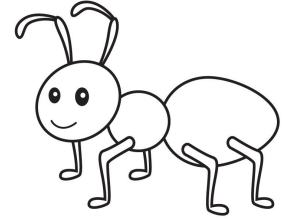


Carpenter Ants

Accessible Design for Different Abilities



Our Team



Kathryn

English - CS
Coterm

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Chicago,
IL



John

Product
Design

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San Francisco,
CA



JR

Computer
Science - AI

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Matthews,
NC

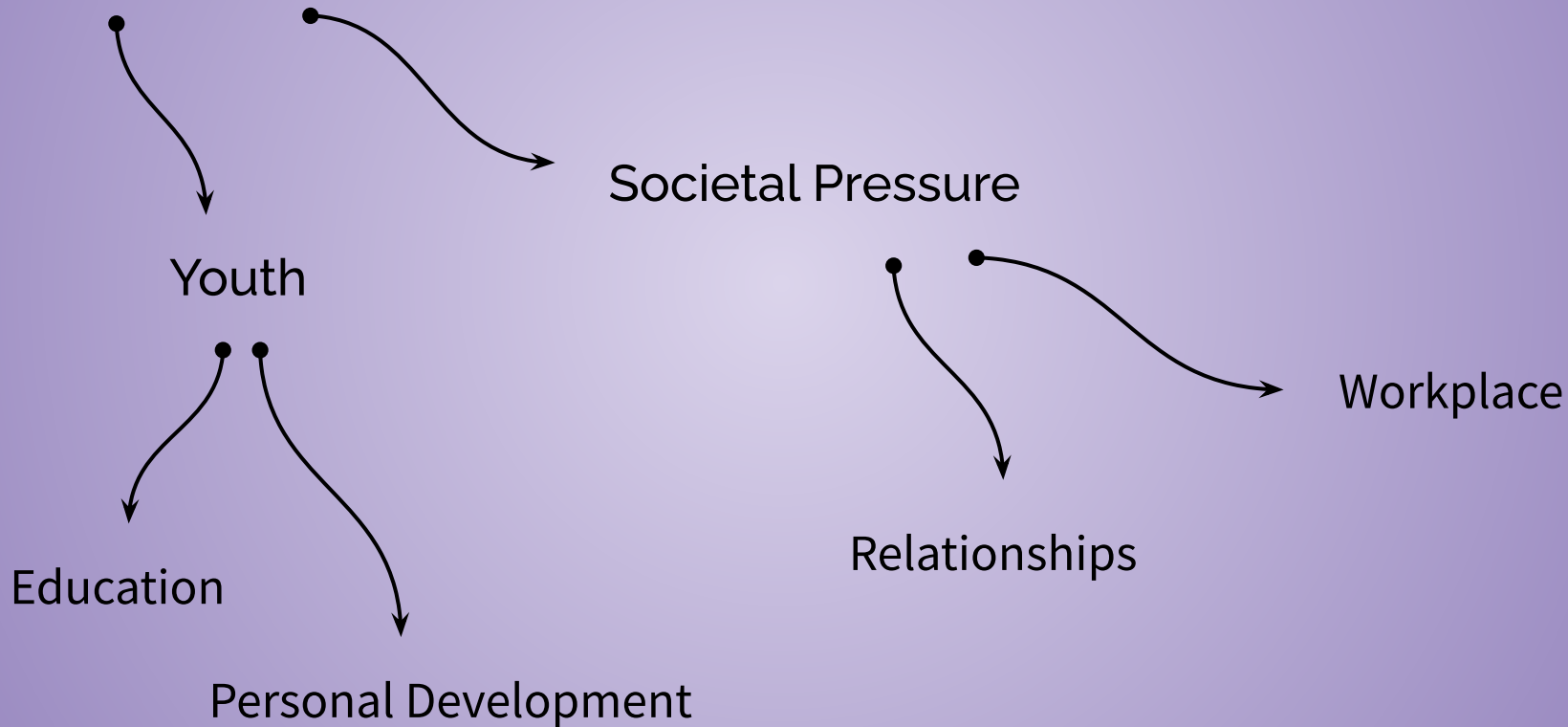


Ryan

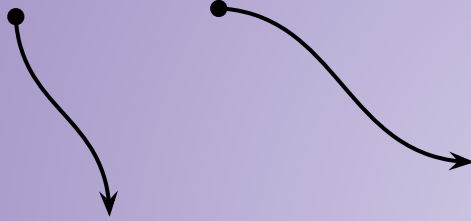
Computer
Science - HCI

.....
Ormond Beach,
FL

Domain
Possibilities

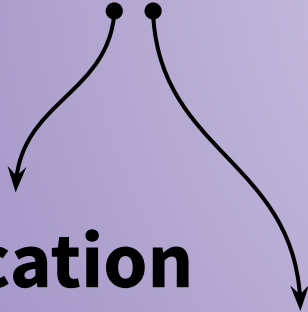


Domain
Possibilities



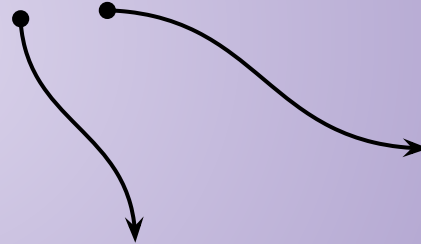
Youth

Societal Pressure



Education

Personal Development



Relationships

Workplace

Interviewees



Reid

21 years old

College Student

Stargardt's disease
(Visually impaired)



Mercy

61 years old

Stay-at-home mom

23 year old
daughter with Sotos
Syndrome and
ADHD



Mike

31 years old

Professor

Misdiagnosed
Pseudotumor
cerebri
(Blind)



Lydia

21 years old

Stanford Student

Dyslexia

Some Questions We Asked

How have you been able to **adapt** to limitations or barriers you have faced?

A time you felt **empowered** by overcoming some aspect of your disability?

Something you spend a lot of **time** doing that other people don't have to worry about?

Was there ever a time you did something that someone **said you couldn't** do?



Reid

21 years old

College Student

Stargardt's disease
(Visually impaired)

SAY

"I did learn brail for a couple years in high school, but it didn't really stick because I was relying on my eyes too much."

"I try to not let it affect me, and I still try to do the things I love- like hiking or fishing or whatever... even if it's in a different way or harder at times"

"Sometimes it's hard because all my friends are doing IM sports - Football league. I do wish I could participate in the more normal activities"

It does get hard, but I feel like I just remind myself of all the stuff I can do, to put everything in perspective I guess.

"I feel like it's kind of funny because my family sees me as a person who... I swim, I wrestle, I'm an eagle scout... they sometimes forget that I am blind... But it's kind of funny"

sometimes I feel bad for asking for help all the time.

I've become more comfortable asking for help

The first interaction is always awkward and makes me uncomfortable. Usually they ask questions.

I'm fine doing my own thing.

I try to get involved if I can - have learned to just put myself out there. If I think I can, I'll try to do it.

THINK

He can still enjoy the things he loves to do, even if it is in a hybrid format

Friends are willing to help him out with everyday tasks BUT only to a certain extent

It is not worth going to IM sports events because they will make him sad

Transitions are difficult

he can often do what people say he can't

Technology is an important part of being independent

He shouldn't take it personally that people forget about his condition

Sometimes family and friends forget he is blind

he shouldn't worry about things out of his control

It's easier to avoid uncomfortable situations

DO

Uses technology to help read and hear in school/transportation contexts

Asks people to say their name when they talk to him.

Listens to the sounds of cars to know when to cross the street

Ask for help from friends and family regularly

Does what he wants, regardless of what doctors have advised

Goes to institutes to help train with new technology

Uses sense of smell as substitute for other lost senses

Relies on the support of friends and family

Avoids activities that he wishes he could participate in (IM Sports) even if he can participate in a hybrid way

Hiking, fishing, eagle scout, high school, college

FEEL

meeting new people requires more effort than it should

He doesn't want to overwhelm his friends by asking for their help

empowered by some of the technology he has been taught to use

Confident in his ability to accomplish his goals

People don't understand how much longer everyday tasks take to do

Excited about doing activities even if he can only participate a little bit

overwhelming his friends asking friends for help all the time

Confident in his ability to accomplish his goals

Sad he cannot do activities that are "normal" - sees himself inherently as abnormal

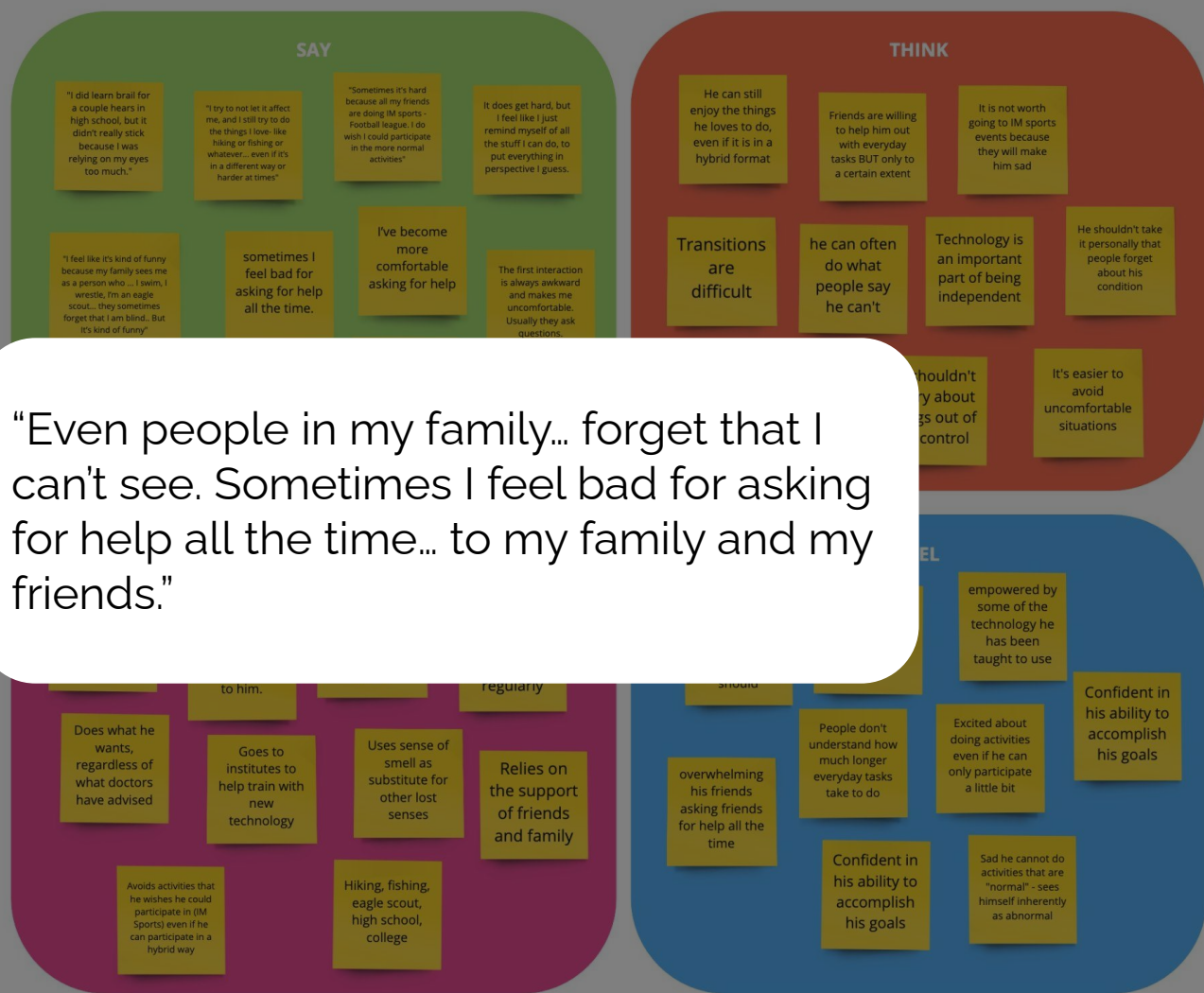


Reid

21 years old

College Student

Stargardt's disease
(Visually impaired)



"Even people in my family... forget that I can't see. Sometimes I feel bad for asking for help all the time... to my family and my friends."



Mercy

61 years old

Stay-at-home mom

23 year old
daughter with Sotos
Syndrome and
ADHD

SAY

"Our kids, especially as they get older, they don't have a lot of options for getting together with friends"

"Didn't consider foothill college... but then COVID happened and I knew foothill will be on Zoom, so it was more opportunistic"

"Learning how to do homework, look a little prompting and support from my end... I would try to guide her with leading questions, but it would frustrate her too because she didn't always know the answers and she needed to struggle too."

"They really don't want their parents at this age to be helping them, but she can't live with a bunch of roommates on her own."

"I can't give her a smartphone, it's too much access and distraction"

"Sometimes I just have to step back and go, okay she can do this, AND she can do this other thing"

"People just want to have a place to go, people to meet, things to do, and that's what it really comes down to."

"When I look at pictures of [her and her friends] at coffee, I can't wait for the day when they can take those driverless cars and go wherever they need to."

"She got to figure out how to use the computer and how to use canvas, and Katie, her little sister uses that at the University of Oregon, so she just felt like she was in the mix. And it's important to feel that."

"When she says off-the-wall things, and my husband improves and adds another goofy thing—I love those moments. It helps her feel included."

"That's one of the biggest problems, is just getting around and making myself available."

THINK

Sammy might be in danger if she goes to college on her own

We should stop trying to make people living with disabilities fit into our world and start changing our norms to fit everyone

Adaptive thinking and improvisation will help her remember that Sammy needs someone in her corner

It is extremely important for Sammy to make friendships and have many social interactions

Sammy's safety is a priority to her

If Sammy has too much freedom, she may make poor and uninformed decisions

Sammy deserves independence but also needs a great deal of support, so how can she have both?

It would be nice for Sammy to have more flexibility with transportation and travel

She can't take life too seriously when Sammy says things out of the blue

If Sammy ventures off by herself too much, she may not be able to have the cognitive skills to recognize when she is not in a good situation

DO

Watches over Sammy as she uses the computer

Smiles and voice softens when she talks about fond memories of Sammy spending time with her friends

Drives Sammy everywhere she needs to go

Sits outside of Sammy's classes to make sure she doesn't leave and go off on her own

Hesitates when saying negative things about her daughter

Fitness instructor and leads a movement class for people of all abilities

Allows Sammy to use her phone, but not have one of her own

Quit her bank job to take care of kids

FEEL

Anxious to let Sammy do things on her own

Happy that Sammy goes to school with classmates that can relate to her

Overwhelmed with having to be on call for her kids 24/7

Proud that she has been able to change the way she parents Sammy to better suit who she is and what she needs.

Excited to see Sammy have the same opportunities as her other daughter

Comfortable when her daughter is surrounded by teachers or classmates she can trust

Nervous that Sammy won't be able to navigate social situations on her own

Pressure and stress that she is responsible for Sammy's every move

Embarrassed when Sammy does something out of the "norm"

Nostalgia thinking about times Sammy was able to socialize with her friends in person



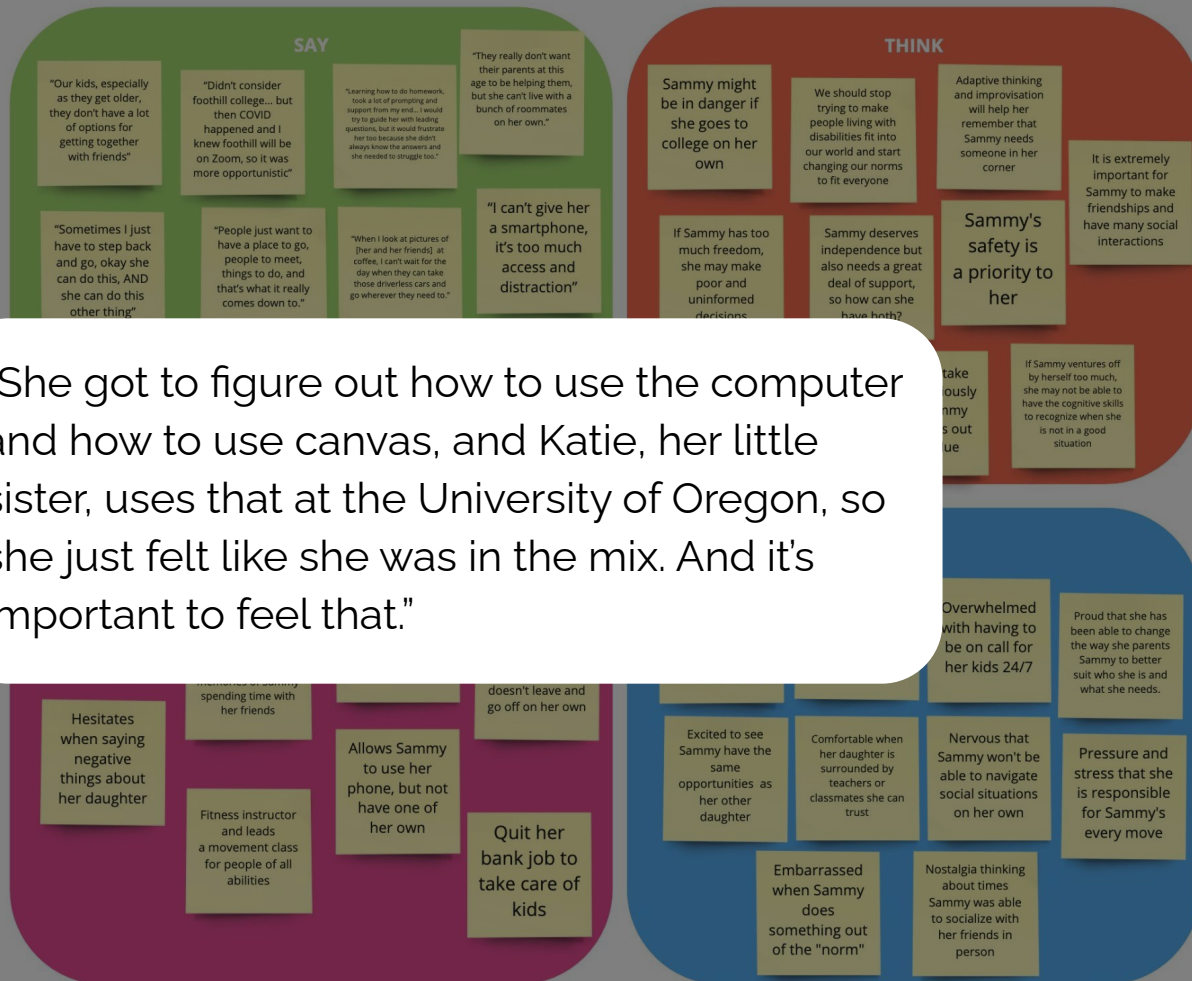
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Syndrome and
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Mike

31 years old

Professor

Blind

SAY

"I was scared to walk around with a white cane at first. I felt so vulnerable."

"The transition was more of an emotional struggle than a physical one for me."

"I had a college degree, had already taken the LSAT, then all of a sudden that meant nothing."

"I was used to doing things on my own, but now I have to be dependent on people."

"It was hard for the people around me to get comfortable with my situation."

"It was a constant struggle to get where I'm at today."

"The most frustrating thing for me was having to relearn how to do everything without vision."

"I couldn't have made it to where I am now without my faith in God."

"There was a lot of noise and mistakes in the beginning."

THINK

She wants to be independent

She's proud of what she's been able to accomplish

She's still battling with her loss of vision

Wants to help others who were in her situation

Doesn't put her trust in people she doesn't know

she's determined to overcome difficult challenges

Safety is a big concern for her

DO

Lives with her parents

Learning how to develop websites

Gave up on her dream of becoming a lawyer

Plays the guitar

Uses screen readers constantly

Teaches computer/iPhone navigation to the newly visually impaired

Uses accessible apps all the time

FEEL

Vulnerable in unfamiliar places

Proud of what she has accomplished

Empathetic towards other people with vision impairments

excited about accessible technology

frustrated from lack of independence

anxiety when things are unorganized



Mike

31 years old

Professor

Blind

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anxiety when things are unorganized



Lydia

21 years old

Stanford Student

Dyslexia

SAY

"That was really emotionally challenging for me because I went to an academic school and not everyone there had a learning disability"

"If I do it for an hour my head starts to hurt, so there's a lot of physical pain attached to it"

"My saving grace was the fact that my first grade TA noticed so early on that this was something going on"

"I never realized there was something different about me, until I was told"

"I felt like maybe I wasn't good enough or I was dumb"

"My biggest social pressure is having to read out loud because I stumble over words and read slow, and that's the only time I feel like my disability is visible"

"If someone looked in my brain now they'd be like what is going on"

"I never took extended time in high school because I didn't need it. You need a doctor's note, so that can be a barrier now"

"I truly think being dyslexic is a reason I am so smart and why my brain works so differently, and I'm proud of it now"

THINK

Dyslexia has changed the way she reads but doesn't mean she is dumb

Having the label of "learning disabled" may change the way her classmates view her

If she reads something important wrong, it could put her in a stressful situation down the line

The successes she has achieved outweigh the struggles she has faced because of her dyslexia

If other people hear her read they may think that she is incapable of it

She has to be careful about the methods in which she reads or studies in order to avoid physical pain

If it weren't for her first grade teacher who got her additional reading support, she may struggle a lot more than she does now

It's costly to get a doctor's note now so she tries to work around not having one, even if it means she won't get the extra time she needs

DO

Subconsciously uses all the dyslexic tools she learned at a young age

Talks very openly about her disability and is not ashamed of it

Is extremely meticulous when reading through important documents

Skims for important information when reading long texts for class

Does her homework in the morning to help with concentration

Avoids reading out loud in class

Goes to bed early even when she misses out on social interactions because it helps her focus

Laughs when she talks about the crazy way her brain works

Allows herself to take extra breaks from school/reading as needed

FEEL

Proud that she was able to succeed despite her learning disability

Frustrated when a doctor's note gets in the way of her getting the additional support she needs

Annoyed that other people don't understand how reading is a privilege

Thankful that she was able to adapt at such a young age

Nervous that one of her classmates is going to judge her for her slow and broken reading

Overwhelmed when she needs to read something for accuracy

Accepting of her situation and the fact that she thinks differently and reading is a challenge for her

Frustrated when she has to stop working because she gets a headache from reading too long



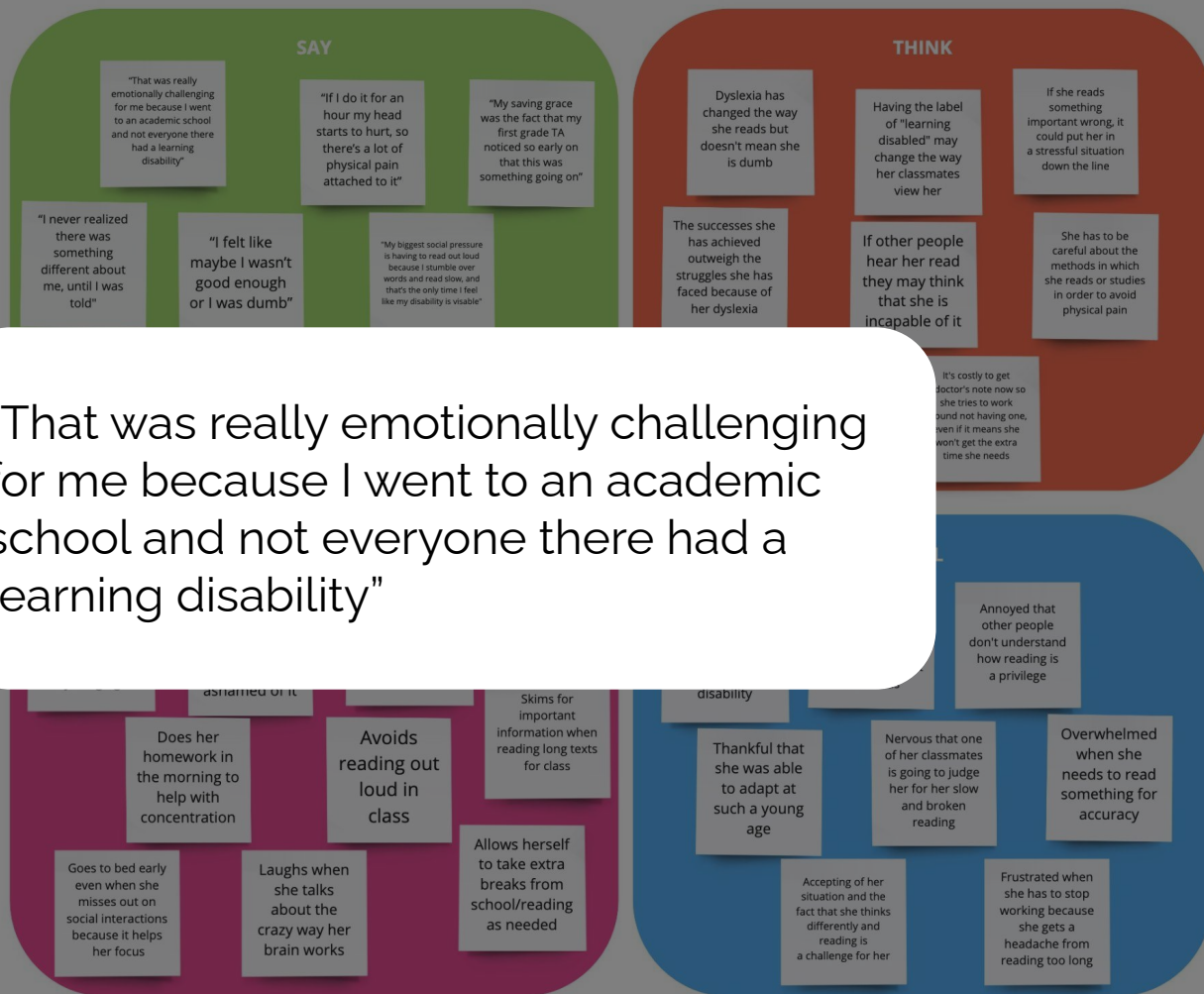
Lydia

21 years old

Stanford Student

Dyslexia

"That was really emotionally challenging for me because I went to an academic school and not everyone there had a learning disability"



Tensions, Contradictions, and Surprises

TENSIONS

He doesn't want to overwhelm his friends by asking for their help - worried about bothering them

The computer's great when Sammy connects with her friends, but when she does something she's not supposed to, it's a headache.

Mercy needs to know where Sammy is and what she is doing at all times, otherwise she gets anxious.

Prone to high-anxiety when things are unorganized

Lydia's biggest social pressure is having to read out loud because she stumbles over words and reads slow. It's the only time she feels her disability is visible.

Friends often go do sports and other activities he wishes he could participate in

CONTRADICTIONS

Mercy's supposed to be helping Sammy achieve her goals as her conservator, but also has to balance safety and Sammy's maturity since she is also her parent.

Wants to be independent but still relies on others for some tasks.

Confident about having his friends be understanding but still hesitates to ask for their help sometimes.

Lydia feels empowered by the fact that her brain works different despite it being labeled a disability

The computer's great when Sammy connects with her friends, but when she does something she's not supposed to, it's a headache for Mercy

SURPRISES

Lydia was able to develop coping mechanisms early on so her strategies are all subconscious to the point she doesn't notice she uses them

Thinks it's funny when his friends or parents ask him to do something he can't actually do because he is blind- them forgetting about his condition

she is able to develop websites with the help of screen readers

Mercy needs to make herself available for Sammy 24/7, otherwise she'd need to find a trustworthy and full-time caretaker

Says he can't do "normal" activities even though he is very proud of the fact he can do most of what he really wants to do.

She doesn't feel safe displaying that she's blind when alone in public.

Synthesized Empathy Map

SAY

"She got to figure out how to use the computer and how to use canvas, and Katie, her little sister uses that at the University of Oregon, so she just felt like she was in the mix. And it's important to feel that."

"I was scared to walk around with a white cane at first. I felt so vulnerable."

"I never took extended time in high school because I didn't need it. You need a doctor's note, so that can be a barrier now"

"That was really emotionally challenging for me because I went to an academic school and not everyone there had a learning disability"

"They really don't want their parents at this age to be helping them, but she can't live with a bunch of roommates on her own."

sometimes I feel bad for asking for help all the time.

The first interaction is always awkward and makes me uncomfortable. Usually they ask questions.

"It was hard for the people around me to get comfortable with my situation."

THINK

Asking for help is a sign of weakness

Isolating oneself is easier than putting oneself in difficult situations

People are going to judge them if they can't adapt and appear "normal"

No kid wants to be told what to do

They have to be extra cautious when trusting people

Asking the same people for help is burdensome for them

DO

Sits outside of Sammy's classes to make sure she doesn't leave and go off on her own

Is extremely meticulous when reading through important documents

Ask for help from friends and family regularly

Asks people to say their name when they talk to him.

Lives with her parents

Allows Sammy to use her phone, but not have one of her own

Avoids reading out loud in class

Is very cautious going out in public alone

FEEL

Desire to feel independent

Desire to do things that "normal" people can do

Asking for help is embarrassing

Nervous when they need to adapt to unfamiliar or dangerous situations

Feel bad burdening friends or family if they need extra assistance

Pressure to fit into societal "norms" and expectations

frustrated from relying on others

Insights and Needs

- Asking for help all the time chips away at one's independence but also is a source of tension between family and friends.
 - The visibility of a disability can make individuals feel unsafe or abnormal, leading to decreased participation in activities they enjoy.
-
- ➔ Need to **ask for help without feeling overbearing.**
 - ➔ Need to **find hybrid ways to participate in “normal” activities**
 - ➔ Need to **feel confident in ones safety when traveling or leaving home.**

Summary

We talked to **individuals with disabilities about adapting to society.**

We learned that **maintaining a sense of independence is extremely important.**

We also learned that **safety becomes a concern heightened by their disabilities.**

We found **a desire to separate social relationships from their disability needs.**

Thank you!