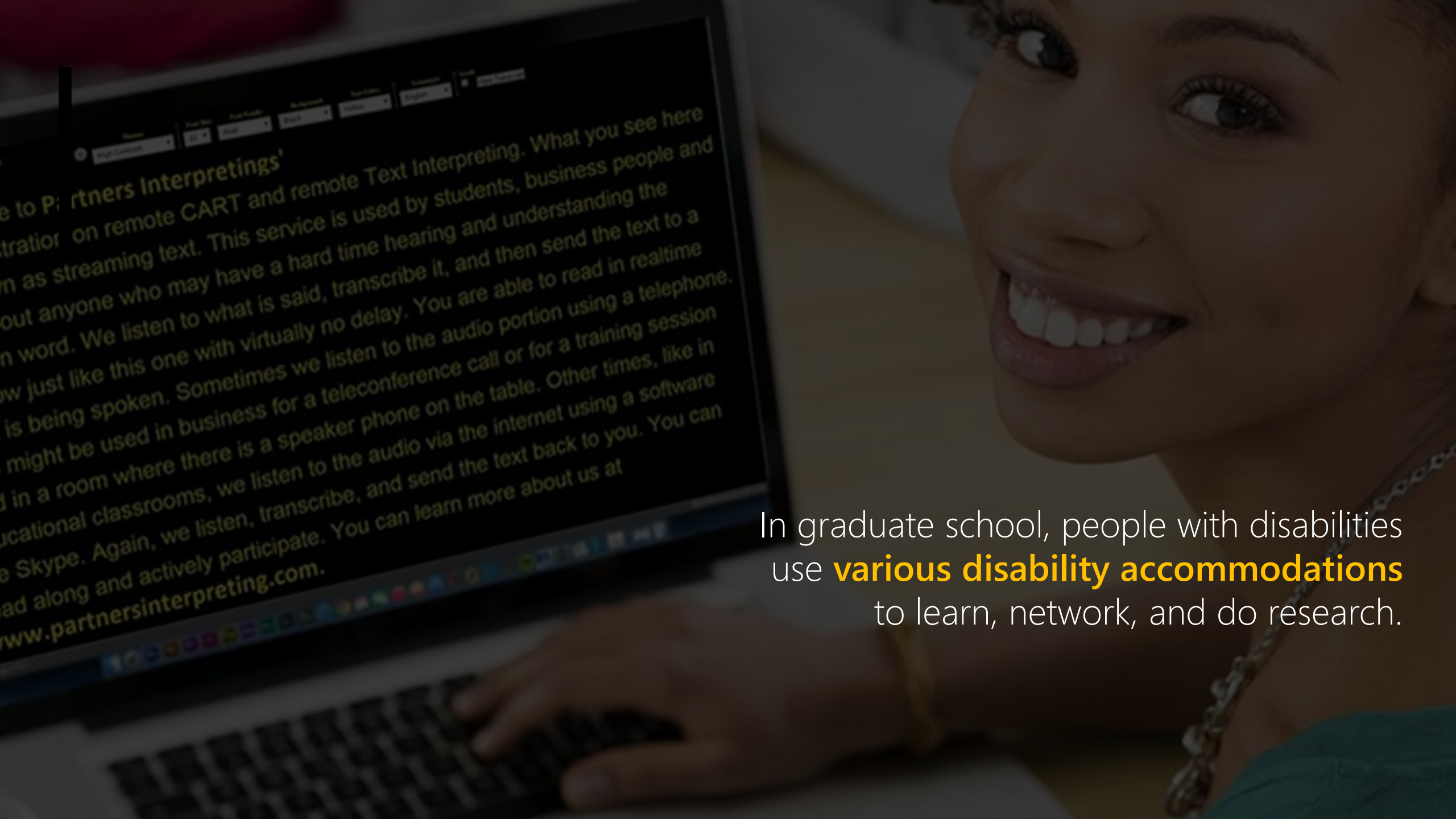


Navigating Graduate School with a Disability

Dhruv Jain, Venkatesh Potluri, Ather Sharif
University of Washington


bit.ly/navgrad






...e to Partners Interpretings'
...trator on remote CART and remote Text Interpreting. What you see here
...n as streaming text. This service is used by students, business people and
...out anyone who may have a hard time hearing and understanding the
...n word. We listen to what is said, transcribe it, and then send the text to a
...w just like this one with virtually no delay. You are able to read in realtime
...is being spoken. Sometimes we listen to the audio portion using a telephone.
...might be used in business for a teleconference call or for a training session
...d in a room where there is a speaker phone on the table. Other times, like in
...ucational classrooms, we listen to the audio via the internet using a software
...e Skype. Again, we listen, transcribe, and send the text back to you. You can
...ad along and actively participate. You can learn more about us at
...www.partnersinterpreting.com.

In graduate school, people with disabilities use **various disability accommodations** to learn, network, and do research.

A photograph of a book signing event. In the foreground, a woman with short dark hair and glasses, wearing a light blue patterned shirt, stands and gestures with her hand while talking to two women seated at a table. The table is covered with stacks of books, some with pink covers, and a water bottle. The seated women are looking towards the standing woman. In the background, other people are visible, and a poster for 'BRADLEY BEAUFORT TWELVE KINGS SHARAKHAN' is partially visible on the left. The scene is dimly lit, suggesting an indoor evening event.

However, these pre-planned accommodations **may not work** in many situations.

A photograph of three graduate students with disabilities sitting at a table in a social setting. The student on the left is a man with glasses wearing a red plaid shirt. The student in the middle is a man with glasses wearing a dark grey hoodie. The student on the right is a woman with a red headband wearing a dark jacket. They are all smiling and looking towards the camera. The background shows other people and tables, suggesting a conference or event. The text is overlaid on the image in white and yellow.

Through a trio-ethnography of **three graduate students with disabilities**, we highlight complexities of cases in which our **usual accommodations did not work** and the use of alternate in-situ coping strategies.

RELATED WORK



Past work reports on a few autoethnographies of graduate students in the **fields of education and disability studies**.

Within computer science, however, researchers have only investigated **singular aspects of graduate education** (e.g., use of specialized classroom technologies).

We examine **longitudinal experiences from within**,
generating rich personal insights **rarely available**
through other research methods in HCI.

AUTO-ETHNOGRAPHY

A qualitative research method where **researcher adopts the role of participant** and critically reflect on their experience.

We chose this method because **disability is highly personal**. We wanted to amplify our first-person voice as people with disabilities and as computer science researchers.

Specifically, we use **trio-ethnography**, a form of autoethnography, where three researcher-participants engage in a colloquial dialogue.

THE AUTOETHNOGRAPHERS



DJ

Fourth year PhD, CSE, UW
From India

Hard-of-hearing



Venkatesh

Third year PhD, CSE, UW
From India

Blind



Ather

Third year PhD, CSE, UW
From Pakistan

Limited mobility

METHOD

We report on our experiences from earlier years of graduate school.

To document our experiences, we used we used a combination of *retrospective accounts* and in-situ *fieldnotes*.

We analyzed the notes using **open, axial and selective coding**.



THEMES

1. Self-image
2. Relationships
3. Technologies



THEMES

1. Self-image



THEMES

1. Self-image

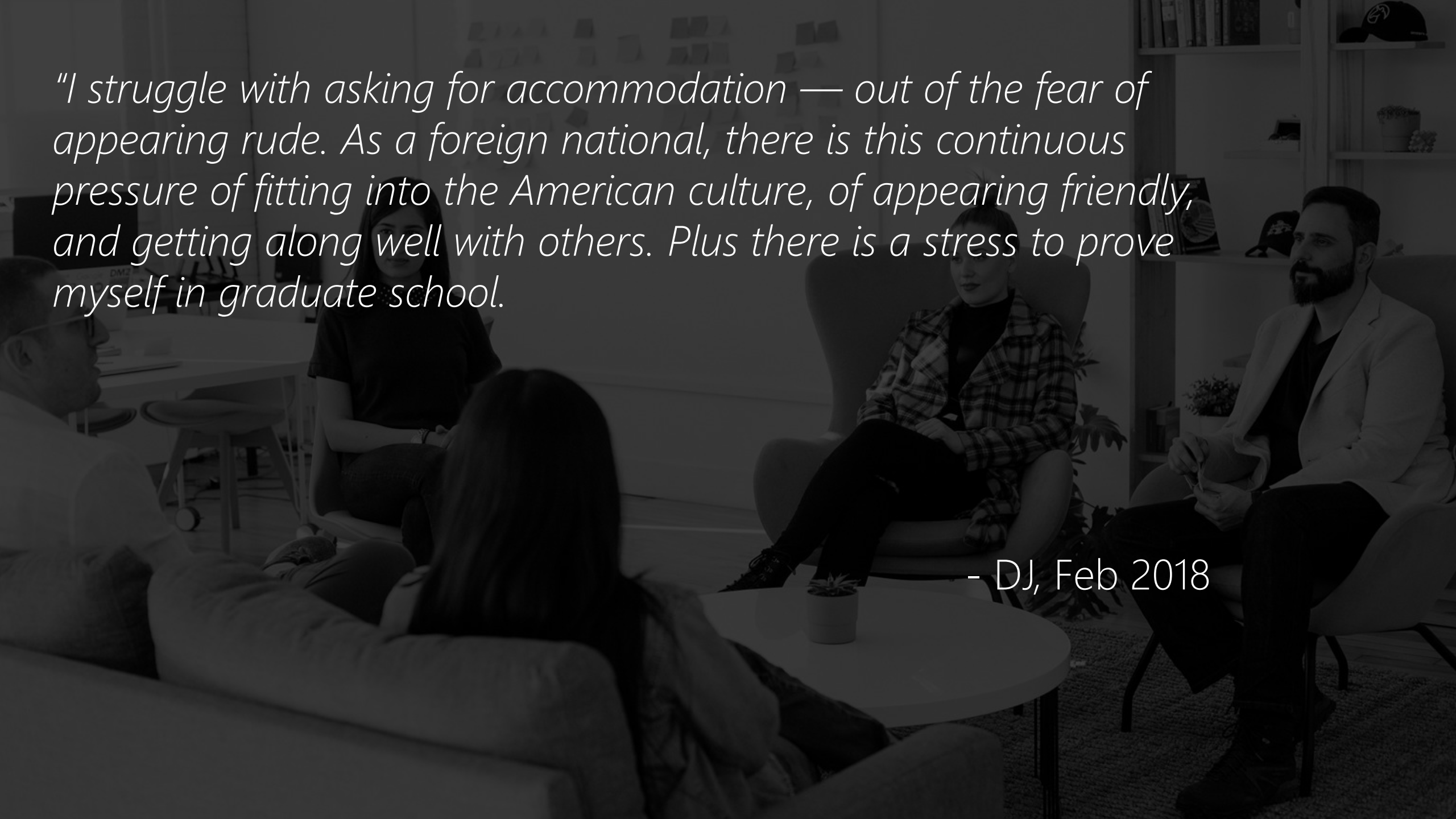
Due to the cultural shift and the heightened expectations in the graduate school, we are sometimes **conflicted in our ability to advocate** for our needs.

"I struggle with asking for accommodation — out of the fear of appearing rude.

- DJ, Feb 2018


"I struggle with asking for accommodation — out of the fear of appearing rude. As a foreign national, there is this continuous pressure of fitting into the American culture, of appearing friendly, and getting along well with others.

- DJ, Feb 2018

A group of five people are seated in a circle in a modern, brightly lit living room. They appear to be in a casual conversation. The room features a white sofa, a round coffee table with a small potted plant, and a bookshelf in the background. The overall atmosphere is relaxed and professional.

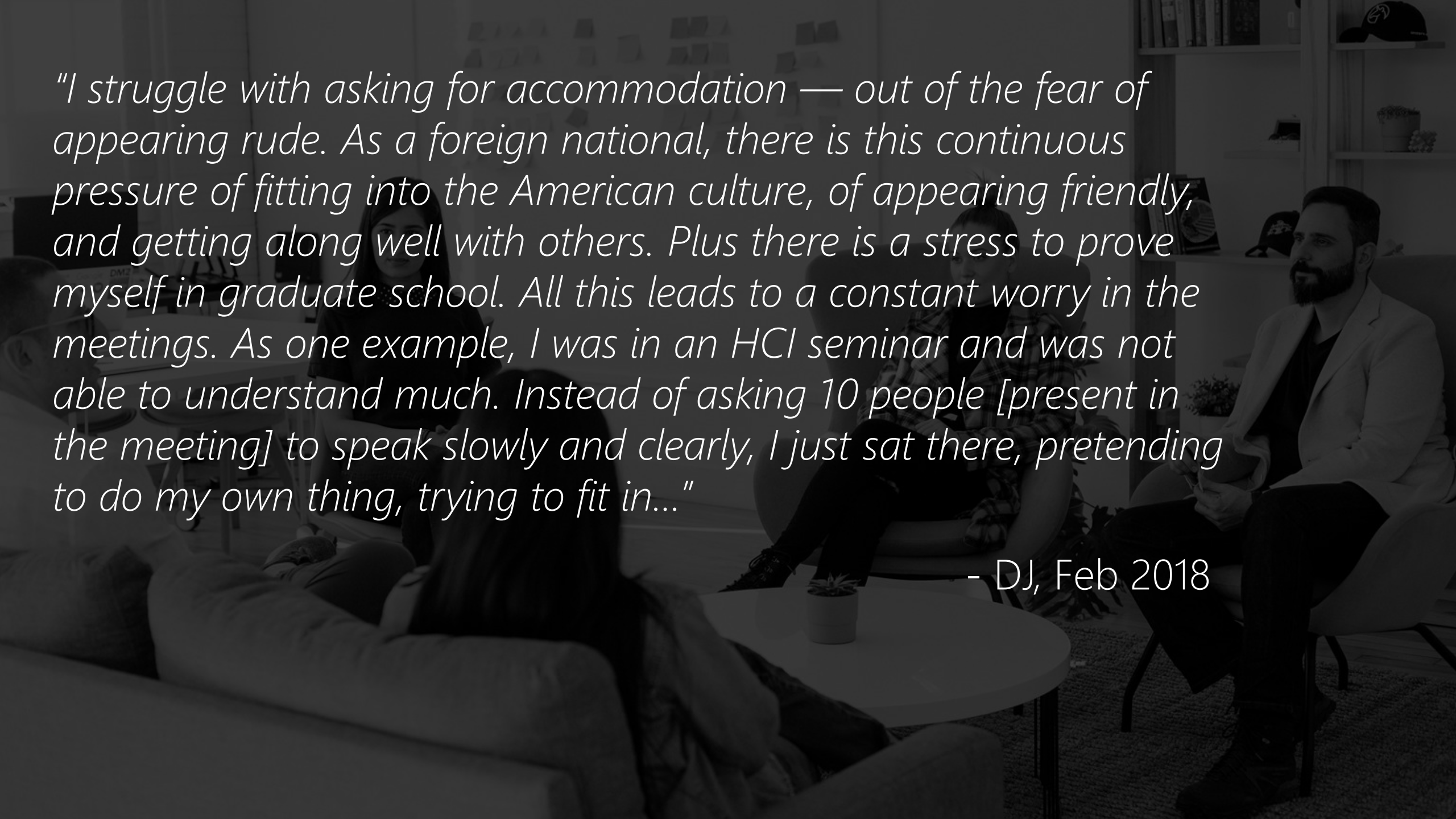
"I struggle with asking for accommodation — out of the fear of appearing rude. As a foreign national, there is this continuous pressure of fitting into the American culture, of appearing friendly, and getting along well with others. Plus there is a stress to prove myself in graduate school.

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"I struggle with asking for accommodation — out of the fear of appearing rude. As a foreign national, there is this continuous pressure of fitting into the American culture, of appearing friendly, and getting along well with others. Plus there is a stress to prove myself in graduate school. All this leads to a constant worry in the meetings. As one example, I was in an HCI seminar and was not able to understand much.

- DJ, Feb 2018

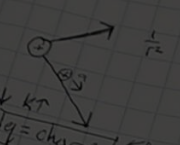
A dimly lit room with people sitting on a sofa and chairs, overlaid with a large white text quote. The background shows a modern interior with a bookshelf and a man in a suit sitting on the right.

"I struggle with asking for accommodation — out of the fear of appearing rude. As a foreign national, there is this continuous pressure of fitting into the American culture, of appearing friendly, and getting along well with others. Plus there is a stress to prove myself in graduate school. All this leads to a constant worry in the meetings. As one example, I was in an HCI seminar and was not able to understand much. Instead of asking 10 people [present in the meeting] to speak slowly and clearly, I just sat there, pretending to do my own thing, trying to fit in..."

- DJ, Feb 2018

Electric Potential

$F_e = k \frac{q_1 q_2}{r^2}$
 $F_e = qE$
 $E = k \frac{q}{r^2}$
 $F_g = G \frac{m_1 m_2}{r^2}$



← fundamental property of matter
 mass
 ← fundamental property of matter
 charge

field strength depends on

equivalent
 gh
 gh
 gh
 gh
 each level had same gravitational potential

electrical potential → potential difference in a uniform field
 equal potential
 $V = \frac{E \Delta x}{c}$
 $\frac{N}{C} \cdot m \Rightarrow \frac{J}{C} = (V) \text{ volts}$

uniform field
 $W = qEd$
 $F_e = qE$
 $V = k \frac{q}{r}$ point charge

electric field can store energy

Summary: electric fields can do work, store energy and have work done on them

- Ather, Jan 2019

"In an attempt to be 'normal', I tried to take notes myself during [my] meetings with [a potential advisor]."

Electric Potential

$F_e = kq_1q_2/r^2$

$F_e = qE$

$E = kQ/r^2$

inverse square law

$F_g = G \frac{m_1 m_2}{r^2}$

Use kT

$|q| = \text{charge}$

Field strength depends on

fundamental property of matter

mass

fundamental property of matter

gh

gh

gh

equivalent

each level had same gravitational potential

potential

potential difference in a uniform field

$V = \frac{E \Delta x}{N/C} = \frac{J}{C} = (V) \text{ volts}$

Uniform field

$W = qEd$

$F_e = qE$

$V = k \frac{q}{r}$ point charge

electro field can store energy

Summary: electric fields can do work, store energy and have work done on them

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electrical potential

chemical potential

electrical potential

$V = k \frac{q}{r}$ point charge

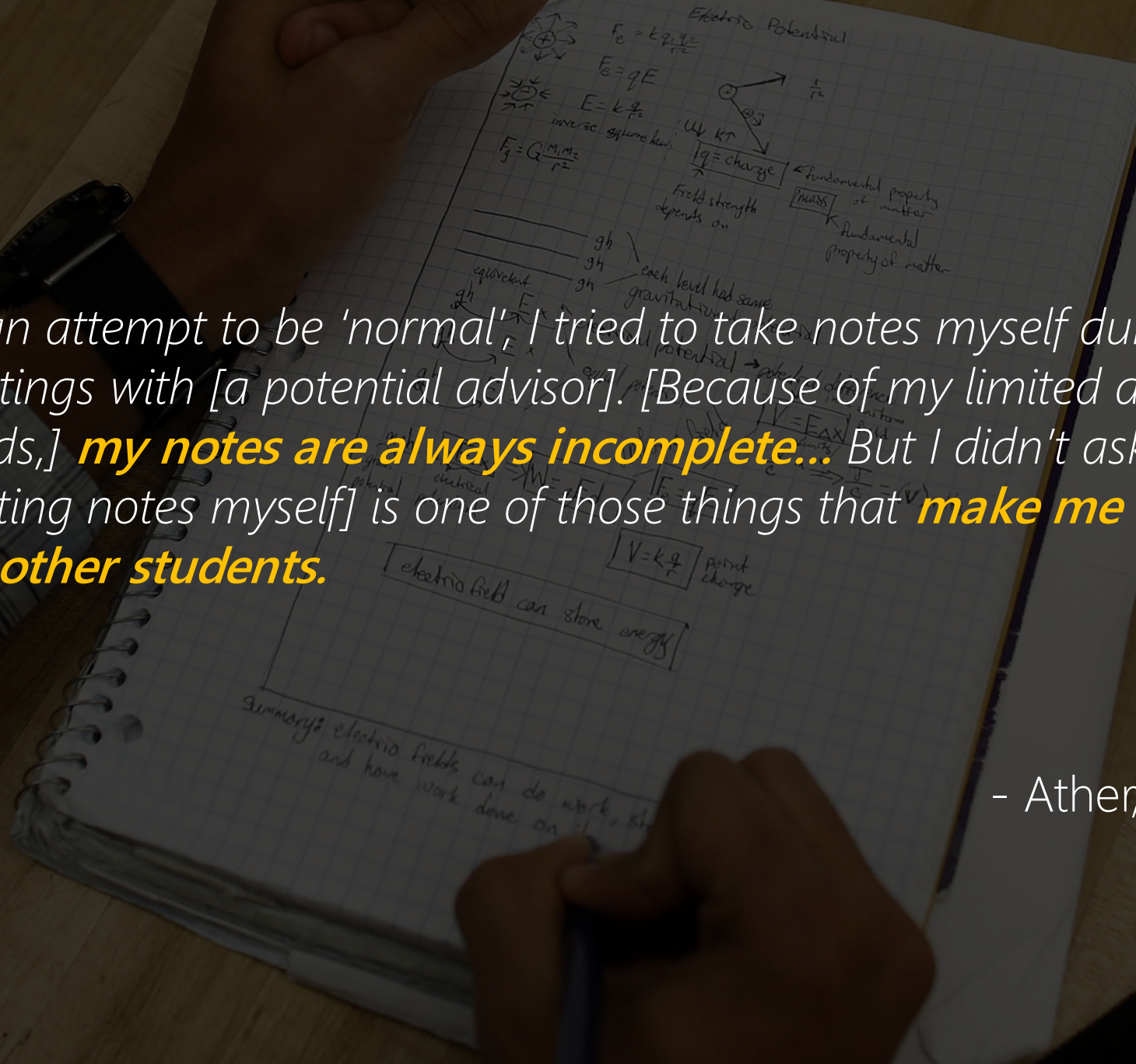
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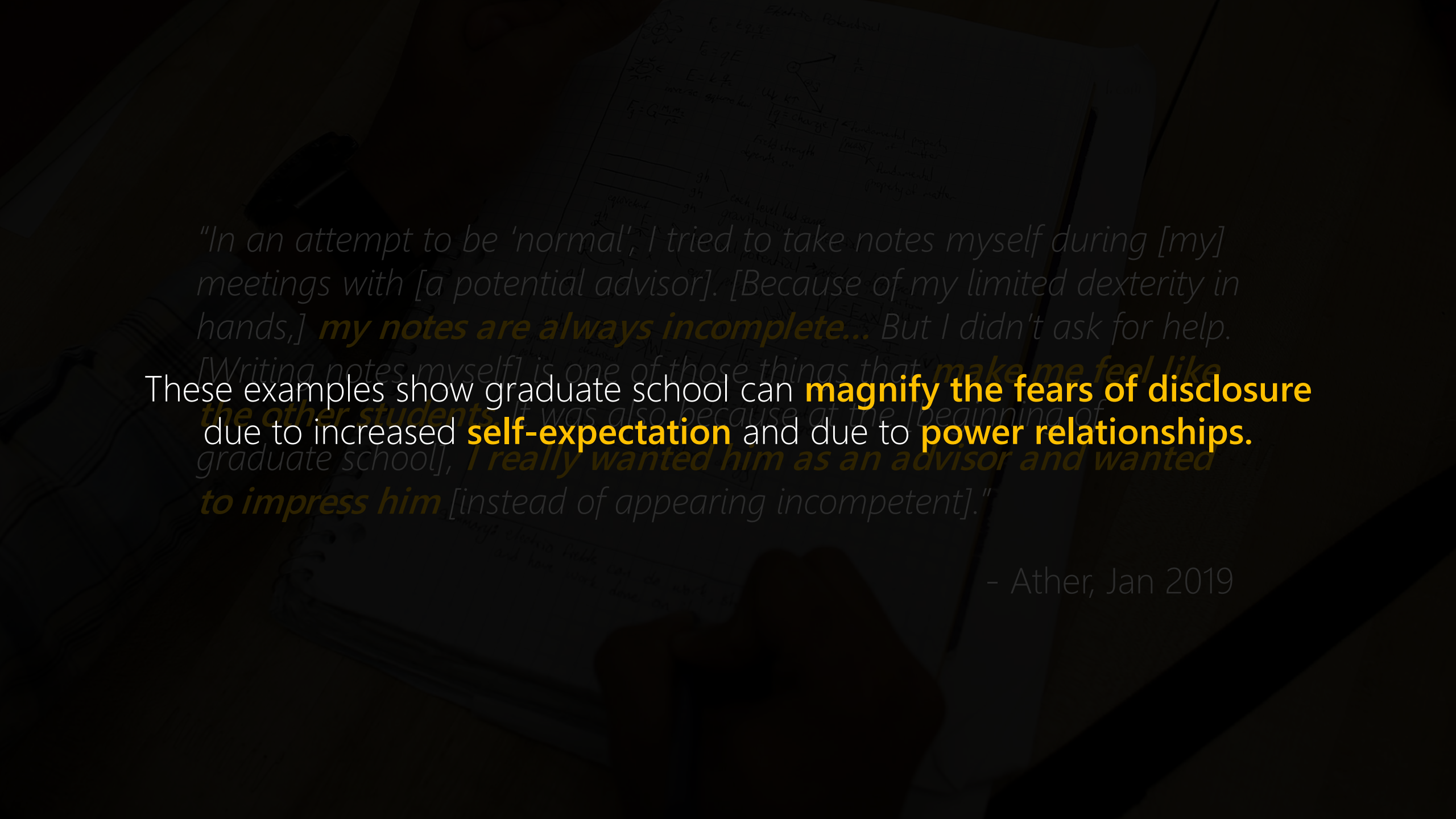
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THEMES

1. Self-image



THEMES

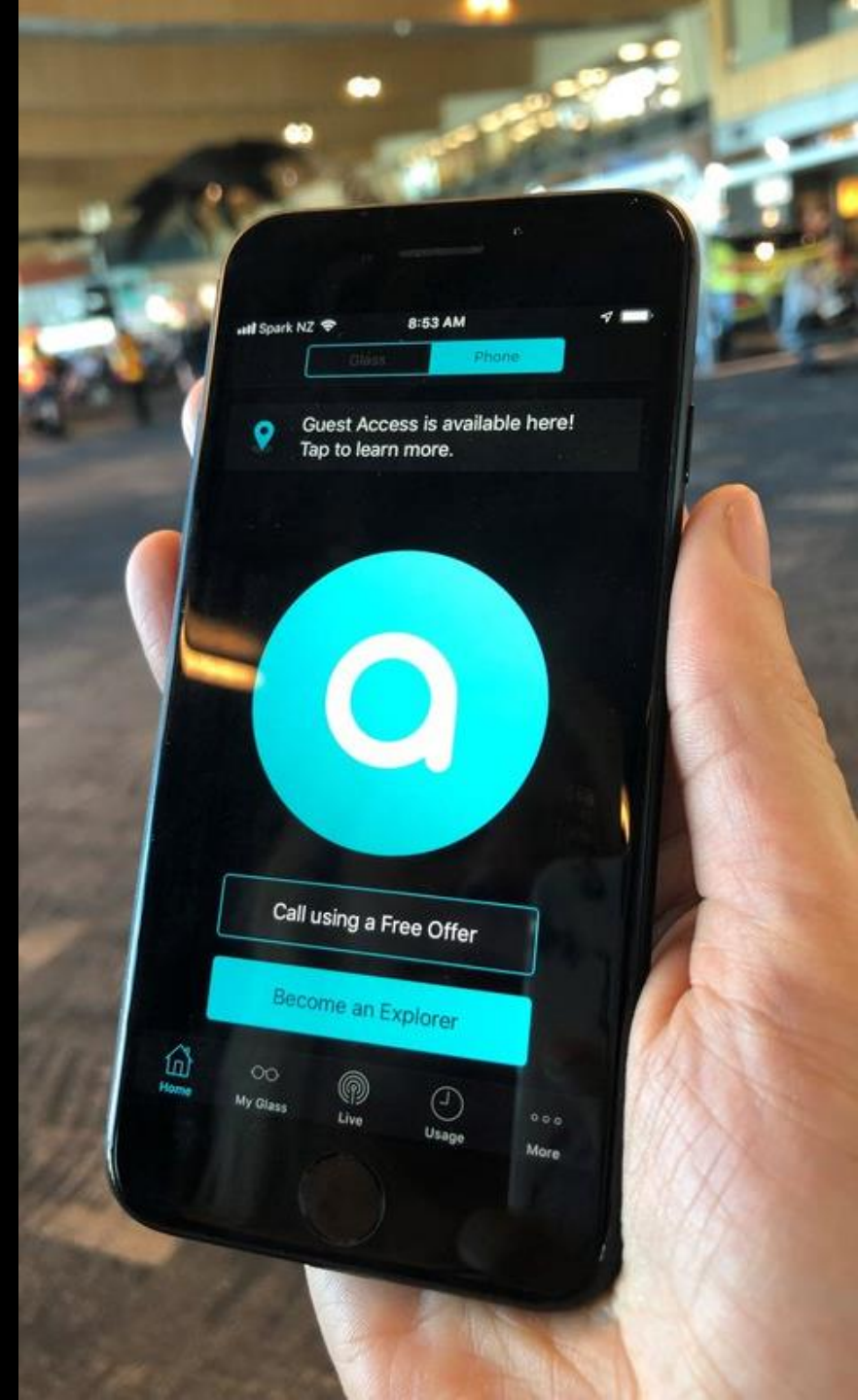
1. Self-image
2. Relationships

THEMES

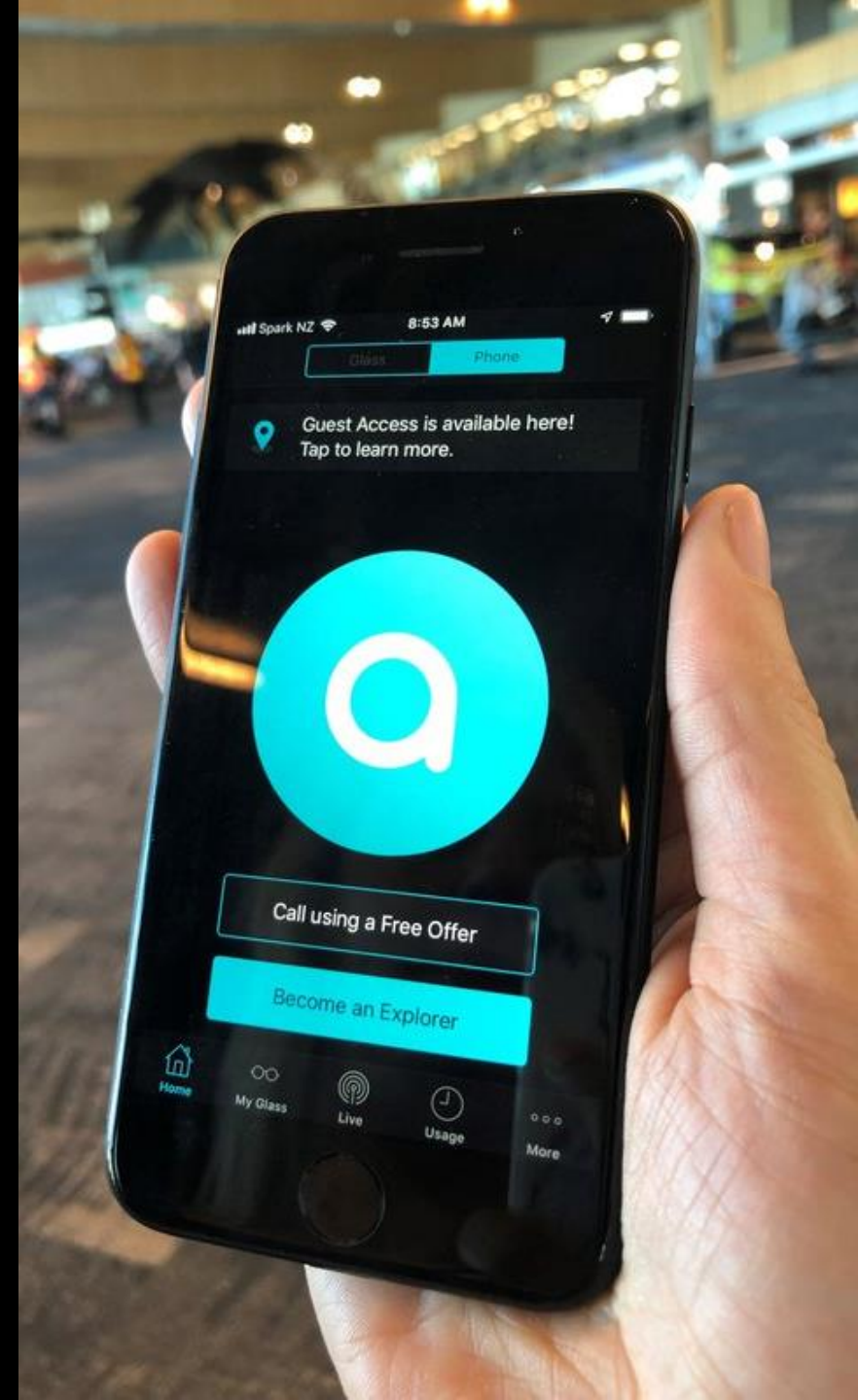
1. Self-image
2. Relationships

Complex relationships in graduate school impact our disability and the accommodation process.

"As part of an event, a few CSE students had decided to hangout at the beach. I wanted to go as well. [...] I took an Uber to the beach [...]"

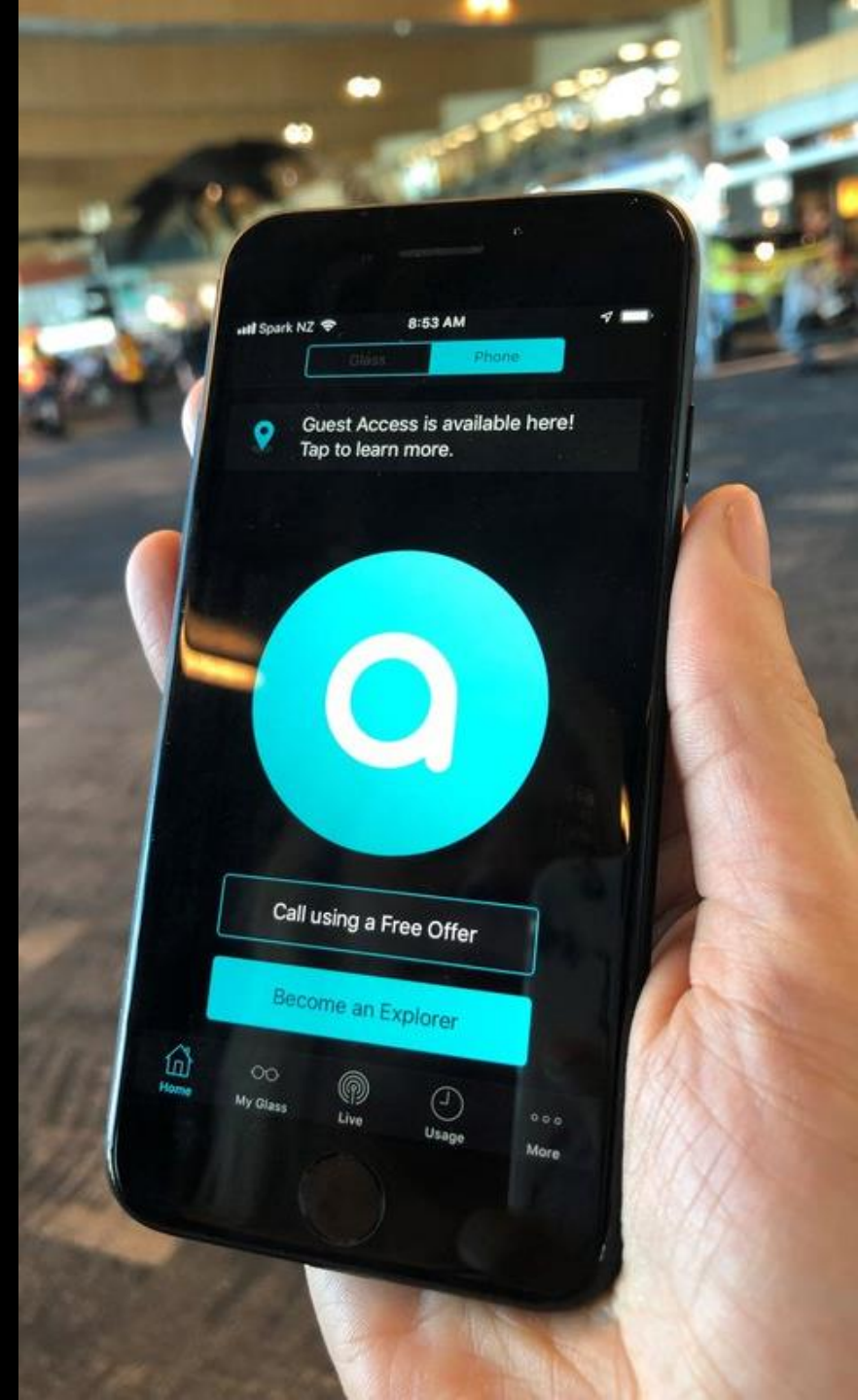


"As part of an event, a few CSE students had decided to hangout at the beach. I wanted to go as well. [...] I took an Uber to the beach [...] **I was worried about how I would find the group once I got there.** The event organizer just sent a picture to the event page saying, "we found a spot".



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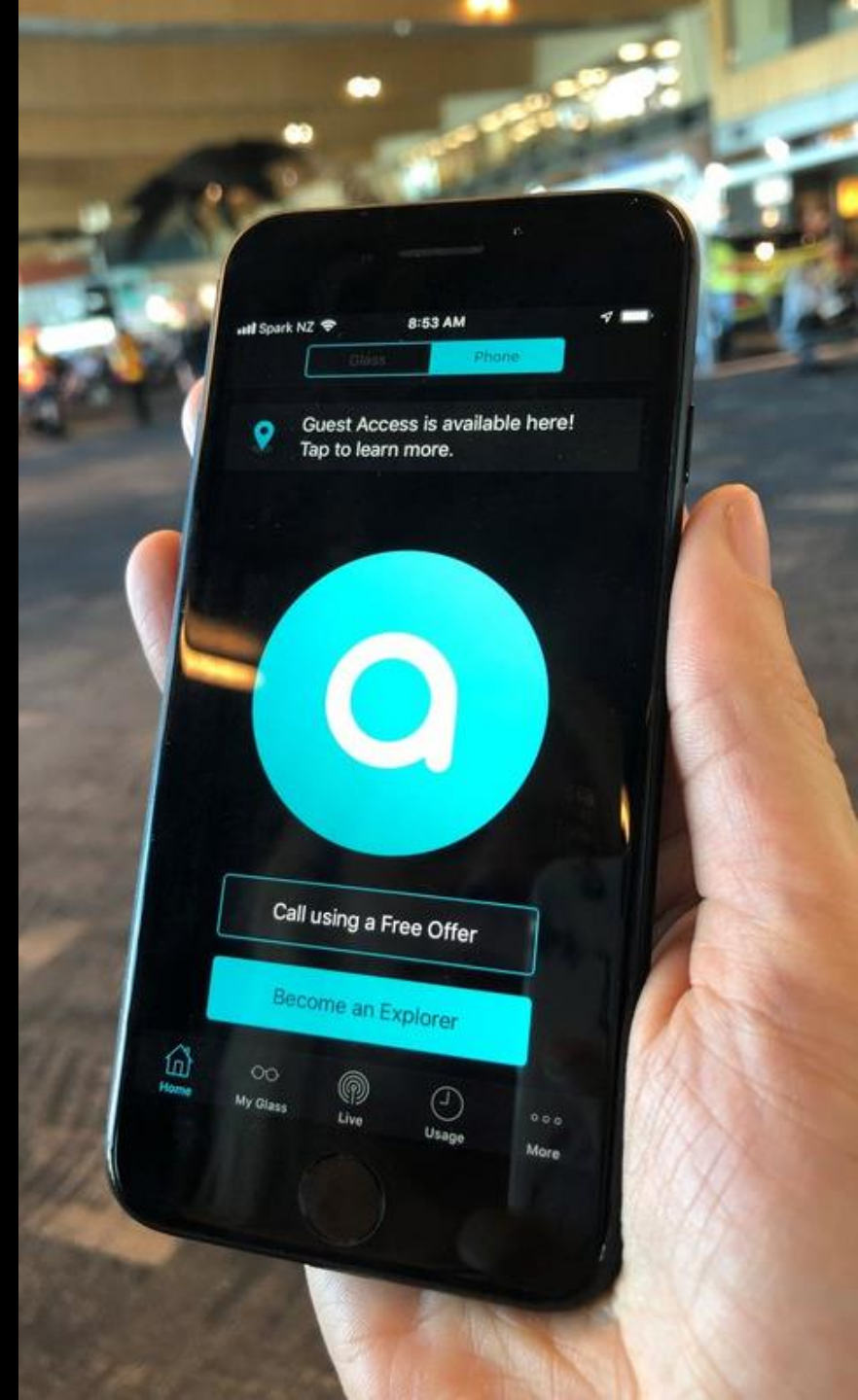
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[However,] when I got to the beach, I became a little anxious. So, I tried to call [a friend] whose phone number I had but she didn't answer. I posted in the event group: "I am at the entrance. Can somebody get me?"

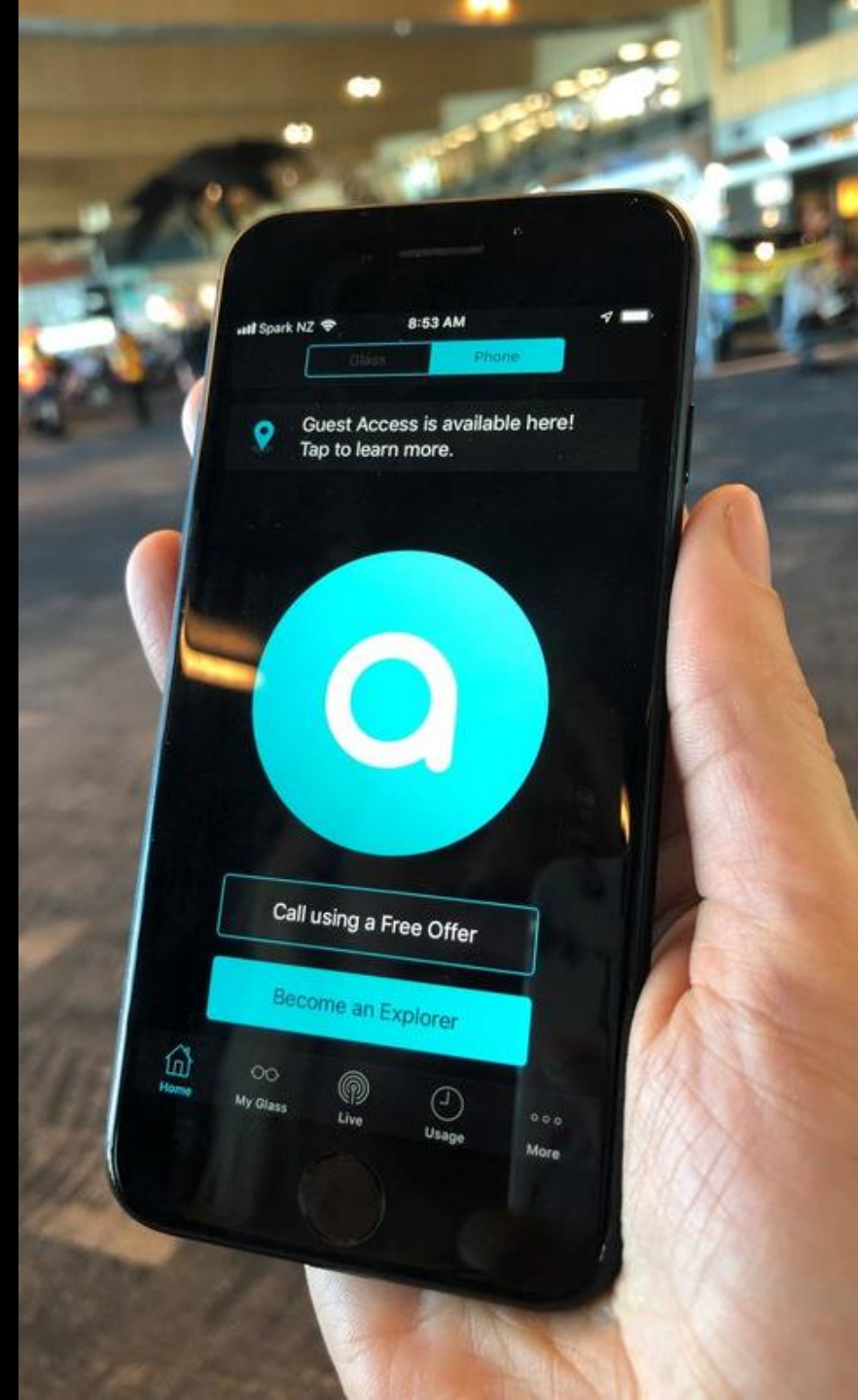


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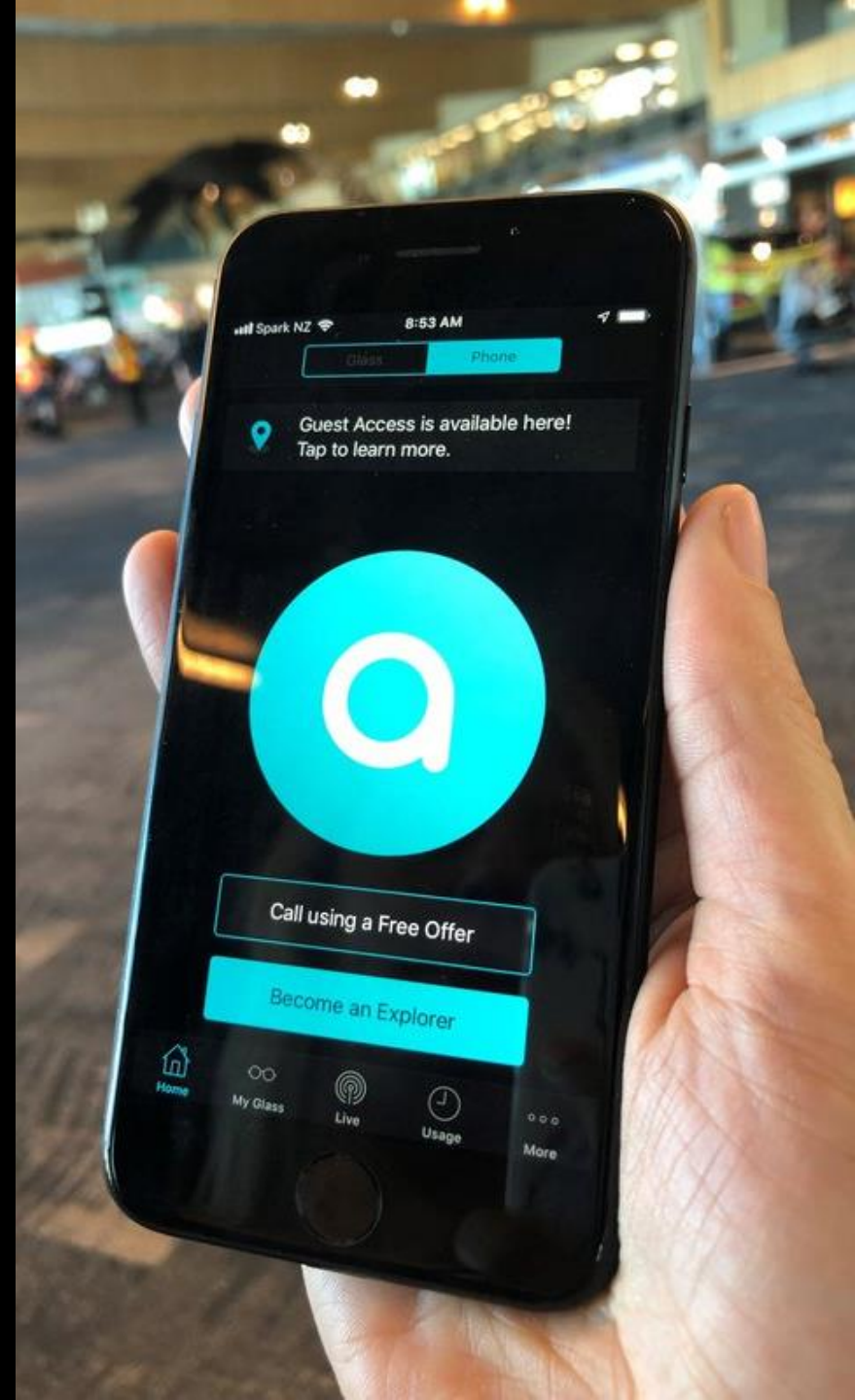
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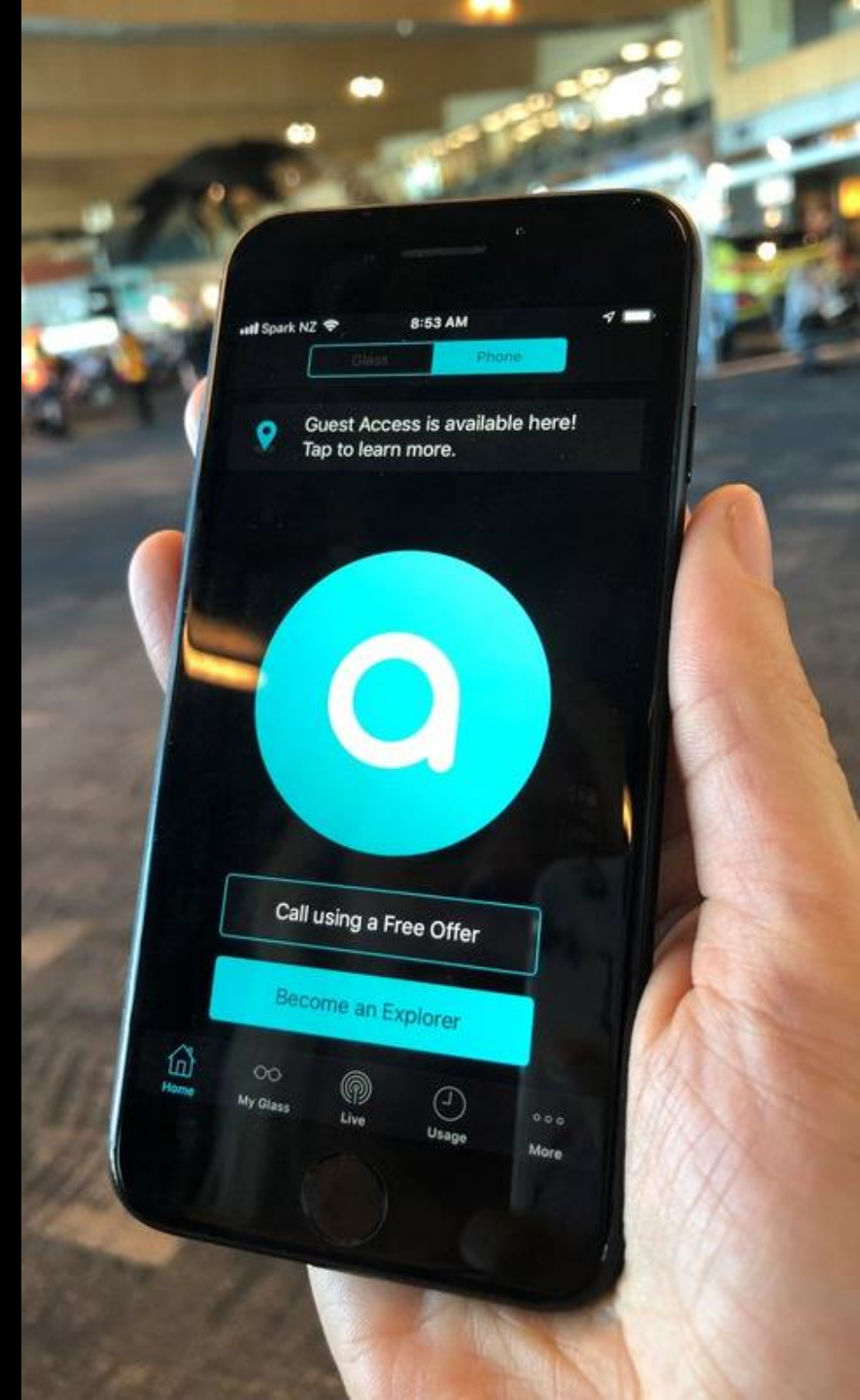
I got a text back: **"Knowing where you are would help :)"**



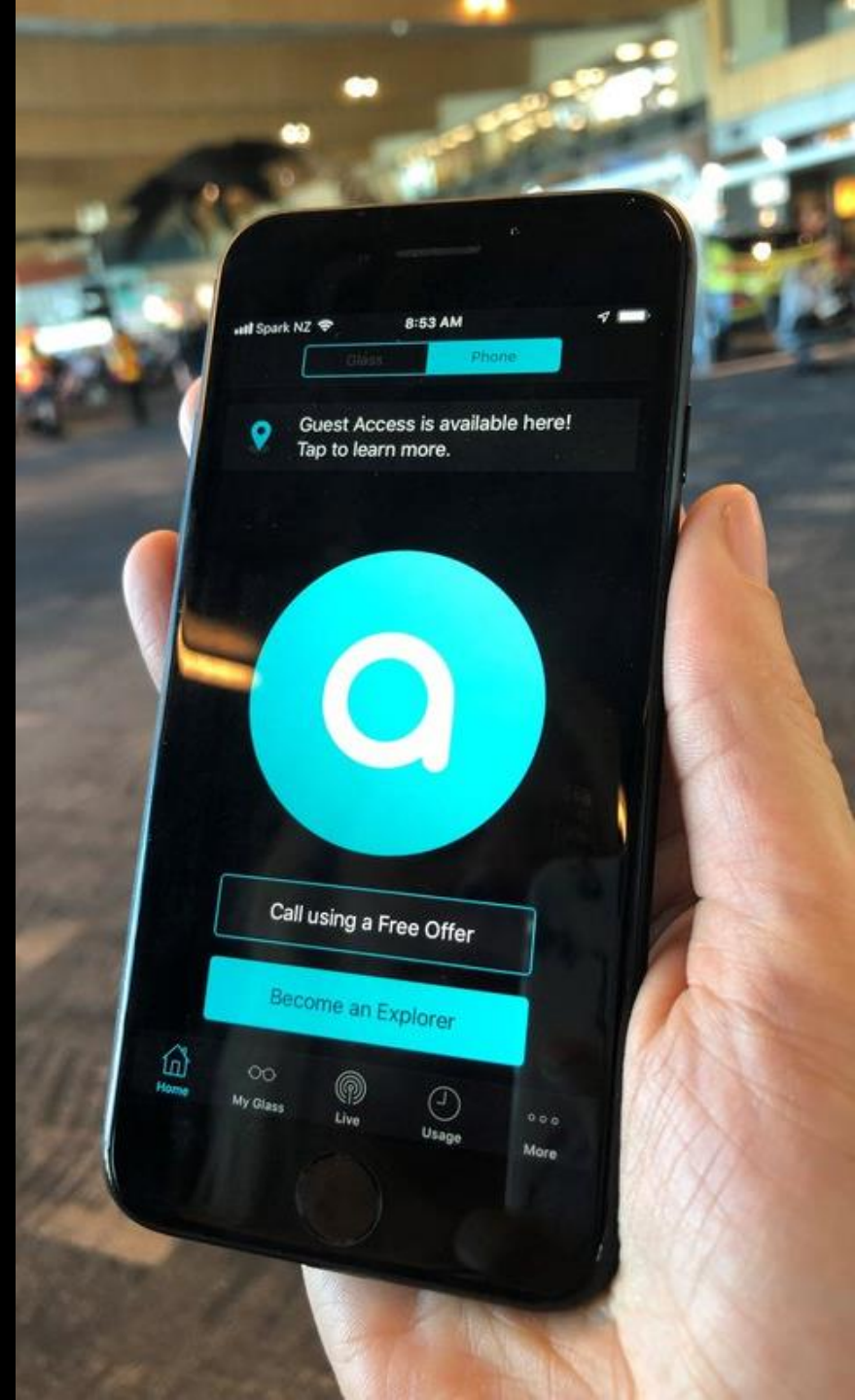
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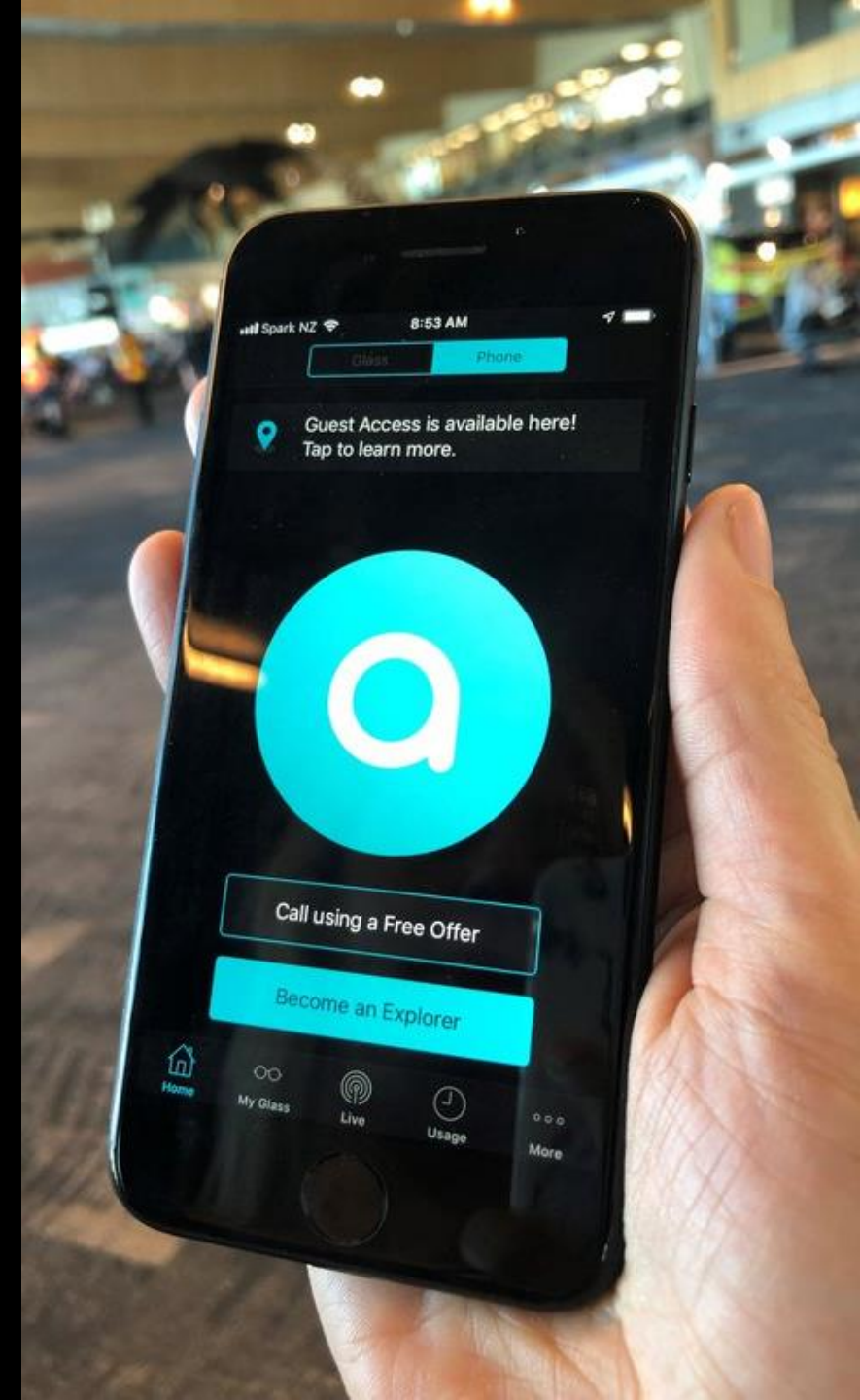


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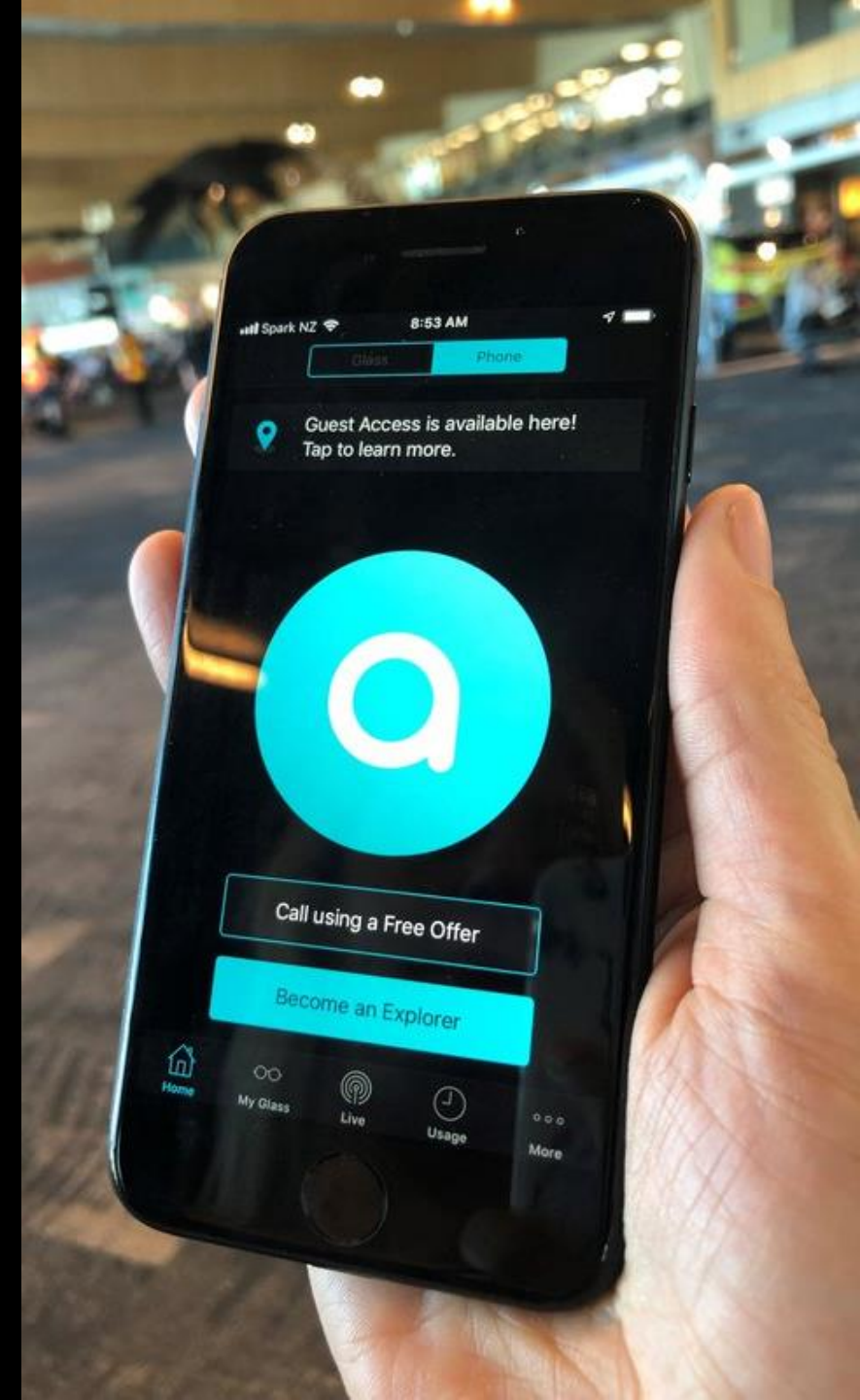
And on top of that [since the app uses the phone camera], I was afraid that people might **perceive me as a weirdo or pervert taking pictures of people and women!** [...]



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Luckily, I found a few other people who were also looking for the group on the beach. I ended the [Aira] call there."

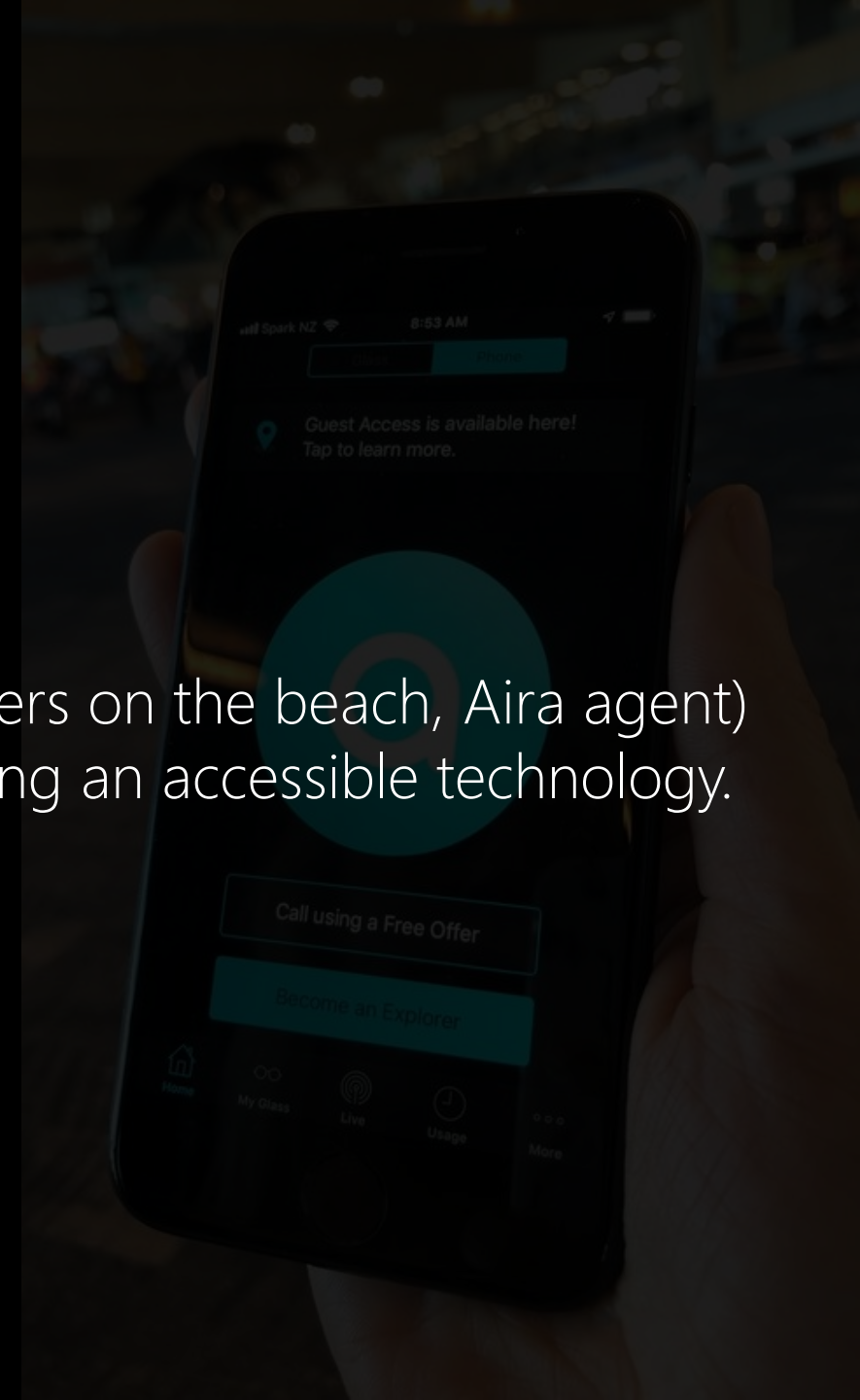


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This example shows **how complex relationships** (with peers on the beach, Aira agent) can cause **issues of privacy and inaccessibility** while using an accessible technology.

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THEMES

1. Self-image
2. Relationships



THEMES

1. Self-image
2. Relationships
3. Technologies

THEMES

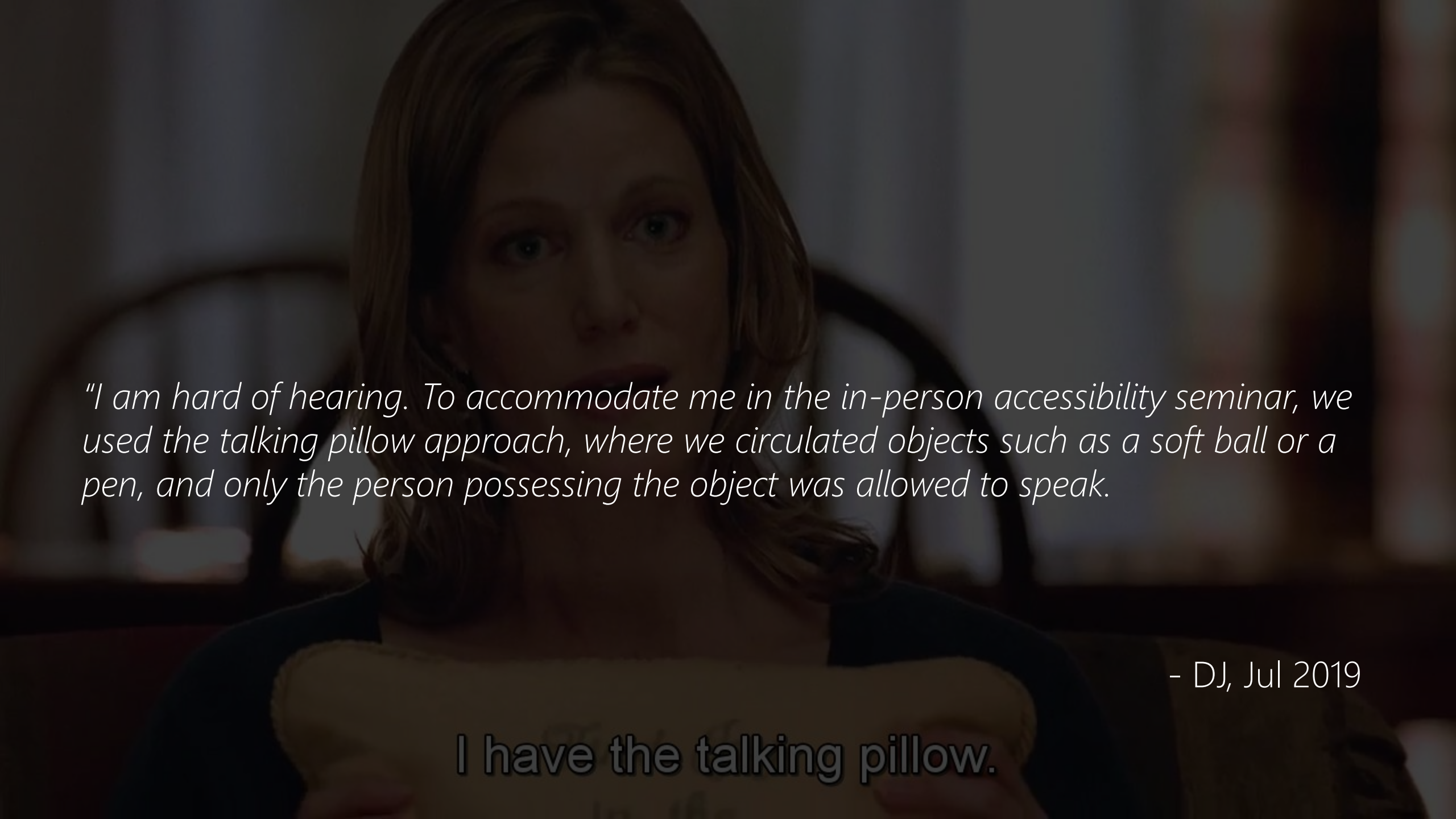
1. Self-image
2. Relationships
3. Technologies

Accessible technologies can cause barriers, specifically when people with different disabilities interact with each other.

"I am hard of hearing."

I have the talking pillow.

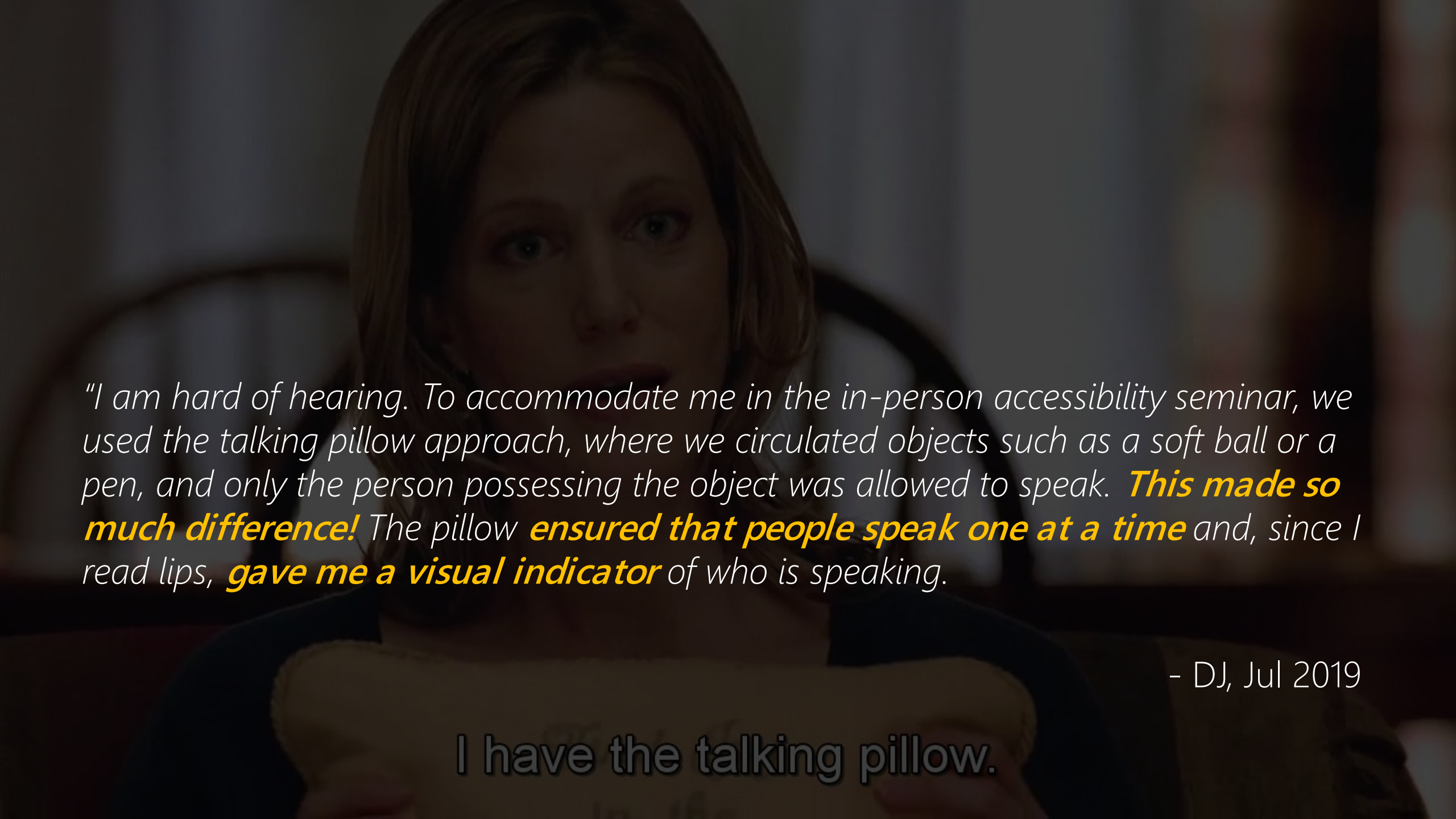
- DJ, Jul 2019

A woman with long, wavy brown hair is looking directly at the camera. She is holding a bright yellow pillow in front of her chest. The background is a blurred indoor setting with a white chair back visible behind her. The overall lighting is soft and slightly dim.

"I am hard of hearing. To accommodate me in the in-person accessibility seminar, we used the talking pillow approach, where we circulated objects such as a soft ball or a pen, and only the person possessing the object was allowed to speak.

- DJ, Jul 2019

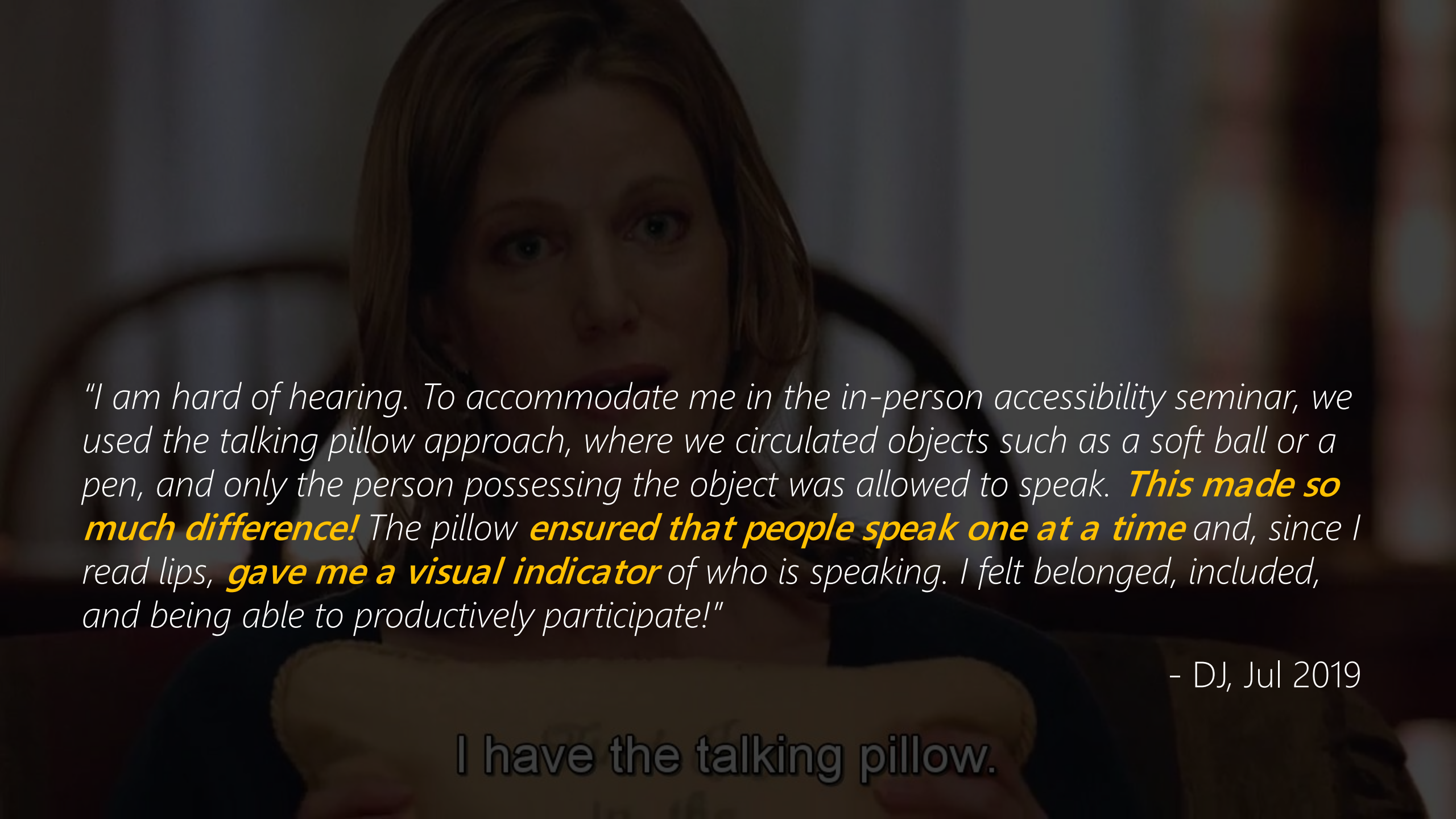
I have the talking pillow.

A woman with blonde hair is shown from the chest up, holding a yellow pillow. She is looking directly at the camera with a neutral expression. The background is a plain, light-colored wall. The text is overlaid on the image, with some parts in white and some in yellow.

"I am hard of hearing. To accommodate me in the in-person accessibility seminar, we used the talking pillow approach, where we circulated objects such as a soft ball or a pen, and only the person possessing the object was allowed to speak. **This made so much difference!** The pillow **ensured that people speak one at a time** and, since I read lips, **gave me a visual indicator** of who is speaking.

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*"While the pillow was really necessary for DJ, it caused somewhat of an access barrier for me because **I couldn't see it being circulated around...**"*

- Venkatesh, Sep 2019

I have the talking pillow.

*"While the pillow was really necessary for DJ, it caused somewhat of an access barrier for me because **I couldn't see it being circulated around...**"*

*"However, I eventually got over it as it was an "accessibility seminar" [...] Many people missed catching the pillow as it was thrown around and so **it became a "funny" playful thing** where people would laugh if anybody, including me, missed catching."*

- Venkatesh, Sep 2019

I have the talking pillow.

Our experiences show how (in)accessibility
really happens in the details using
social, cultural, and emotional negotiation.

While advance planning and care can improve access, **not all situations** can be **accommodated** beforehand.

So, what to do?

“UNCHARTED ACCOMMODATIONS”

In the paper, we propose four **ad-hoc in-situ accommodations**:

1. Proactive customization
2. Effective collaborations
3. Community participation
4. Repurposing existing technologies

Let's together make graduate school
More inclusive!

For more information: bit.ly/navgrad