How Text-based Communications Affect the Experiences of People who are Blind or Visually Impaired in the Context of Telework

Research Report for Analyzing Relationships Between Disability, Rehabilitation, and Work (ARDRAW) Small Grant Program for Graduate-Level Research 2021-2022

Kelly Bleach
Doctoral Student
Graduate School of Leadership and Change
Antioch University

Faculty Mentor: Mitchell Kusy, Ph.D.

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Abstract

Companies have been increasingly turning to text-based communications to recruit, hire, and manage a distributed remote workforce. This has been particularly true in the era of the COVID-19 remote and hybrid workplace. For people who are blind or visually impaired, this movement presents both challenges and opportunities for attaining and retaining employment. Using thematic analysis of qualitative data gathered from interviews with 18 blind professionals, this study explored how the use of text-based communications affected their workplace experiences, in the context of remote or hybrid work settings. Findings indicated that text-based communications are integral to workplace collaboration and relationship-building, supplementing and sometimes supplanting in-person and audio and video mediums. While individuals missed in-person socializing, they found ways to stay connected with colleagues, frequently through messaging applications. Several participants expressed appreciation for the ability to communicate and collaborate through text-based workspaces without necessarily disclosing their disability, mitigating stereotypes and stigmatization experienced by people with visible disabilities. However, working in text-based applications sometimes resulted in digital accessibility and usability challenges, prompting the phenomena of device and medium switching. The extensive use of text-based workspaces during pandemic telework has resulted in communications norms that are highly likely to continue as companies organize as some combination of remote, hybrid, and in-person organizations. Employers and employment training and support programs in vocational rehabilitation agencies and employment networks can benefit from ensuring their policies and practices account for the experiences of people who are blind or visually impaired in the modern multi-medium workplace.

Introduction

The workplace is rapidly changing, and with it an explosion in reliance on text-based communications. Even before the COVID-19 pandemic-driven mass migration to work from home, companies were recruiting and interviewing the smartphone generation via text messages and distributed organizations utilized e-collaboration applications like Microsoft Teams and Slack. As remote work becomes commonplace, full- or part-time telework arrangements may be a more conventional option for people with disabilities. People who are blind or visually impaired (B/VI) have reported experiencing isolation from coworkers, and this may be amplified in remote working arrangements. For people who are B/VI, there appear to be both opportunities and challenges to participating in text-based workspaces. It is crucial that employers, vocational rehabilitation (VR) counselors, and employment network (EN) programs consider both the social and the technical aspects of text-based communications.

This paper will describe the current employment climate for people with B/VI, including the state of telework and the use of text-based e-collaboration applications. Relational dynamics associated with full participation in the workplace are discussed, as well as the role of VR and EN programs in supporting and connecting employers and people with B/VI in this virtual workspace. I will follow by introducing my research question and the methodological framework for the study. Finally, I present the findings and discuss implications of the study for informing policies and practices to facilitate inclusion and success in the workplace for people who are B/VI.

Employment of People with Visual Impairments

More than half of working-age people with B/VI are not in the labor market (they are not working and not seeking work). Only 44% are employed, compared with 73% of those without disabilities. The high percentage of people not participating in the labor force may represent people who feel they cannot work because of their disability, people who choose not to work for fear of losing disability benefits or discouraged workers who have given up on finding a job (American Foundation for the Blind, 2018). As a result of the COVID-19 pandemic, in March to May of 2020, workers with disabilities lost nearly one million jobs, a 20% decline compared with a 14% decline for workers without disabilities (Livermore & Hyde, 2020). An April 2020 survey of people who are B/VI about the effects of COVID-19 on their lives revealed that of the 1,801 people reporting their employment status, 705 (39%) were employed and 159 (9%) were now unemployed as a result of workplace closures or layoffs due to the pandemic (Rosenblum et al., 2020). It is still to be seen what the longer-term economic fallout will be for people with B/VI. Many of these layoffs may result in applications for SSDI and other public benefits and permanent separation from the workforce. Most of the survey participants who reported they were employed said that the move to working from home had affected their work in some way. Challenges described were accommodations needed for remote work, accessibility problems, and loss of productivity.

Remote Work and Use of Text-based Communications

Over the past decade, remote work has continued to grow, transforming from occasional work-from-home arrangements to some companies organizing as entirely virtual. Following the move to a mostly remote setup in response to pandemic shelter-in-place policies, a number of companies (e.g., Facebook, Twitter) announced that they will extend remote work indefinitely for many employees. There are competitive business reasons to embrace the trend, such as

employee satisfaction, attracting talent wherever potential employees reside, cost savings from eliminating real estate expenses, and working near the customer base. For employees who are B/VI, remote work arrangements may serve as a disability-related accommodation that mitigates challenges such as transportation, which became an even more significant barrier as a result of reduced service options during the pandemic (Rhoads et al., 2022). As in-person interactions diminished, organizations turned to technology to facilitate collaboration and to recreate water-cooler experiences to reduce the isolation of telework.

The Wall Street Journal reported that global weekly downloads of business apps like Microsoft Teams on smartphones surged from around 33.7 million in early October 2019 to 80 million in mid-April 2020. Further, Slack "threatened to become the place where people spent the bulk of their time" (Tilley, 2020). Microsoft reported that instant message chats increased within internal groups by 65% to 72% after beginning remote work in comparison to pre-COVID rates (Teevan et al., 2021). In an April 2020 survey of people with B/VI, a participant noted that, "Because of working remotely, I'm using [Microsoft] Teams extensively, and have begun to use Slack" (Rosenblum et al., 2020).

There are numerous factors that may be at play when a person who is B/VI is using text-based communication in the workplace. For instance, the experience may be affected by whether they have previously met face-to-face with the person they are communicating with, the availability of an interface that is accessible/usable by someone using assistive technology (e.g., screen reader or magnification software), or the expectations of the team and/or organization (e.g., synchronicity, frequency). Investigating the factors at play and their consequences can inform policies and practices within organizations and advance the full inclusion of people with B/VI in the workplace.

Research studies have found that because text-based communications offer the potential to engage collaborators without seeing the physical features of their partners, stereotypes are less likely to be aroused (Walther, 2009). Findings from a study by Bowker and Tuffin (2002) indicated that people with disabilities felt the online medium offered them a space where they could express themselves without being judged based on their impairment, allowing them to be treated as a person rather than a disabled person. If a person with a visible disability, e.g., visual impairment, is able to manage the construction of their workplace identity through the use of text-based communications, work relationships can be built upon collaboration, respect, and mutual support.

Succeeding at Work

Building relationships has important implications for succeeding at work. According to Casciaro and Lobo (2008), people in the workplace seek out resources from someone they feel positively toward. People appear to need active liking to seek out task-related resources from potential work partners. Interpersonal affect includes emotional reactions that can develop rapidly and without extensive interaction. As described by Kenny and La Voie (1982), we expect people who seem to be warm and friendly to like us and we like them in return, even when we have not had direct contact with that person.

Evidence suggests that building relationships in text-based spaces democratizes the workplace, affording everyone on the distributed team an equal opportunity to accumulate social capital. Putnam (2001) explained social capital as the "connections among individuals—social networks and norms of reciprocity and trustworthiness that arise from them." It is an important asset used to find support and advance careers. Bassey et al. (2019) found that Nigerian adults who lost their vision experienced enhanced "bonding" social capital with family members but

reduced “bridging” social capital resulting in diminished relationships with managers, coworkers, friends, and others in the community. They suggested that VR services place greater emphasis on social goals, such as building and maintaining social networks with coworkers and members of their communities.

The importance of networking is highlighted in the Ticket to Work program. Ticket to Work is a free and voluntary program offered by the Social Security Administration to assist people receiving disability benefits in beginning or returning to work. Guidance in Phase 3: Getting a Job includes Networking as a Way to Success. Another subsection emphasizes Brushing up on Your Work Skills. This includes the soft skills and the hard skills, reflecting the importance of both the social and the technical aspects of successful employment (Social Security Administration [SSA], 2022). Persons with B/VI who wish to attain or retain a job may rely on a VR program or EN to provide applicable employment preparation, support, and connections. Thus, VR counselors should understand the importance of text-based applications in building and maintaining workplace relationships for people with B/VI.

Research Gaps and Research Question

Research is limited on promising practices, and only a modest number of studies focus on the employment experiences of people who are B/VI. Specifically, very few investigate telework, and to my knowledge, none speak to the experiences of employees who are B/VI using text-based communications. There have been a number of general-population studies that discuss remote work, recently in light of the pandemic. There are also studies that explore text-based communications, including quasi-experiments that assess its potential influence on stereotypes and bias (Alvidrez, et al., 2015; Stiff, 2017; Walther, et al., 2015). The intersection of employment for people with B/VI, working remotely in distributed organizations, and relating through text-based applications is a topic that is especially relevant now and ripe for investigation. For this study, my underlying inquiry was how has telework and the use of text-based communications affected the workplace experiences of people who are B/VI.

Methodology

This study was a secondary analysis using a subset of qualitative information I had collected for another research project and utilized a different methodological framework. In this investigation, the framework used was ethnographic, and the focus was thematic analysis of the data specific to experiences with remote and hybrid work. The data was examined within this context to identify common topics, ideas, and patterns.

Qualitative Research and Disability Studies

Qualitative research is often an effective approach for disabilities studies as well as for diversity, equity, and inclusion (DEI) topics. The social model of disability views disability not as a condition characterizing individuals who have limited functioning but as the product of the interaction between individuals and their surroundings. Qualitative methods address the complexities of the disability experience, with the power to describe and illuminate the interdependence of human interaction, cultural attitudes, institutional processes, and public policies (O’Day & Killeen, 2002). Study participants speak in their own voices rather than conform to words or categories chosen for them by others.

Participants and Procedures

In this study, participants were drawn from a purposeful sample of employed professionals who are B/VI, age 18 and older. Individuals had worked in a remote or hybrid work environment and used text-based communications applications in the workplace. Examples of these technologies included email, messaging apps such as Microsoft Teams and Slack, smartphone text messaging, videoconference chat in Zoom and other meeting applications, and social media such as LinkedIn and Facebook. For the purposes of this study, B/VI was defined in accordance with the American Community Survey (ACS) as "blind or has serious difficulty seeing even when wearing glasses" (United States Census Bureau, 2021). The intention was to include a demographically diverse sample, while recognizing that attributes of the sample might be influenced by their salience as data assessment evolved.

Eighteen individuals meeting the criteria participated in the study. I recruited participants through B/VI affinity groups, including a group engaged in a professional training program and a regional Facebook group. A few participants were referred by professional contacts. Interested individuals provided name and email address using an online Google Form, and then they were asked to complete a short background survey. The first round of participants (11 individuals) completed the survey by email and the second round (7 individuals) completed the survey using an online Google Form. Each participant received an Informed Consent Form, and could provide consent by email reply, by Google Form, or orally at the start of the interview recording.

Tables 1 through 6 provide a breakdown of participant descriptors in a format to mitigate identification of individuals who may know one another. In addition, two participants mentioned an additional disability, one related to mobility and another to hearing loss. Everyone involved in the study worked in a profession that would be considered managerial, administrative, or technical, as would be most common for someone working extensively in text-based workspaces. Therefore, this study did not capture the experiences of individuals working in jobs such as the service industry.

Table 1. Gender (from the option to write in the gender they identify as)

Female	8
Male	10

Table 2. Race/Ethnicity (from the option to write in the race/ethnicity they identify as)

White	13
Asian American	2
African American	1
Hispanic	1
Indian American	1

Table 3. Age

25-34	6
35-44	6
45-54	5
55-64	1

Table 4. Assistive Technology

Screen reader	10
Screen reader + magnifier	4

Table 5. Organization Type

Government	7
Corporation/Company	4
Other Nonprofit	4
Education	2
Self-employed	1

Table 6. Organization Size

1000+	7
100-999	9
1-99	2

I conducted interviews remotely over Zoom, with the option of having cameras on or off. While several participants indicated no strong preference, three conversations took place with cameras on and the rest with cameras off. Interviews were recorded in Zoom, transcribed by a secure transcription service, and then transcripts were reviewed and anonymized by me. To protect privacy, data protection protocols were followed, and the identities of participants, colleagues, and companies/agencies were removed. Participants reviewed and approved their anonymized transcript, with the opportunity to request revisions.

The interview format was unconstructed, with only one question to start the conversation: How are you using text-based communications at work? The conversation flowed in different directions, with my questions focused on clarifications and probes such as How…, What…, and Can you describe…? Interviews generally lasted about 90 minutes. At the completion of each conversation, I captured my impressions from the interviews as field notes, and throughout, I created and revised memos to capture conceptual ideas. Dedoose qualitative analysis software was used to organize data, and the information was coded, analyzed, categorized, and reworked, as needed. Recognizing my inherent subjectivity as a practitioner in this field, measures to ensure rigor included convening a team of two additional people to independently code the first six interviews and participate in group discussions about the emerging data.

Data Analysis

Ethnographic analysis was described by Scott-Jones and Watt (2010) as a two-stage process of organizing and ordering data, with coding serving as the transition between the stages. In this study, interview transcripts were initially coded to open up the text for the use of language, meanings, perspectives, and concepts (Strauss & Corbin, 1998). Intermediate, or focused, coding was then used to synthesize and organize the data. Through memo-writing and an iterative-inductive process (Torres-Rivera, 2019), I made analytic choices informed by the information learned as the investigation progressed, with continuous referral back to the research question.

Through thematic analysis, categories were refined to identify key themes. These themes typically represented recurring experiences shared by study participants. Finally, the analysis led to the summarization of the underlying concepts and meanings derived from the data. The study

Findings will present these key themes, illustrated through secondary supporting themes (Scott-Jones & Watt, 2010).

Findings

Interviews took place between November 2021 and April 2022, nearly two years into the COVID-19 pandemic. At this point, vaccines were widely available, and some organizations had begun returning employees to the workplace or planning for their return. For a few participants, their own experience with telework had lasted for only a few weeks early in the pandemic. Even so, each was still collaborating with colleagues and customers/clients in a remote or hybrid setting. Most, though not all, conveyed satisfaction with the option to telework full-time, or at least part of the time. Although not asked specifically, half expressed a strong desire to work remotely in the future. Reasons for preferring telework arrangements included the lower expense of commuting, relief from difficulties with transportation, and fewer distractions resulting in improved productivity. In addition, some participants said that they appreciated the accessibility of electronic materials versus paper inherent in telework or the ability to interact with people professionally without necessarily disclosing their disability.

For most participants, telework had not been an option pre-pandemic, and the transition happened essentially overnight. Not expecting to still be teleworking two years later, individuals were still balancing enjoying the ability to work remotely while missing the personal interactions in the office. Several participants indicated that during the pandemic, the colleagues they were friendliest with in the office were also continuing to work remotely, so there was little motivation to return to in-person work. Instead, they had either let some of those relationships lapse or had found new ways to stay connected. Text-based workspaces largely served to facilitate connections but also created some accessibility barriers.

The study investigated the effects of text-based mediums, but all of the individuals interviewed also participated in audio and/or video interactions in the course of their work. Further, most of the participants had developed their closest connections with colleagues they had worked with in person. Each medium—in-person, audio and video, and text—had a role to play in workplace interactions.

This section will reflect on participants' feelings about telework and summarize some of the opportunities and challenges the telework option presented. It will also explore how text-based workspaces evolved over the past two years and their influence on workplace relationships. For context, two of these individuals worked with some B/VI coworkers and about half worked with colleagues who were not B/VI in an organization with a disability focus. In every case, participants communicated with people who were not B/VI.

Feelings About Telework

It was no surprise that transportation barriers were cited as a reason for preferring to telework. As described by Gabe,

> I'm in [the office] rarely or almost never. The paratransit system here is an absolute disaster. It's horrible. You take the worst one you've ever seen and then just make it 50% worse… I try to avoid going into the office unless there's a big gathering…like for a holiday party… Otherwise, there's no need for me to be there. I can do literally 100% of my job remote, so the transition for me was great. I didn't look back. Do you miss people? Yeah. I miss certain people and I miss the occasional big gathering and let's have lunch... Most of us [work remotely]. We have folks that don't live in the area that have to

> be remote. We also have a lot of folks who are remote three days a week, four days a week.

Nikky was enthusiastic about telework for a number of reasons, one also related to transportation, as her commute on public transit had previously been costly, lengthy, and subject to delays. In addition, she valued the flexibility she gained in her work hours without the commute and felt that she was much more productive working remotely.

> I'm a virtual employee… Shifting to the virtual space, I thought that it was going to be a harder transition, but in fact it has been probably the best thing ever…The plan is to take advantage of if I can stay remote, work from home, then I want to take advantage of that… I am much more effective to me because I am not distracted. It works for me.

Still, there were challenges to working remotely, both technically (discussed in more detail in a later section) and relationally. As Ryan described,

> This person, we never met in person up to that point, when they were hired virtually, onboarded virtually, and began working virtually. So, you miss out on certain things… I didn't really get a sense that there was any discord in the beginning… You usually get a good read on your staff when you're interacting with them all throughout the day. But maybe if you're only talking to them once or twice a day, they're putting on their best game face.

The COVID Effect on Text-based Communications

Most participants reported that either their organization had introduced a messaging platform early in the pandemic or they had started using their existing platform in a more focused way. Frequently, reported by 11 participants, the software used was Microsoft Teams. Nikky described their implementation, "In April 2020, so we had probably been home not even a month, and we got an email from IT indicating that the department was going to be transitioning to utilize Microsoft Teams as the preferred communication platform." Similarly, Gabe shared, "Teams is huge. Teams just kind of got thrust upon us a couple years back… It was around before the pandemic, but it was not gaining lots of traction… I don't know what we would do without [it] now."

Early on, there was a flurry of activity within these messaging platforms, both task-based and social. In some cases, the activity moderated over time, in others it remained quite active. Bay explained,

> I think in the beginning of COVID, it was great and exciting. Let's take the whole journey… There was more activity and bustle in [Teams] because people just were itching to have connection with folks. But I think as time went on and people were working longer hours, it started dwindling down. So, you don't see the volume go through. Right now, you'll see a little bit of volume because people are talking about the holidays…but I'm expecting that to die down very quickly.

Devon described their experience,

> Especially during COVID, we were sending pictures on [our group messaging platform] all the time. We saw everybody's everything. Look, this is my garden, this is the craft project I just did. This is my new house. It didn't matter. We were just so desperate to talk to each other. We were on that incessantly. For about a year and a half.

For Lee's team, their pandemic-induced channel became a regular method of communicating.

> When we went virtual, when everybody went remote [due to COVID], the… team created a chat [channel] that people will post to. Everybody knows each other in there. People will share, "Hey, it's X whatever holiday today," and they'll post it in there. Every

> few minutes... consistent chats, back and forth. “I'm heading out to lunch,” or one is, “I need to take time to run an errand,” and then this person posted, “I just did this really cool training. Here's a link to it.”

Connecting Through Text-based Mediums

All of this sharing created opportunities for getting to know people differently than they had in the office, as described by Devon.

> When I see the photos and stuff [in the group messaging app]… I love it because it gives me insight into people that I might not have had the insight into before. For me, that's awesome. I discovered a lot more nuances to [my supervisor’s] likes, interests, home life, and actually, we now have much more of a friend relationship.

In addition, the move to text-based work was helpful for the participants who had additional disabilities, such as mobility issues that had made it difficult to go find people in the office, or as Pat described, facilitating communications as an individual with hearing loss.

> [As a result of COVID remote work], people really started to adopt more text-based communication which was great for me as a blind person who's also hard of hearing... Rather than asking somebody to repeat themselves in a real-time conversation, I could get clarification using certain granularity, for example, getting the spelling of a word or trying to figure out what they were trying to say if I missed it the first time around. And that gave me a little bit more agency in conversations.

More than half of the individuals interviewed did not have an organized group communications channel through which to share social posts. Issy felt that their lack of such a medium made it difficult for their newly formed team to get to know one another.

> At the beginning [of the job, in 2020] we had Teams chat set up… The only way that you would communicate would be messaging someone in Teams. And it was all created [for] just work-based questions. There wasn't a place to talk about non-work-related things… There was really no place to build the kind of relationships that I think everyone wanted to have.”

They instead found ways to connect with coworkers on a relational level through other text-based mediums, for instance, by text messaging with others individually or in groups. For Susi’s group,

> [Our team] started on text message and then just thought [WhatsApp] would be easier because some people have Android, some people have Apple… [The messages are] not very formal. If it's work-related, I guess it would be more formal. But sometimes it ends up that we joke around. It could easily become informal.

Similarly, Gabe shared, “[Our fantasy sports teams] have their own text group… there's smack talking going on, on a weekly basis.”

While videoconferencing was commonly used during the pandemic, including for team-building or connecting beyond the task at hand, text-based spaces also became critical to keeping in touch and supporting one another. For Carol,

> It's like when you would pass somebody, like when I'm there in person, sometimes I'll walk up to someone's office, or we'll pass in the hall and talk. So sometimes those Teams chats or texts are like that, like a little connection that isn't necessarily task related, but just fun related like connecting as people.

Many of the participants described task-based and social communications that were taking place over text mediums during meetings, both publicly and privately. Jessie used the text chat within the meeting platform.

> I would use the Zoom chat feature a lot during the pandemic. Since we were all working from home, I would use the Zoom [direct] chat feature quite a bit to be in touch with my coworkers during a presentation, even if it was making dumb jokes about a presentation that we didn't find super interesting.

Ryan's team used their messaging platform to keep spirits up during the pandemic.

> In the morning, somebody would share a funny story... over the group Google Chat. Somebody might tell a joke, tasteful of course. So, yeah, try to keep things a little light… that always helps when you're trying to work with people and help them be more uplifted.

Feelings of isolation were described by some who were teleworking, as well as how they leveraged communications mediums to lessen those moments of feeling alone. Carol, in her first year on the job and working a hybrid schedule said,

> If I'm feeling kind of disconnected, I might send a quick Teams chat to someone like, "Hey, how are you doing? I'm feeling kind of lonely here today." I have a couple coworkers I can do that with… Usually, I'm not bored or lonely because I've got so many things to do and I'm talking to people on the phone and there's enough connection. But once in a while it's, "Oh my gosh, it's so quiet here. I just need social—" So often, I'll do a Teams chat… I feel like I'm still connected. They're still thinking about [me]. I'm still around.

Curating Identity in Text-based Workspaces

Most of the participants had previously worked with colleagues in-person, and their coworkers knew they were B/VI. However, over the two years of remote work, five of the participants had started new jobs and at least five had acquired new coworkers during that time. Many also worked with colleagues in a distributed organization or with outside contacts that were not aware of their disability. This afforded the opportunity to curate what people knew about them, including their B/VI. Nikky articulated,

> The virtual experience has become something very, very different because there are new colleagues that I'm working with that are new to our organization. I've never met them in person. So, when they reach out to me because they need something from me or whatever, they don't know that I'm blind. They have no idea that I'm blind. And I don't need to tell them because if they're asking for something and I'm the subject matter expert, I provide them with the answer or the solution. And that's it, they have it. They're not saying, "By the way, could you see?" No. Blindness has nothing to do with it. I feel the effectiveness of what one does is solely based on what your effectivity or productivity level is.

Pat described a similar experience.

> [Working remotely], there are instances where my disability is not really relevant to the conversation or the task at hand, and so it's been interesting to me to work collaboratively with folks and not have it come up. Whereas, if I was in person, I am visibly disabled which there's no not disclosing that. It's not a problem. It's interesting to just have that not be a factor at all.

Some explained that they would likely disclose their disability after some basic level of trust had been established. In some instances, this might happen fairly quickly. As Hayden explained, "Usually after two or three interactions, I can understand what kind of person that I'm interacting with. Then I can tailor my communication back to them to establish that relationship early on, before the blindness even comes out."

The Consequences of Technical Barriers

Study participants described a variety of technical challenges, such as setting up or troubleshooting equipment and assistive technologies virtually. Problems specific to text-based mediums included receiving inaccessible materials such as poorly formatted PDF files or screenshots and using apps and features that may have been technically accessible but were difficult to use on a laptop versus a smartphone. This was an area in which there were differences in the experiences of people with low vision versus blindness. Barriers existed in both instances but varied. For example, participants who were blind heard too much of the videoconference chat through their screen reader, as explained by Elice.

> If someone chats something to me, I have to cut it off because I can't tell what else is going on in the meeting. In fact, it's quite problematic…. People will put all kinds of very useful things into the chat. It'll be a website and it'll literally read every single letter. By the time it gets to the end of the website, I'm like, well I have no idea what the heck was going on in the meeting when that person put the chat in. So, I hit a button on my keyboard which stops reading the chats as soon as someone puts something in the chat. The literal chats, visiting with each other, obviously I don't need to know that. Although socially, when you miss all that, it's a bummer, but you cannot do chats on Zoom if you're using JAWS [screen reader]. At least, my brain can't do it.

Participants who were low vision might miss the fact that the chat box was active at all, as Bay described.

> I do not use the Zoom chat feature. I find it very difficult. For somebody like me, I don't find it easy. And I am disappointed because there's times where people have direct messaged me, and I don't see it or I don't know. And people then follow up with me and are like, "Well, you didn't respond." And I was like, "I didn't see it." And then I think about… how many other people have done that, but never followed up with me to ask me why I never responded.

A common complaint among blind participants was the verbosity of videoconference apps in which the screen reader announced each person that was entering or leaving the meeting, and read the chat messages as they appeared, which could be extremely distracting when the chat box was busy. Hayden stated,

> Challenges with [meeting chat], I'm a JAWS user, I'm blind. It's fairly accessible. Where I struggle is not keeping up with others who are chatting or putting questions in the comment box or answers. Sometimes they go so fast and I'm not keeping up as quick as they're coming in, or I'm getting lost.

This resulted in the majority of people turning off their screen reader for some or all of a meeting. As a consequence, there were occasions when they purposely chose not to participate in the chat and to risk missing messages that might be sent during a meeting, as experienced by Manny.

> During the [Zoom] meeting, especially if it's a big meeting, I honestly mostly turn my JAWS off and just focus on the meeting. Because in a large meeting… it announces as somebody's coming in, somebody's going out or people's chat messages... Unless I go back, turn my JAWS on to go see what people are saying, I'm not aware of [what's happening in the chat]… [And] one of my colleagues did send me a message when we had [an] all-staff meeting… by email just saying, good to see you. [And] a couple of times in the meetings my supervisor sent me an email and I didn't see it 'til later on. Because as I said, I turn JAWS off when we are in a big meeting.

Instead, they relied on others to catch them up later about what they may have missed, or in the case of Teams meetings, they went back later to review the meeting chat that had been automatically saved, as Orion did.

> We use Zoom for our weekly meetings, but we also use Teams. So sometimes people will put chat into Zoom and then sometimes people will put chat in Teams. So, I switch back and forth. It can get a little crazy because people don't always remember that the Zoom chat only really lasts until the meeting's over. Whereas the Teams chat, you can go back and it's more permanent. So, they'll say, "Oh, I put it in the Zoom, oh wait, let me put it in the Teams too." …So, that can be a little bit confusing to keep up with… It's hard to listen to them talk and listen to my screen reader doing a lot of Teams at the same time. Usually, I would just go back to the chat after the meeting's over, make sure I didn't miss anything important. Take a couple notes if I need to.

Participants frequently explained that they preferred to use apps like Zoom or Teams on their iOS smartphone because the interface was easier to navigate than on the computer. In a few instances, individuals had been issued a work phone; in others, they were using their personal device. However, when considerable typing might be involved, the person would more likely use a device with an external keyboard, such as a computer or a smartphone with a Bluetooth keyboard, as onscreen typing was slower or unavailable during a meeting. For Jessie,

> A lot of times I will use Zoom or Teams on my phone just because I like the app layout better than using it on the computer. If I know that I'm going to be chatting more, if that's a conference presentation where I might have to answer questions… I'll tend to use the computer program because it's a lot easier to type using my keyboard, my computer versus having to pick and peck on the inherent keyboard in the iPhone.

Device and Medium Switching

Because of the accessibility features built into the iPhone and the iPad, nearly all of the participants used an iOS device in relation to their work. Elice performed the majority of her work using her smartphone.

> I use my iPhone all the time for scheduling [using the calendar feature]. Then there's a whole other section that I use my iPhone for with my business, which is billing and exchanging confidential documents… I use that website through my phone mostly because trying to use it on my computer has been incredibly, incredibly frustrating because it's not as accessible as the phone app.

Similarly, Aaron stated, "I basically use my phone as my computer. I just hook up a Bluetooth keyboard and use VoiceOver [iOS screen reader]. I don't need the larger screen." As a result, there was typically a continuous switching of devices during the course of a workday. The choice of device by task might depend on accessibility or ease of use or on mobility such as using the smartphone when away from one's desk. This might occur successively, as in Nikky's case.

> It just makes it easier to be able to have different devices, to be able to accomplish different tasks. I can do maybe one thing on one device, because it's easier... It just makes life easier when you have an array of options.

Or it might happen concurrently, as Orion described.

> I might be using my computer to read the [work document] and then maybe on my phone, instead of going between two browsing tabs, I might just use my phone to look up a certain term real quick if I need to… I do have a braille notetaker… and that actually has some internet capabilities too. That's an Android-based device and I can do Google searches on that too.

Correspondingly, the choice of medium depended on balancing the preferences of both sender and receiver. Gabe illustrated the sender preference.

> I still prefer email… I'm not having to go through and find the right team, then find the right channel and find the right, whatever. Just open up Outlook, a couple keystrokes, go. Much faster, much simpler; email is always open, Teams is not… Some things work better with VoiceOver on the Teams mobile apps, some things work better on the computer with JAWS, whereas email is pretty equal.

Ryan described his assessment of the receiver's preference. "I talk to my [supervisor] more on the phone. That's [their] preference. I talk to one of my colleagues primarily through messenger. That's their preference."

The Long-term Outlook for Text-based Workspaces

A multitude of factors have resulted in the embrace of text-based communications mediums in the workplace. These include the general cultural shift to conversing by text message, the widespread move to remote and hybrid work, and the proliferation of supporting technologies, like VoiceOver. Jessie provided insight into text-based norms.

> Having that longer term face to face connection I really feel like helped us to stay friends more than just texting and Zoom chats and stuff like that. [But to stay in touch], nine times out of 10 it's through text. We might call but the actuality of the situation is, a lot of people like myself, a young professional, texting has been a thing in my life. I got my first cell phone when I was 14… so texting is my preferred method of keeping in touch with really anyone.

The stickiness of the changes wrought by the pandemic were illustrated by Ryan's experience.

> The communication factor hasn't changed much [since working hybrid instead of all remote]. For quick little conversations, if somebody's in the office, you can go get up and leave your desk and go speak to them. But there haven't really been many times where my whole team was in the office simultaneously. So, we would still use the same virtual communication means that we had been using all along since 2020.

This does not mean that text is or will become the only means of communication, but that it has become an important channel for connecting people between or instead of in-person, audio, or video interactions.

Discussion and Implications

The recent leap to more remote work and reliance on text-based communications is likely to be long-standing. There is little available data to support suppositions about the longer-term effects of the COVID-19 pandemic on the employment of people with disabilities, including vision loss. On the one hand, it has been speculated that widespread telework has demonstrated its feasibility as an accommodation (Headrick, 2022). Further, when there are more jobs available than people to fill them, employers may be willing to hire from a more diverse pool of candidates. In March 2022, available jobs in the U.S. rose to the highest number on record, at 11.5 million, and job openings were greater than the number of unemployed workers by about 5.5 million (U.S. Department of Labor, 2022). On the other hand, trends from previous upheavals such as economic recessions are cautionary, since people with disabilities who experienced job loss have typically been slower to recover their previous employment status. During the Great Recession of 2008, the employment rate fell more for people with disabilities than for people without disabilities, the rate of recovery for people with disabilities was slower, and as a result, more people filed for disability benefits (National Governors Association, 2021).

The employment support provisions of the Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI) programs are intended to assist recipients in moving to greater independence through work. The objective of this study was to uncover the intersection of technological developments and relational undercurrents taking place in the workplace, with the goal of generating understanding for employers and support systems like VR agencies and ENs that work with people who are B/VI. The following implications resulting from this investigation can facilitate awareness of how people with B/VI can be more fully included and enabled to participate in the modern workplace.

Recognizing the Importance of Text-based Communications

Text-based communications have been seamlessly integrated into the workplace, well beyond the traditional email medium. Messaging platforms like Microsoft Teams have proliferated, and text messaging has become a regular stream of connectivity both professionally and personally. The Findings section highlighted the role of text-based applications for developing and maintaining informal relationships, but also illustrated the importance of text mediums for professional collaboration and communicating job-related information with team members and supervisors. Further, there was regular interplay between these professional collaborations and feelings of affinity or friendship with colleagues. As Issy described,

> I was working with an individual and I would reach out to her with questions, and we would bounce ideas off of each other. Eventually, we had an understanding with each other, and we were talking about a lot of personal things inside the chat… I had the best relationship with [that coworker] just because we'd spent the most time talking with each other, but talking in quotes because it was all within the [messaging] chat."

To optimize the experiences and opportunities for people who are B/VI in text-based workspaces, organizations and teams should account for technological barriers. In addition to selecting digital platforms that are accessible and easy to use, common practices should be established to ensure inclusion and facilitate participation. For example, presenters should send accessible meeting materials in advance, rather than sharing them in the moment via screen share or in the meeting chat box. Further, the rate of development within these technology platforms is rapid, so regular opportunities to receive training and information about feature updates is critical. Lee began a description of his process in managing the flow of text information with "A lot of people don't know that if you click on a [Teams] chat bubble, it'll stop the chat... It stops the scroll for you." There was a notable uptick in satisfaction with messaging platforms from participants that had more familiarity with the technology, though this was frequently acquired on their own through online searches and trial and error.

Creating a Communications Culture in Multiple Mediums

The organization's role in establishing a thoughtful communications culture appeared to influence individual's satisfaction with their work situation. Demonstrating respect for employees with disabilities was clearly appreciated, as Pat noted with "I was pleasantly surprised to find out how forward-thinking and how onboard these folks were [about accessibility]." For instance, policies espousing inclusion by promoting description of visual information was declarative in text-based workspaces.

Further, participants who had the opportunity to connect with their colleagues in multiple mediums seemed more engaged within their team or organization. Most had preferences for one medium over another, though this varied based on the situation, a factor leading to the device and medium switching described in the Findings section. In instances where communications policies

had to be strictly enforced due to the nature of the work being subject to corporate policy or public information regulations, informal connections were less likely to happen in the course of the workday, particularly when working remotely. The workaround described by Manny for having personal versus task-based interactions was, “If I don't want it to be known in public information, then the best thing is to call. Or call [or text] them from a personal phone or send them an email from my personal email to their personal email.”

This has especial implications for employees who are new to a team. Lee shared how their new team member had fit into the group, “Even though we haven't met him in person, the [messaging] chats and the conversations that we've had on calls, we know stuff about him.” For Issy, teleworking with a new team in a text-based workspace, even the smallest bit of social context mattered. She noted that “[This colleague] felt comfortable to come to me with questions maybe more than someone else... and I guess the common denominator was this very informal meeting, which was virtual.” For people with B/VI to compete and succeed in the workplace, they should have occasion to get to know their colleagues. In a telework environment, this means having the ability and opportunity to fully participate in multiple mediums—audio and/or video and text-based.

The Role of Text in Hiring

While the process of finding new employment was shared by five of the study participants, those experiences were not the focus this study. However, as was the case in the workplace, text-based communications were naturally interwoven into the process. Individuals networked and searched for job leads through Facebook groups, LinkedIn, and listservs. They submitted their cover letters and resumes online or by email. Logistics and follow up were conducted via email and sometimes text messaging.

Job interviews did not take place in-person but were initially conducted by phone and then progressed to videoconference. Even this may not be a given in the future. In an interview with *The New York Times* (Gelles, 2020), the CEO of Automattic, a global technology company, declared that their hiring process is done entirely over chat. They may hire someone without ever seeing or talking to the person. He noted that “We’re always looking at what we can do to make it as much about the work, and not extraneous stuff, like how you’re dressed, …how you sound, how you look... All those things don’t ultimately matter.” This ties closely with the thoughts expressed by participants that spoke about disclosing their disability. Hayden explained his strategy.

> Nobody knows the information's coming from someone who's blind… If I'm going to meet them in person, I like to give them a heads up… just to reassure them, “Hey, I'm going to be coming by your office. I am blind. I do utilize assistance of a service animal. There's nothing extra you need to do.”

The fact that he needed to “reassure” others supported awareness that the visibility of his disability might affect interactions. Just as Microsoft and other major corporations have developed specially structured interview protocols for applicants who are neurodiverse, perhaps formats such as text-based communications can reduce bias and optimize the hiring process for people with visible disabilities, like B/VI. Jobs at Automattic tend to be technical professionals, but according to *USA Today*, companies like Amazon and UPS use text-based recruiting for hourly and blue-collar type jobs (Baig, 2019).

Recommendations

Research on VR services that are most likely to result in competitive employment for people who are B/VI has shown that rehabilitation technology training and technical assistance, including for telecommuting, highly correlates with work success. Individuals receiving rehabilitation technology services were 69.6% more likely to be in the competitively employed applicant group than those not receiving those services (Crudden et al., 2017). Technology skills, in general. are critical in today's workplace. Based on the findings of this study, employers and agencies that support employment for people who are B/VI should consider the following recommendations:

- Provide regular up-to-date training on rapidly developing technologies to B/VI jobseekers and employees.
- Prepare people who are B/VI to fully participate in text-based communications mediums and leverage them to build relationships and networks.
- Expand jobs and job searches to more remote work opportunities.

Study Limitations

As is common in ethnographic research, the sample size was small (N=18) so not generalizable to the overall population. Although some diversity was achieved in the study sample, I expect there would be value to having additional insights from individuals of different racial and ethnic backgrounds, as well as additional participants from large corporations.

I recognize my positionality, as someone who has worked in the field but is not B/VI. In addition, I am a proponent of both telework and text-based workspaces. To counter these limitations, I engaged in numerous pre-conversations with people who are B/VI and had the data and findings reviewed by others, such as the two people on my coding team and outside readers.

Foundation for Future Research

The findings of this qualitative study may serve as a source from which to ground empirical testing to assess the extent or breadth of the key themes or to generalize to a population. Concepts resulting from this study can be further investigated through subsequent quantitative and/or qualitative research studies. Because this study was conducted at a time when companies were still evaluating how to organize their workplace as fully remote, in-person, or hybrid, it would be useful to explore how the development and use of text-based communications tracks with those models. The topics of focus in this project are sure to be of interest for years to come.

Conclusion

This ethnographic study investigated the experiences of 18 professionals who are B/VI using text-based e-collaboration applications in remote and hybrid work settings. Their perceptions matter because, after more than two years of leveraging technology and learning behaviors to facilitate telework, text-based e-collaboration is here to stay, whether employees continue to work remotely, in-person, or in some hybrid combination. The research findings suggest that relating both professionally and personally through multiple mediums, including text-based workspaces, is an important aspect of fully participating in the workplace. Employers' policies and practices for providing an accessible and inclusive communications culture are essential for promoting the success of B/VI individuals and the teams they work with. VR and EN programs can support the employment of people with B/VI by preparing them to thrive in

virtual workspaces, for instance, by encouraging individuals to build professional/personal networks online and training them to use messaging platforms.

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List of Acronyms

B/VI	Blind or visually impaired
DEI	Diversity, equity, and inclusion
EN	Employment network
SSDI	Social Security Disability Insurance
SSI	Social Security Income
VR	Vocational rehabilitation