Group Project 1 - Diary and Interview Study Assignment

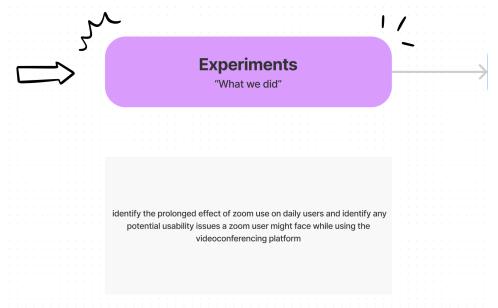
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Introduction

With the pandemic currently in its third year and COVID-19 showing no signs of slowing down, millions of people are logging onto video conferencing platforms to connect with friends and family and keep their careers going. People have no choice but to be online. This sudden shift from face-to-face communication in physical places to meeting online on platforms such as Zoom (the platform being researched for this assignment) has drastically increased our screen time, and while Zoom is genuinely a fantastic platform and was there when the world needed it, most its effect on people's mental and physical wellbeing is undeniable.

As a group, we talked about feeling tired after back-to-back Zoom meetings and how some sessions were more engaging than others for many reasons. Still, we wanted to know how other people's Zoom experiences were and the prolonged impact of using the platform. The purpose of this study is to identify the prolonged effect of Zoom use on daily users and identify any potential usability issues a Zoom user might face while using the videoconferencing platform.



Q: How did recruitment go? What was easy or challenging about it?

Once we finalized our research question as a group, we decided to tap into our network for participants for the study. Each group member reached out to one person they knew used Zoom heavily and asked them to participate in this short study. In addition, each group member was tasked with briefing the participant they reached out to about the study's goal, the expectations, and the timeline. We felt that reaching out to our network to look for participants for this study would be the easiest way to find people to participate. Participants were presented with a consent form, asked to participate in a small diary study, and asked to participate in a thirty-minute interview.

Diary Study Methodology

For our diary study, we wanted to determine how many hours on average participants were using Zoom and how they felt before and after using the platform. Our goal was to gauge the participants' mood to see if there is a correlation between prolonged Zoom use and the user's mood. We developed four broad and sufficiently descriptive questions to elicit the exact information that we were looking for about Zoom use and the participants' overall mood (see Appendix A).

We chose only four questions because we wanted the diary to be easy to fill out for participants at the end of the day for three days while not being an "extra burdensome action item" for them. We also thought it was essential to collect some initial data before finalizing our interview questions. Three of the Diary Study questions were answered with a series of Emoticon Responses and a single openended answer question.

We created a consent form using Google Forms and sent it out to participants via email, and we used Survey Monkey to conduct the diary study. (See Appendix A) For three days at 8 PM EST, one of our group members sent out a text message to participants reminding them to fill out their responses in their "diary," and participants had until 9 PM EST to fill out their "diary" for the day.

Diary Study Findings & Insights

FINDING: Prolonged Zoom use is associated with negative feelings.

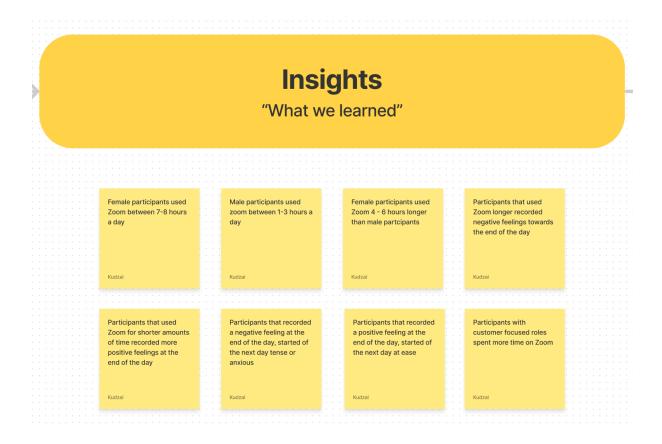
Diary entries revealed that participants mostly felt " - At Ease" before using Zoom on the first day and participants that recorded shorter hours of Zoom use (between 1-3 hours) on average felt - Cheerful at the end of the day and even described their Zoom experience as "good" or "effective." However, participants the recorded longer hours of Zoom use (between 6-8 hours) on average felt - Tired at the end of the day and described their Zoom experience as "exhausting" and "draining."

Facts

"What we found out"

Everyone felt at ease "Feeling at ease before "Feeling cheerful after an "Feeling tense after 7 before zoom meetings on Zoom meetings" hour of Zoom use" hours of Zoom use" daay 1 Kudzai Kudzai "Feeling exhaused after 8 "Zoom experience is "Zoom use beyond 1 hour "Between 1-3 hours is the hours of Zoom use" numbing" is draining & debilitating" swet spot of Zoom Use" Kudzai

Below are some more insights from the diary study that we synthesized from the facts above. On average, female participants in the study spent 4-6 hours more on Zoom than male participants, which could be because of their customer-facing roles in tech. Another key insight we discovered was that participants who reported a negative feeling the previous day reported the same feeling the following day before using Zoom:



Q: Was a diary study an excellent way to answer the question? Why or why not?

We feel that a diary study was an effective way to gather initial data to test our hypothesis. While our questions were not as "in-depth" as some diary study questions, they helped us get a "sneak peek" into the participants' lives and helped us answer the short-term how and why. The diary study was a good place to gather initial data to tackle this question. Still, it was not a good way to answer this question in retrospect because we could collect so much more data and contextual information from the interviews with participants.

The diary study went well, and all participants were clear about our expectations and submitted their responses on time; we didn't have to chase down participants for responses. This is likely attributed to the existing rapport between participants and group members. The most challenging part about the diary study was getting started and developing short yet effective questions. We debated for some time before we came to a consensus on the questions in Appendix A. Once we agreed on what information we wanted to gather and the questions we wanted to ask, the process was much more manageable.

Teleconferencing and "Zoom Fatigue"

All participants' Zoom usage was mainly for their employment. Some used Zoom for secondary purposes, such as local arts programs, fellowships, and gaming.

In most cases, Zoom isn't the only teleconferencing software being used.

Most of the participants also use a mix of video conferencing technologies such as Microsoft Teams, WebEx, Google Meet, and Skype, which is primarily determined based on "application." One participant, an attorney in the Pacific Northwest, has to juggle multiple teleconferencing packages due to each jurisdiction (county, court, etc.) choosing to conduct matters on a specific platform:

"Yes, so not all the court systems have adopted Zoom"... "They use it (Microsoft Teams) because it's cheap and free with Windows. Like that's what it comes down to, you can have unlimited calls or meetings..."

Another participant utilizes different platforms based on need: Google Meetings for internal company meetings (on G-Suite), whereas they tend to use Zoom for more one-on-one communication or informal meetings with co-workers. The mixed usage of Zoom and other video conferencing packages aside, the interviews did yield some themes that could be associated with a phenomenon known as "Zoom Fatigue." In short, "Zoom Fatigue" is the physical or emotional (mental) exhaustion that a person may feel after video conferencing sessions.

Being sedentary causes physical fatigue.

All participants reported experiencing physical fatigue due to being sedentary and viewing a screen for long periods. While this is true for many professions, the action of not being able to get up and move and feeling tied to a desk can be exhausting for many. Typically, in-person meetings involve standing, moving, and pointing, especially during presentations. Even so, when meetings are done in-person, employees typically stand to go back to their work areas and have other opportunities to move about the office during the day. Below are some similar comments from participants regarding their physical activity during the day:

"... it's physically tiring to just sit constantly with your legs, in the same position you can't really move much..."

"I think it's more of like a physical fatigue, just, you know, you like, a person can only spend so many times in so many hours in front of a screen."

"But sometimes I want to run because I haven't been physical all day, and I just need to get it out of my body."

"... you're like sitting on the same chair, and your back will definitely hurt after a certain time..."

One participant stated that a feature that might help combat this would be physical activity reminders, similar to how wearables (such as the Apple Watch) remind you to stand up or move around. Physical exhaustion wasn't the only common theme as emotional (mental) exhaustion occurred as well.

Constant attention on awareness is emotionally exhausting.

One striking theme is that there is a level of stress about having a "perfect" session, causing participants to concentrate on a higher level of awareness regarding their surroundings. In reviewing the four participants' transcripts, they were very concerned with their backgrounds, ensuring they're on mute, ensuring their video is on or off when appropriate, and displaying the correct information on screen if sharing their screen. Two participants found it unsettling to have to look at themselves constantly. One participant had concerns regarding knowing if they were on mute or not, as they felt that it was not prominently displayed:

"Yeah, I think just showing (mute status) on the screen, like somewhere a little more prominently, when it's up there all the time."... "Because otherwise, unless you move the cursor down and the taskbar shows up, you don't see it."

While another participant seems to be constantly worried if they're on mute or not:

"... I actually say I get so nervous. If I'm off mute, I always get so nervous I get like, I always think that I'm off mute when I'm not.

One of the participants' employers has even made it a point to give feedback regarding their employee's teleconferencing backgrounds:

"And I always am looking at my background because we've been chastised at work for not having a perfect background. So, you always have to, because we work with, I work with, like more executive-level people that are really particular."

One of our participants was more of a perfectionist and has developed their own "rig" using hardware, video production software (OBS), multiple cameras and microphones, and Zoom features to ensure their sessions are near flawless while being effective in communication, collaboration, and

presentation in their specific line of work. Despite their advanced setup, they still have to remain present and conscious with their delivery:

"...especially if I'm on or if I'm needed where people need to look at me in court. I have a very particular decorum. Like I'm drinking coffee in front of you right now, I would never do this in court."

What's interesting about this last quote is that the participant has to be aware of the comforts of their home while working over a Zoom session.

Participants also found having to constantly look at or observe themselves during teleconferences was a contributing factor:

"...my brain is so tired of monitoring myself. Like, that's something I never had to do is watch myself talking to people about really important things."

"...I find myself looking at myself all the time. Like I don't want to be doing something that's weird or wrong or goofy..."

This constant awareness and "perfect delivery" scenario introduce stress and fatigue. Having to constantly worry about video or audio status, knowing if the mic is on, if the correct screen is being shared, if the background is "good enough," and maintaining a level of decorum or appearance has to be at a higher focus than if the meeting was face-to-face. This focus, almost leading to possible paranoia, could potentially take away from attention to and quality of their work. This is speculation; more research for this specific scenario would need to be conducted to prove or disprove that hypothesis, but interesting to consider, nevertheless.

Other Reflections

All participants found using Zoom convenient and stated that they felt the application helped them and their profession in some capacity. Participants reported finding the ability to contact people quickly and efficiently, making it possible to continue working and interacting with their colleagues in remote settings across different time zones. They reported having saved time that they would typically spend traveling.

Despite competing teleconferencing applications, all participants reported finding Zoom to be the best option to support their professional needs. Various features that made it effortless to use, such as the chat feature and the ability to 'turn off' both video and audio, made it possible for people to participate in large meetings.

An increase in screen time feeling anxious over physical appearance was one factor that participants felt aided in emotional exhaustion. Anxiety over the mute buttons and video cameras being

turned on when not intended induced more stress. Some participants also indicated that they were worried about their background and any disturbances that may be visible on call, which also contributed to their anxiety.

Fifty percent of the participants belonged to the tech industry (worked in tech-based companies). They reported using video teleconferencing and Zoom before the lockdowns and remote working conditions. Interviews with them indicated a more readiness to accept the application in inperson conversations and meetings, which highlights that people who already had job descriptions with more screen time were less fatigued. Whereas in professions where the use of tech wasn't a necessary aspect before, people seemed to be more agitated over the use of video teleconferencing in place of inperson communication.

It can be further noted that participants that were quick to learn the application and explore its various features were more confident with its use. Their confidence took away some of the stress of being online constantly. Willingness to master the tech is an additional aspect of work.

While most participants stated that the app allowed them more flexibility and gave them more time to pursue other tasks, they also mentioned that it prevented them from making spontaneous plans with their colleagues. Brainstorming and casual social interactions are decreasing in work life, and some participants did not enjoy that.

Conclusion

So, what did we learn about people's video teleconferencing use?

Based on the interviews and the diary study conducted for this research, it can be concluded that the general sentiment about video teleconferencing and Zoom was positive. Zoom was able to efficiently help people with their daily meetings and tasks when remote work was required. However, prolonged use of Zoom seemed to have led to the phenomenon known as "Zoom Fatigue." Participants that spend an average of six to seven hours on Zoom daily were physically and emotionally fatigued. Participants that used it for an average of two to three hours found it less fatiguing. As previously stated, one participant suggested that maybe the inclusion of a feature that would send out reminders to go for a walk, take a break, have a meal, etc., after using Zoom for a specific time limit would help reduce the extent of exhaustion. This may be something to consider. It can also be concluded that the fatigue resulted from an increase in screen time and desk-bound work style as opposed to being fatigued by the actual application. While the application allowed working from anywhere, it restricted the nature of relationships amongst work colleagues.

Appendix A

A1. Diary Form

Zoom	Diary	Stu	dy

Thank you for agreeing to participate in this 3-day Zoom diary study. It is very short and should not take you more than 3 minutes to complete.

You will receive this diary/survey via text from Kudzai for the next 3 days at 8 pm EST. survey completed by 9 pm EST.	Please have this
Thank You!	
Vandana, Matt, Aabha & Kudzai	
OK	
1. Hi there, ** please enter your first name	
John Doe	
2. Can you estimate how much time you spent on Zoom today?	
4-6 Hours	

3. Please select one of the emojis below to indicate	how you felt BEFORE using Zoom today.
Enthusiastic	
@Cheerful	☐ ⊝ Tense
eAt Ease	☐ ⊝ Tired
4. Please select one of the emojis below to indicate	how you felt AFTER using Zoom today.
	□ ⊜Down
Cheerful	✓ ⊝ Tense
☐ ○ At Ease	☐ <mark>⊗</mark> Tired
5. In one word, please describe your overall experier	nce with using Zoom
Tiring.	
DC	DNE

A2. Interview Protocol:

Objective: The effect of Zoom use on daily Zoom users.

interview type? – Open-ended

I. Introduction:

Thank you for agreeing to chat with me. I look forward to learning more about your experiences with using Zoom. Before we continue, I want to say that I am not affiliated with Zoom in any way. Also, there are no right or wrong answers, so please feel free to be very open about your experiences.

[Introduce yourself and the notetaker, the goal of the study, informed consent process]

Do you consent to be recorded?

Thank you, just to let you know, all of the information recorded will be used for research purposes, and your responses will remain anonymous.

So, let's get started!

II. Warm-Up

- How often did you use Zoom in the last week?
 - Additional questions:
 - What do you use Zoom for?
 - Do you use it on your mobile device/tablet or your laptop?
 - (Probe) Is there one that you prefer over another?
- How do you feel about using Zoom?
- Can you walk me through your experience with the last time you used Zoom? (Feel free to go into as much detail as possible)
 - (Probe) Expand on experience(s) with using Zoom?

III. Body:

- How do you feel about using Zoom in place of face-to-face (in-person?) communication?
- Have you ever used Zoom in a public setting?
 - (Probe) If so, can you elaborate more on that?
- Describe your experience with the muting features of Zoom (audio and/or video).
- Can you tell me what you enjoy about using Zoom?
 - (Probe) If the answer is broad (e.g., "I just don't like it," ask for specific examples).
- Can you tell me what you don't enjoy about using Zoom?
 - (Probe) If the answer is broad, ask for specific examples.
- What would your ideal experience with Zoom be like?
 - (Probe) Based on your experience, is there anything you would change to make it better?
- I see you described Zoom in the following words (*words from diary study*). Can you please elaborate on those responses?

- Have you had any fatiguing experiences while using Zoom, and if so, can you describe them?
 - (Probe) Probe further (e.g., try and figure out if it's emotional or physical).
 - (Probe) How often do you feel too tired to do other things after Zoom calls?
- If you were to make Zoom more valuable, what would it be like?

IV. Cooling Off:

- Is there anything else that you'd like to add?

A3. Relevant Transcriptions:

A - Aabha

P1 - Participant 1

P2 - Participant 2

P3 - Participant 3

P4 – Participant 4

Section 1: Multiple Video Conferencing Apps:

A: Are there any other video conferencing? Since you mentioned that you were working remote before as well, is there any sort of app that you use? I mean, any sort of other platform other than Zoom that you use for video conferencing?

P1: Yeah, I think before this, we, I mean, I primarily used to use forget what it's called now. My God. Now. Sorry, Pango. It's Friday and my mind. Google, Google meets Google meet. Exactly. Yeah. Yeah. Oh, okay. So that's.

A: So, you used to use Google meet as well?

P1: Yes.

A: Yeah. Right. So other than Google meets, so basically, you have used other sort of apps. Before using Zoom, right?

P1: Yes, I have.

A: having said that, to me, is the sort of way in which you now have your meetings. Do you think Zoom is a good substitute for face to face? or in person meetings or conversations right now?

P2: Oh, yeah, I mean, its good product, it's, I think that as better as you can get. I don't know I personally haven't tried a whole lot of different meeting features, no meeting applications other than Zoom, like I tried Google meet before, but that was like three years before envoy was different that time, so I don't know how me performs now. Like, I've used Skype in recent times, which is good enough. I mean, it's all all these are like very similar products, you know, some features here and there. But mostly, it's like, if you want to replace in person, and it's like your laptop's camera, and you can be a little fancy with, like, getting a separate microphone, which is like noise cancelling. And like, you can work around with a green screen behind you, like do some fancy things with video. But, you know, that's, that's, that's some add on which you can do on your own. It's not something which comes by default built in into the application, which you're using. But, but yeah, I mean, it's as good as it gets. It obviously can't replace in person. Experience. But, yeah,

A: And apart from this week, like, if I had to just ask you have a general question, how often do you use Zoom?

P3: I use it. I mean, honestly, during the nine to five workday, I use it every hour. So like, now I think about it in some way, in some way. So like, when I was kind of answering externally, when I think about it. There's some light days, but like, we use, we use a variation of Zooms like that's for slack only. Okay. So it's not Zoom itself, but it is a video app. That is the same functionality. Basically.

A: That was actually my next question that apart from Zoom, do you are you on other video conferencing? Because you know,

P3: yes, so we actually don't use we use Zoom for large webinars or external events, like, and that's probably three times a month. And we use Google meats for all of our meetings, just because we integrate with Google Calendar.

A: Got it? And I mean, so would you say that you primarily use Zoom for work?

P3: Yes, yes. Yes. And then I use FaceTime for any like long distance relationships or friendships.

A: So, other than which is again another question that we already have, as well as the point that you mentioned, is that, apart from Zoom do you do you use any other sort of collaborative video tool or APP for your work.

P4: Yes, so not all the court systems have adopted Zoom. Only because they're cheap and dumb. Because I one of the courts that i'm in is uses Microsoft teams which is decent because a lot of people have Microsoft products but it's a pain in the ass if you're a MAC user or if you're a chromebook user also it sucks on your phone. They use it, because it's cheap and free with windows like that's that's what it comes down to you can have an unlimited call or meeting what everyone call it.

Section 2: Physical Fatigue:

A: Which was actually, I'm so glad you mentioned that, which was actually my next question, which was going to be that, you know, this, have you ever had like fatigue and experience using Zoom? And if so, then, you know, there is always like, different kinds of fatigue, right? Like, you can be emotionally fatigued, or like, you know, physically or just maybe just fatigued of like, social interaction just don't want to be social today. So have you experienced those while using Zoom in? I mean, I'm sure you have now that you mentioned.

P1: Yeah, I mean, it's not more it's, I think it's more of like a physical fatigue, just, you know, you like, a person can only spend so many times in so many hours in front of a screen. So. And again, as I said, like the fact that we've been remote for so long.

A: It definitely does.

P1: Yeah, it takes a toll on your body.

A: Yeah. It takes a toll on your body.

A: Okay, and this is just so sorry, but just going back to one of the questions that are asked before that about experiencing fatigue while using so do you mean in case you have? Or do you find yourself to be more exhausted, physically from using Zoom? Or is it more of like an emotional exhaustion? Or is it just work related exhaustion, but not really related to Zoom?

P2: to work and physical fatigue, you're like sitting on same chair and your back will definitely hurt after a certain time, mental stress will be because of the kind of work or the pressure situation you are in. But again, that's totally, totally because of the work and not because of the Zoom itself.

A: On it. So then just to like, categorize this. Would you say like this fatiguing experience is like physical, emotional, you know, sometimes it just can be like a communicative thing. Don't feel like being social or, like you mentioned, you have an aversion to screen after so is it a fatigue from which one exactly, or all of them?

P3: Actually, it's, I would say, definitely emotional and mental is first mental fatigue, for sure. And then emotional is my second because I just like, I've been trying to like pick myself up all day to keep going. And then at the end of the day, when I don't have to have that mask, I just like melt, my brain melts. But sometimes I want to run because I haven't been physical all day, and I just need to like get it out of my body.

A: Have you experienced any sort of fatigue and I don't want to be like using Zoom I don't want to like kind of lead, you on but, like you know it can be anything like it can be emotional physical, but like you know, like like fatigue from using too many screens or just don't want to be social probably you know.

P4: um yes so. When we first started with Zoom it was really tough for a lot of folks because they just weren't custom to looking at screens, as a lawyer, I read all day on a screen. And I have you know you a speed on the phone all the time, in fact I have like a headset that I were all the time because of that Zoom.

I refuse to wear headphones unless i'm in public right because I can't talk about things in public, sometimes, so I don't wear headphones when i'm doing Zoom when I do, I have a pair of bluetooth headphones that are super secret you can't even see them in my ear. They use like a bond conductivity to connect my voice, I have this big microphone right here that I use for for all my for all my Zoom calls.

But i've done a lot of those things to eliminate some of that fatigue right. I definitely do get fatigued the day yesterday, where it was irritating it was irritating because I was, I was tired and I was very fatigued both emotionally and mentally emotionally and physically because, physically I can't get up from where i'm at and present in a courtroom I can get up, I can walk around I can do things.

When i'm here if, especially if i'm on or if i'm needed where people need to look at me I in court, I very particular decorum like i'm drinking coffee in front of you, I would never do this in court.

Section 3: Emotional (Mental) Fatigue:

A: Okay. Okay. And so now I want to ask you a few like specific questions like I asked you what you liked about some what you dislike about, you know, using Zoom, I wanted to ask you, How comfortable are you? Or how often or what do you feel about the fact that Zoom has the sort of muting feature where you know, you can stop your audio, you can stop your video? Do you find yourself using Tara law?

P1: Like, muting myself?

A: Yes. Like, you know, you can turn the audio off, turn the audio on? Don't Same with the video.

P1: Yeah, it's convenient. I think the one thing that Zoom hasn't figured out is a way to show whether more prominently whether you're on mute or not.

A: Oh, you always have to keep checking.

P1: Yes. So. So yeah, I mean, I do use that feature every day. So

A: Got it. So that, which brings me to my next question, is that do you have like a suggestion or like a recommendation? Or how better can Zoom make their app? In the sense that like, is, would this be like a recommendation that you have for the app?

P1: Yeah, I think just showing on the screen, like somewhere a little more prominently, when it's up there all the time. You're on mute or whatever, like got your audios on or something like that? Because otherwise, unless you move the cursor down and the taskbar shows up, you don't see it.

(Participant 2's response section on physical fatigue above included the relevant areas of mental fatigue as well).

A: Okay. And I'm just like, off track from this. Have you ever used Zoom in like a public setting? Since you mentioned that? You know, coffee shops? Yes, you have.

P3: Yeah, I'm always like, super awkward. Like, I will like shield my camera. Every time someone walks behind me. I'm like, sorry, sorry. Um, yeah. And you have to get like the perfect space and

A: got it. So then in that case, I'm sure you must be like you're using like the muting features on Zoom a lot.

P3: Yeah, it's, I actually say I get so nervous. If I'm off mute. I always get so nervous I get like, I always think that I'm off mute when I'm not. And I always am looking at my background because I like we've been chastised at work for not like having a perfect background. So you always have to, because we work with, I work with, like more executive level people that are really particular.

A: And I can see in your diary study that you mentioned that the Zoom are working on using Zoom has been so far, exhausting and draining for you, would you? Would you, like elaborate on that?

P3: Yes, after my day, I'm so tired of the screen. And I'm so tired of my brain is so tired of monitoring myself. Like, that's something I never had to do is watch myself talking to people about really important things. And also, there's another added filter or layer to that, which is I have to talk to people that are like, several levels above me. And so every single word I say, and every like intonation I have, in every facial expression I make has to be curated, so to speak. So I, I'm just so tired, like, I usually take a nap, or I just do something that doesn't have a screen for like an hour, two hours, even before I'd even able to like feel like a normal human again.

(Participant 4's response section on physical fatigue above included the relevant areas of mental fatigue as well).

P4: I find that to be, I find myself one I look at myself all the time. Like I don't want to be doing something that's weird or wrong or goofy, especially with the mirroring system. When I was pointing at stuff I'm pointing backward right. That takes some getting used to, but also, I do think.

A4. Consent Form

Zoom

Research Participation Consent Form

This study is being conducted by students from Drexel University in INFO 690 User Research Methods to gather information on zoom usage. Please note this research study is not affiliated with zoom.		
Do you voluntarily agree to participate in this research study? * Yes		
I can withdraw from this research study without consequence. Should I withdraw all collected * data will be deleted from the study. Understand		
My participation involves 1 three day diary study and a 30minute zoom call. *		
I agree to my interview being video and audio recorded. * Yes		
My identity will remain anonymous in the results of this study. *		
Please type your name below as confirmation to your consent of participation. * Short answer text		