CANADIAN JOURNAL OF
Disability Studies
Published by the Canadian Disability Studies Association | Association canadienne d'études sur le handicap

Canadian Journal of Disability Studies

Published by the Canadian Disability Studies Association
Association canadienne d'études sur le handicap

Hosted by The University of Waterloo

www.cjds.uwaterloo.ca

Accessing community: Speaking with and through mobile technology

Accéder à la communauté : parler avec et à travers la technologie mobile

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Abstract
This article explores the impact of mobile technology, particularly speech-to-text tools, on enhancing social inclusion and communication for people with intellectual disability. Through a participatory research approach - the authors, an academic and a self-advocate with an intellectual disability - collaborate to share personal narratives and insights on the role of technology in fostering independence, social connections, and self-advocacy.

Résumé
Cet article explore l'impact de la technologie mobile, en particulier des outils de conversion de la parole en texte, sur l'amélioration de l'inclusion sociale et de la communication pour les personnes ayant une déficience intellectuelle. À partir d'une approche de recherche participative, les auteurs, un universitaire et un défenseur des droits des personnes ayant une déficience intellectuelle, collaborent pour partager leurs récits personnels et leurs points de vue sur le rôle de la technologie dans la promotion de l'indépendance, des liens sociaux et de la défense des droits.

Summary
- Background - Mobile phones and apps can help people with intellectual disability talk to others and take part in their communities more easily. This article looks at how these tools can make life better for people with intellectual disability.
- Method - The authors are a researcher and a person with an intellectual disability. They worked together on the research. They shared stories and talked about how using mobile phones has changed the life of the person with an intellectual disability. They also looked at what other researchers have found out about this topic.
- Results - The article shows that tools like speech-to-text can make a big difference for people with intellectual disability. These tools can help them communicate better and be more independent. The story of the person with an intellectual disability shows how

mobile phones have helped him in his daily life, like talking to friends and family and standing up for himself and others. The article also talks about some problems that need to be fixed so that everyone can use these tools.

- Conclusions - The authors say it is important to include people with intellectual disability when making new technology. This way, the technology will work well for them and be easy to use. They also say that mobile phones and apps should be made easier to use and protect people's privacy. This will help make sure that people with intellectual disability can use these tools and benefit from them.

Keywords
Mobile Technology; Intellectual Disability; Speech Recognition; Participatory Research

Introduction

People with intellectual disability often face significant barriers to full participation in society, including limited access to education, employment, healthcare, and other essential services (*Poverty and Intellectual Disability in Europe*, 2014; World Health Organization & World Bank, 2011). Historically, they have been excluded from decision-making processes that affect their lives (Shogren et al., 2017) and have been subject to stigma and discrimination (Ditchman et al., 2013, 2016).

Various challenges and barriers hinder social inclusion for people with intellectual disability across education, employment, community integration, relationships, cultural attitudes, and policy implementation. Specific issues include the lack of inclusive educational and workplace opportunities leading to difficulties in accessing authentic opportunities to develop life skills and build their own lives (Pallisera et al., 2020), stigma leading to social isolation and loneliness (Ditchman et al., 2016; Dixon et al., 2002), negative cultural perceptions about disabilities (Zorzi & Strods, 2020), and gaps between rights-based policies and actual practices (Zorzi & Strods, 2020). While intellectual disability can often contribute to social exclusion and isolation, advances in mobile technology over the past decade present new opportunities for connection and inclusion (Danker et al., 2023; Martin et al., 2021). Mobile phones are a pervasive and indispensable tool for social interaction and civic engagement (Goggin, 2007), and people with intellectual disability stand to benefit from the connectivity of mobile technology (Darcy et al., 2016).

The adoption of mobile technology[1] is widespread and has had a significant impact on how people communicate, access information, and connect with others. As of 2021, 97 percent of Americans had a cellular phone with 85 percent owning a mobile, Internet-connected device specifically, a dramatic increase from 2011 when only 35 percent of Americans reported owning a "smartphone" (Pew Research Center, 2021). Globally, more than 5 billion of the world's 6.5 billion people are mobile users (Katz, 2017).

Despite the widespread adoption of mobile technologies, access remains a problem for disabled people, although there are demonstrated benefits for those with intellectual disability. For example, adults with intellectual disability often have limited social networks and social capital (Davies et al., 2015), and technology can provide opportunities to connect. Social networking sites have the potential to support social relationships and self-determination (Shpigelman & Gill, 2014). A study on the use of Facebook indicates that adults with intellectual disability use Facebook as often as nondisabled users. Similarly, a study conducted with teenagers who use augmentative and alternative communication (AAC) found a perceived benefit of social media participation and enhanced self-representation and self-determination (Hynan et al., 2015). For many people with intellectual disability, "technology" and "assistive technology" are the same.

[1] As disability studies scholars, we argue that the term "smart" when used to reference technology is problematic because it reflects and perpetuates ableist biases in technology. The term reinforces a narrow definition of intelligence, marginalizing those with intellectual disability. The creation of mobile phones is influenced by the biases of designers and developers, often resulting in devices that are less accessible to people with diverse needs and abilities. We prefer the terms "mobile device," "mobile technology," or "connected device" to avoid implying rigid constructs of intelligence or ableist assumptions about device utility. However, we will still use "smartphone" or "smart device" when directly quoting sources or specifying internet-connected, interactive devices.

One mobile device, for example, can provide communication support as well as connect to the Internet; separate devices are not necessary (Foley & Ferri, 2012).

A significant piece of contemporary mobile device technology is speech-to-text technology, also known as automatic speech recognition (ASR) - the technology that enables a machine or computer program to recognize and process human speech into a written format. ASR has evolved significantly over time, becoming more accurate and requiring less time to "learn" a users' voice (Liang, 2024). These improvements offer improved communication and increasing relevance in daily life for people with intellectual and developmental disabilities (Chavers et al., 2022; Rispoli et al., 2010). Research has shown the effectiveness of speech-to-text technology in improving communication for people with intellectual disability. Smith et al. (2019) found that mobile technology applications improved digital communication skills in users with intellectual disability. ASR can help with communication for people with intellectual disability who have difficulty in writing or typing (Revuelta et al., 2014; Wald & Bain, 2008). It can help them to communicate their thoughts and needs verbally, which can be more intuitive and natural for many.

In contrast to the benefits of these technologies, some have raised concerns about the potential for these technologies to also restrict autonomy for people with disabilities (O'Brolcháin, 2018; O'Brolcháin & Gordijn, 2019), emphasizing the need for reflexive, ethical implementation. For instance, these technologies have the potential to undermine a person's autonomy in several ways. The use of "smart" technologies can lead to a loss of privacy and a feeling of being surveilled (Niemeijer et al., 2015; O'Brolcháin & Gordijn,

2019). Additionally, their use can create a power imbalance, with the potential for others to make decisions on behalf of the person based on this data (Morte, 2020). Finally these technologies can perpetuate the perception of people with intellectual disability as unable to make decisions for themselves, further undermining their autonomy (Moyà-Köhler & Domènech, 2022).

Developing mutual relationships with people with intellectual disability and amplifying their voices in research and technology development is crucial for avoiding paternalism and promoting empowerment. This approach aligns with the principles of inclusive research, which has been influenced by both the normalization/Social Role Valorization (SRV) movement and the emancipatory research paradigm (Walmsley et al., 2018). Normalization and SRV have emphasized the importance of promoting valued social roles for people with intellectual disability, leading to a focus on equipping co-researchers with the skills to be "real researchers" and have advocated for disabled people to be in control of the research process, challenging traditional power dynamics between researchers and participants.

Walmsley et al. (2018) argue that while these influences have been significant, it is important to recognize the unique value that co-researchers with intellectual disability bring to the research process, beyond simply being trained to adopt traditional researcher roles. They propose that the main added value of inclusive research is the distinctive insights and experiences that people with intellectual disability contribute, and their potential role in using the research to achieve positive social change. This perspective

suggests a need to move beyond a sole focus on process and to consider the wider impact and outcomes of inclusive research.

In this article, the authors: Alan, a university professor with a disability, and Micah, a self-advocate with an intellectual disability, highlight the need for researchers to challenge and transform traditional beliefs and practices that perpetuate ableism in the field. They propose actionable ideas for fostering anti-ableism and allyship, focusing on learning from and nurturing relationships with people with intellectual disability, amplifying their voices in research, infusing anti-ableist frameworks into research practices, and embodying a career-long commitment to disability rights and reflexive practice. It is in this spirit that the co-authors are collaborating on this article.

This study contributes to this growing body of research by exploring the potential of mobile technology, particularly speech-to-text tools, in fostering social inclusion and communication for people with intellectual disability. Specifically, we seek to address the following research questions:

1. How can mobile technology, particularly speech-to-text tools, foster social inclusion and communication for people with intellectual disability, and what are the challenges and barriers that need to be addressed to maximize its potential?
2. In what ways can personal narratives and lived experiences of people with intellectual disability, gathered through participatory and inclusive research practices, contribute to a more nuanced understanding of the role of technology in promoting inclusion, belonging, agency, self-advocacy, and autonomy?

By addressing these questions through a participatory and inclusive research approach, we aim to center the voices and experiences of people with intellectual disability and contribute to a more nuanced understanding of the role of technology in promoting inclusion and empowerment.

Methods

This project draws on life writing and participatory methods to illuminate and amplify the experiences of people with disabilities. Life writing as a research method refers to the collection, analysis, and interpretation of personal life stories and experiences to conduct research, and encompasses various forms such as autobiographies, biographies, memoirs, diaries, letters, and digital life stories (Howes, 2020), and has been explored as a research method for people with intellectual disability. Moya (2009) and Koenig (2012) both note the potential of life story and narratives to shape identity and provide a platform for self-expression and empowerment. Moreover, life histories can serve as counter-narratives to challenge negative stereotypes of people with intellectual disability (Stefánsdóttir & Traustadóttir, 2015).

The use of Micah's personal narrative centers the voice and lived experience of a person with an intellectual disability, a key tenet of disability studies (Charlton, 1998; Linton, 1998). This approach challenges dominant assumptions about disability, empowers marginalized communities, and contributes to a more inclusive understanding of disability (Ferri, 2011; Mintz, 2003). By sharing his lived experience, Micah allows others to better understand the nuances and complexity of his varied experiences with technology in fostering inclusion and belonging.

By collaboratively co-authoring this paper, our partnership between an academic and a self-advocate, helps to reduce power imbalances and paternalism in disability research (McDonald et al., 2023). Through a series of in-person and technologically mediated interviews/conversations we build on core tenets of life writing to challenge traditional notions of knowledge production and validation by prioritizing the personal narrative and experience of Micah as legitimate sources of knowledge. Our methodological approach aligns with recent work by Seale et al. (2019), who conducted a participatory life story project collecting technology-related experiences of people with intellectual disability. Their study, like ours, was underpinned by principles of inclusivity, transparency, and reciprocity. This alignment strengthens the rationale for our chosen methodology and demonstrates a growing trend in inclusive research practices within the field.

Our paper's design is also influenced by a participatory philosophy which actively involves people with intellectual disability in the research process. Participatory research, which involves participants and communities as active collaborators, has been shown to empower individuals with disabilities (Duckett & Fryer, 1998; Richardson, 1997; Stack, 2000).

Despite the growing recognition of inclusive and participatory research practices, there remains a lack of research co-developed with people with intellectual disability (Nind, 2010; Strnadová & Walmsley, 2018; Walmsley et al., 2018). This gap perpetuates power imbalances and undermines the agency of individuals with intellectual disability (Frankena et al., 2015). Our paper aims to address this gap by centering the voice and

personal narrative of Micah, a self-advocate with an intellectual disability, and by challenging traditional notions of knowledge production and validation (Bigby et al., 2014).

Through a collaborative co-authoring process, we draw on life writing and participatory methods to illuminate and amplify Micah's experiences with technology in fostering inclusion and belonging. By prioritizing his personal narrative as a legitimate source of knowledge, we contribute to a more nuanced and complex understanding of disability, while also empowering marginalized communities to share their stories (Nind, 2010). Our paper contributes to the growing body of research co-developed by and with people with intellectual disability, addressing a critical gap in the literature. We argue that this approach is essential for challenging dominant assumptions about disability, fostering empowerment, and promoting a more inclusive and equitable research landscape.

This study employs participatory action research (PAR) principles, characterized by a participatory, collaborative, and action-oriented approach to inquiry (Torre et al., 2015). PAR bridges the gap between theory and practice by engaging stakeholders in a cyclical process of planning, action, observation, and reflection (Kemmis & McTaggart, 2005). In this study, the authors collaborated to identify the research questions, design the study, collect and analyze data, and disseminate the findings. This iterative and reflexive process allowed for the continuous refinement of the research based on the insights and experiences of both co-researchers. PAR also emphasizes the importance of critical perspectives, egalitarian relationships, and the recognition of participants as active agents in power and social structures (Feldman, 2023). It is a transformative approach, where

participants collaborate to make their methods more rational, sustainable, and equitable (McTaggart et al., 2017).

In alignment with our commitment to participatory and inclusive research practices, we engaged in a collaborative process of knowledge co-creation. Through a series of technologically mediated and in-person interviews, we explored Micah's experiences with technology in fostering inclusion and belonging. Mobile phones played a central role in facilitating this process, with Micah sometimes responding to questions via text message using Siri, and other times engaging in recorded spoken conversations that Alan transcribed. This approach allowed for flexibility and accessibility, ensuring that Micah could contribute to the research process in a manner that suited his needs and preferences. The interviews were subsequently edited for clarity, with both authors reviewing the final transcripts to ensure accuracy and authenticity. By engaging in this collaborative process of data collection and analysis, we sought to challenge traditional power dynamics in research and center the voice and lived experience of Micah as a co-creator of knowledge. This approach not only contributes to a more nuanced understanding of disability but also serves as a model for fostering anti-ableist practices and amplifying the voices of individuals with intellectual disability in research.

Ethics

This study is grounded in the principles of participatory and inclusive research practices, which seek to empower individuals with intellectual disability by actively involving them as co-researchers throughout the research process. Micah was involved in the development of the project from its inception, working alongside Alan as an equal

partner in the knowledge production process. This approach challenges traditional power dynamics in research and promotes the agency and autonomy of individuals with intellectual disability (Frankena et al., 2015).

Our study recognized Micah's expertise and lived experiences as integral to the project, ensuring that the research process was transparent, collaborative, and aligned with the goals of promoting social inclusion and empowerment for people with intellectual disability. We maintained open communication to address ethical concerns and ensure accurate representation of Micah's voice.

Micah's Personal Journey with Technology: An Interview

Micah, a 39-year-old man with an intellectual disability living in Syracuse, New York in the northeastern United States, shares insights from his personal experience as a long-time self-advocate. Having lived in Syracuse for 12 years, Micah has established strong community ties and support networks that have aided his advocacy work. Alan is a white male college professor who identifies as having a disability and who works at Syracuse University. Alan and Micah have known each other for over a decade, since Micah moved to Syracuse to attend the inclusive higher educational program for students with intellectual and developmental disabilities at Syracuse University. Micah is currently the outreach coordinator for the inclusive higher educational program at the university. The two authors have worked together on a grant project and team-taught together. Micah describes our process of working together:

Micah: When Alan and I work together, we get our work done within an hour. Sometimes, he gives me a ride to campus or back home. During these drives, we talk about things that we have to get done for work. Additionally, working

together is smooth, especially when the dogs at Alan's house behave.

In this conversation, he discusses key aspects of his life, from his close circle of support to his ongoing efforts to empower other people with disabilities.

Micah: I am Micah. I am 39 years old. I have an intellectual disability. I live in Syracuse, NY. I've been living here for 12 years. I have a great staff, a great circle, a great community, and I have been a self-advocate my whole life. I'm just learning how to help people with disabilities about their healthy journey.

Early Technology Use

Alan: How did you use technology growing up before you got your phone?

Micah: Before I used my phone, I would use email [on a computer]. But when I got emails on AOL or on my computer, I would have to wait for my sister or parents to come home and help me read [them]. It was mostly my parents, but my sister helped me a little bit, but I couldn't respond on my own, because I can't type or read them.

Alan: You can read some though, right? It's just kind of slow and hard to read.

Micah: Yes, it is. I had Dragon Speak (Dragon NaturallySpeaking), but I had to train my voice on it.

One of the challenges Micah faced with Dragon NaturallySpeaking on a computer was the clarity of his speech, as the program struggled to interpret his words accurately, and it required training. Proofreading by family members became necessary to ensure the messages were correctly conveyed.

Alan: Can you tell me a little bit about what that process of using Dragon NaturallySpeaking was like?"

Micah: It was a good word recognition program. But I would have to train[2] my voice and my dad read the words to me. And then I would say the words out loud.

[2] Dragon NaturallySpeaking improves accuracy in transcribing a user's speech through a three-step process. First, the user reads texts aloud to teach the software speech patterns, accents, and pronunciations. Second, when errors occur, the user corrects misinterpreted words, so the system learns. Finally,

> And it was a way for me to search [for] things and me be able to speak on my own.

While Dragon NaturallySpeaking was helpful and allowed Micah to compose and send messages and other text, the training process was tedious and required the help of a family member.

Transition to iPhone

Micah describes how his iPhone use evolved, and he increasingly integrated it and its features into his life - revealed that when he first got an iPhone, he didn't initially use it extensively:

Micah: I didn't really use my iPhone a lot. I just talked to people and didn't text a lot until I graduated from Oakland[3]. I think I didn't text that much. I didn't have Facebook when I was in high school until I went to Oakland. I texted but not as much or posted that much, but I didn't use it that much as I use it now…I think it was just because Siri didn't come until later.

Alan: So, you didn't use it to text? Because you didn't want to do all the typing.

Micah: Oh, yeah, I texted, but I would have to copy and paste it and edit it [Using speech-to-text apps like the Dragon Dictation[4] app on the iPhone that were difficult and time-consuming to use].

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continuous use and correction over time, especially confirming right transcriptions, allows Dragon NaturallySpeaking to become progressively better at recognizing that user's voice. For someone who has difficulty reading large sections of text, training Dragon NaturallySpeaking would need adjustments. For example, and in Micah's case, training involved a family member, or caregiver assisting by reading the training scripts aloud first, allowing Micah to listen and then repeat the words or phrases after them.

[3] Micah attended the Oakland University Post Secondary Transitions (OPTIONS) program designed for students with intellectual disability and fought for his right to live in the dormitories there leading to a lawsuit in U.S. federal court.

[4] Dragon Dictation was an earlier iPhone app that offered basic speech-to-text capabilities. To use it, one would tap the microphone icon, speak into the phone's microphone, and the app would send the recording to the cloud for transcription. After a short wait, the transcribed text would appear on the screen for the user to review, edit if needed, and then share via SMS, email, or social media. However, the technology was primitive by today's standards - accuracy was limited, a WiFi or cellular connection was always required, and features like custom vocabularies were not available.

Daily Use and Value of Mobile Devices

When Apple released the Siri personal assistant feature, the iPhone experience changed overnight for Micah. Without needing special apps or previous training like with Dragon, Siri allowed Micah to dictate texts, set reminders, ask questions and more with his voice. Micah explored and learned the capabilities of Siri on his own.

Alan: Can you talk about all the things you use your phone for in a typical day? What are things that you use your phone for?

Micah: I use my phone for text messages, emails, posting on Facebook, talking to people on Facebook Messenger, talking on the phone, using apps.

Alan: Do you ever look up information?

Micah: Yeah. I find things about how things are going in sports or in the government or in the world,

Alan: How do you do that?

Micah: I just search on CNN; I look up things using Google and then I go to the site.

Advice and Recommendations

Alan: What advice would you give to others with intellectual disability on using their phones?

Micah: I would say that it's a great way to communicate and find ways to communicate. It might be hard in the first part if you haven't trained your voice a little to talk to Siri, but you probably won't have to do much because the phone learns your voice like Siri.

Alan: Are there any starting points you'd recommend for someone new to using mobile devices like iPhones?

Micah: I would say they could start by using their voice on their iPhone. They could speak into it and say, hey Siri where's the closest pizza shop? Or what's going on with football or sports.

Alan: Do you have any memorable experiences with using your phone, particularly with speech to text?

Micah: When I won my federal lawsuit. I was happy to tell people and post on Facebook using my phone.

Suggestions for Improvement

Alan: If you could suggest improvements for voice technology, what would they be?

Micah: I would say on Zoom. It's hard to read the messages (in the chat) and send them because Zoom is not that accessible yet. I can talk to you on Zoom, but I can't easily read or send the messages in the chat room.

Alan: If you could make some suggestions to Apple, what would they be?

Micah: Maybe doing surveys to understand users' needs better.

Micah's testimony provides a personalized look at navigating these unfolding technologies over the years. His insights around persisting with imperfect tools like Dragon, while awaiting more integrated mobile device assistance, offer a unique longitudinal perspective from someone who has lived through the evolution of these technologies.

Independence and Connection

Micah emphasizes how the iPhone facilitates communication and scheduling that would be very difficult without this tool. He estimates that he sends about 100 texts per day now. The calendar, reminders, and other features help him manage his schedule independently. Apps like Facebook, Messenger, and text messaging help him stay connected to family, friends, and his wider social network. Micah explained, "I have kept in touch with people that I probably wouldn't have kept in touch with if I didn't have an iPhone."

Technology has also helped him engage in advocacy and educating others. Micah has been giving talks and conducting workshops on self-advocacy and independent living since he was in high school.

Micah: Somebody [a student with a disability] came over to my house when I came home to visit [from college] one time. He was a senior in high school. And he said, "My school never taught me about technology." I think he heard me speak at his school. He wanted to see what I did [with technology], but this idea that his school never taught him about things like iPads made me say wow, the school never did that?

Alan: You said he heard you speak at a school. What would you speak about?

Micah: About like, my life goals and my IEP and things about what I'm doing and… But when I heard that it's just sad how the schools have the money, but they don't want to help their kids learn about, like, iPads. And they and their mindset. They think it costs too much.

Beyond relationships, Micah uses iPhone features like reminders, alerts, and calendar events to stay organized with his busy schedule. As he lives independently from family members, this self-management assists with reliability and credibility in his work and community roles. Micah makes a compelling case for mobile devices as tools for independence for people with disabilities.

Conclusions and Implications

Micah's personal narrative highlights the ways in which mobile technology, particularly speech-to-text tools, has fostered social inclusion, communication, and empowerment for him as a person with an intellectual disability. These findings align with previous research on the potential of mobile technology to support social relationships and self-determination for people with intellectual disability (Darcy et al., 2016; Shpigelman & Gill, 2014).

This study set out to address two key research questions. The first question explores how mobile technology, particularly speech-to-text tools, can foster social inclusion and communication for people with intellectual disability, and what challenges and barriers need to be addressed to maximize its potential. Micah's experience demonstrates that mobile technology, especially speech-to-text tools, can significantly enhance social inclusion and communication. The introduction of Siri on the iPhone marked a turning point in his ability to communicate independently, enabling him to send approximately 100 texts per day, maintain relationships, and engage in advocacy work. However, challenges remain, such as accessibility issues with certain applications like Zoom, highlighting the need for continued improvement in digital platform accessibility.

The second question examines how personal narratives and lived experiences of people with intellectual disability, gathered through participatory and inclusive research practices, can contribute to a more nuanced understanding of the role of technology in promoting inclusion, belonging, agency, self-advocacy, and autonomy. Micah's personal narrative, gathered through our participatory approach, provides insights that might not have been captured through traditional research methods. His account reveals how mobile technology promotes autonomy through features like calendar management, enhances self-advocacy by facilitating communication, and fosters social inclusion by enabling the maintenance of relationships. This personal perspective offers a nuanced understanding of the evolving role of technology in promoting inclusion, belonging, agency, self-advocacy, and autonomy for people with intellectual disability.

The participatory and inclusive research approach used in this study provided a nuanced understanding of technology's role in promoting inclusion, belonging, agency, self-advocacy, and autonomy for people with intellectual disability. Centering Micah's personal narrative and collaborating with him as a co-researcher offered insights into the lived experiences and perspectives that traditional research approaches may overlook. This approach aligns with calls for more inclusive and participatory research practices in the field of intellectual disability (Nind, 2010; Walmsley et al., 2018) and highlights the value of such approaches in generating knowledge that is grounded in the realities and aspirations of people with disabilities. Our findings, along with those of Seale et al. (2024), contribute to a growing body of inclusive research that gives voice to the technology experiences of people with intellectual disability, highlighting the value of participatory approaches in understanding this important aspect of their lives.

Limitations

It is important to acknowledge that the authors have known each other for several years, having collaborated on various projects and developed a strong working relationship. This long-standing connection likely influenced the research process, and the depth of insights gained. The trust and comfort established through their prior interactions may have allowed for more open and honest communication during the interviews, leading to richer and more nuanced data.

Furthermore, the use of different interview techniques, tailored to Micah's preferences and needs, may have impacted the nature and quality of the data collected. Each mode of communication - in-person conversations, text messages using Siri, and

recorded spoken conversations - has its own affordances and limitations, shaping the way Micah expressed himself and the level of detail provided. These factors invite reflection on how the authors' relationship and the chosen interview methods may have influenced the research findings.

Reflections on Participatory Design Methods

The participatory design approach employed in this study offers insights for researchers seeking to engage in collaborative and inclusive research with individuals with intellectual disability. By involving Micah as an equal partner throughout the research process, from the initial conceptualization of the project to the dissemination of findings, this study demonstrates the potential for participatory methods to challenge traditional power dynamics in research and promote the agency and expertise of individuals with intellectual disability.

Participatory research presents unique challenges and requires a commitment to reflexivity and open communication. Researchers must adapt their practices to accommodate co-researchers' needs and preferences, using accessible language, multiple communication modes, and flexible timelines and expectations. It is also essential to establish clear roles and responsibilities from the outset of the project, while remaining open to renegotiating these roles as the research evolves. Researchers should be prepared to invest significant time and resources in building trust, fostering a collaborative spirit, and ensuring that all co-researchers feel valued and heard throughout the process.

Another insight from this study is the importance of leveraging technology to facilitate inclusive and accessible research practices. The use of technologically mediated interviews, such as text messaging and voice recordings, allowed the self-advocate co-researcher to contribute to the project in ways that were comfortable and convenient for them. This flexibility not only enhanced the richness of the data but also demonstrated a commitment to accommodating the diverse needs and preferences of individuals with intellectual disability. As technology continues to evolve, researchers should explore innovative ways to harness these tools to support participatory and inclusive research practices.

Ultimately, engaging in participatory research with individuals with intellectual disability requires a fundamental shift in the way we think about knowledge production and expertise. By recognizing the lived experiences and insights of individuals with intellectual disability as valuable sources of knowledge, researchers can contribute to a more equitable and empowering research landscape. While participatory methods may present challenges, the potential benefits – in terms of generating meaningful insights, promoting social inclusion, and advancing the rights and aspirations of individuals with intellectual disability – make this approach well worth the effort. As more researchers embrace participatory and inclusive methods, we can work towards a future in which the voices and perspectives of individuals with intellectual disability are central to the research that affects their lives.

Mobile and connected technologies have immense potential to facilitate inclusion, autonomy, and community participation for people with intellectual disability. Speech

recognition tools, scheduling apps, social media platforms, and other features can empower people to communicate, socialize, manage responsibilities, and access information more independently. These technologies are still evolving, but current capabilities already significantly improve quality of life when thoughtfully implemented.

Mobile and connected technologies have immense potential to enhance communication, self-determination, and community participation for people with intellectual disability. As highlighted through Micah's experience and existing research, features like automatic speech recognition and text-to-speech can enable more independent communication for people facing literacy or motor impairments. Cloud-based apps and AI assistants additionally support organization, scheduling, navigation, and other daily tasks central to autonomous functioning.

Despite this promise, lingering gaps around digital accessibility, interface design limitations, privacy protections, and availability of the latest advancements keep these benefits out of reach for many. Addressing these barriers to create more equitable access should be a priority. Centering people with disabilities themselves in the development and evaluation of emerging technologies will be key, as emphasized in the principles of inclusive design and participatory action research.

This paper highlights promise and limitations of contemporary mobile technologies through an insider perspective grounded in lived experience. It surfaces problematic assumptions embedded in technology terminology, while also showcasing the emancipatory potential of putting these tools directly in the hands of marginalized people. Further research should continue exploring optimal implementation strategies for existing

technologies and participatory approaches for advancing next-generation inclusive design and literacy. Moreover, this paper also points to the need for K-12 schools to support the use of these technologies to support communication, social engagement, agency, self-advocacy, and autonomy for students with intellectual disability. Additionally, comparative analyses of technology's impacts across various dimensions of community participation could reveal nuances around differential access or outcomes. On a practical level, the insights shared here can guide people with intellectual disability, their families, support staff, and other allies to better take advantage of available tools for communication, connection, and independence.

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