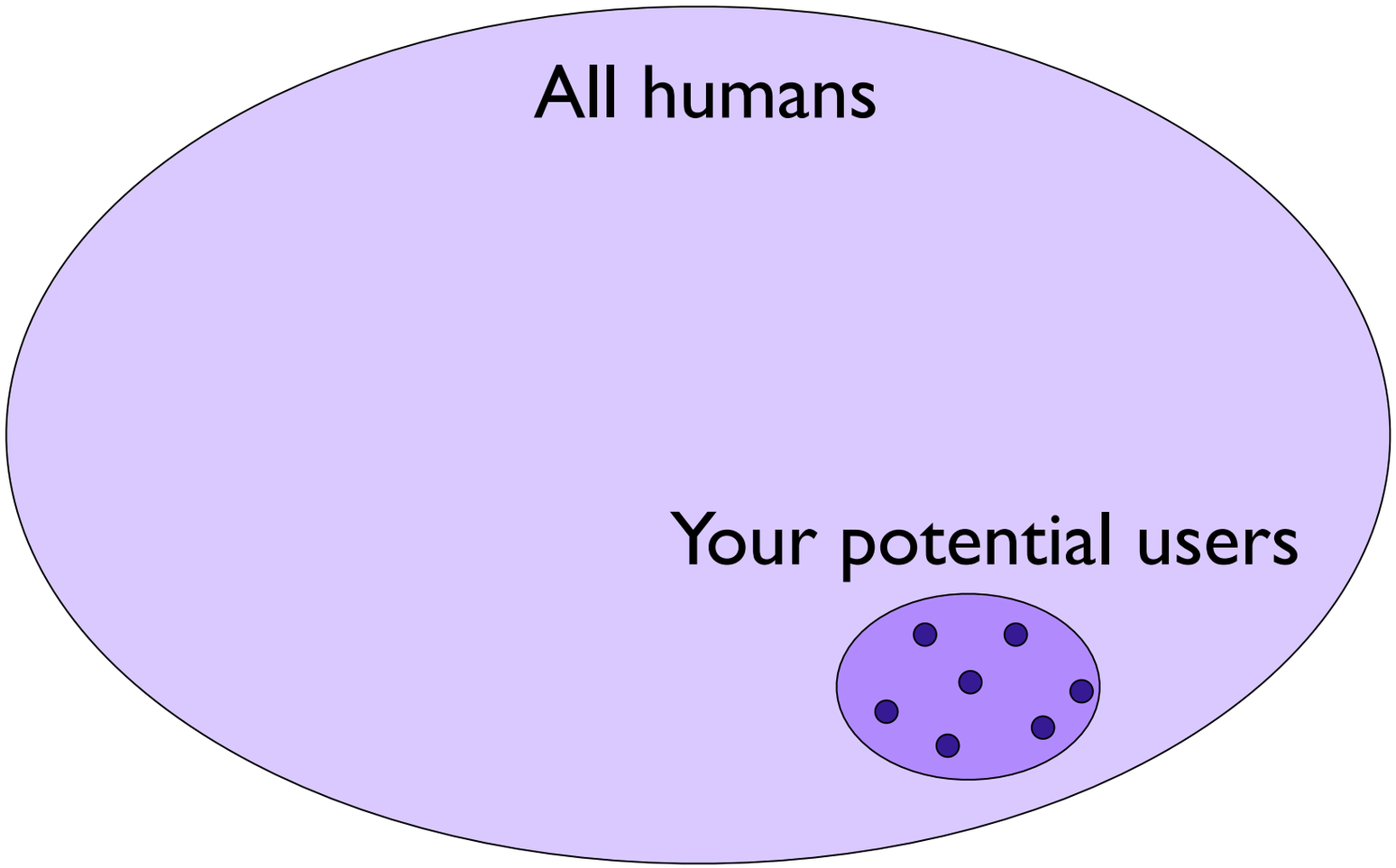


Describing users



lower income (< 15K/year)
adults (18 and older)
has family
living in the US
...

Participants



Participants

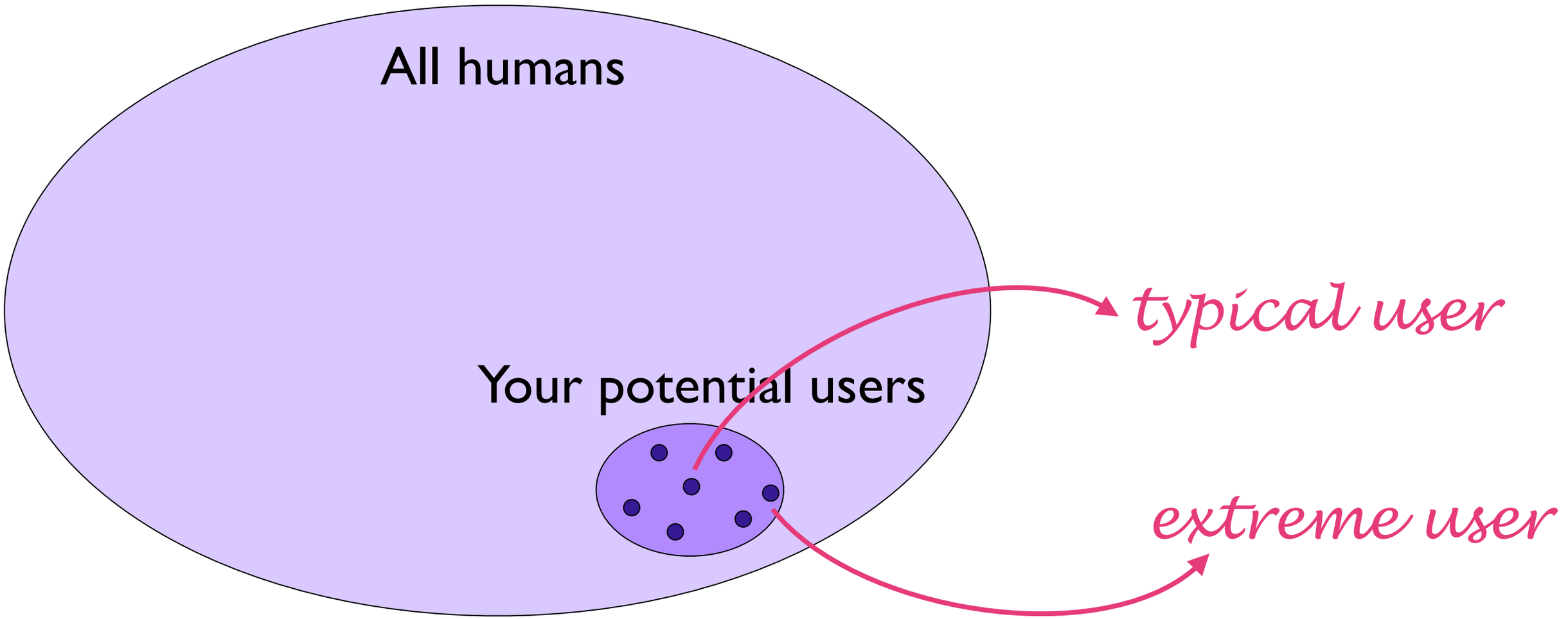
Caroline is a part-time employee at the Seattle Department of Parking and Transportation. She shares a house with her teenage daughter and husband, and is between her mid-forties and early fifties. She is the only member of the family who takes care of the plants, and considers herself relatively experienced in plant care. We interviewed Caroline because she was confident about her plant care skills and represented a somewhat expert plant owner.

Participants

Caroline is a part-time employee at the Seattle Department of Parking and Transportation. She shares a house with her teenage daughter and husband, and is between her mid-forties and early fifties. She is the only member of the family who takes care of the plants, and considers herself relatively experienced in plant care. We interviewed Caroline because she was confident about her plant care skills and represented a somewhat expert plant owner.

Jack is a PhD student in the Computer Science and Engineering Department at the UW. He has taken care of flowers for years, and cares for all of the plants in the CSE building (5-7 plants). We chose to interview Jack because he represented a different age group, and took care of plants that were in his workplace, not his residence. Jack was interviewed in the CSE building.

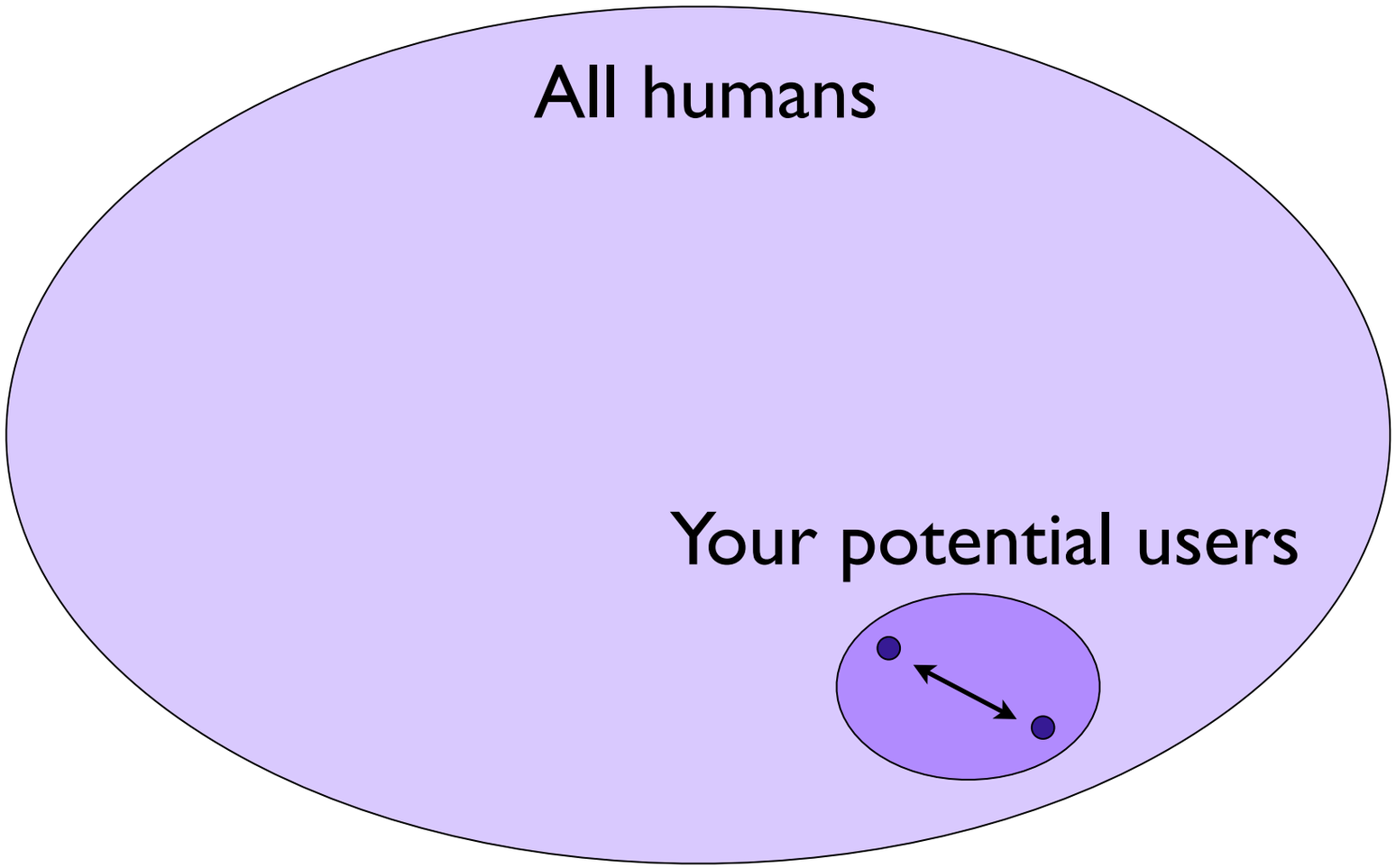
Participants



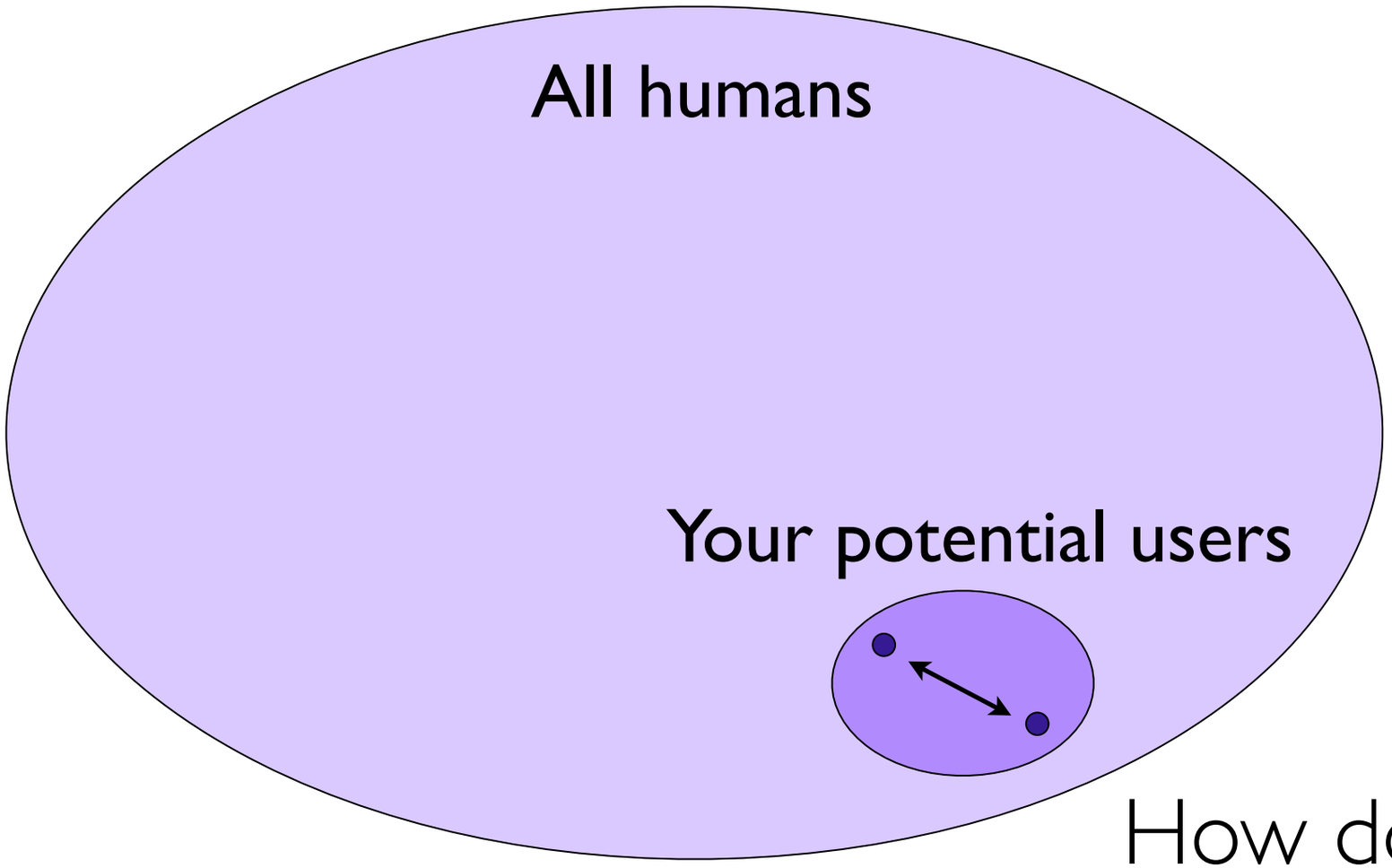
Participants

Kacy is a plant care specialist who works in the indoor plants area of Sky Nursery. She has been with Sky Nursery for 10 years, and has a degree in horticulture. Though plant care professionals are not a target group of users for Plantr, we thought it would be useful to interview Kacy to see how plant care works on a large scale. Additionally, we wanted to ask about common plant care problems customers sought help with at the nursery.

Describing users

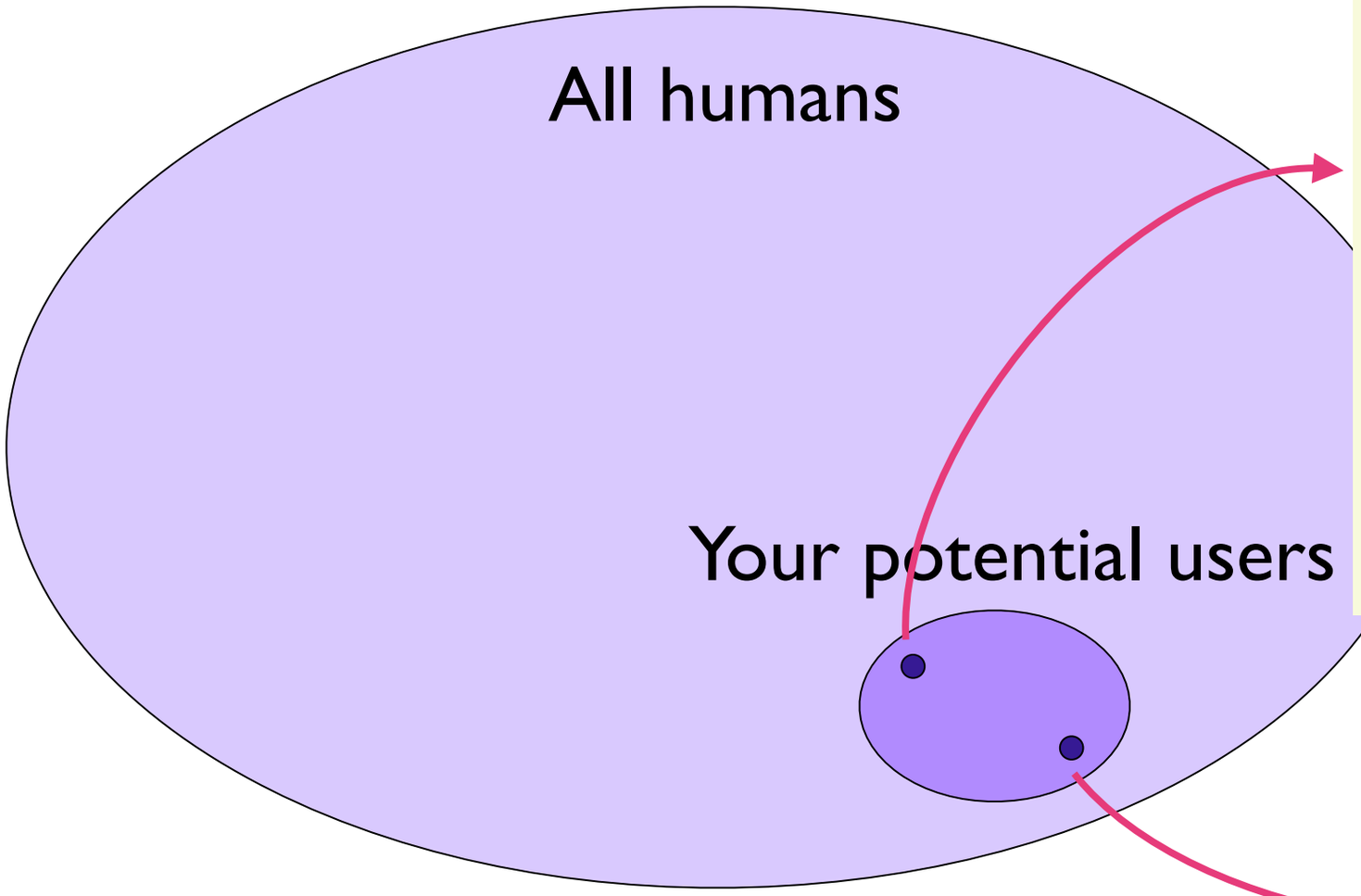


Describing users



How do they vary?

Personae



Persona 1: Thomas Gates

Background

- 20, male
- Lives with his parents in Albuquerque, NM
- Family: middle class, suburban single family home
  - Father: computer engineer for Sar
    Lab
  - Mother: math teacher at La Cueva
  - Siblings: 16 year old sister in high
    student
- Education: diagnosed with AS in th
  - In general education until senior y
    a newly-developed AS program th
    daily Advisory Period for academ
    and a weekly Social Communicati
  - Graduated from El Dorado High S
    with no diagnosed specific learnir

Persona 2: Elizabeth Eisenberg

Background

- 40, female
- Lives in Boston, MA with her husband and children
- Family
  - Married for 7 years to Albert Eisenberg, a 42 year old physicist at MIT
  - Has a 5 year old son, Anton, who is extremely bright but has AS.
  - Has a 2 year old daughter, Eva, who is bright and developing normally
  - Has an au-pair from Norway for child care
  - Her father is a retired aeronautical engineer and her mother is a retired accountant who live in New York. Her siblings include an older sister who is a nurse in NY, an older brother who is a computer engineer at MIT, and a younger brother who works at the Los Alamos National Labs
- Education
  - Graduated from Harvard with a degree in computer engineering
  - Obtained a Masters in computer software design at MIT

Personae

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Background

- 20, male
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- Family: middle class, suburban single family home
  - Father: computer engineer for Sandia National Lab
  - Mother: math teacher at La Cueva High School
  - Siblings: 16 year old sister in high school, good student
- Education: diagnosed with AS in the 7th grade
  - In general education until senior year. Enrolled in a newly-developed AS program that included a daily Advisory Period for academic assistance and a weekly Social Communication class
  - Graduated from El Dorado High School in 2010 with no diagnosed specific learning abilities

- Describe particular, imaginary users in realistic details
- Represent different extremes
- Provide
  - -Background
  - -Work habits and preferences
  - -Skills
  - -Physical characteristics
  - -Motivations
  - -Frustrations

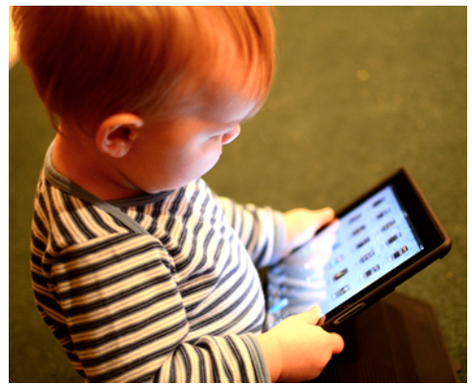
Knowing your users

Same or different?

Knowing your users

Same or different?

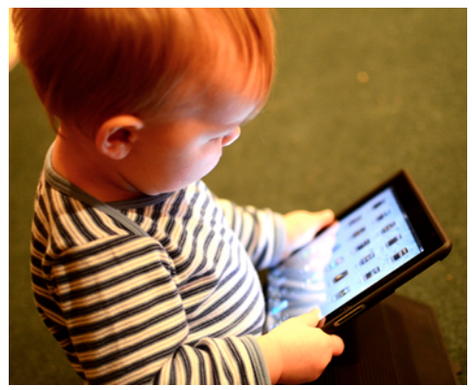
Same



Knowing your users

Same or different?

Same



Different

dub

University of Washington

Contextual inquiry results

- Taking care of plants
  - Plant care routine
  - Determining plant's needs
  - Anticipatory buying
  - Handling plant distress

Contextual inquiry results

- Parking
  - Simplicity
    - Most of the participants we observed were in a hurry, which further frustrated participants, since some voiced that the meters were slow in processing credit cards and printing the receipts.. When asked whether a prepayment device for parking would make the process even faster, some participants were hesitant about the idea, as they were worried that it might be more complicated and bothersome to carry around another payment device.

Contextual inquiry results

- Parking
  - Simplicity
  - Convenience
    - Most of the participants did not like having to walk back and forth between their car and the pay-stations.
    - Most participants also complained about the need to keep track of the expiration time on the receipt.

Contextual inquiry results

- Parking
  - Simplicity
  - Convenience
  - Reliability
  - Miscellaneous
    - Seattle Police Department Parking Enforcement Officer perspective

Task analysis questions

1. Who is going to use the system?
2. What are the currently possible tasks?
3. What are currently unavailable desired tasks?
4. How are tasks learned?
5. Where are the tasks performed?
6. What is the relationship b/w user and data?
7. What other tools does the user have?
8. How do users communicate with each other?
9. How often are the tasks performed?
10. What are time constraints on the tasks?
11. What happens when things go wrong?

Task analysis questions

1. Who is going to use the system?

Anyone who owns indoor plants is a potential user of Plantr... All of 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.

Task analysis questions

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, customers must find out how much and how frequently to water and fertilize their plants.

Task analysis questions

3. What are currently unavailable, desired tasks?

Customers 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 user study mentioned completing on a regular basis.

Task analysis questions

2. What are the currently possible tasks?
3. What are currently unavailable, desired tasks?

what? VS *how?*

Task analysis questions

4. How are tasks learned?
   - Learned by observation
   - Learned by exploration
   - Learned by instruction: Do users need training?
     - academic
     - general knowledge / skills
     - special instruction / training

Task analysis questions

4. How are tasks learned?

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

Task analysis questions

5. Where are the tasks performed?
   - Office, laboratory, point of sale?
   - Effects of environment on customers?
   - Users under stress?
   - Confidentiality required?
   - Do they have wet, dirty, or slippery hands?
   - Lighting?
   - Noise?

Task analysis questions

5. Where are the tasks performed?

Tasks like watering and fertilizing are performed at the **plant's location**. Users 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. Users who consult the **Internet** could be anywhere with a platform that supports web browsing and Internet access. 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.

Task analysis questions

6. What is the relationship b/w customer and data?
   - Personal data
     - always accessed at same device?
     - do users move between devices?
   - Common data
     - used concurrently?
     - passed sequentially between customers?
   - Remote access required?
   - Access to data restricted?

Task analysis questions

6. What is the relationship b/w customer and data?

We identified three different types of data: plants' current state, information about plants, and data that reflects the user'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 (color, stiffness/limpness of leaves, etc.). The customer uses 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. Customers consulted various **plant care information databases** when they wanted to know how to care for their plants. Customers 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. Customers also base their buying decisions based upon their plant care history. Caroline noted that she tries to buy plants that require minimal water.

Task analysis questions

7. What other tools does the customer have?

Caroline, Lucy, Jack, and Kacy all have smart phones and computers. Customers also have a water source, pots, and soil for their plants. Most customers probably have access to a nursery or library as well.

Task analysis questions

8. How do users communicate with each other?
   - Do you have a community of users?
   - Who communicates with whom?
   - About what?

Task analysis questions

8. How do users communicate with each other?

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

Task analysis questions

9. How often are the tasks performed?
   - Frequent customers remember more details
   - Infrequent customers may need more help
     - even for simple operations
     - make these tasks possible to do

Task analysis questions

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 customers try to get help.

Task analysis questions

10. What are time constraints on the tasks?
    - What functions will customers be in a hurry for?
    - Which can wait?
    - Is there a timing relationship between tasks? (e.g. before/after)

Task analysis questions

10. What are time constraints on the tasks?

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 customers try to get help.

Task analysis questions

11. What happens when things go wrong?
   - How do people deal with
     - task-related errors?
     - practical difficulties?
     - catastrophes?
   - Is there a backup strategy?

Task analysis questions

11. What happens when things go wrong?

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

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