Digital Accessibility Practices in Post-Secondary Education: A Transformative Path Toward Socially Just, Digitally Accessible Education

by

Kimberly Ashbourne

Bachelor of Fine Arts, Simon Fraser University, 2000

A Project Submitted in Partial Fulfillment of the

Requirements for the Degree of

MASTER OF EDUCATION

in the Department of Curriculum and Instruction

University of Victoria

We acknowledge and respect the Lək̓ʷəŋən (Songhees and Esquimalt) Peoples on whose territory the university stands, and the Lək̓ʷəŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.

Supervisory Committee Page

Digital Accessibility Practices in Post-Secondary Education: A Transformative Path Toward Socially Just, Digitally Accessible Education

by

Kimberly Ashbourne

Bachelor of Fine Arts, Simon Fraser University, 2000

Supervisory Committee

Supervisor

Dr. Michael Paskevicius, Department of Curriculum and Instruction

Second Reviewer

Dr. Mariel Miller, Department of Educational Psychology and Leadership Studies

Abstract

Educators, learners, librarians, and publishers don't mean to cause pain to me and my disabled peers, but they do. Digital accessibility and inaccessibility in education is viscerally material to learners with disabilities; it touches our bodies, minds, and our sense of self-in-community. Guidance and tools to support the adoption of digital practices that would enable rather than disable people who use assistive technologies have been around for 20 years and yet post-secondary leadership, education scholarship, and educator training programs have yet to normalize them (Dolmage, 2017; Oswal & Melonçon, 2017; Palmeri, 2006; Seale, 2020a; Zdenek, 2019). That too is painful. Universal Design for Learning, arguably the most popular pedagogical approach to inclusive education in post-secondary, at an institutional level, regularly omits discussion of digital accessibility; leaving educators unaware there are problems or solutions to explore. This research project draws on 1) learners' lived experiences, 2) scholarship on digital accessibility as sociocultural phenomena (Das et al., 2019; Palmeri, 2006; Seale, 2013; Treviranus et al., 2019) relative to pedagogy and praxis, and 3) on the liberatory, anti-oppression work of activists and artists leading the Disability Justice movement (Clare, 2015; Piepzna-Samarasinha, 2018; Sheppard, 2019; Sins Invalid, 2016). Using a transformative inquiry approach, this research offers educators multiple entry points to expand their understanding of digital accessibility, and of how learners with disabilities use technology to participate in post-secondary learning communities. This is offered in service of supporting fellow educators and researchers to learn and model a transformative digital accessibility praxis, one that includes and enables learners with disabilities in both our learning communities and in the digital commons.

Table of Contents

List of Figures

List of Tables

Acknowledgements

With love and admiration for their encouragement and support, I first thank my wife Jade Ashbourne and our little wonder Aidan Ashbourne.

Next, I want to acknowledge the guidance, encouragement, and curiosity of my supervisor Dr. Michael Paskevicius. Your commitment to flexibility and your respect for your students is inspiring. I so enjoyed our conversations and appreciate that your door remains open. Dr. Valerie Irvine, though our research paths diverged, I want to thank you for welcoming me into the program, encouraging me to participate in OTESSA, and for supporting my application to the BCcampus Fellowship. Thank you both for modelling that there is room, and that we can make room, for expansive thinking about accessibility in post-secondary. My thanks to Dr. Mariel Miller for your thoughtful feedback and encouragement, for letting me be a robot for a day, for our time at LTSI, and for recommending my application to the BCcampus Fellowship, which was pivotal. Special thanks to Dr. Catherine McGregor, and Dr. Jennifer Thom who both encouraged my writing and my inquiry into transformative research methodologies. My thanks also to Dr. Todd Milford, and Dr. Graham McDonough who shared genuine enthusiasm for my research interest, despite my struggles confining said interest to your word counts.

Special thanks to classmates Marina Lobo for her friendship and support, and to Chaa'winisaks Ogilvie, for being a leader in our UVic community, and for showing me that homeschooling your child while doing grad school can be creative and transformative all around. So many thanks to Dr. Ann Gagné and the Disability Reading Group, your brilliant, challenging, compassionate insights about living this disabled life colour my world and inform these pages. My grinning heart thanks the IBPOC Queer and Disabled shit-disturbers of the Disability Justice Movement, some of whom are cited on the pages to follow. You move me. May we move more.

The CanDARE website was supported by the BCcampus Research Fellows Program. This program provides B.C. post-secondary educators and students with funding to conduct small-scale research on teaching and learning, as well as explore evidence-based teaching practices that focus on student success and learning. Special thanks to Leva Lee at BCcampus for understanding when to encourage and when to wait with patience and total respect. My humble thanks to Sherwin Arnott for being my second brain when my symptoms were high, and I didn't trust my own brain to sketch my ideas in WordPress. And when I built my trust back, thank you for sticking with me to bounce ideas around, bringing your gifts, and help me make it better, more stable, and more accessible than I could have alone.

Finally, my thanks to my parents Betty and Jim Lear, who taught me that if you want something big you work hard, save up, and just keep working at it bit by bit until it's done. Look what we did.

Dedication

I dedicate this to Aidan Harvey Ashbourne. When you were born, you refocused my everything. I would not have accomplished this without you. And to my grandparents, Doris Walton, who didn't get to go to school past grade 6, and Harvey Walton who didn't get to go past grade 8. Their teachings got me here.

Chapter 1. Introduction

Digital accessibility can be viscerally material, and both educationally and agentively meaningful to learners with disabilities, and it touches every aspect of student life. Consider something as basic as how a course syllabus is distributed. If it is distributed in an in-person class in print form only, this one simple act can precipitate feelings of physical strain, exclusion or erasure for learners who use assistive technology to read, or who need time to collect their thoughts in order to have questions ready for an in-class discussion of the syllabus, or who have specific print needs, e.g. large font, to make print documents accessible. Consider the compound effect of starting course after course with those same experiences of strain, exclusion, or erasure. Whereas, if the same syllabus is authored in a digitally accessible format and is also shared digitally four or five days in advance of class, that simple act can signal to learners that the educator values accessibility, welcomes learners with disabilities, and has developed digital practices to facilitate ease of access and momentum for learning.

Learners engage in hundreds if not thousands of digitally-mediated interactions during their post-secondary education. Their sense of inclusion in post-secondary, and their agency to manage their well-being (experiences of palpable ease versus strain, and momentum versus obstacles) is in part dependent on the extent to which the people in their learning communities – educators, librarians, disability support staff and peers – do or don't know:

- what makes digital materials and environments accessible or inaccessible, and
- how taken-for-granted digital practices marginalize learners with disabilities.

The research topic of digital accessibility in post-secondary education is vast. Building since the early 2000's, some overlapping categories of study have emerged:

- the accessibility of educational technology and materials,
- policy and compliance, and
- pedagogy and praxis.

What follows is just a glance at the type of literature that can be found in each category.

Educational technology and materials: Certainly, much digital accessibility research in education (DARE) literature looks at technical factors that relate to learners' use of information and communication technology (ICT) (Fichten et al., 2009, 2012, 2020), and the accessibility of digital learning environments, both online learning environments and technology-integrated bricks-and-mortar learning environments (Fichten et al., 2009; Roberts et al., 2011; Rodríguez et al., 2017; Seale, 2006). Some DARE literature delves into specific learner experiences, such as the experiences of people who use assistive technology to participate in collaborative digital environments with nondisabled people (Das et al., 2019; Nierling & Maia, 2020; Seita et al., 2021). Additionally, there is no shortage of literature on the creation and curation of digitally accessible course content, often written for and by both educators and librarians (Bradbard & Peters, 2008; Lewin, 2015; Linder & Ecampus, 2016; *MARY FERNANDEZ, and THE NATIONAL FEDERATION OF THE BLIND, INC., Plaintiffs, v. DUKE UNIVERSITY, Defendant.*, 2021; Wood et al., 2017; Zdenek, n.d.).

Policy and compliance: There is a plethora of audit-style inquiries into the web accessibility of academic institutions' public-facing websites, much of it demonstrating non-compliance with state legislation (Bradbard et al., 2010; Kimmons, 2017; Lorca et al., 2018). Compliance-focused literature also investigates the effectiveness of legislation, the development and implementation of policies and auditing practices, as well as inquiries into the accessibility

of service delivery in academic institutions (Coughlan & Lister, 2018; Epshteyn, 2019; Marquis et al., 2016).

Pedagogy and praxis: There are practitioners and scholars writing about digital accessibility relative to pedagogy and praxis. Some are primarily concerned with integrating the internationally accepted Web Accessibility Initiative (WAI) Web Content Accessibility Guidelines (WCAG) and the Perceivable, Operable, Understandable and Robust (POUR) framework as published in the 2.0 edition in 2008 (Web Accessibility Initiative, 2024; World Wide Web Consortium, 2008) into praxis (Bradbard & Peters, 2008, 2010; Gronseth, 2018). Some are concerned with what could be considered a culture toward, or impeding, digital accessibility and inclusion that can emerge amongst teaching colleagues within a faculty, and how that influences pedagogical directions en masse (Gallaher, 2023; Lewthwaite & Sloan, 2016; Youngblood et al., 2018). However, there is a small canon of scholars whose work is informed by the WCAG 2.0 POUR framework (2008) described below, but who extend their thinking to critically consider digital accessibility and digital practices as they relate to: the social construction of knowledge, independence and interdependence in learning, learner agency, the ableism embedded in common digital practices, social justice, equitable learning experiences, and the learning outcomes of learners with disabilities (Melonçon, 2018; Oswal, 2018; Oswal & Melonçon, 2017; Palmeri, 2006; Seale, 2006, 2020a; Zdenek, 2019). These scholars take a critical, disability studies-informed approach to digital accessibility and inclusion that is potentially transformative.

We have twenty-plus years of scholarship in this area, and thousands of the step-by-step and how-to guides for digital accessibility practices published and shared on thousands of academic institution websites. However, campus communities, and educators specifically, have

been slow to adopt accessible digital practices (Seale, 2020a). This hesitance has immediate impacts on learners with disabilities and long-term impacts for inclusion in the digital commons.

Problem

Globally, researchers argue that despite the potential for ICT to improve access, inclusion and learning outcomes for learners with disabilities, post-secondary institutions continue to fall short of effectively utilizing ICT to deliver equitable and accessible educational experiences (Bühler et al., 2020; Burgstahler et al., 2020; Fichten et al., 2020; Heiman et al., 2020; King et al., 2020; Seale, 2020a). Concerningly, relatively few studies and educator resources specifically address the embedded ableism in many of our "normalized" digital practices; practices that can foster digitally inaccessible learning environments and an inaccessible digital commons, including the production and dissemination of digitally inaccessible materials. We do have literature discussing the effect digital practices have on the agency, learning experiences, and lives of learners with disabilities (Das et al., 2019; Dolmage, 2017; Melonçon, 2018; Oswal, 2018; Seale, 2020a, 2023a). However, even critical literature tends to lack engagement with how digital accessibility and inaccessibility, as phenomena, corporeally manifest in learners' bodies as say, a sense of ease, injury, or pain, or how encounters can be felt as perhaps comfort, stagnation, or strain. Very little is known about how these palpable lived experiences are reflected on the learners' academic transcripts. We are left to wonder how often the transcripts of students with disabilities are accurate reflections of their academic abilities, as opposed to accurate reflections of their endurance for encountering repeated incidents of disablement, digital or otherwise. Without this potentially discomforting discourse, we lack evidence of harm – avoidable harm – and we also lack evidence of the momentum, and benefits thereof, that students gain when digital hurdles to academic success are removed.

Purpose

At the core of all digital accessibility research in education, I see two common desires. The first is a desire to improve learning experiences and learning outcomes for learners with disabilities. It is possible to imagine measurable targets and timelines being set towards achieving this goal. In fact, Laura King et al. (2020) offers guidance for identifying and engaging campus "stakeholders" in such a campaign. Armed with decades of legislation, litigation, ICT design revolutions, frameworks, checklists, and policies, surely those "stakeholders" should succeed, but there is ample evidence that they have not yet succeeded in their cause (Kimmons, 2017; Marquis et al., 2016; Moriarty, 2018; Oswal, 2018; Oswal & Melonçon, 2017; Seale, 2006, 2020a; Silberman, 2018).

The second desire is more nebulous. Inconveniently, many believe it to be a prerequisite, or at least a corequisite, for any campaign to improve learning outcomes to succeed. The second desire is for genuine, justice-informed, lived experience-informed cultural acceptance of, and respect, for the myriad ways learners with disabilities can and do use digital technology to learn and contribute to post-secondary education and beyond. Looking at the second desire from another angle, it is a cultural shift that requires the upending of normalized, taken-for-granted digital practices that recursively reinforce ableism and marginalize learners with disabilities.

This literature review attends to the second desire, focusing in on the educator's domain, specifically pedagogy and praxis. We know that both educators' and learners' current digital practices contribute to persistent, even chronic, digital inaccessibility in our teaching and learning environments and communities. The bulk of the literature on digital accessibility relative to learning environments and communities focuses on educator practices. Surprisingly, little literature acknowledges that learners with and without disabilities, functioning as active

contributors in learning communities, must also learn and adopt accessible digital practices to avoid marginalizing their peers. Certainly, various educational technologies can be vectors for experiences of digital accessibility and inaccessibility (e.g., Learning Management System (LMS), digital files, online assessments, websites, etc.). However, as accessibility features are increasingly built into mainstream and educational technologies, it is increasingly our normalized digital practices that functionally impair learners with disabilities (Bühler et al., 2020). Said another way, both educators and learners have the potential and agency to improve digital access and inclusion; and both can critically intervene in the digital marginalization of people with disabilities in post-secondary education, and in the broader digital commons.

The purpose of this research project, both the literature review and the CanDARE.ca website (as research material for dissemination), is to open an exciting, potentially transformative space for shifting perspectives on digital accessibility and inclusion, and to offer educators, and ultimately learners, various entry points to critically engage with their own digital practices. I can't help but imagine the potential for a paradigm shift given that digital accessibility in post-secondary touches: literacy and communication, workflows and habits, research practices and scholarship dissemination practices, teaching and learning including power and agentive dynamics in learning communities, and assessment of learners with disabilities.

Research Questions

I began engaging with the literature by asking:

1. How are educators supported to learn about and practice digital accessibility?

2. What critical provocations and interventions support educators to meaningfully reflect on their digital practices relative to access, inclusion, and improved learning experiences for learners with disabilities?

3. What academic conventions, systems, and pedagogical approaches impede educator reflection on the accessibility of their digital practices?

4. How do the visceral experiences of learners with disabilities shape research?

Reflecting on these questions, I observed that two characteristics of research consistently drew, and held, my attention. The first was critical and transformational inquiries that approach digital accessibility and inaccessibility as a politically charged, sociocultural phenomenon and social justice issue. The second was the audible, palpable inclusion of the voices of people with disabilities. Resources with one or both characteristics were limited, but they were also sticky, exploratory, and less straightforward than how-to literature. Research with aspects of learner voice often engaged more chaotically with the messy, knowable, and unknowable experiences of the diverse and distributed disability community.

Ultimately, my primary research question became this: **How might learner voice, including my voice, and critical problem posing be used to support educators to critically attend to the digital marginalization of disabled learners in post-secondary and adopt a transformative digital accessibility praxis?**

Methodology and Project Description

Digital accessibility and accessible digital praxis are presently not well understood by many post-secondary educators. My own relationship to, and understanding of, digital accessibility has deepened relative to my academic research, my professional practice, and my health. As a result, I return over and over to my own experiences of digital barriers, digital

dependencies, and digital flow in my learning journey. The CanDARE research project is designed to combine embodied understandings and experiences with research literature on digital accessibility in ways that critically shift understanding and potentially transform digital practice, both for myself and others.

As such, my approach to research fits within Donna Mertens' conception of the transformative research paradigm, which begins with acknowledging and observing systemic oppression in the status quo, and conducting research that seeks liberatory and transformative outcomes for the researcher(s) and the community (Mertens, 2017). This work is rooted in critical inquiry and social justice and is inherently political. It is commonly used to work in, and with, marginalized communities and has been used extensively with disability communities including Mertens' own research with the D/deaf (Canadian Association of the Deaf, n.d.) community.

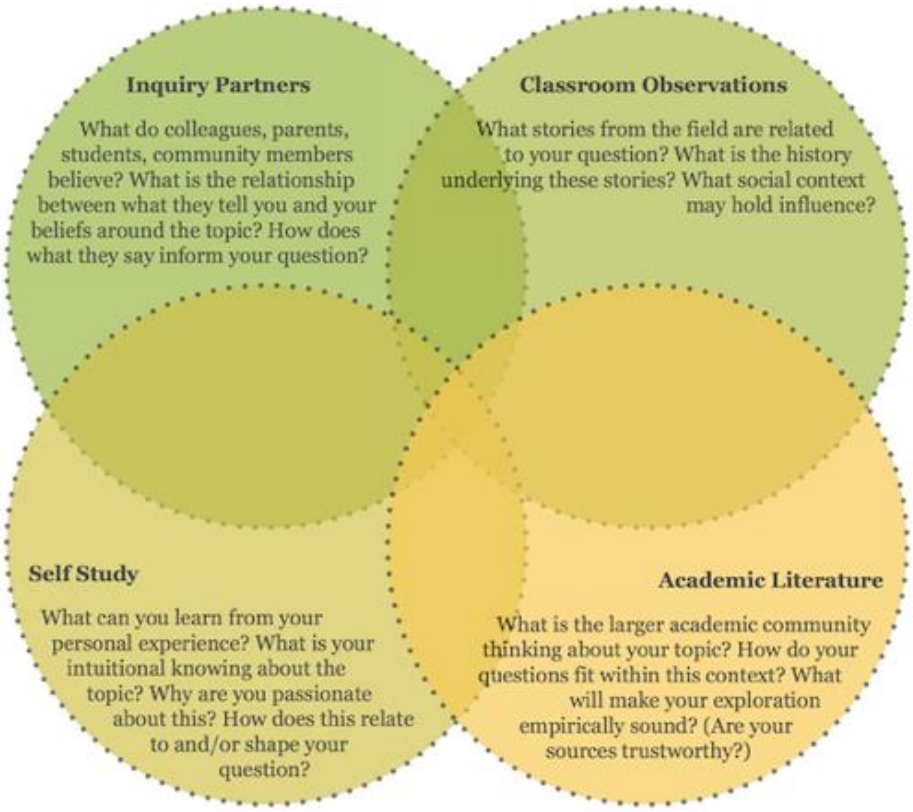
Mertens argues in support of methodologies that honour multiple ways of knowing. Drawing on Walton (2014), Mertens advocates for using an expansive literature review, including work that challenges the researcher's own values and assumptions, and collecting "intuitive and integral" knowledge via qualitative, quantitative, or mixed methods. The research product itself must integrate and demonstrate ways of knowing that are relevant to and respectful of the community and be shared in "meaningful ways, with diverse audiences" (p. 23). The scope of this Masters project is much smaller than the scope of Mertens' work, however, the research design does align with the essential elements of her approach. Guided by an expansive literature review, I pair intuitive, transformative inquiry methods (e.g., journaling, creative writing, montage, etc.) with conventional methods (e.g., literature review, annotated bibliography, coding

themes, etc.), and share the research product with educators and learners in multiple ways (e.g., the CanDARE.ca website, conference presentations, journal articles, etc.)

As a framework for my inquiry, I chose the four spheres of influence model (pictured in Figure 1 below) as presented by Dr Jennifer Thom (J. Thom, personal correspondence, September 27, 2023), and the Transformative Inquiry team at the University of Victoria (What Is Transformative Inquiry, n.d.). This framework challenges teacher-learner-researchers to iteratively use unbounded questions and creative prompts to engage deeply, sometimes awkwardly or uncomfortably with teaching, learning and research by drawing on materials gathered from inquiry partners, self-study, classroom observation, and the academic literature. These materials are much more than research data points. The materials are used by the teacher-learner-researcher to be examined, shaped, reshaped and transformed as part of a dynamic, relational process toward transformative experiences of teaching and learning.

Figure 1

Four Spheres of Influence Model



Note: Four overlapping circles represent what are seen as interconnected, and well-respected sources for deepening inquiry. The full text is also written in the body of the paper below.

Digital Accessibility Note: The caption above as well as the alt-text for the figure points readers to the in-text description of the four spheres model because the density of text in the image exceeds the functional limitations of alt-text and captions. Therefore, for equity and access, the full text in the figure is transcribed below for readers who perceive figures by alt text or who are unable to adequately perceive the information in the figure visually and the image is visually described.

The four spheres of influence model is made up of four overlapping circles. Each circle represents a respected source of knowledge, or source of materials for sense-making. Together

they represent the interconnected community that is connected to the research. They read as follows:

Academic literature: What is the larger community asking about your topic? How do your questions fit within this context? What will make your exploration empirically sound? (Are your sources trustworthy?)

Classroom observations: What stories from the field are related to your question? What is the history underlying these stories? What social context may hold influence? What do you see?

Inquiry Partners: What do colleagues, parents, students, and community members believe? What is the relationship between what they tell you and your beliefs around the topic? How does what they say inform your question?

Self Study: What can you learn from personal experience? What is your intuitional knowing about the topic? Why are you passionate about this? How does this relate to and shape your question?

In this project, I drew on these overlapping influences as follows:

Academic Literature: an expansive literature review on digital accessibility relative to learning experiences, pedagogy, and theory in post-secondary.

Classroom Observation: reflections on my professional experiences as an adult educator in the field of digital writing, and as a learning experience designer focused on digital accessibility in post-secondary.

Inquiry Partners: secondary sources and “common knowledge” from my disability community, the disability arts community, as well as my educator colleagues, and my learner colleagues.

Self Study: documentation of experiences, personal reflections synthesized through creative writing, personal essay, recordings, and photo montage.

I found myself questioning how I might add my voice to this research space and offer tools for other's inquiries. These questions became secondary research questions:

Q 1A: As a researcher, how might I ground my research production in the theory and work of my accessibility and disability elders, and distribute it in digitally accessible ways to actively support a digital accessibility paradigm shift in post-secondary?

Q 1B: As a person with disabilities, how might I weave my voice through the voices of learners with disabilities already captured in research?

Q 1C: As an educator, how might I use critical and liberatory pedagogical approaches to support educators to reflect on their digital practices?

These "how" questions led me to explore digital means to manipulate and accessibly express my research, the result of which is the CanDARE.ca website. The website is designed to bring attention to the work of researchers, activists and learners talking about digital accessibility and inclusion issues and shine a light on taken-for-granted ableist digital practices. Experimenting with different forms of digital media and writing, CanDARE.ca engages with the lived experiences of digital accessibility and inaccessibility that are often obscured by policies, checklists, legal frameworks, and much academic and empirical scholarship.

The CanDARE Library was developed as an annotated bibliography "crip hack" (a term used commonly in the disability community to describe a community-designed technology solution to a disability challenge). I built the pages of the Library section as individual annotated bibliography posts to save and structure my thinking about key characteristics of the DARE literature in a searchable format. Posts are tagged to add visibility and centre the voices of

disabled and otherwise marginalized artists and scholars, and to improve the searchability of the resources.

The Praxis section offers traditional blog posts that unhide ableism in common digital practices. It also offers problem-posing praxis provocations that pair insights from the literature with image montage, visceral understandings, and creative reflections. By combining traditional academic work with intuitive work in this way, I hope to use the CanDARE website to provoke and support embodied understanding and critical reflection in others. A more detailed discussion of the site design and content can be found in chapter 4.

A final note on the website as a transformative research product. The CanDARE website is iteratively written, designed, and published. As such, it has changed and will continue to change relative to user feedback, changing understandings of accessibility, further personal reflection, and changes in technology. In this way, it will never be "done." It is currently undergoing digital accessibility testing by people with disabilities and in time will provide exemplars for digitally accessible media. However, it is presented "as is," providing an exemplar of what I call the "modelling and muddling" approach to digital accessibility. I'm *trying.* I will fail. I will learn. And things will get better.

Author Positionality

I read and write with a critical feminist and emancipatory view of teaching and learning. From this perspective, I see formal, informal, and embodied opportunities for learning as inherently sociocultural and political. I believe our teaching and learning experiences are informed and mediated by the dominant culture, dominant narratives, our relationships with countercultures, our material environment, which inescapably includes technology, and by the personal, intimate, palpable, and political ways our bodies come to know, understand, and

engage with the world. Each time I sit down at my computer to read, the voices of my text-to-speech tools bring to mind the voices of the many learners using assistive technology as part of their educational path; injecting breadth and breath to my understanding of multiple ways of learning, ways of teaching, ways of researching, and ways of being. I write with the accumulated privilege of a white, cis, queer woman who lived most of my life as an enabled able. Now, my identity is growing into being a disabled learner/educator, researcher /writer conscious of, and comfortable with, my "otherness" in society. As I work to make sense of the academic literature and other forms of cultural productions in my field, I also work to make sense of the evolving, shifting ways my body processes sensory information, attends to language, and moves (or wobbles) through the world. This isn't the research I thought I'd write. It is the research only I can write.

Literature Review Inclusion/Exclusion Criteria

The references cited here emerged from my engagement with scholarly work in this field, and engagement with the cultural production of artists and activists with disabilities. Sourcing scholarly work, I began using a combination of Boolean searches in the University of Victoria Library collections, backward and forward citation-chaining, and journal searches. Searches included the key construct term "digital accessibility" and variant terms: web accessibility, web accessible, web inaccess*, web content accessibility, digital accessibility, digital inaccess*. Search findings then revealed the common use of the term "digital practices" in the literature, which I then added to searches.

These terms were paired with "post-secondary" and variant terms, such as "higher-ed*". References from these general topic papers led me to find many articles related to the use of, and/or accessibility of, specific educational technologies, as well as articles that discussed

specific assistive technologies. The references also led me to articles related to specific experiences of disability, such as learners with vision impairments. Many of these articles proved to illustrate important complexities and often used methodologies that foreground student voice.

These terms were also paired with search terms related to educators including: educator resources, training for educators, pedagogy, praxis, accommodations, etc. Terms were also paired with learner experience terms including: student*, learn*, disabil*, disable*. Literature pertaining to the K-12 learning context was excluded unless a discussion of skills or needs was deemed relevant to the post-secondary context.

All research methodologies were included as part of the search. Research approaches common to the field include qualitative studies, some of which include student voice, as well as case studies and normative arguments based on practitioner perspectives and literature reviews. Quantitative and qualitative studies offer some longitudinal data. A small number of research papers explicitly offer praxis interventions. Common guidance for educators was gleaned from a survey of educator how-to resources found on the websites of post-secondary institutions in Canada, the United States (U.S.). and the United Kingdom (U.K.). Transformative or emancipatory research models were found to be used by scholars interested in transformative pedagogical approaches and academic activism (Almog, 2018; Oswal & Melonçon, 2017; Seale, 2017; Seale et al., 2010).

I encountered most of the disability arts work cited here through my own broad engagement with cultural production. Much like academic scholars, the disability arts community has a generous practice of referencing the work of others in the community. As a result, each time I revisited work that I had seen or read previously, I found myself pointed toward new-to-me artists and works. The exception to this is the work of Alice Sheppard, who I

was introduced to when she gave the keynote address, *"Disability will (re)make the arts"* at Congress of the Humanities and Social Sciences (2021).

People-Centered Definitions

Definitions of some key constructs are offered here to nurture shared understanding and abate construct conflation. The definitions come with the caveat that language is always alive, contextual, and political. As such, the definitions provided are explicitly not universal or conclusive. Informed by both scholarly rhetoric and common usage within the disability community, these definitions offer a window into the point of view of the writer and locate the work rhetorically. The static nature of explicit definitions is somewhat antithetical to any nuanced understanding of, or engagement with, accessibility or disability. However, even if these definitions serve only as loci for disagreement, they can be tools for much-needed discourse.

Disability: This paper's conception of disability aligns with common usage of the term in critical disability studies and Disability Justice rhetoric, literature and cultural production (Bie et al., 2020; F. K. Campbell, 2009; Goodley, 2014; Hall, 2019; Piepzna-Samarasinha, 2018; Sins Invalid, 2016). Here, disability is messy. It can exist as an experience of a medicalized impairment, and as an experience of extra-corporeal social, political, and dynamic constructs, situated in and on the body. This conception contends that built environments, tools, systems to organize people, societal norms, and other human constructs such as language, literacy and progress, privilege some and disable others. Disability can also be experienced intersectionally, as experiences of disability play out in, and on, the non-normative body in heterogeneous ways across communities of colour, across class structures, and across diverse geopolitical and socioeconomic communities.

Disablism and ableism: Jay Dolmage (2017), citing Kumari Campbell (2009), eloquently defines disablism and ableism in the post-secondary education context as the manifestation of conscious and unconscious assumptions or beliefs that have the effect of separating out, or otherwise inequitably treating, people with actual or perceived disabilities. Where disablism negatively constructs disability, ableism positively constructs, values and normalizes the contemporary ideals on which the able, autonomous, productive citizen-learner is modelled (Dolmage, 2017; Goodley, 2014). It can be helpful to imagine that disablism is to racism what ableism is to white supremacy.

Disabled learners: I use the term *disabled learners* cautiously. Personally, I often choose to identify as a "learner with disabilities." This descriptor uses person-first language. Just as often, I would stand with others in my community who would resonate with the descriptor "disabled learner." Some would say this descriptor is "identity first" and others might see it as simply situationally appropriate. How we – people with disabilities – identify is our choice and should be respected (Wong, 2019). The term *disabled learners* is frequently used in this review situationally when discussing a learner with a disability who has experienced an act of educational disablement, meaning something in their learning environment or someone in their learning community has functionally disabled them (Dolmage, 2017a; Seale, 2020).

Temporarily able-bodied and enabled: Disability Justice authors and activists polemically use the term "temporarily able-bodied" as a rhetorical device to remind non-disabled people that, as Almog says, "the boundaries between disability and able-bodiedness are extremely fragile (Almog, 2018, p. 224)." At some point, most people will experience disability whether by accident, illness, or aging. I occasionally use the term "enabled learners" or the more polemic "enabled ables" in a similar way, to refer to able-bodied actors whose social/political,

environmental, technological and/or educational context enable them to succeed. This use draws on Eli Clare's musings about disabled and enabled people.

> But if I call myself disabled in order to describe how the ableist world treats me as a person with cerebral palsy, then shouldn't I call nondisabled people enabled? That word locates the condition of being nondisabled, not on the nondisabled body, but in the world's reaction to that body. (Clare, 2015, p. 82)

Digital accessibility: This term must be understood to be people-centered. It describes a dynamic state of being that exists between people and technology, or between people, technology, and other people. Digital technology, content, code, environments, and experiences can be described as digitally accessible when designed and operated so that people with disabilities (who may or may not use specialized assistive technology) can equitably: find, understand, navigate, engage in, and contribute to information sharing, information production, and sociocultural experiences in digital environments.

Where *web accessibility* was originally conceived by the World Wide Web Consortium (**W3C**) to address practices online, e.g., the design of websites and web authoring tools (Yesilada & Harper, 2019), *digital accessibility* includes web accessibility but is expressly not limited to online environments. The term digital accessibility can be applied to the design and use of smart devices, systems computing, data management and storage, software, and apps, etc. It is also appropriate to use this construct to discuss the accessibility effects of digital literacy practices such as document authoring, video production, etc.

Though digital accessibility is people-centered, it is not a universal experience. It is relational, relative to digital tools, environments, materials. It is relative to a person's own digital practices and relative to other people's digital practices. Though some tools, environments, or

materials could be said to be entirely inaccessible, people often experience degrees of digital accessibility and inaccessibility. For example, an image file without alt-text cannot be perceived by a screen reader user and is therefore entirely inaccessible, but it might be the only inaccessible element of what is otherwise experienced by that learner as an accessible, perceivable, and navigable document. Learners with disabilities will have varying experiences of digital accessibility and inaccessibility while using software and apps on their personal devices, sharing files with peers, using a course LMS or completing an assessment online, interacting with touchscreens or digital maps, watching videos or slide presentations, listening to podcasts, or engaging in any digitally mediated task in post-secondary (Bradbard & Peters, 2008; Petrie et al., 2015; Seale, 2006; Yesilada & Harper, 2019; Zdenek, n.d.).

Digital disablement: Where digital accessibility creates a platform for digital enablement, inaccessible materials, digitally marginalizing environments, disabling design, and disabling practices negatively construct a platform for disabling learners. The following vignette is offered to illustrate an example of an act of digital disablement that this paper will return to.

> **Vignette: Digital Disablement.**
>
> *An educator uses an in-class, digital polling tool that is inoperable by a learner who is dyslexic, either because the polling tool doesn't interface with the learner's assistive technology, or because the time to read and respond to the poll is insufficient, thereby disabling the learner from participating in the learning activity. In this example, the educator's choice of technology, and/or the way they use it, has disabled the learner, rendering them a disabled learner in the situation.*

Here, it is important to underscore that experiences of disablement are situational and / or relational. Learners with disabilities who experience disablement may not feel disabled in all learning contexts, and they may feel positively enabled in non-disabling learning contexts.

Digital accessibility literacy skills: Much digital accessibility how-to literature for educators focuses on course content, and on what are often referred to as *web accessibility skills*, or *web accessible writing skills*, or *accessible course content skills* (Association on Higher Education and Disability, 2022; University of Victoria, 2024; w3c_wai, 2019). I have previously introduced the notion of framing some of these skills as literacy skills (Ashbourne, 2021). Specifically, I define *digital accessibility literacy skills* as the primarily text-based skills for reading, writing, producing, and curating digitally accessible media. These skills are adapted from WCAG 2.0 (2008) (see Table 1) and when employed, can support some learners with disabilities, and many learners who use assistive technologies, to perceive and navigate information.

Digital practices: The term *digital practices* (see Table 2) encompasses the wide range of ways that educators engage with digital technologies for teaching and learning. Our digital practices include how or even if we learn and apply basic digital accessibility literacy skills. Digital practices also include more complex *actions and choices* that we make, intentionally and unintentionally, to use technology in ways that include or marginalize learners. Our digital practices are informed by both our learned *skills* and our pedagogical *beliefs*, such that they are almost inextricable (Oswal & Melonçon, 2017; Seale, 2020b). Like digital technology, environments, and materials, digital practices can be assessed in degrees of accessibility and inclusion relative to the WCAG 2.0 POUR framework (2008), and relative to the lived experiences of the people experiencing the practices.

WCAG 2.0 POUR framework (2008): This framework can be used to assess if digital materials, environments, and activities are perceivable, operable, understandable, or not for potential users. It is also used to assess if accessibility holds up in a robust way across devices, serving relatively equitable and consistent experiences. The following is paraphrased from the recent Introduction to Understanding WCAG 2.2 *(*2024):

Perceivable: Information and tools are presented to users in ways that can be perceived.

Operable: Interfaces can be operated.

Understandable: Information and operation are understandable.

Robust: Digital content or digital experiences can be reliably interpreted across devices, even as technologies advance, including assistive technologies.

If something is found not to be perceivable, operable, understandable, or robust to a user group, it might be described as having an accessibility error or as being noncompliant with the web content accessibility guidelines.

Deviations from American Psychological Association (APA) Style Guide

Drawing on feminist citation concerns and practices raised by Sara Ahmed (Ahmed, 2013) and many others since, and emerging anti-oppressive citation practices that are informed by publications such as Elements of Indigenous Style by Gregory Younging (2025), this text intentionally amplifies the disabled, IBPOC, 2SLGBTQ+, emerging, and women scholars and artists cited throughout. One way it does this is by using both the first and last name the first time the author is discussed. Though controversial, and a deviation from APA, I intentionally use first names because it adds visibility to the contributions of people of colour and women and trans folk in particular, and because it amplifies emerging voices relative to terms such as Disability Justice, digital accessibility and digital justice in search engines.

Some argue that the practice of referring to all cited scholars by their last name only has a levelling effect. Others argue the practice obscures the contributions of marginalized voices. It allows for the appearance of a status quo – a white, male, ableist-washing – and has the very real effect of maintaining hierarchies of power. The benefits of being easily found in search are many. Aside from obvious research dissemination benefits, using full names in research increases relevant search results that might be seen by hiring committees, granting agents, colleagues seeking research partners, etc. People commonly search people as a step in any vetting process. Established and emerging disabled scholars in this space, for example, Sushil Oswal, Ann Gagné, and Matthew Seita can also benefit from having their full names connected to one another in search. Likewise, artists Alice Sheppard, Eli Clare, and Leah Lakshmi Piepzna-Samarasinha can benefit from search associations with education, and digital accessibility scholars and topics.

Finally, this deviation from APA aligns with accessibility practices. A key aspect of digital accessibility is ease of access, which includes findability. If the practice of using first and last names makes it a little easier for people to find this research in search, or find other work by these authors, amplification wins. Lastly, using full names in education materials, and not using abbreviations or last names only until a name has been used in full, is a well-established accessibility practice.

One final deviation from APA is that the term Disability Justice will be capitalized throughout the paper. This choice is made for amplification of the movement whose foundational principles are central to the ethos of this work.

Conclusion

To conclude this chapter, I will simply say that the transformative nature of this research challenges me as a researcher to both question my own understandings and assumptions, and trust in my embodied ways of knowing as I work with the literature. Approaching the research design and the literature review that follows with this perspective does at times feel nebulous. However, critical provocations and interventions to support educators to meaningfully reflect on their digital practices relative to access and inclusion did come to light. The need for the visceral experiences of learners with disabilities to shape research is real and its absence is felt. This research project claims space for learner experiences of digital accessibility and inaccessibility, digital inclusions, and marginalization to work hand in hand with the literature to guide educators toward a transformative digital accessibility praxis.

Chapter 2. Theoretical and Pedagogical Influences

This chapter delves into the theoretical and pedagogical influences for my research. As the influences are many, this chapter is structured around specific contributions of key authors, which I have attempted to map in Figure 2 (see below), and which I describe in the body of the chapter. The practice of drawing this map and describing it in a digitally accessible way helped me to clarify my own understandings and intentions for this chapter. The process also highlighted the significance of these authors on my conception of a possible 'transformative digital accessibility praxis,' which I explore throughout this paper and throughout my research, as an approach to adopting digital accessibility practices that expressly hold open space with and for marginalized, disabled learners to agentively and equitably participate in learning communities and in the digital commons.

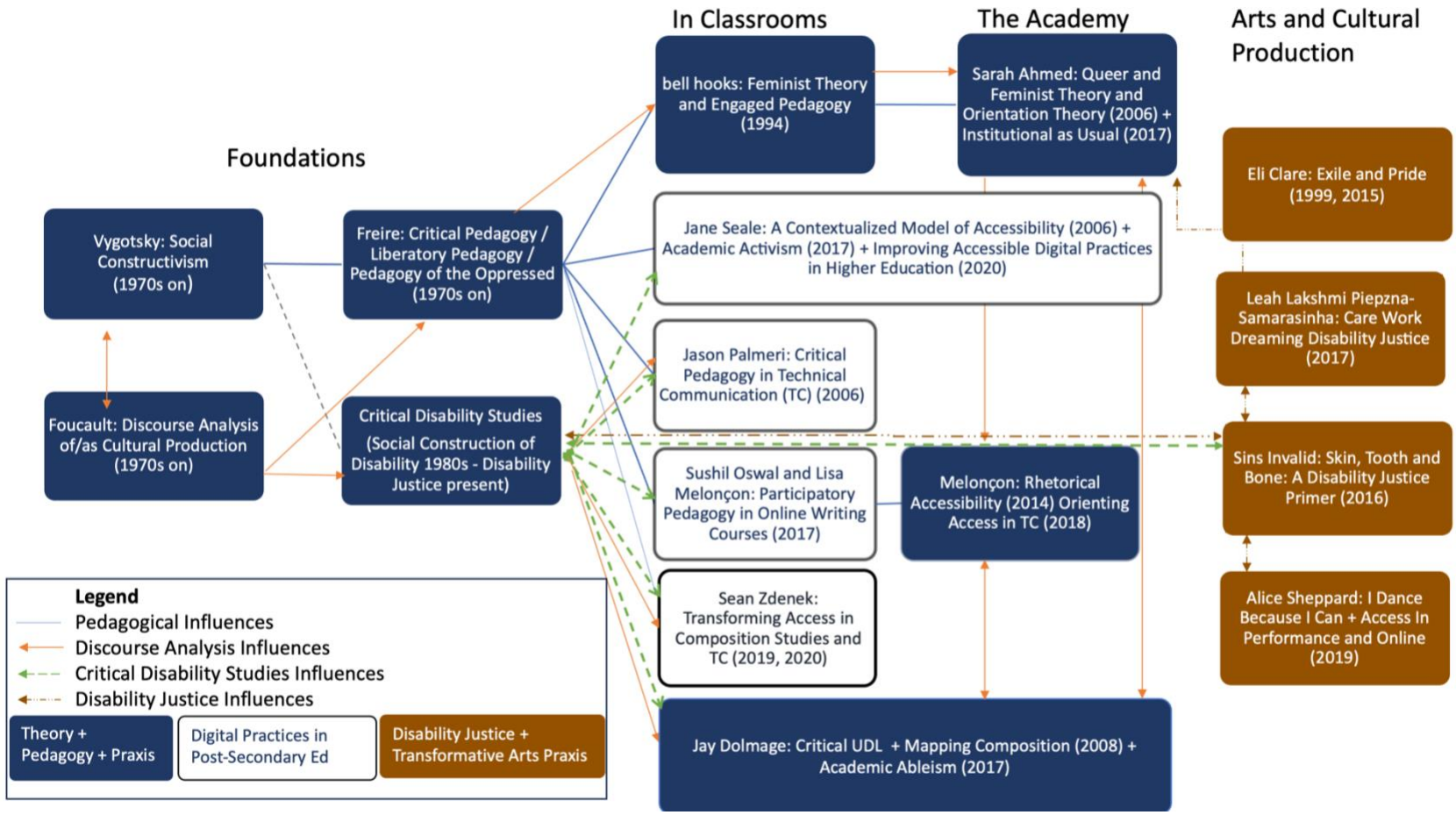
There is no one accepted theoretical framework to guide digital accessibility research in education. Much digital accessibility and digital praxis literature is unaligned with any theoretical framework. That said, the theoretical foundation for this research stems from three interrelated corpora of literature that spawn contemporary critiques and interventions. The first is a body of authors who build on Vygotsky's social constructivist theories of learning (Vygotsky, 1978) by attending to how social structures inform and influence learning, learner agency and knowledge creation. The second is a body of authors drawing on Foucauldian discourse analysis (Foucault, 1971). These authors critically attend to the intentional, unconscious, and invisible wielding of power and oppression in and through post-secondary teaching and learning communities, rhetoric, environments, and institutions. The third is a body of authors, artists, dancers, performance artists, and activists who attend to critical rhetoric and the social construction of disability and intersectional oppression through visceral, sensorial, and embodied

ways of knowing. Their cultural production foregrounds lived experiences of disability and interdependence, reaching audiences that theory and empirical papers rarely address or reach.

Figure 2, which follows on the next page, maps these interconnected influences surrounding and underpinning what this paper terms “transformative digital accessibility praxis.” Boxes indicate specific authors and works, categorizing the authors as theorists, artists, and authors specifically contributing to scholarship on digital accessibility praxis in education. The lines and arrows between influences indicate both explicit and implicit connections between them. The diagram orients the influences on a horizontal plane to remove the impression of hierarchy.

Figure 2

Map Toward a Transformative Digital Accessibility Praxis



Note: The figure depicts the theory, pedagogy and praxis scholars, and artists surrounding and underpinning my thinking about a transformative digital accessibility praxis. See in-text below for full image description.

Digital Accessibility Note: Again, the caption above as well as the alt-text for the figure points readers to the in-text description figure because the density of text and complexity of the image exceeds the functional limitations of alt-text and captions. Therefore, for equity and access, figure is described below for all readers. By authoring the visual description with the conceptual description in-text – within the narrative of this paper – all readers can benefit from the description of the intentions and ideas behind the figure.

As a starting point for this description, the figure shows boxes representing Lev Vygotsky and Michel Foucault, two Marxist-informed theorists whose work gained prominence in the 1970's. Lines indicate the influence of social constructivist theory and discourse analysis respectively on Paulo Freire's Pedagogy of the Oppressed (Freire et al., 2018). Freire's landmark work holds significant epistemological influence in the field of education, specifically for approaches rooted in critical pedagogy and praxis. The diagram connects Freire's box to the boxes of five authors whose scholarship builds on Freire's work, and whose approaches to pedagogy and praxis in the classroom significantly informed this paper:

1. bell hooks' theory of engaged pedagogy (1994) builds on pedagogy of the oppressed theories by extending notions of the conscientization of *thinking* beings to *physical* beings whose bodies are inherently political, filtering and focusing the social construction of knowledge (hooks, 1994a);
2. Jane Seale's writings about academic activism through digital praxis and her contextualized model of accessibility for post-secondary (Seale, 2006, 2017);
3. Jason Palmeri's scholarship on the critical practice of pedagogy in technical communication (Palmeri, 2006);

4. Sushil Oswal and Lisa Melonçon's writings on participatory pedagogy for writing programs, and pedagogical theory-building (Melonçon, 2018; Oswal, 2018; Oswal & Melonçon, 2017);
5. Sean Zdenek's writing on transforming access in the field of Technical Communication (Zdenek, 2019, 2020).

The figure further depicts connections between social constructivism, discourse analysis and disability studies, which emerged as a discipline in the late 80s and 90s to explore and articulate the social construction of disability, social justice issues, and disability rhetoric. The figure indicates interconnections between disability studies and Seale, Palmeri, Oswal, Melonçon, Zdenek, and also with Jay Dolmage's critique of disabling praxis, institutional ableism and critical applications of universal design for learning (Dolmage, 2015, 2017). Each of these authors explicitly draw on disability studies scholarship and on disability studies' conceptions of disability, autonomy, and interconnectedness.

Finally, the figure illustrates reciprocal influences across disability studies and the disability arts. The Disability Justice performance group Sins Invalid published the Disability Justice Primer and the 10 Principles of Disability Justice (Sins Invalid, 2016, 2020), which are often referenced by disability studies authors as well as disability artists and activists. The grouping in the figure connects cultural producers Sins Invalid with writer, performance artist and activist Leah Lakshmi Piepzna-Samarasinha, and dancer, choreographer, writer and theorist Alice Shappard, three important examples of self-described sick and disabled QTBIPOC artists experimenting with cultural production as embodied disability discourse. Their work moves accessibility rhetoric into the body and pushes the boundaries for how art, and the discourse within, can be made accessible for people with and without disabilities (Piepzna-Samarasinha,

2018; Sheppard, 2019). Here again, in the figure, we see explicit and implicit connections between the writings and cultural productions of Dolmage, Sins Invalid, Piepzna-Samarsinha, and Sheppard, as they explore the lived experiences of Disability Justice and injustice, and independence and interdependence, through scholarship, personal essay, dance and other means of cultural production.

The visually messy mapping of lines between the authors indicates the density of crossover between these authors. For example, Sarah Ahmed's writing about orientation theory (Ahmed, 2006a, 2006b), which engages with the entanglements between bodily, social, and spatial/material constructs, influenced Lisa Melonçon's orienting access theory (2018), which underpins some of the praxis interventions explored by Zdenek and Oswal. Jay Dolmage cites Ahmed in *Academic Ableism (2017),* and likewise, Ahmed cites Dolmage in *Institutional As Usual* (2017) as they both critique dis-ease and structural injustices within post-secondary institutions.

A close reading of the figure reveals the major contributors to the discourse about digital praxis in post-secondary are scholars working across the fields of rhetorical and writing studies, as well as technical communication and professional communication studies (Dolmage, Melonçon, Oswal, Palmeri and Zdenek). Seale is the only influence working within in a faculty of education, interestingly in a department of *Wellbeing, Education & Language Studies,* at The Open University. The authors whose work explicitly addresses what I'm calling *transformative digital accessibility praxis*, Seale, Palmeri, Oswal, Melonçon and Zdenek, cite each other extensively. Each build on the others' work and offer critical analysis of common, disabling digital practices. They also write with a shared desire for not just functionally accessible, but rather transformative and emancipatory, digital access. They appear to me to be cocreating an

emergent theory for transforming digital access in education. This figure is the theoretical backdrop for the CanDARE research project.

Digital Accessibility as Visceral, Sociocultural Phenomena

My research engages with disability *and* digital accessibility as visceral, sociocultural phenomena. Where the phenomenon of disability is intracorporeal – situated inside the human body – it is influenced and informed by extracorporeal actors, environments, language, education, and cultural norms. The phenomenon of digital accessibility is likewise influenced and informed. Although digital accessibility could be understood to exist in the digital commons, amidst the ones and zeros, the phenomenon is – or should be – defined by the intracorporeal sensory and cognitive experiences of people with disabilities. This is where the meat and meaning of accessibility reside. Where disability could be understood as a dynamic construct reverberating with diverse experiences, digital accessibility must also be understood as dynamic and relational, causing visceral reverberations in the body that might be out of society's sight but are no less real.

Though few academic scholars linger in the visceral, a number of scholars engage with digital practices as sociocultural phenomenon (Das et al., 2019; Palmeri, 2006; Seale, 2013; Treviranus et al., 2019), un-hiding the taken-for-granted and situating common practices within a social and political context. Ling defines culture as the behaviours, habits, beliefs, expressions, artifacts, and signs that communities create to adapt to their physical and social environment (Ling, 1999). Recognizing that words, manners, gestures, objects, and texts are not arbitrary things but embodiments of ideas and values, critical engagement with digital practices and rhetoric reveals much about our values and the constructed confines of ableism and "normalcy" in post-secondary education. Palmeri (2006), for example, challenges linguistic ableism in the

vocabulary we use for technology by simply asking: when all technology is assistive, why do we only refer to the technology designed for people with disabilities as "assistive technology?"

From this sociocultural vantage point, these authors challenge us to observe and question normalized and othered digital practices as expressions of our culture. What does it say that we have yet to normalize, let alone mandate, the use and production of digitally accessible course materials? Individuals in post-secondary education have actively campaigned to normalize respect for copyright (a capitalistic construct) in the digital world. Why did that precede accessibility (a moral, human rights construct)? What might an anthropologist of the future read into our values and beliefs when they uncover requirements to follow myriad association style guides in millions upon millions of academic documents, and no requirements to make those same documents accessible to all learners? Especially if one considers that the odds of learners producing digital content in social and workplace contexts alongside disabled people are exponentially higher than the odds they will continue to publish and follow style guide citation rules after graduation.

Visceral Metaphors and Ramps that Challenge

Though many academic scholars may find discomfort in the visceral as a way of learning and knowing, many disabled artists and activists play with the visceral and the corporeal in cultural production, giving us rich, thick descriptions and representations of manifold experiences of disability as sociocultural phenomenon. Artist collective Sins Invalid, performance artist and author Leah Lakshmi Piepzna-Samarasinha, dancer, choreographer, writer and theorist Alice Shappard, essayist Eli Clare and poet and scholar Joanne Weber are just a handful of artists exploring the visceral in and through cultural production. They explore the ways life imprints, and is reciprocally shaped by, the functioning of internal organs of the body,

the lungs, the heart, the digestive, excretory, reproductive, circulatory, and sexual systems, and they explore physical pain and strength, sensory systems, as well as what is felt and understood instinctively under their skin, in their bones and in the spaces between their bodies and the world around them. These artists also have much to say about digital accessibility. Alice Sheppard, for example, explores the art of voiced descriptions of dance performances for blind and low vision audiences. She has also built a multi-versioned video archive of her performances that educators would do well to study as exemplars of accessible media employing audio, closed captioning, open captioning and integrated American Sign Language translation (All Arts, n.d.).

At the same time Sheppard's writing, choreography and movement give breath to access, aiding readers and viewers to comprehend the complexities she explores. Describing a performance, she writes,

> "DESCENT" takes place on an architectural, sculptural set we call the ramp. It is a ramp like no other. Unlike the access ramps that enable wheelchair users to avoid stairs, this ramp is beautiful. It is visually inviting; pushing up its surfaces is a pleasure-filled challenge. When we roll down with our hands off our wheels, we and our chairs turn automatically, spinning either out of control into the ground or if we and they are perfectly balanced, turning almost endlessly. … Under the regulations of the Americans With Disabilities Act, the specifications for an ideal wheelchair access ramp are quite clear, as are the defining parameters of maximum gradient, minimum width, appropriate materials, and so on. The codes make no mention of what it might feel like to use these ramps; they focus on what it takes to enter a building safely. Though perfectly usable

> and necessary, I see these designs as examples of #rampfail. Disabled people want more than access. (Sheppard, 2019)

Sheppard's curious, joyous work reveals previously unimagined connections between people, sound, motion, and space. These connections, and the ramp facilitating them, are far from utilitarian. Sheppard's work is provocative and world-changing. Both the dignity- and equity-centred digital archive, her performance DESCENT, and her writing about the performance enable me to question how we might move beyond WCAG compliant, utilitarian digital access. Building on Sheppard's analogy, how might we in education envision building joyous, dignity- and equity-centred digital ramps and where might learners take them?

Turning Theory Toward Pedagogy

As with theoretical approaches, there is no one accepted pedagogical approach guiding digital accessibility in praxis. That said, authors who engage critically with accessible digital praxis tend to take a social constructivist view, and tend to adopt critical or transformative pedagogies, often arguing for participatory, iterative course design that engages learners with disabilities at every stage (Hernandez-Saca, 2019; Knoll et al., 2017; Marquis et al., 2016; Oswal & Melonçon, 2017; Palmeri, 2006; Seale, 2017). Writing studies and technical communication scholars have been harbingers for engaging with digital accessibility as a sociocultural phenomenon, positioning digital accessibility as integral to accessible and inclusive technology-integrated learning design, and integral to any study of cultural production (Jones et al., 2016; Oswal, 2018; Oswal & Meloncon, 2014; Oswal & Melonçon, 2017; Zdenek, 2019). I will touch briefly on a few key authors' scholarship relative to pedagogy.

Melonçon's Orienting Access Theory and Approach to Pedagogy

Lisa Melonçon, recognizing a theoretical/pedagogical void, has undertaken theory building to bridge theoretical approaches from disability studies with those of technical, business, and professional communication studies. The four core provocations, interventions, and considerations of orienting access theory pertain to:

1. Iterative course design built on accessibility-focused, student feedback on technology-integrated learning experiences.
2. Prioritizing equitable and independent course navigation/completion across the student body (as opposed to uncritically relying on third parties to support learners with disabilities to do things other learners can do independently).
3. Re-orienting course design to make space for learners to have agency over how their bodies engage with learning.
4. Equitable access to learning materials (Melonçon, 2018).

I see a significant opportunity for scholars in the fields of education, and specifically educational technology, to work with, critique and potentially build on Melonçon's theory. Work must be done to expand critical engagement with disability and digital praxis to post-secondary educators in all fields in ways that are relevant to both pedagogy and praxis across disciplines. We might explore the interconnections between orienting access theory and learning theories. For example, interesting connections between digital accessibility and both Vygotsky and Freire's work could be explored, as digital accessibility has implications for learner agency, the social construction of knowledge, and language acquisition as it relates to literacy skill building as an instrument for social and cultural change (Freire et al., 2018; Reunamo & Nurmilaakso, 2007; Vygotsky, 1978;

Zdenek, 2020). How might this line of pedagogical inquiry fit into Melancon's pragmatic framework? Would it fit or would it help to expand the framework?

A Note on Crossovers With Paulo Freire's: Pedagogy of the Oppressed

Freire's approach to pedagogy in the Pedagogy of the Oppressed (Freire et al., 2018), sometimes referred to as critical constructivism, critical pedagogy and/or liberatory pedagogy, has significance here in multiple ways, not the least of which is that digital accessibility and literacy are fundamentally intertwined. I will expand on this relationship to literacy in *Chapter 3, History of a Missing Literacy* but suffice to say that where Freire focused on building the literacy of the oppressed through "conscientização" or critical consciousness-raising, there are ample opportunities to build the digital accessibility literacy skills of oppressed communities, and of those who, intentionally or not, extend domination by blocking accessibility in post-secondary. To offer just one example, and extrapolating from the reports on 2017 Canadian Survey on Disability (Government of Canada, 2017) and the 2023 Survey on Accessible Print Material (Government of Canada, 2023) findings, we have a significant population of people with disabilities with unmet needs who could benefit from normalizing digital accessibility practices. 5.2 million Canadians, or 1 in 8, have a difficulty with reading print material. "When examined by type of difficulty reported, 77.4% had difficulty seeing words in print, 25.0% had difficulty holding or turning pages of print material, and 42.2% had difficulty reading or understanding words in print" (Government of Canada, 2023 para. 5). This suggests there is a significant population that could potentially benefit from learning to use digital tools for print magnification, text-to-speech, reduced distraction, or screen reading, and benefit from access to digitally accessible materials, to improve their access to education and the digital commons. Applying critical consciousness raising interventions that support inclusive, transformative digital praxis in

our learning environments has significant liberatory potential when you consider that this is only one example of a subset of learners with disabilities. There is also potential for critical consciousness-raising to be modeled with educators in digital accessibility and inclusion education settings, as educators who – intentionally or not – regularly exercise domination by holding to disabling digital practices that marginalize disabled learners.

The second connection I want to make to Freire is that the construct of digital accessibility is often positioned relative to legislation. Freire (2018) recognized legislation and institutional policy as lagging indicators of social change, reminding us to look to the experiences and voices of the oppressed, and the individual and social actions of the oppressed, not the legislation, to guide social change.

Third, Freire (2018) wrote that coming to critical consciousness may lead to disorder as disempowered and empowered people come to learn to perceive political, social, and economic injustices and take action. The original conception of digital access was informed by the voices and actions of disability rights activists. Our contemporary understandings of digital accessibility have since evolved relative to the actions of Disability Justice activists. Finally, I see great potential for using Freire's (2018) problem-posing approach to literacy-building as a tool for digital accessibility literacy-building, as educators and learners begin to actively negotiate what Melonçon (2018), and Das et al. (2019) discuss as social-material relations in technology-integrated learning environments.

Seale argues for critical upheaval in post-secondary, acknowledging Freire (2018) in her aptly titled article, *From the voice of a 'Socratic gadfly': a call for more academic activism in the researching of disability in postsecondary education* (Seale, 2017). She makes a case for academic activism on social justice grounds. It is valuable to note here that social justice is a

leading driver of digital accessibility efforts, significantly preceding legislation (Yesilada et al., 2012). I believe the liberatory acts necessary to normalize digital accessibility and center digital accessibility in praxis have and will continue to come to light through individual and social acts of critical consciousness-raising. These disordering and emancipatory political acts have the power to shift societal norms and shatter cultural constraints for people with disabilities.

Bell hooks: Engaged Pedagogy

Theorist, writer, and educator bell hooks explicitly discusses Freire's influence on her understanding of how politics, power, identity, oppression and liberation are activated or suppressed in post-secondary learning environments (hooks, 1994a). Hooks then adds a layer to Freire's work by specifically calling attention to the body as a locus of oppression and liberation both in the world and in the classroom. Where Freire (2018) focuses on dialogue as a path to critical consciousness, hooks, a black, queer woman, asserts that the process of coming to critical consciousness in a classroom is necessarily an embodied act. She stresses that our ways of knowing and being, the knowledge we construct and influence, are informed by dialogue, but they also are uniquely shaped by our bodies and embodied experiences.

At the heart of engaged pedagogy, hooks (1994a) interrogates the potential for education to offer learners and educators alike an embodied "practice of freedom" (p. 4), as well as its potential to be used as a tool of oppression. Her writings about her experience as a black child entering recently desegregated schools in the U.S. are reminiscent of the experiences of disabled learners in post-secondary after the legislated inclusion of learners with disabilities. She writes,

> School was still a political place, since we were always having to counter white racist assumptions that we were genetically inferior, never as capable as white

> peers, even unable to learn... . We were always and only responding and reacting to white folk. (hooks, 1994a, p. 4)

Disability studies scholar Fiona Campbell (2009), argues that teaching and learning environments still seem to demand the assimilation of non-normative bodies, drawing on examples of sex, race, or disablement to do things "correctly." This resonates with experiences shared by learners with disabilities who report frequent encounters with ableist structures and assumptions in post-secondary; assumptions they are genetically inferior, or scamming the system, or incapable of adapting to the established – correct – norms of a discipline. By sharing her lived experiences in her articulation of theory, and in her classroom, hooks models respect for the whole selves of educators and learners; bodies normative and non-normative. hooks describes engaged pedagogy as progressive, holistic, and demanding because, unlike other pedagogical approaches, "it emphasizes wellbeing" (1994, p. 15) I see great potential for further scholarship connecting hooks' engaged pedagogy (1994) and Melonçon's orienting access theory (2018) to be explored together; perhaps with Sara Ahmed as a bridge as Ahmed's own work has been significantly influenced by hooks and Melonçon's work has been significantly influenced by Ahmed.

What is Accessible Pedagogy? Or What Might it be?

Accessible pedagogy is not a defined pedagogical approach so much as it is a critical awareness and an intention. There is no core text; no one leading scholar. I suspect this is because accessibility in education (as it is in life) is complex and messy. Certainly, many of the scholars and educators most concerned with improving digital accessibility for learners with disabilities respect the mess. They respect the learners, and one of the ways we demonstrate that respect is by avoiding definitive, universal, reductionist thinking. There is no simple-to-explain

way to make educational experiences accessible to all learners. No framework will work in all circumstances.

That said, many universities are choosing to put all their accessibility eggs in the universal design for learning (UDL) basket. UDL's origin is as an offshoot of universal design (UD). The UDL framework and guidelines were first developed in the US by CAST, a non-profit organization that now provides training services for pre-k-12 and post-secondary educators. It began, like UD, with a set of design principles meant to ensure that the learning needs of learners with disabilities were accounted for in course design. The principles point educators to provide learners with multiple means of 1. Engagement, 2. Representation, and 3. Action and expression, and to support their agency by giving them choices for how they learn and how they demonstrate learning. However, UDL grew in popularity when UDL principles could be argued to support "all" learners. Over time, the very real needs of learners with disabilities dissolved from view and the "benefits all learners" mantra, which no doubt appeared to offer institutions better returns on investment than buying a program that would only improve learning outcomes for disabled learners, shifted the focus of UDL significantly. CAST has recently released the third iteration of the UDL guidelines and acknowledged in their release that they updated the guidelines and training in response to, "…a strong call from the field—both practitioners and researchers alike—to address critical barriers rooted in biases and systems of exclusion" (para. 5). However, it is telling that the word "disability" is entirely absent from the release text (CAST Inc, n.d.).

In her podcast, "*Accessible Pedagogy is Not Just UDL"*, scholar, accessibility activist, and Senior Educational Developer for Accessibility and Inclusion at Brock University, Dr. Ann Gagné, illustrates the complex web of considerations and players that can contribute to a learner's experience of accessibility or inaccessibility in post-secondary (Gagné, 2023). Digital

accessibility is but one factor, as is the built environment, as are academic accommodations and disability services, of which Gagné writes.

> Accessibility services is rarely the space where conversations about accessible pedagogy are had, unless it is in relation to some assistive technology supports that a student may need in the classroom, and how that will be put in place with the instructors' existing pedagogy. (para. 8)

Gagné, who identifies as disabled, points educators open to changing their pedagogy to think holistically about accessibility. She prompts consideration of accessibility relative to:

1. The space learning happens (online, field, classroom, etc.)
2. The tools for learning (LMS, equipment, materials, technology, etc.) and
3. The course design.

Gagné argues that applying the principles of UDL to course design can support learning and accessibility, but that only goes so far. The *space* for learning and the *tools* for learning also need to be digitally and physically accessible, and they need to be used in accessible ways (Gagné, 2024). Unfortunately, most UDL literature does not attend to these limitations, and educators applying the principles can, and often do, overlook them. In terms of digital accessibility, educators must consider the learner's ability to equitably and agentively perceive and operate digital environments, technologies, assessments, and materials. Without that, the choices UDL affords learners are rendered meaningless.

Seale, Oswal, and Melonçon expressly challenge the taken-for-granted-ness of UDL as the premier pedagogy of accessibility and inclusion on the grounds that it is reductionist and promises an "accessibility-made-easy" approach to educators. They caution that UDL can, in practice, obscure and even erase the actual learning experiences of students with disabilities and

leave educators with a false sense of the accessibility of their course. Oswal and Melonçon raise a simple question to challenge the taken-for-granted-ness that UDL will take care of making courses accessible and inclusive. They ask, without an understanding of disability, and thoughtful consideration of disabled learners' needs, how could instructors even come up with appropriate and meaningful options for representation, expression and engagement for the learners with disabilities who register for their class (Oswal & Melonçon, 2017)? I would add, without understanding diverse experiences of disability, how could educators know if they are creating accessible options or just different barriers? Oswal, who in *Can Workplaces, Classrooms, and Pedagogies Be Disabling?* (2018) acknowledges his son for helping him bypass some clunky, inaccessible issues tracking changes and proofing other researchers' manuscripts via his JAWS-for-Windows screen reader, knows first-hand what it's like to hit digital accessibility walls. Digital accessibility is often entirely absent from UDL literature and checklists. As a result, the UDL framework obscures the need for educators to consider digital accessibility in the spaces and tools for learning, and in their assessments of learning.

Seale repeatedly points out the lack of empirical evidence for the assertion that UDL can improve learning experiences and learning outcomes for learners with disabilities (Seale, 2020b). Instead of simplifying accessibility, Seale illustrates the complexities of accessibility in her *Contextualized Model of Accessibility* (Seale, 2006, 2020b) in hopes of raising awareness of and respect for the many levers and barriers to accessibility in post-secondary. Seale's model is highly cognisant of accessible digital practices, but the model also encompasses all accessibility work undertaken in post-secondary. As such, it is a very complex model, incorporating drivers for accessibility work, all "stakeholders" in post-secondary learning communities, and actions within and beyond the educator's domain. At the risk of oversimplifying her model, I would

draw educators' attention to Seale's assertion that the extent to which technology-integrated learning is made accessible is relative to mediating cultural considerations. Specifically, Seale (2020b) prompts reflection on people's beliefs, understandings, and views of four interesting constructs:

1. Disability, accessibility, and inclusion.
2. Duty and responsibility.
3. Autonomy and freedom; and
4. Teamwork and community.

By articulating the relevance of an individual's understandings and views, Seale draws attention to the ableism that can be hidden in common practices, and at the same time arms educators with sociocultural entry points for reflection on their digital practices and their pedagogical choices.

Some practitioners and scholars argue for bringing a critical disability studies approach to UDL. Gagné works in this space, and it is where many Canadian university accessibility staff aim their needle. Jay Dolmage's *Academic Ableism* (2017) is a core and critical text interrogating the history and legacy of ableism in post-secondary institutions. It is also a rare example of an academic text that reaches toward the visceral. An accomplished rhetorician, Dolmage uses his skill with language, including a respectful curation of direct quotes and citations from disability studies scholars, to connect the dots between critical analysis of ableism in post-secondary institutions, lived experiences of disability, and a pedagogical approach built on critical applications of UDL principles. That said, I would argue that there is now a legacy of unexamined ableism that haunts UDL and that there is room for other approaches to pedagogy to emerge.

Oswal and Melonçon challenge educators to apply participatory pedagogical devices to engage with the experiences and ways of knowing that disabled learners bring to learning communities. They underscore that with each iteration of a course, and each new experience with disabled learners, educators are better able to build flexibility and inclusion into their course designs in learner-centred and meaningful ways that UDL simply does not address (Oswal, 2018; Oswal & Melonçon, 2017). I feel the need to offer one caution about participatory pedagogy. Oswal and Melonçon stress the importance of seeking feedback from learners on the accessibility of a course and engaging learners in course development, but they are also very mindful of not overburdening learners with the work of educating the educator. Educators do need to be mindful that learners with disabilities in their classes are there to learn, not work as unpaid testers, accessibility consultants, course developers, or professional development consultants. Respect for their time is as important as respect for their feedback.

To conclude, as more literature on the praxis of accessibility and experiences of learner disablement emerges from scholars, including learners, with disabilities (Ashbourne, 2024a; Bie & Brown, 2017; Gagné, 2024; Oswal, 2018), I feel hopeful that we will come closer to more fully realizing accessible pedagogies that foreground digital accessibility. This notion that educators and learners might move toward a transformative digital accessibility praxis is liminal. Transformative digital accessibility praxis is not in and of itself a theory but a coming together of entanglements of technology, bodies, sociocultural phenomena, and rhetoric in teaching and learning, all of which touch digital access and inclusion. Throughout this research, as I grapple with what the is-ness of a transformative digital accessibility praxis might be, I will return to the authors and texts depicted in Figure 2 to ground my observations and interpretations. Many times, I will return to Sheppard's joyous ramp, to Seale's values and critiques, to Melonçon's

access. With each text, I look for digital accessibility being acknowledged and explored as visceral, sociocultural phenomena not only because this framework supports that reading, but also because my lived experience supports that reading.

Chapter 3. Literature Review: Framing Digital Accessibility Around Our Digital Practices

The literature review for this project was far ranging. What follows is a synthesis of a few key areas that have shaped my understanding of what I have come to call *transformational digital accessibility praxis* and have shaped the CanDARE project. The chapter begins with some context setting, drawing on quantitative studies that pertain to learners with disabilities in post-secondary, as well as digital accessibility legislation, policy, and implementation, primarily in Canada and the US. From there, the chapter moves toward framing digital accessibility for educators around our daily digital praxis and poses educational questions for our field to address.

The chapter looks at certain digital accessibility skills relative to literacy and digital literacy and questions why these skills are not commonly taught and normalized. Next, it investigates digital accessibility relative to educators' daily digital praxis and offers a tool that can be used as a starting point for reflection toward a transformative digital accessibility praxis. Both sections draw on the WCAG 2.0 and POUR framework (Web Accessibility Initiative, 2024; World Wide Web Consortium, 2008). Both also draw on the theoretical and sociocultural writings of the authors discussed in chapter two. The next section offers a brief survey of literature exploring the use of assistive technology in social learning situations in post-secondary. It identifies some common challenges relative to educator praxis and draws heavily on literature that foregrounds lived experiences and sociocultural considerations for educators. The final section draws attention to concerning gaps around digital accessibility discourse in some educational technology literature.

Centering Learners with Disabilities in Digital Accessibility Research

More and more learners with disabilities are applying to, being accepted to, attending, and graduating from post-secondary institutions. Enrollment estimates in Canada and the US for

students who self-identify as having one or more disabilities range widely from 10 – 22% (Condra et al., 2015; Fichten et al., 2009, 2012, 2020; Lorca et al., 2018). Numerous studies have investigated the graduation rates of students who use accommodations and accessibility services in post-secondary education, however, the findings are mixed. Some indicate that students with disabilities take longer to graduate but see comparable graduation rates to learners without disabilities (Fichten et al., 2020; Jorgensen et al., 2005), while other studies indicate a higher dropout rate for students with disabilities (Fichten et al., 2020).

Historically, post-secondary institutions set the terms for medicalized, or medically-mediated, relationships with people with disabilities, meaning that if learners could provide sufficient evidence of their medical impairment through medical documentation, they would be provided requisite academic accommodations to the point of undue hardship to the institution (Dolmage, 2017; Jung, 2003). Rather than addressing inaccessible conditions for learning that likely disable a heterogeneous community of learners, institutions have held firmly to the need for a medical intermediary, a validator, to vet which learners are sufficiently deserving of accessibility services and which are not. In the accommodations model, the benefit of the academic intervention is experienced only by the medically validated recipients of accommodations. There is no educative benefit to the campus-wide learning community; no fundamental change to the disabling practice. For example, if an educator wants to curb cheating by restricting time to answer questions on an exam to the point that a learner with disabilities is unable to complete the exam, they are typically given extra time. However, the time restriction practice might also disadvantage additional language learners, or slow readers who do not have a diagnosis of a condition. Many learners, those with and without accommodations, could benefit from a paradigm shift that normalizes accessible digital practices in post-secondary. Following

accommodations policy, few in the campus community, if any, including the educators, even have an opportunity to learn or understand what makes a learning experience, environment, activity, or material inaccessible. The blanket issuing of accommodations can, in some instances, impede the campus community from learning how they disable learners, and how shifts in their skills and practices could otherwise enable them.

Standards, Compliance, and Learner Inclusion

Digital accessibility is positioned in the literature, and in practice, as being relative to two indicators of accessibility. One indicator is compliance with local legislation, such as the Accessibility for Ontarians with Disabilities Act (AODA) originally enacted in 2005, and standards including the WCAG and POUR framework (2008). Another indicator is reports of the lived experiences of people with disabilities. Many scholars argue the latter is the paramount indicator of accessibility (Dolmage, 2017b; Oswal & Melonçon, 2017; Seale, 2020; Zdenek, 2020), however, the majority of DARE literature, including educator how-to resources, addresses compliance and omits lived experience and student outcomes. I would argue that in an educational context, compliance can be seen as the "stick." Whereas, the carrot patch is improved learning experiences and outcomes, deepened experiences of inclusion for learners with disabilities, and deeper inclusion of people with disabilities in the digital commons.

Much digital accessibility policy and training in post-secondary centers compliance, while offering only a cursory, abstract explanation as to why we must change our digital practices to comply. I've observed that a focus on compliance translates into a pass/fail ethos that can have the unintended effect of stifling pedagogical inquiry and discouraging *trying*. The use of compliance-centred rhetoric can likewise hamper open, reflective dialogue about digital

practices, unconscious ableism, or ableist practices, effectively stopping transformative thinking before its begun.

A case in point: when the AODA (2005) came into effect, the first wave of adoption in many government agencies and educational institutions involved hiring/reassigning staff and consultants to chart a path to bring institutions into compliance. In a longitudinal study of McMaster's efforts to come into compliance with the AODA between 2011-2013, researchers found that after years of awareness-building and mandatory training for faculty and staff on compliant service delivery, compliance efforts fostered "little movement toward proactive educational accessibility" (Marquis et al., 2016, p.53).

Ella Epshteyn's research into faculty perceptions of compliance issues further reveals that many educators in the US viewed compliance as a prescriptive mandate, an imposition, and a "demoralizing loss of ... autonomy and integrity" (Epshteyn, 2019, p. 9). It would seem the sceptre of compliance has the effect of focusing people on what they *cannot* do or are no longer *allowed* to do. Certainly, institutions must concern themselves with compliance, auditing, and accountability and researchers are actively building models to assist institutions to better operationalize digital accessibility across the board (Burgstahler et al., 2020; King et al., 2020; Seale, 2020b). However, compliance rhetoric seems an unlikely lever for a paradigm shift.

A compliance-fearing, checklist-understanding of digital accessibility does educators and learners a massive disservice (Oswal & Melonçon, 2017). We must hold learners at the centre of this work. Many educator-researchers concerned with digital accessibility argue for educators to find motivation for critically adopting more accessible digital practices as a form of academic activism and a means toward Freire-inspired participatory, transformative pedagogy (Almog, 2018; Ostiguy, 2018; Oswal, 2018; Oswal & Melonçon, 2017; Seale, 2017). Their approaches

make much-needed space for educators to shift their praxis through trial and error, reflection, and dialogue. Most importantly, they position learner experiences of access and inclusion as the primary measure of digital accessibility. The next section of the literature review offers a close study of the literature on digital accessibility skills and practices from this perspective.

History of a Missing Literacy: Digital Accessibility Literacy Skills

Tim Berners-Lee, inventor of the internet and Founding Director of the WAI, foresaw, "The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect" (World Wide Web Consortium, n.d. para.1). That future is predicated on the need for all people participating in the digital commons to develop and employ certain skills and practices that support accessibility, some of which are text-based skills. Technical and professional writing scholar Sean Zdenek has this to say about the future of an accessible web.

> The future of an accessible web will continue to depend on artful forms of writing even as internet traffic is consumed by non-text content. We should teach students to approach digital accessibility as a literate practice and not simply a technical exercise in coding, transcribing, or tagging content. Web accessibility guidelines focus on the finished product: "text," "text alternatives," and "non-text content." Technical and professional communicators can approach accessibility with a writer's sensibility and through the principles of style, rhetoric, art, design… . **We don't usually discuss digital accessibility in these terms: literacy, writing, rhetoric, style**… we need to keep in mind that **the web becomes legible for everyone principally through humanistic and rhetorical acts of reading and writing texts** [emphasis added]. (Zdenek, 2019, p.8)

Writing here in Communication Design Quarterly to his fellow educators in fields of design, professional, and technical communication, Zdenek confronts an omission that educators across the board must confront. We don't discuss or normalize digital accessibility relative to literacy or digital literacy in the general population in post-secondary or k-12. The text-based skills he is concerned with are taught in Zdenek's field as professional skills because the text-based requirements for assistive technology match the text-based requirements of search engine optimization, and they are taken up in faculties of computer science (Ashbourne, 2021), but faculties of education have yet to grapple with them in terms of inclusive literacy skills.

This section of the chapter draws attention to this as a significant gap in the literature. Here, I discuss what I've termed *digital accessibility literacy skills* as a missing literacy because I contend attending to the gap in this way represents an opportunity to do three things:

1. Draw attention to the primarily text-based skills that educators can learn, employ and model to improve the accessibility of digital works being created and shared in post-secondary.
2. Move discourse of these skills away from a WCAG 2.0 compliance framework and into a potentially transformative, sociocultural context so that we might engage critically with the literacy skills necessary to communicate with people with and without disabilities as an interconnected community.
3. Unhide the ableism in the way we traditionally think about literacy and digital literacy.

Many educator resources on digital accessibility teach what are sometimes called accessibility core skills (Association on Higher Education and Disability, 2022) or accessible course content skills *(University of Victoria, 2024),* which are modelled after WAI writing strategies for web

accessibility (Web Accessibility Initiative, 2019), WCAG. 2.0 and the POUR framework (2008). These strategies have been published in one form or another in web and digital accessibility scholarship and educator resources for nearly 20 years (Bradbard & Peters, 2008; Seale, 2006) and a brief history of the digital accessibility construct below offers further context. These skills are primarily text-based, but they have yet to find a home in any reading and writing-related curriculum or assessment rubrics in K-12 or post-secondary. I have to wonder why this is, when they are the very skills necessary to communicate accessibly and inclusively with many people with disabilities in the digital world, and they are the skills needed to make our digital commons accessible.

What Could Digital Accessibility Literacy Skills Be?

Early in my research, I played with what WAI strategies might look like as literacy skills. Over time, my descriptions of the strategies as proficiencies have shifted somewhat with influences from the literature and my professional practice, but the core guidance as to what skills would be needed to make digital content accessible comes from the WAI, WCAG 2.0, and the POUR framework (2008). Now, I use the term *digital accessibility literacy skills* (2024) to describe the primarily text-based skills for reading, writing, producing, and curating digitally accessible media because the skills are applicable beyond the web and should for example be used by educators and learners when authoring documents, PowerPoint slide decks, or curating readings. Table 1 represents the skills and proficiencies discussed as digital accessibility literacy skills henceforth.

Table 1

Digital Accessibility Literacy Skills

<table>
<tr><th colspan="2">1. Writing and Text-based Production Skills</th></tr>
<tr><td rowspan="5">Proficiency with the five main WCAG 2.0 text-based strategies to produce digitally accessible media, e.g., documents, slide decks, websites, social media, and captioned, transcribed and/or described video, audio, and images or other visuals.</td><td>• Write headings and titles to convey meaning and provide navigable structure.</td></tr>
<tr><td>• When authoring links to websites, make hyperlinked text contextual.</td></tr>
<tr><td>• Write meaningful alternative text and captions for simple images. Write full image descriptions for complex visuals. Understand appropriate use of each. Prepare verbal descriptions of images for oral presentations.</td></tr>
<tr><td>• Create transcripts, closed captions, described audio or described video for media. Understand and assess the limitations of automatically generated transcripts and captions.</td></tr>
<tr><td>• Provide clear written and verbal instructions and generally keep content clear and concise.</td></tr>
<tr><td colspan="2">Proficiency creating, saving, and sharing files in ways that retain accessibility features.</td></tr>
<tr><th colspan="2">2. Checking the Digital Accessibility of Your Work</th></tr>
<tr><td colspan="2">Proficiency using accessibility checkers in publishing software (Office, Adobe, Google Docs, WordPress, LMS, etc.)</td></tr>
<tr><td colspan="2">Proficiency sourcing guidance, third-party plug-ins, or otherwise assessing media accessibility when an accessibility checker is not built into a publishing tool.</td></tr>
<tr><td colspan="2">Proficiency posting, publishing, and sharing checked work.</td></tr>
<tr><th colspan="2">3. Reading and Curation Skills</th></tr>
<tr><td colspan="2">Proficiency identifying digitally accessible media either by reading for the use of the above strategies, or by employing tools to test accessibility.</td></tr>
<tr><td colspan="2">Proficiency sourcing accessible versions of files.</td></tr>
</table>

Table 1 (continued).

Familiarity with the legislative framework supporting digital accessibility versioning of media, specifically copyright allowances and limitations for producing or acquiring accessible versions and/or familiarity with who or where to go for guidance on version sourcing and version production.

Note: If the table content cannot be navigated by keyboard once published, a digitally accessible version is available on the project website (2024d).

What I categorize here as *Writing and Text-based Production Skills* in Table 1 are among the most discussed digital accessibility skills. They are the skills that would pertain to people's most common digital workflow practices: creating documents, posting on websites, and social sharing, and in an educational context they pertain to LMS population, slide deck authoring, syllabus authoring, and assessment authoring. Despite much general discussion of these skills, Zdenek's article was the only article in my literature review that expressly engaged with these skills as *literacy* skills, which to me is a significant, unexplored opportunity for education scholars. Additionally, there is a need to explore the skills related to checking accessibility, reading and curating for accessibility.

Applying a Critical, Transformative Lens

Categorizing specific digital accessibility skills as literacy skills could itself be regarded as a transformative rhetorical act. It positions the skill set as foundational for technology-integrated communication. At the same time, it moves skill development and discourse outside of a compliance context and into an educational context; outside the ether of WCAG 2.0 and into a critical place where the sociocultural tensions surrounding ableism is palpable, and where Freire's conscientização might be used to transform understandings of domination and marginalization relative to literacy and digital praxis. Perhaps from here, we can open the

imagination to gradations of fluency that educators and learners might achieve. Additionally, perhaps we can begin to examine digital accessibility *literacy* relative to digital accessibility *illiteracy.*

> Unfamiliarity with how to read and write for digital accessibility represents a form of illiteracy whereby the disservice, injustice or exclusion that extends from the illiteracy is not felt by the person who is illiterate, but by the already marginalized communities of disabled and otherwise disadvantaged digital technology users. (Ashbourne, 2024b para 1)

Educators must begin the work of examining the ableism built into normalized literacy skills and normalized digital literacy skills, because ignorance of the skills needed to educate and communicate with people with disabilities is not neutral.

20 Years of Omission Indicates Ableism

The following brief history of the digital accessibility construct and research in post-secondary demonstrates that post-secondary leadership, education scholarship and educator training programs have had almost two decades to find a home for digital accessibility literacy skills in curriculum and praxis. In 2006, the United Nations Convention on the Rights of Persons with Disabilities declared that barriers to information and information production result in a form of human rights violation that is experienced by people with disabilities and people who are disabled by their environment, including their built environment, socioeconomic circumstance, and geopolitical boundaries (*Convention on the Rights of Persons with Disabilities and Optional Protocol*, 2006). The World Wide Web Consortium's Web Accessibility Initiative released its first version of web content accessibility guidelines, WCAG 1.0, in 1999 (World Wide Web Consortium, n.d.-b). The guidelines were themselves made more accessible, and more

understandable, in 2008 partly in response to the Convention (World Wide Web Consortium, 2008).

Seale began writing about digital accessibility in e-learning environments in 2006. Palmieri published his concerns about accessibility issues in writing programs in 2006, citing several scholars (Carter & Markel, 2001; Ray & Ray, 1998; O'Hara, 2004) who had already contributed to scholarship on making texts available to people with disabilities. They weren't alone (K. Campbell, 2004; Manchester Metropolitan University, 2002; Palmeri, 2006; Seale, 2006; Wisdom et al., 2006; Zaparyniuk & Montgomerie, 2005). With legislation, frameworks, assessment tools, and scholarship available for almost 20 years, it isn't an innocent oversight that we haven't normalized teaching and assessing the basic writing, authoring, reading and curating skills necessary to build a digitally inclusive world. It's ableism.

Many of the skills itemized in Table 1 are more straightforward than the correct usage of colons, semicolons, and em dashes. The toolbars in most authoring tools make using digital accessibility literacy skills a one-click proposition once you learn what to click to author headings, lists, links, etc. and many digital authoring tools offer accessibility checkers that function like spell checkers, offering guidance on errors found. Collectively, learning and applying digital accessibility literacy skills would contribute to a culture shift that enables people with and without disabilities to participate equitably in knowledge sharing, in learning environments, and in the digital commons. The absence of these skills in digital literacy curriculum and scholarship, digital citizenship curriculum and scholarship, 21st Century skills curriculum and scholarship, and in academic writing requirements (Ashbourne, 2024b, p. 21; B.C. Digital Literacy, n.d.; *Digital Age Skills for Educators*, 2015; Hobbs, 2017; Ministry of

Education, n.d.; Stauffer, n.d.) is a sad reflection of the value the field has placed on equitably and agentively educating and communicating with people with disabilities.

To demonstrate how this lack of engagement with normalizing digital accessibility literacy skills translates to marginalizing people with disabilities in the digital commons, we can return to Zdenek's guest editorship of Communications Design Quarterly, and his statement above that, "we need to keep in mind that the web becomes legible for everyone principally through humanistic and rhetorical acts of reading and writing texts." (2019, p. 8) When reading Zdenek's article online, it ends with the following cringeworthy disclaimer by the author that his and other contributors' articles were altered from digitally accessible formats to digitally inaccessible formats by the publisher, Communication Design Quarterly, an academic journal.

> A NOTE ON ACCESSIBILITY The issue's contributors carefully prepared their Word documents to be accessible when converted to PDFs by including alt text for figures and semantic tagging for headings. Access to these features was lost when the Word files were formatted to the journal's specifications. As a workaround, I integrated authors' alt text into their figure captions. If any reader would like to receive versions of the articles from this special issue that have been optimized for screen reader accessibility, please contact Sean Zdenek [author's email removed from quote]. (Zdenek, 2019, p. 9)

The publisher's style guide, or the design team, or something that Zdenek carefully called "specifications" was prioritized over digital accessibility, even in a special edition on disability. The sooner we normalize digital accessibility literacy skills as core communication skills, the sooner people benefit in the digital commons, and the sooner publishing decisions that marginalize readers who use assistive technology cease to seem normal.

Digital Practices: Skills, Choices, Actions and Beliefs

When educators think about the accessibility of our digital praxis, we must think about more than digital accessibility literacy skills. Our practices include our digital *skills*, our *choices*, and *actions* toward or against digital accessibility and inclusion. They also reflect and represent our *beliefs* (Seale, 2020b). A detailed, though inexhaustive list of educator practices follows in Table 2 but for efficient, illustrative purposes, these four categories of common educator practices set the frame 2025-02-03 11:25:00 PMfor the type of digital practices that I and the authors discussed in this chapter are attending to:

1. Course material practices: creating, curating, and disseminating materials.
2. Learning experience practices: technology selection, policy, design, and implementation.
3. Learning assessment practices: technology selection, restrictions, design, and implementation.
4. Course communication practices.

The WCAG 2.0 POUR framework (2008) is by far the most cited construct offered to educators for assessing digital accessibility. This section of the chapter will look at the uses and limits of the POUR framework for assessing the accessibility of educators' digital practices. From there it draws on the literature to offer alternative means to critically assess the accessibility of digital practices.

Uses and Limits of the POUR Framework for Assessing Educator Practices

The accessibility of many of our digital choices and actions could be assessed relative to the POUR framework (2008), but only to a point (Oswal & Melonçon, 2017). Let's go back to

the example of the educator using digital polling in their lectures that was first used in the definition of digital disablement.

Vignette: Digital Disablement.

An educator uses an in-class, digital polling tool that is inoperable by a learner who is dyslexic, either because the polling tool doesn't interface with the learner's assistive technology, or because the time to read and respond to the poll is insufficient, thereby disabling the learner from participating in the learning activity. In this example, the educator's choice of technology, and/or the way they use it, has disabled the learner, rendering them a disabled learner in the situation.

If the educator wanted to assess the accessibility of their practice to avoid disabling learners, they could use or ask a learning experience designer to help them use the POUR framework. In the vignette that follows, note that the framework offers a useful starting point but that to answer the follow-up questions, the educator needs to think critically and will likely draw on their pedagogical practices and beliefs.

Vignette: POUR and the Polling Tool.

Perceivable: *Information and tools are presented to users in ways that can be perceived. Does the way the polling tool is used allow everyone in the class to perceive the polling question, response options, and poll results equitably and agentively? If not, what options will be offered?*

Operable: *Interfaces can be operated. Can everyone in the class operate the polling tool equitably and agentively? What if technically a learner's assistive technology is compatible with the polling environment, but they are blocked from participating because*

the response time allowed is insufficient to operate their assistive technology? What if the assistive technology of a few learners does not work with the polling tool at all?

Understandable: *Information and operation are understandable. Are the steps to participate clear and navigable by all? Is the poll itself written in a way that is understandable by learners? Can assistive technology be used to select words to translate or look up in the poll? If polling questions are voiced, are they voiced slowly and clearly, leaving time for transcription tools to function?*

Robust: *Digital content or digital experiences can be reliably interpreted across devices, even as technologies advance, including assistive technologies. Is the polling experience consistent and equitable across devices and environments (laptop vs smartphone, learners in the classroom vs learners joining remotely, learners interfacing directly with technology vs learners interfacing through assistive technology)?*

In looking at this one vignette, the complexity of digital accessibility in common practices is revealed and we can begin to see how a pass/fail style digital accessibility checklist that is based on the POUR framework could be insufficient. POUR does not offer educators guidance on appropriate options if a learner cannot equitably or agentively perceive information. Nor can POUR nudge an educator to think critically about how much they value learner agency or ask if they would be willing to change their own digital practices to include one marginalized learner. Here too, we can see how what Oswal and Melonçon (2017) call the ideology of normalcy can foster assumptions about the abilities of learners (e.g., everyone can click a button to answer a poll) and how those assumptions can be recursively reinforced when the digital choices we make marginalize the voices of disabled learners in our classes (e.g., when the responses of learners with disabilities are missing in poll responses).

Moving from Oswal and Melonçon's ideology of normalcy to an ideology of inclusion will require educators and learning experience designers to ask and answer a lot of questions relative to the digital accessibility of the practices and technologies we use for learning experiences, assessments, materials, and environments (Oswal & Melonçon, 2017). These questions go beyond some abstract, objective, pass/fail idea of accessibility and dig into the mess of distinct learner experiences and degrees of accessibility, agency, and equity. For this we need more robust frameworks for support.

Finding Relational, Transformative Means of Assessing Digital Practices

Though we must understand the POUR framework to assess whether it is possible for our learners to perceive, operate, understand, and use the digital tools, environments, assessments, and materials in our courses, the framework is insufficient for guiding overall practice. If the framework reveals inequities, then what? How might the equity of participation opportunities be assessed? How is learner agency assessed? What if all but one disabled learner can participate equitably? Would the educator tell the disabled learner that it's OK if they don't participate? How are decisions made about the inclusion/exclusion of disabled learners? Here, we can begin to see how and where educators' pedagogical practices and beliefs relate to and inform their digital praxis (Melonçon, 2018; Oswal & Meloncon, 2017; Seale, 2020b).

What if no technology is being used for a learning experience? How is the digital accessibility of that decision assessed? It might seem inappropriate to apply the POUR framework to a decision to *not* use technology, but it is highly appropriate and the accessibility of the choice must be assessed. Policies that limit or restrict the use of digital technology in lectures and assessments very often result in inequitable learning experiences and outcomes for learners who are blocked from using assistive technology. Seale (2024), the most prolific writer

in digital accessibility in post-secondary research, recently published a research agenda for disability and technology. Education is only one of the research areas she addresses, but I want to point to one quite tender recommendation she makes, which is that we build on our understandings of agency relative to technology use, citing examples of situations where technology has been withheld.

Melonçon's (2018) orienting access theory draws attention to the need for educators to ask these questions about agency and equity, digital and otherwise, over and over throughout course design, and to specifically seek feedback from learners with disabilities on their experiences so that changes in praxis are built on learner feedback rather than assumptions. Melonçon (2018) also attends to the importance of learner agency in course navigation and completion. Asking educators to consider if learners with disabilities need to seek third-party support to do things others in the class can do themselves, not as a consequence of their disability but rather as a consequence of disabling course design, restrictive policies, or the disabling digital practices of people within their learning community.

Oswal and Melonçon (2017) argue that we also need to build on learner experience data to better understand how and why certain practices are experienced as disabling. They point out that checklists can only ever represent a floor, not a ceiling, for access and that meaningful levers of change will only be discovered in dialogue with disabled learners and via dynamic accumulations of understandings, brought forward with the active participation of learners with disabilities (Oswal & Melonçon, 2017). This is where educators come face-to-face with a lot of things we didn't learn, didn't know, didn't see, and didn't consider. Like decolonizing our practices, and other anti-oppression work, much digital accessibility in education work is relational, and needs space and time for reflection to iteratively evolve and improve.

Here, we might turn back to Seale's sociocultural drivers for accessibility because, as mentioned earlier, the extent to which technology-integrated learning experiences are made accessible is relative to mediating cultural considerations. Specifically, she prompts reflection on people's beliefs, understandings, and views of: "disability, accessibility and inclusion; duty and responsibility; autonomy and freedom; teamwork and community." (Seale, 2020b, p. 10) When faced with difficult, complicated decisions, educators can and do draw on a mix of objective information, subjective responses, and both conscious and unconscious beliefs. Returning one final time to the polling example, if the educator learns that the polling tool is inaccessible to four learners in a class of 130, what they decide to do could be influenced by:

- whether or not they believe the learners have "legitimate" disabilities,
- whether or not they feel a sense of responsibility to find an equitable solution if it is only a problem for a few learners,
- whether or not they prioritize expediency, or their own familiarity with technology, over learner agency to participate, and
- whether or not they even consider if they are modelling inclusive community building or uncritical practices of domination, restricting knowledge and power.

Again, this simple polling example is useful to illustrate complexity – in this case the complexity of how our beliefs can drive our digital actions and choices.

Though the POUR framework offers an easy to remember device for assessing accessibility, the dynamic and relational nature of digital accessibility, particularly in an educational context, requires educators to engage more deeply to meaningly shift digital accessibility and inclusion in their courses. To conclude this section, I offer educators a possible tool – a work in progress – that draws attention to the opportunities they have for engaging with

digital accessibility in daily praxis. Table 2 places educators' digital practices in relation to some of the essential aspects of the critical and transformative approaches discussed in Chapter 2. It is offered below as a tool for educators to reflect on our digital accessibility skills, choices, and actions as well as where our conscious or unconscious beliefs about disability and accessibility, etc., affect the accessibility of our digital practices. This tool is a central component of the CanDARE.ca website (Ashbourne, 2024e) and I hope to workshop it further as a discussion tool to move educators beyond a cerebral, impersonal, pass/fail understanding of digital accessibility issues, and toward critical and embodied understandings.

Table 2 follows and continues across four pages. If the table content cannot be navigated by keyboard once published, a digitally accessible version is available on the project website (Ashbourne, 2024e).

Table 2

Transformative Digital Accessibility Praxis Entry Points for Reflection

1. A Compassionate Look at Your Courses, Pedagogy, and Beliefs
Where might you assess the accessibility of your digital praxis and pedagogy? Ann Gagné's holistic approach to accessible pedagogy (2023) points us to look at: • The space learning happens (online, field, classroom, etc.) • The tools for learning (LMS, equipment, technology, materials, etc.) • The course design (activities, assessments, and pedagogical approaches).
Which hallmarks of transformative accessibility might you look for? Lisa Meloncon's orienting access theory (2018) challenges us to consider: **Access:** • Learners can enter, orient themselves, navigate and operate independently and equitably in any learning space, tool, or course element. • Learners have equitable access to digitally accessible learning materials. **Agency:** • Course design is oriented to make space for learners to have agency over how their bodies engage with learning. • Learners with disabilities are not forced into reliant relationships with third parties to support them to do things other learners can do independently. **Inclusion:** • Educators (and learners) re-orient their perspectives "from an ideology of normalcy to an ideology of inclusion" (Oswal & Meloncon, 2017, p. 68). • Educators activate policy with practical demonstrations of inclusion e.g., preparing a clear language, digitally accessible syllabus for digital distribution and print copies for in-class distribution. **Respect for Diversity:** • Course and assessment design can be iterative and participatory. • Educators request accessibility-focused feedback on experiences of learning. • Educators model respect for access, agency, and inclusion for learners with disabilities in their learning communities, making these practices the norm.

Table 2 (continued).

Does the digital accessibility of your courses convey your beliefs and values?

Jane Seale (2006, 2020) asserts that the extent to which technology-integrated learning is made accessible will be relative to beliefs, understandings, and views of:

- disability, accessibility, and inclusion,
- duty and responsibility,
- autonomy and freedom, and
- teamwork and community.

2. A Close, Critical Look at Your Digital Practices

Our skills, actions, and choices each represent opportunities to consciously attend to and transform praxis. Are your beliefs aligned with your current digital accessibility literacy skills and your daily digital choices and actions? Might conflicting beliefs be conveyed as you go about the following?

Course Materials: creating, curating, and disseminating.

- Creating documents, such as syllabi, handouts, and other course materials.
- Creating slide deck presentations, videos, or audio recordings.
- Curating readings, videos, podcasts, guest presentations, websites, etc.
- Disseminating course materials via course-packs, handouts, LMS, a custom course website, or other file-sharing system.
- Setting the expected pace for accessing and engaging with materials.
- Awareness of access-restricted services, such as a library's accessibility services, that might be needed for learners to gain digital access to materials.

Learning Experiences: technology selection, policy, and design.

- Designing and delivering learning experiences in digital environments, or environments that use digital technology.
- Selecting technology for learning experiences (e.g., lectures, field study, group work, LMS use, polling, social annotation, concept mapping, statistics packages, class discussion, lab work, etc.).

Table 2 (continued).

Learning Experiences: technology selection, policy, and design (continued). • Investigating known accessibility issues or limitations of the technology, or requesting support to investigate compatibility issues with learner technology. • Addressing an incompatibility, or other accessibility issue, with technology. • Setting policy and restrictions for technology use in class (e.g., allowing or restricting mobile devices to be used in class, policy about camera use, making captions available, allowing the class transcript to be saved by learners, etc.). • Setting the expected pace and duration of technology-integrated learning experiences (e.g., breaks to step away from computers, time to access tech support). • Designing for student autonomy in learning experiences. • Designing for inclusion and interconnectivity in group activities.
Learning assessments: technology selection, restrictions, and design. • Designing and delivering assessments in digital environments, or assessments that use or restrict digital technology. • When options are offered, designing equitable assessment options for all learners. • Selecting technology for assessments or allowing learners to select technology for completing assessments (e.g., written, verbal or other forms of exams, class presentations, papers, posters, group work, etc.). • Investigating known accessibility issues or limitations of selected technology or requesting support to investigate compatibility issues with learner technology. • Addressing an incompatibility or other accessibility issue with the required technology. • Setting policy controlling or limiting the use of technology for assessments (e.g., proctoring, restricting copy/paste function, or requiring hand-written assessments). • Setting the expected pace and duration of learning assessment (e.g., designing time-restricted or learner-paced assessment). • Awareness of access-restricted services, such as computer labs, that might be needed for learners to gain digital access to assessment materials. • Designing for student autonomy in assessment. • Designing for inclusion and interconnectivity in group assessments.

Table 2 (continued).

Course communication.

- Selecting technology for course communication (e.g., sharing instructions and announcements via LMS, emails, a course website or in-class-only).
- Selecting technology for individual communication (e.g., emails with individual learners, assessment feedback, instructions, and expectations, etc.).
- Being able to direct learners to technical or other support to meet class requirements.
- Discussing digital accessibility and accessible digital practices in class.
- Requesting feedback specifically on the accessibility of the spaces, tools, and course design elements (eg., pace, materials, assessments, etc.)
- Responding to feedback or inviting participatory course design or not.

3. Connect Transformative Outcomes to Reflections and Actions

How might your reflections on your beliefs, skills, actions, and choices move your digital praxis toward these transformative outcomes?

- **hooks (1994):** Wellbeing for learners and educators, and liberatory experiences of learning.
- **Zdenek (2019):** Adoption of digital accessibility as a literate practice at the centre of an accessible web, and a culture shift toward access as a shared responsibility.
- **Melonçon (2018) and Ahmed (2006):** Shedding disorienting and disabling pedagogical practices and reorienting praxis toward inclusion and accessibility.
- **Palmeri (2006), Oswal and Melonçon (2017):** Inclusive curricula, participatory course development, and critical interrogation of ideologies of normalcy.
- **Dolmage (2017):** Unhiding and addressing the legacy of ableism in the Academy.
- **Piepzna-Samarasinha (2018):** Accepting that disability is messy and addressing it with care not bare minimums.
- **Sins Invalid (2016):** Disability Justice.
- **Clare (2015):** Momentum.

  Sheppard (2019): Joyous ramps.

Assistive Technology Incompatibilities and Agentive Issues with Social Learning

This section of the literature review offers a brief survey of literature exploring the use of assistive technology in social learning situations as it pertains to educator practices. This synthesis is offered to demonstrate some common challenges and offers insights into how common the use of assistive technology is becoming. It draws heavily on literature that foregrounds lived experiences and sociocultural considerations for educators.

As Palmeri (2006) reminds us, all technology is assistive. That said, the term *assistive technology* is commonly used to mean technologies that assist people with disabilities to perceive, operate, communicate, and/or participate in digital environments. These technologies support self-directed, independent work habits, and reduce or replace a learner's reliance on third-party intermediaries in their education and life (Lorbeer, 2020). This includes both purpose-built technology (e.g., JAWS or NVDA screen readers, also known as adaptive technology) and accessibility features in mainstream technologies (e.g., Apple's built-in text-to-speech tool "Read Aloud" or the "Dictate" feature in Word).

The disconnects between social learning and assistive technology are many (Das et al., 2019; Heiman et al., 2020; Nierling & Maia, 2020, 2020; Seale et al., 2010; Wilkens et al., 2021). In their 2020 study, Linda Nierling and Maria Maia examine what they describe as the unintended social consequences of some assistive technology designs. Tali Heiman et al. (2020) note that the social applications of assistive technology are often overlooked, hypothesizing that assistive technology designers see social applications as "wants" rather than "needs." The primary use case for assistive technology is to increase the independence of people with disabilities, but perhaps in aiming for independence assistive technology designers overlook the importance of interdependence, particularly in learning communities.

Sins Invalid's approach to interdependence as a liberatory construct might be useful here to expand thinking. They hold interdependence as one of the 10 principles of Disability Justice, arguing that working together to meet each other's needs, rather than yielding to state solutions that come with state control, fosters liberatory interdependence (Sins Invalid, 2016). Certainly, in learning environments we know that being able to build knowledge and experiences in community builds capacity in ways that isolated independence cannot (Vygotsky, 1978). One might linger on Sins Invalid's conception of interdependence a little longer to question post-secondary institutions' applications of the accommodations model (akin to a state solution) to redress disabling practices, some of which could be addressed with transformative digital praxis. Maitraye Das et al. (2019) use the concept of interdependence to expand notions of accessibility beyond what is technically or functionally accessible to include what is functionally usable in an interdependent, organized social system, such as a learning community participating in collaborative work. Interdependence is an important concept in disability justice, and it is also germane to the digital world. We will return to it.

Let's think back to Alice Sheppard's ramp, "Unlike the access ramps that enable wheelchair users to avoid stairs, [Sheppard's] ramp … is a pleasure-filled challenge" (Sheppard, 2019, para 12). Various kinds of ramps have been built to enable assistive technology to operate mainstream technology and interact with the world beyond technology. For example, Microsoft Word is highly operable by many assistive technology users. For independent work, the ramp is quite smooth. Proficiency can be achieved over time and momentum can be built. However, the ramp for a screen reader user to engage in synchronous writing and editing with peers in Word makes for a brutal, uphill slog. The collaborative features can functionally be operated by assistive technology users, however, the experience of collaboratively editing a document – a

common activity in post-secondary – is in a word, terrible. I will draw on voices in research to explain.

In the aptly titled 2019 article "*It doesn't win you friends: Understanding Accessibility in Collaborative Writing for People with Vision Impairments*," Das et al. (2019) outline the many complexities at work when learners who use screen readers attempt to collaborate with sighted learners. Some issues are technical in nature, but most have to do with working around the ways that sighted learners and educators use technology – our digital practices. Group writing and editing can be a particularly marginalizing activity if not all participants are conscious of the inequities and willing to mitigate them. What follows is a brief description of what a learner using a screen reader might experience in synchronous group editing.

Vignette: Group Editing.

A learner using a screen reader to engage with the part of a document she is working on, enters the command to have it read a paragraph and she begins to rewrite it for clarity. When another author makes an edit in the document, the screen reader interrupts what she's doing to voice that a change has been made to the document by another user. It then reads the change out of context. All the while, the learner using the screen reader is trying to hold onto her own thoughts. If a third person is editing, their edits might interrupt again, and so on. Where a sighted person can stay visually anchored to what they are doing and choose to look up at others' edits when they are ready, the learner using the screen reader is instantly compelled to deal with other people's thinking ahead of her own.

The cognitive load in this collaboration scenario is highly inequitable. Das et al. found that this limits the disabled learner's participation and reduces the quality of her contribution. Her

assistive technology is usable, but the experience is both viscerally painful and still ultimately marginalizing.

So, what can educators take away from this? Das et al. make a strong case for the need for awareness building, active negotiation of what they refer to as "social-material relations" in digital collaboration environments, and developing "shared new norms." Quotes from their study participants offer unique insights into potential learning experiences. Sharing this article with learners before beginning group work might be a useful intervention. The combination of political, technical, and personal considerations could make it a useful tool for problem-posing and help educators guide learners to work as a group to find an equitable solution – keeping in mind that it is the educator's responsibility to redirect learners if learners come to an inequitable solution, such as leaving the student who uses the screen reader out of group discussions and editing. But whose responsibility is it to share this and other learner-experience informed resources like it with educators? Where are educators getting educated about disabling digital practices in meaningful ways? And where are they getting guidance to guide learners to build inclusive and accessible digital practices?

Now, it is important to recognize that screen reader technology is one of the most complex forms of assistive technology and one of the least commonly used by post-secondary learners. People working in accessibility services tend to expect fewer than 2% of post-secondary learners will be screen reader users. As of 2024/25 registration, approximately 1% of learners registered with the Centre for Accessible Learning at the University of Victoria are likely to be using screen reader technology for their studies (R. Shaw, personal correspondence, December 16, 2024). As a result, few educators have experience teaching these learners and supporting their inclusion in social learning environments. For this reason, I'm cautious of using screen

readers as the only example of assistive technology that makes a learning activity doable but inequitable. Therefore, I will touch lightly on the use of automatic captions and text-to-speech technology which are growing in popularity with learners with and without disabilities.

Deaf author Quinn Keast's personal narrative, and Deaf researcher Matthew Sieta et al.'s study into D/deaf participants' preferred behaviours in technology-mediated conversations, such as classes conducted over Zoom, offer educators insights into the use of freely-available live and automatic caption technology (Keast, 2020; Seita et al., 2021). To be clear in this paper, automatic captions are not typically sufficient for D/deaf learners in an educational setting, which is why learners usually work with ASL interpreters if they are fluent in ASL, or with live translator-transcribers who can work more collaboratively and accurately than AI. Automatic captions might be used in combination with hearing aids and are used by many students with varying degrees of hearing loss. These articles illustrate the complexity of how the digital practices of hearing people impact the D/deaf or hard-of-hearing community. For example, crosstalk, the act of learners talking over one another as they interject in a conversation, poses considerable problems. Crosstalk cannot be captioned, transcribed, or translated effectively and therefore marginalizes the learner who is missing what they cannot perceive. Educators mindful of the experience of D/deaf and hard-of-hearing learners might encourage, and remind, learners to mute themselves when not speaking and to limit crosstalk in both Zoom and in-person contexts. In an in-person context, some hard-of-hearing learners might choose to use laptop-based audio recording and live transcription tools such as Otter.ai. to reduce strain and potentially increase accurate comprehension of what's being said in class. Additional language learners may also use these tools. In this context, educators who restrict the use of laptops and mobile devices in class may inadvertently interfere with learners' use of assistive technology.

Policies that restrict or seek to control learners' use of technology often have unintended consequences for assistive technology users. This is becoming increasingly problematic in online assessments where lockdown browsers and other restrictions to curb cheating interfere with assistive technology and the exam-taking strategies of learners with disabilities. For this reason, a transformative approach to digital accessibility praxis would require educators to not only look at how they use technology but where they limit or restrict learner use of technology in class and in assessment environments.

Text-to-speech technology (TTST) was originally used as an intervention for beginning readers diagnosed with reading disorders. It is now being used by a wide range of learners with vision impairments, motor impairments, attention-related disorders, brain injury, dyslexia, and other print-related disabilities. Additional language learners also use TTST and increasingly it is being used as a study aid by learners without any disability or language fluency barriers. In *The Future of Text-to-Speech Technology: How Long Before it's Just one More Thing we do When Teaching Reading?* author Michelann Parr conducted a study in a K-12 context, but her findings are highly relevant to post-secondary. Her study found that text-to-speech tools allow many students with and without disabilities to deepen their understanding of readings. She explains that students who struggle with decoding a text are less able to engage in metacognitive strategies such as sense-making and constructing meaningful attachments to prior knowledge because the work of decoding is so laborious and time-consuming. TTST use was found to bypass the subskill of decoding, affording students the "confidence, patience, and stamina to stick with the text and make it through to the real work of reading" (Parr, 2012, p. 1421).

Richard Jackson (2021) with the National Centre on Accessible Education Materials offers further insights into how TTST can improve reading comprehension for learners with and

without vision impairment. Screen reading software and TTST bypass or augment the sensory and motor skills associated with decoding and rapid word naming. Many learners can listen to text at much faster rates than they can visually decode it. The speed at which a reader can perceive and decode a text positively correlates to the speed at which they can process it (up to a point). Using TTST can enable many learners to "…utilize his/her full capacity of working memory to comprehend meaning" (Jackson, 2021 p.8). In addition, TTST can reduce the time required to complete individual academic tasks.

Finally, Parr (2012) makes an important point about free text-to-speech technology that also relates to free digital captioning and transcription technology, and to free spelling and grammar technology. Learners do not require a specific diagnosis, funding, or special accommodations to use these assistive technologies. Many access them freely in mainstream software such as Word, Zoom, etc. or with free browser extensions for Chrome, Safari, etc. This is particularly important for educators in post-secondary to understand because the learners using these assistive technologies are often invisible. Many learners won't be registered for academic accommodations, and many might not self-identify as disabled or wish to disclose a disability. Regardless, educators mindful of digital accessibility and inclusion considerations, who develop practices that support the use of these and other assistive technologies, will directly benefit the growing number of learners who use assistive technology for whatever the reason.

To conclude this section on assistive technology, I want to circle back to the design brief for assistive technology: independent and agentive use of technology. As I mentioned, there are numerous disconnects between current designs for independent ICT functionality and social learning. There are also numerous disconnects between assistive technology use and agentive learning (Melonçon, 2018). Learners may be able to agentively choose to use assistive

technologies to improve their own learning experiences and outcomes, however, the meaningfulness of that agency is relative to their interdependence with educators and peers. Live captions only assist learners if they are enabled by the host in Zoom calls. Laptop transcription tools are of no use to learners in classrooms where open laptops are prohibited. Text-to-speech technology users can only benefit from the technology if the readings they are assigned are digitally accessible. I can't count the hours I, a TTST user, have spent chasing down digitally accessible versions of texts, sometimes fruitlessly, always frustratingly. Nor can I count the migraines triggered by trying to read inaccessible texts. There is no satisfying way to quantify the effect the added cognitive fatigue has on my wobbly, laboured walk. Educators and learners don't mean to cause pain to me and my disabled peers, but as discussed above, guidance and tools to support the adoption of digital practices that would enable rather than disable people who use assistive technology have been around for 20 years and post-secondary leadership, education scholarship, and educator training programs have yet to normalize them. That is painful. Clearly, there are opportunities for ICT (assistive and otherwise) to evolve further. However, Ashbourne (2021), Oswal and Melonçon (2017), Seale (2020), and others argue for educators to expand their understanding of how learners with disabilities use technology, and to take responsibility for learning and modelling accessible digital practices that support and normalize the inclusion of assistive technology users in our learning communities without further delay.

Centering Digital Accessibility in Technology-Integrated-Learning Research Praxis

Of course, our digital practices develop relative to not only sociocultural conventions but also relative to developments in, and research around, technology. In educational technology research I see both missed opportunities to include discussions of digital accessibility in

mainstream technology discourse, but also significant opportunities to normalize and operationalize accessibility and inclusion in teaching, learning, and research praxis.

Das et. al (2019) cite numerous studies reporting digital accessibility issues experienced by people with vision impairments and screen reader users when using browser search tools, Microsoft Word, and Google Docs, all common, mainstream technologies used in post-secondary. However, in a social context such as a post-secondary learning community, even when looking at what might objectively be described as accessible features in specified technology, the researchers caution we must consider the social and relational behaviours of the people using the technology to fully assess the accessibility versus inaccessibility of the activity, and the inclusion, marginalization, or exclusion of the person with disabilities in their community. Can educational technology researchers more commonly take this critical approach and normalize interrogations of accessible vs inaccessible digital practices with mainstream technologies? Can we shift discussions of mainstream educational technology to normalize discussion of digital accessibility and inclusion in mainstream research?

Here I need to address the elephant in the research lab. Learners with disabilities, and specifically assistive technology users, are often marginalized in educational technology studies, and findings, for two reasons. One, their assistive technology may be incompatible with the educational technology being assessed and two, their absence has been normalized. As distressing as that is, educational technology research represents a far-ranging opportunity for interventions that could improve digital practices.

As an example, I point to the Morales et al. (2022) paper on social annotation research. To contextualize their research and support their findings, the authors point to dozens of studies from the past 20 years that position online discussion and collaboration tools as essential

educational technology for social learning in post-secondary. Citing Eryilmaz et al. (2013), Kent, Laslo, and Rafaeli (2016), and Truhlar, Walter, and Williams (2018), the authors argue for social annotation tools' profound learning benefits, including opportunities for knowledge construction with peers and personal reflection. Using validated knowledge creation instrumentation and metrics to assess the prevalence of "clarification, conflict, consensus-building, elaboration, interpretation, questioning, and support" (Morales et al., 2022, p. 6) annotations in the Hypothes.is social annotation environment, the study analyzes discursive knowledge construction activities and patterns, from three "diverse" communities of learners. This well-presented study notes its limitations, but there is one limitation they, and many other researchers, miss. The study only analyzes the learning activities of learners who can operate the technology.

Hypothes.is has a number of accessibility issues. For example, my text-to-speech browser extension is inoperable when the Hypothes.is extension is running. I, like many learners who use assistive technology, have developed various strategies and contortions to work around digitally inaccessible learning environments and materials (Das et al., 2019). However, some environments and materials simply cannot be perceived or operated by assistive tech, which means they are entirely disabling for some learners.

Another 20-Year Omission

I will come back to Morales et. al shortly, but here, I need to take a short tangent to make a connection to a 20-year-old reflection on inaccessible online discussion technology that was published in the introduction of a foundational DARE text, Jane Seale's *E-Learning and Disability in Higher Education: Accessibility Research and Practice*. In it, Seale cites educator Nicole Kipar's 2005 lament that with all the technological advancements meant to make

education more accessible, some of the most used learning technology of the day – online discussion boards – were not meaningfully usable or operable by learners using screen readers.

> Perhaps there is a magic solution for this problem that we haven't encountered yet, but we fear that until the Fairy of Learning Technology raises her magic wand to sprinkle accessibility dust all over the [school], our students who use screen readers will not be able to take part in online discussion. Surely, if this is the case, instead of widening participation and enhancing accessibility – we are narrowing it. (Nicole Kipar, ALT-N Newsletter, July 2005 as cited in the introduction to E-Learning and Disability in Higher Education: Accessibility Research and Practice, Seale, 2006, p. 1)

In 2021, in my former role as a learning experience designer focused on accessibility at a Canadian research university, my colleagues and I were tasked to work with the Centre for Accessible Learning to find a technical workaround for a learner whose screen reader could not perceive or operate the discussion forum tool in our institution's mainstream, enterprise-level LMS. Unfortunately, the only solution we could find would only be partially inclusive for the disabled learner and would alter – read: significantly inconvenience – the workflow of all other learners. Given that, the educator opted instead to assign the one learner to meet her assessment requirements by emailing the educator her "discussion" posts. Meanwhile, the rest of the class continued to build knowledge together, experiencing what Morales et. al discuss as profound learning benefits, specifically building "clarification, conflict, consensus-building, elaboration, interpretation, questioning, and support" (Morales et al., 2022, p. 6) skills in the digitally inaccessible – read marginalizing – learning environment.

Pulling disabled learners out of community marginalizes them and creates inequitable learning experiences. Most educators do not want this, but when digital accessibility issues come up partway into the term, the assessments have already been designed and the train has left the station. There is no time for the larger questions, such as why is one of the most popular social knowledge construction tools in one of the most popular (and costly) LMS's not compatible with screen readers? Or what other discussion tools are accessible? Awkwardly, educators find themselves caught unaware and choosing between insufficient options.

I offer my own echo to Kipar's lament to illustrate that during the 20 years of online discussion research Morales et al. point to, learners using screen readers have been largely left out of the social learning phenomena of online discussions. Their thoughts and experiences have not informed scholarly research, nor have they informed the knowledge construction of their peers. Their voices are absent from debates and that's accepted as normal.

This anecdote illustrates three things. First, accessibility legislation has not forced the hand of either the tech sector or academic institutions to find tech solutions to 20-year-old issues with educational technology that marginalize disabled learners. Second, learning mid-semester that an institutionally vetted assessment tool is digitally inaccessible to a learner, educators get stuck manufacturing on-the-fly, often inequitable, workarounds that typically focus on the educator's need to assess learning, rather than the learner's need to participate in their learning community. Third, this history of digitally inaccessible, marginalizing educational technologies is not sufficiently evident, let alone troubled, in educational technology research.

This example also brings to the fore the culturally and institutionally accepted marginalization of disabled learners. In 20 years, the free market hasn't found a technology solution that enables screen-reader operators to participate equitably and agentively in their

learning communities. The technology industry doesn't move that slowly. If the problem hasn't been solved in 20 years, that's not a tech issue, it's a social one – it's ableism.

Digital Accessibility Considerations in Educational Technology Research

So how might we in the field of educational technology research move the needle? How might we address the ableist elephant in the room? Jane Seale's most recent book, *A Research Agenda for Disability and Technology* (Seale, 2024) offers, among other things, a high-level overview of how people are typically involved as users in the design of technology for people with disabilities. She troubles research and design methodologies and discusses means of involving people with disabilities in design processes. This analysis could be used to inform educational technology researchers' methodological approaches and means of involving people with disabilities as research partners or participants. However, as with Seale's contextualized model of accessibility (Seale, 2020b), the depth and breadth of Seale's (2024) analysis may be an overwhelming starting point for researchers new to this perspective. Our community would benefit from scholarship that builds on Seale's analysis with methodology literature, case studies and research praxis recommendations that discuss accessibility and inclusion practices being used with methodological approaches common to educational technology research.

In a presentation for BCcampus about my research, (Ashbourne, 2024f) I shared the following entry points for researchers interested in attending to digital accessibility and inclusion in their research praxis:

- Are the voices of students with disabilities discernable in your review of educational technology literature and/or learner experience data?
- Are studies clearly stating in their limitations if they have or have not had input from disabled learners or learners who use assistive technologies?

- Do studies relating to a mainstream technology take steps to validate the accessibility claims of the vendor?
- Does your study invite the participation of learners with disabilities?
- Understanding that there can be additional barriers to participation, are you taking efforts to recruit learners with disabilities, and/or assistive technology users?
- Are study findings shared in digitally accessible formats?

These are just a few of the entry points we discussed. On another occasion, Dr. Seale also spoke to the BCcampus community about research praxis (Seale, 2023b). She made a very important point that researchers do need to bear in mind: engaging people with disabilities in research studies will affect the timeline of a study.

> It takes much more time. So you have to build in that time. I think one of the biggest jobs that we as a whole research community have to do is to really lobby funders who say they want research that's inclusive and captures voices, but still want you to do it in the standard… one year kind of project, and you have to say no. To be truly inclusive it takes longer. You're going to have to fund longer.(Seale, 2023b)

From a digital accessibility perspective, that might be because you need to version your survey or engage with participants using different technologies. It might be because you need to spend time learning how to adapt a methodology for a blind or D/deaf participant. It might be because you need to make your data accessible to research partners or to the public, or because you want to make your findings accessible in multiple formats.

To conclude this section of the literature review, it seems useful to underscore that a path toward transformative digital accessibility praxis will need to be guided by accessible and

inclusive research into technology-integrated learning technologies and practices. Das et. al (2019) set an example for researchers to look beyond seemingly objective assessments of a mainstream technology's accessibility to attend to how common practices with said technology contribute to experiences of digital accessibility vs. inaccessibility and inclusion vs. marginalization, as articulated by people with disabilities. We need these voices.

As a researcher, I certainly have only begun to scratch the surface of what educational technology research has to offer, but from where I stand, studies relating to mainstream educational technology rarely address accessibility. When we as a research community regularly read studies that omit any discussion of digital accessibility, that omission negatively reinforces ableist assumptions and beliefs about who uses technology, how technology should be used, and what is normal. It's time for our research to recursively, positively construct digital accessibility and digital inclusion as normalized educational and agentive considerations in educational technology research.

Literature Review Conclusion

To conclude this chapter, I want to return to Alice Shepard and her metaphors of utilitarian and joyous ramps. The WCAG POUR framework (2008) might be appropriate to fashion utilitarian ramps from inaccessible materials, environments, or activities to meet a learner's need. WCAG and POUR are not sufficient tools for imagining joyous ramps. They don't reach for hooks' wellbeing or liberatory experiences of learning. They don't show us how to move or think differently, creatively, and to share responsibility for digital access which is what Zdenek challenges us to do when he calls on educators, practitioners, and scholars to learn from disability studies scholarship, and from learners with disabilities.

Learners who are disabled want – I want – more than utilitarian ramps from digital disablement to digital access. Shepard's joyous ramp reminds us that with imagination, empathy, and respect we can hope to do better than build ramps from *in*access to mere access. We can build ramps to joyous experiences of learning; equity- and dignity-centred experiences of learning; and liberatory experiences of learning. Currently, disabling digital practices create marginalizing barriers to learning, barriers that are replicated in the digital commons. However, education as a field, and educators as a community, have an exciting opportunity to foster meaningful change by finally attending to digital accessibility in curriculum, assessment, research, and pedagogy. This literature review is cursory, it is the scale appropriate to a Masters project, yet even so it points toward the potential for transformative change via transformative digital accessibility praxis.

Chapter 4. Project Reflections

The CanDARE research project and website were designed to combine embodied understandings and experiences with research on digital accessibility in ways that critically shift understanding and potentially transform digital praxis, both for myself and others. I have done, and will continue to do, this work in service of broadening our understanding of digital accessibility issues in education and improving digital learning experiences for learners with (and without) disabilities. This section will discuss my application of transformative inquiry, the development of the CanDARE website, and reflections on my research questions.

Applying Transformative Inquiry Methodology

After completing an expansive literature review on the general topic of digital accessibility issues for learners with disabilities in post-secondary, I focused my research on the texts and inquiry partners (Transformative Inquiry, n.d.) that most closely pertained to my primary research question:

> **Q 1:** How might learner voice (including my voice) and critical problem posing be used to support educators to critically attend to the digital marginalization of disabled learners in post-secondary, and adopt a transformative digital accessibility praxis?

Reading, listening, and looking for palpable human experiences, I engaged deeply with works that discussed how learners with disabilities fit into the sociocultural contexts of their post-secondary learning communities. Likewise, I worked deeply with texts from theorists and practitioner authors who explored critical or transformative pedagogical approaches, or critiques of marginalizing digital practices.

The transformative inquiry strategies I used to engage with these materials included:

- Taking small passages of significant texts to work with, play with, and build on in new ways (e.g., writing a poem, storytelling or creating a photo montage).
- Imagining conversations between authors.
- Learning Indigenous inquiry practices such as stepping back from the human world to look at something relative to something in the non-human world, learning to work in a good way with someone or something, or looking at a situation, a problem, or a solution relative to "all my relations."
- Looking for and questioning the "taken-for-grantedness" in common practices.
- Allowing someone or something influencing my inquiry to take me "off course" to look back at my work from a new place.
- Working iteratively, prompting myself to keep asking if I am still asking the right questions.

Using these strategies, I was able to form and foster intellectual, physical, emotional, and spiritual connections with the research texts and other forms of cultural production I curated. I did this to allow myself to find a new way to build on the twenty plus years of very well-argued cases for adopting better digital accessibility practices in post-secondary education. I've shared some of my sense-making products on the CanDARE website as pathways to transform understanding, both for myself and for others. Some posts are strictly research-focused, and some came out of moments of vulnerability and creativity that are political, human, and embodied and some are both.

Research Without Authority

I'm quite upfront on the website, and when presenting this research, that I am not an authority on digital accessibility or disability, nor am I an impartial observer, or an ambassador

for a non-existent homogeneous experience of disability or disablement. I, like any learner with disabilities, am an expert in my own experiences of disability and disablement, ability, and empowerment. I share some of my own experiences, along with examples from research texts that have stayed with me, perhaps because they were illustrative, or surprising, or facilitated my sense-making in some way. Hopefully these experiences help to broaden or deepen understandings so that we might build new pathways; new and joyful ramps from disablement and marginalization to access and inclusion.

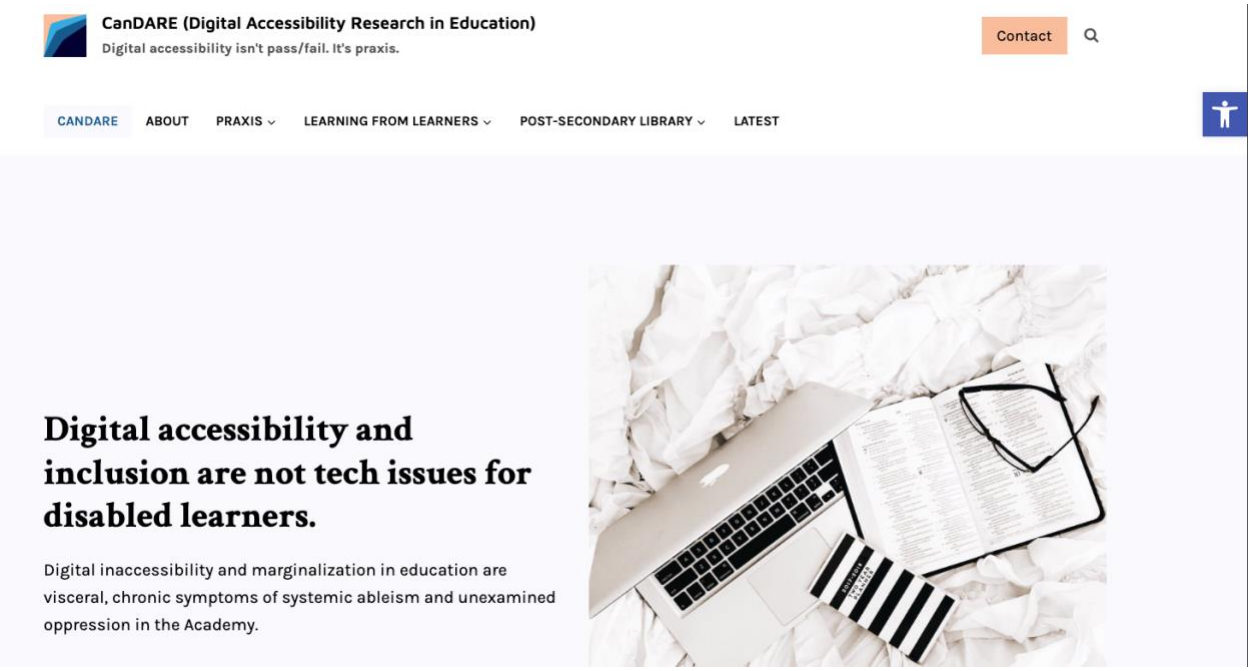
The CanDARE Website

Given that the topic of my research is digital accessibility, it seemed only natural to build a website to materially work with and ultimately share my research. In the development process, I bumped up against many of the digital accessibility challenges my research explores. It is through the practice of identifying digital accessibility issues, missing issues that others identify, and making what can sometimes be difficult decisions, that I've expanded and deepened my own engagement with digital accessibility and my own understanding of it as relational, transformative, and liberatory.

The primary audience for the website is post-secondary educators, who like me are looking to build more accessible and inclusive digital practices. Some may stumble upon it on their own, but in future, I plan to use it as a teaching tool in workshops and seminars on digital accessibility.

Figure 3

CanDARE Home Page



Note: A screenshot of the candare.ca home page The main text reads: Digital accessibility and inclusion are not tech issues for disabled learners.

CanDARE Content and Information Architecture

The website content and information architecture came out of my research process and the questions I asked myself as a researcher throughout this process. Though many of the posts began as my own sense-making artifacts or as documentation of my processes or experiences as a learner in post-secondary, the artifacts were then re-crafted and re-contextualized as posts that educators could use for their own sense-making.

The site is designed in three main sections, which are described in detail below.

1. Post-secondary Library: educators can scan annotated bibliographies that I have created based on the published research and cultural products that informed this project and relate to digital accessibility research in post-secondary education.

2. Learning from Learners: educators can gain insights from descriptions of learner experiences with digital accessibility and inaccessibility and uses of technology.
3. Praxis: educators can challenge themselves with tools to build new pathways to digital access and inclusion.

What follows is a summary of how each section responds to one of my three secondary research questions, thereby contributing to the primary research question.

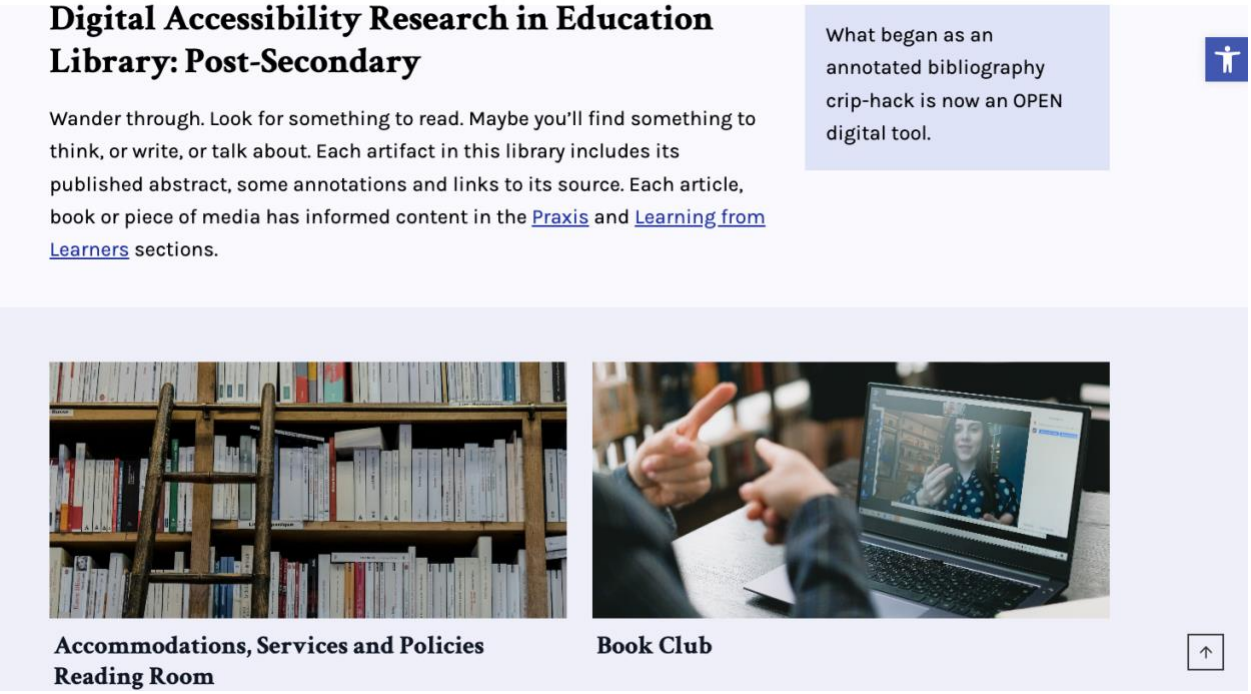
The Post-Secondary Library Section.

Q 1A: As a researcher, how might I ground my research production in the theory and work of my accessibility and disability elders, and distribute it in digitally accessible ways to actively support a digital accessibility paradigm shift in post-secondary?

This section offers educators annotated bibliography posts on some of the articles, books and other media that informed this dissertation and the CanDARE site. Many posts on the site link back to posts in the library, connecting educators to the references and authors they can look to for deeper engagement with an idea or question. The Library posts also amplify the authors' work in search engines, and share commentary on the digital accessibility of the media, bringing attention to disabling publishing practices and to authors who have chosen to make free, OPEN and/or digitally accessible versions available.

Figure 4

The CanDARE.ca Library Landing Page



Note: A screenshot of the landing page for the Post-secondary Library. The image links to access articles in the Accommodations reading room and the Book Club reading room are visible.

As mentioned earlier, the Library began as a "crip hack," a community-designed technology solution to a disability challenge. When I built the Library, I was at a point with my health where I was well enough to read, but not well enough to easily call to mind what I'd read. I needed more than the usual highlighters and memory cues in the marginalia because I read using text-to-speech, and I felt like I'd collected a library's worth of material. I wanted digitally searchable memory cues, I wanted space to write digests of elements of a text, and I wanted a standardized format for drafting annotated bibliography entries so that I could really work with my observations as data across entries. I also pictured this being used as a data source for educators from the start.

The resulting annotated bibliography template pictured in Figure 5 below, draws some data automatically from Zotero and allows me to author pieces of information I specified such as notes on the digital accessibility of the media and the positionality of the author. The headings shown in the screenshots in Figure 5 correspond to backend authoring fields: full title, author(s), year of publication, media type, media access, usefulness to educators, premise, purpose, research methods, conceptual or theoretical frameworks, reference with published abstract (when available), points of contention, and points of connection. The content entered is entirely searchable by the site's search tool. When known, posts are tagged as being by Authors with Disabilities, IBPOC Authors, 2SLGBTQIA+ Authors, and Female Authors, and are highlighted under the heading "Centering Voices" to foreground the contributions of authors from these communities and to make it possible to search for works by these tags. Works are categorized into the appropriate "Reading Rooms:" Disability Justice, Digital Justice and Ethics, Digital Accessibility in Praxis, Book Club, and Accommodations, Services and Policies.

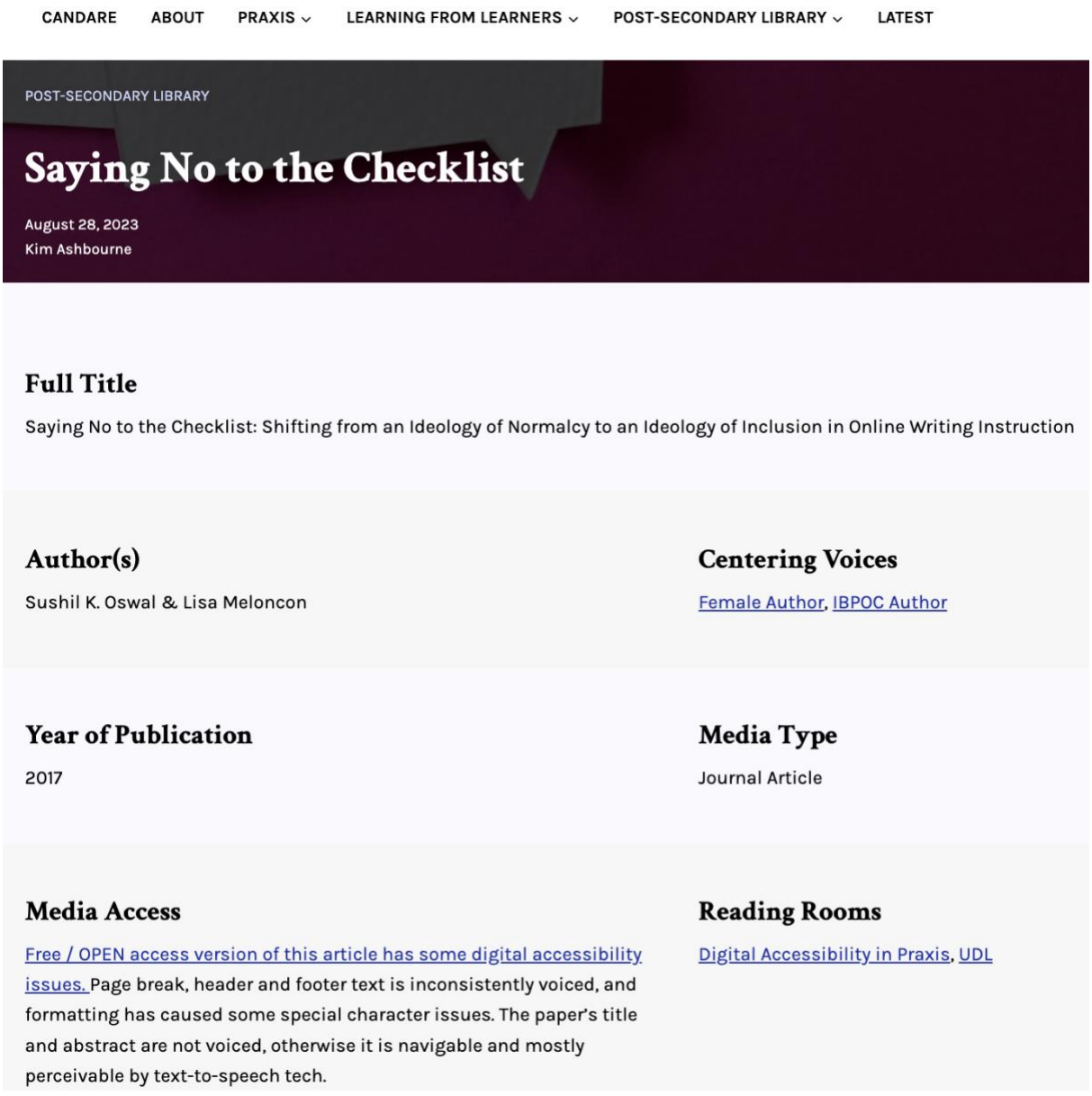
Not all the posts that I have authored are live on the site for public access. Some are only available for my use in the backend because editing and checking the links on so many posts became too laborious for the timeline of this project. The posts that are live have been categorized into "Reading Rooms" in the Post-Secondary Library, which are named as such to connote spaces where we as a community come together to learn. Current Reading Rooms in the library include Accommodations, Services and Policies, Digital Accessibility in Praxis, and the Book Club.

In future, I would like to invite other researchers to add to the library and participate in or host reading groups. I would also like to invite more accessibility testing. The Library posts have passed testing by one screen reader user and one text-to-speech user. In future, I would like to

offer more robust accessibility descriptions of the linked media and do more extensive testing of the annotated bibliography template and content as I continue to add it.

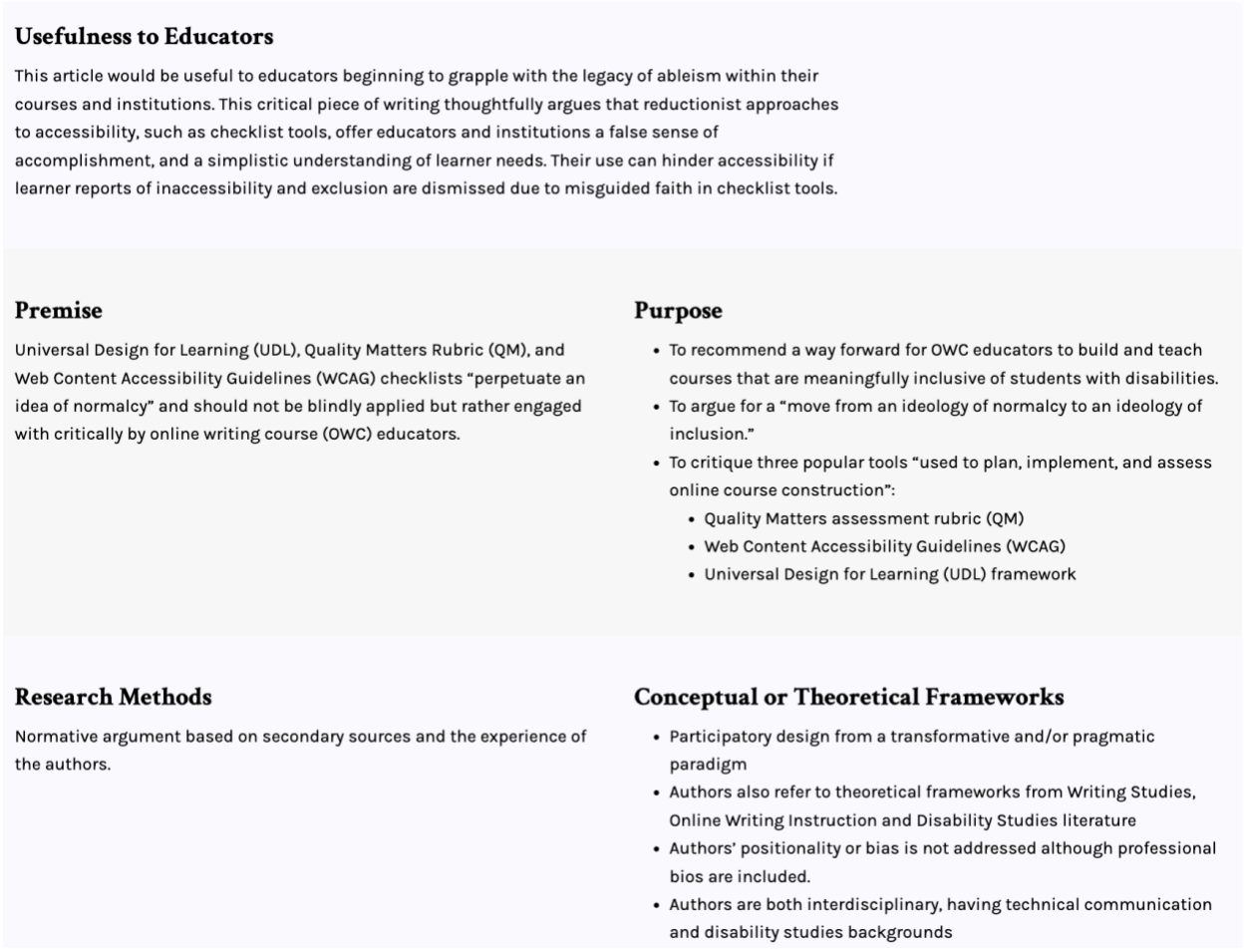
Figure 5

The Saying No to the Checklist Annotated Bibliography Post



Note: One of three screenshots documenting this page.

Figure 5 (continued).



Usefulness to Educators

This article would be useful to educators beginning to grapple with the legacy of ableism within their courses and institutions. This critical piece of writing thoughtfully argues that reductionist approaches to accessibility, such as checklist tools, offer educators and institutions a false sense of accomplishment, and a simplistic understanding of learner needs. Their use can hinder accessibility if learner reports of inaccessibility and exclusion are dismissed due to misguided faith in checklist tools.

Premise

Universal Design for Learning (UDL), Quality Matters Rubric (QM), and Web Content Accessibility Guidelines (WCAG) checklists "perpetuate an idea of normalcy" and should not be blindly applied but rather engaged with critically by online writing course (OWC) educators.

Purpose

- To recommend a way forward for OWC educators to build and teach courses that are meaningfully inclusive of students with disabilities.
- To argue for a "move from an ideology of normalcy to an ideology of inclusion."
- To critique three popular tools "used to plan, implement, and assess online course construction":
  - Quality Matters assessment rubric (QM)
  - Web Content Accessibility Guidelines (WCAG)
  - Universal Design for Learning (UDL) framework

Research Methods

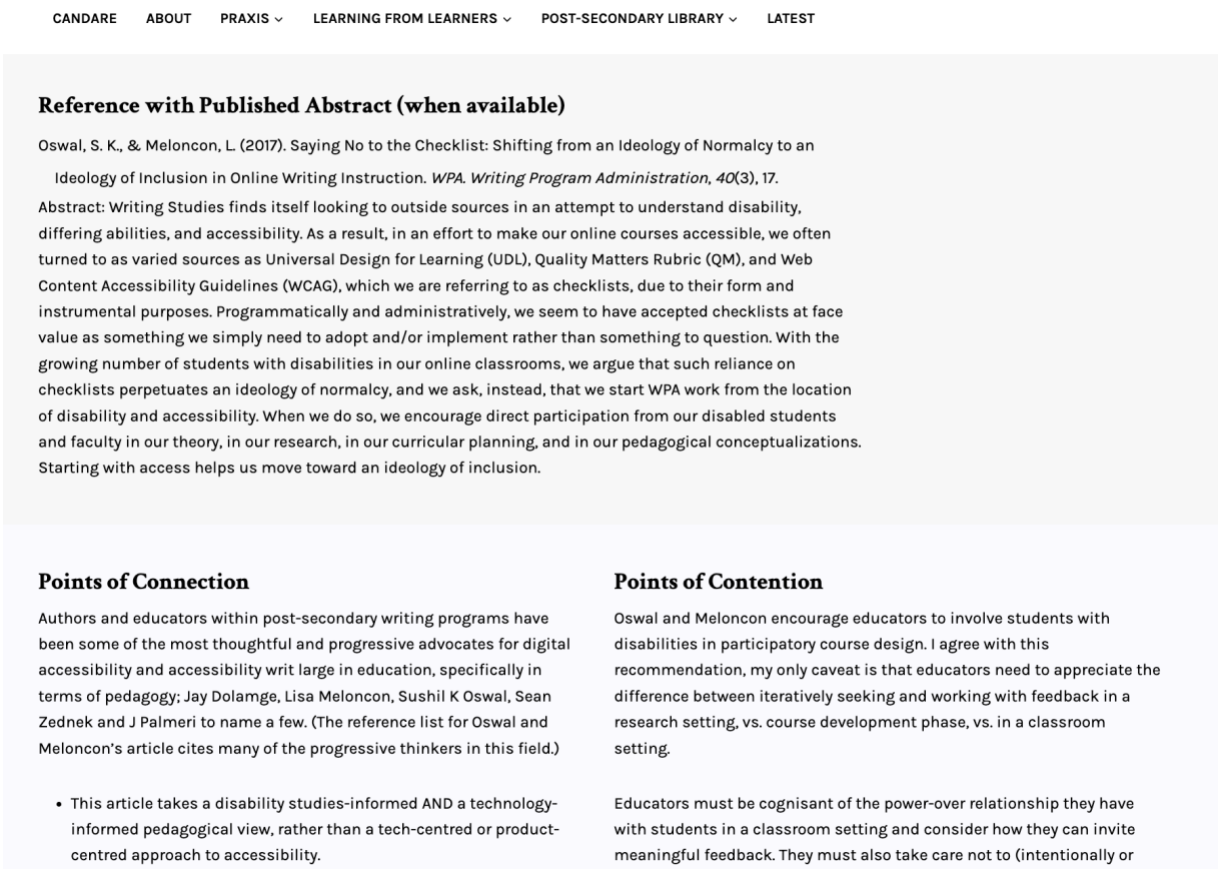
Normative argument based on secondary sources and the experience of the authors.

Conceptual or Theoretical Frameworks

- Participatory design from a transformative and/or pragmatic paradigm
- Authors also refer to theoretical frameworks from Writing Studies, Online Writing Instruction and Disability Studies literature
- Authors' positionality or bias is not addressed although professional bios are included.
- Authors are both interdisciplinary, having technical communication and disability studies backgrounds

Note: Two of three screenshots documenting this page.

Figure 5 (continued).



Note: These three screenshots of an annotated bibliography post shows the complete heading structure and tagging convention used for all annotated bibliography posts.

The Learning from Learners Section.

Q 1B: As a person with disabilities, how might I weave my voice through the voices of learners with disabilities already captured in research?

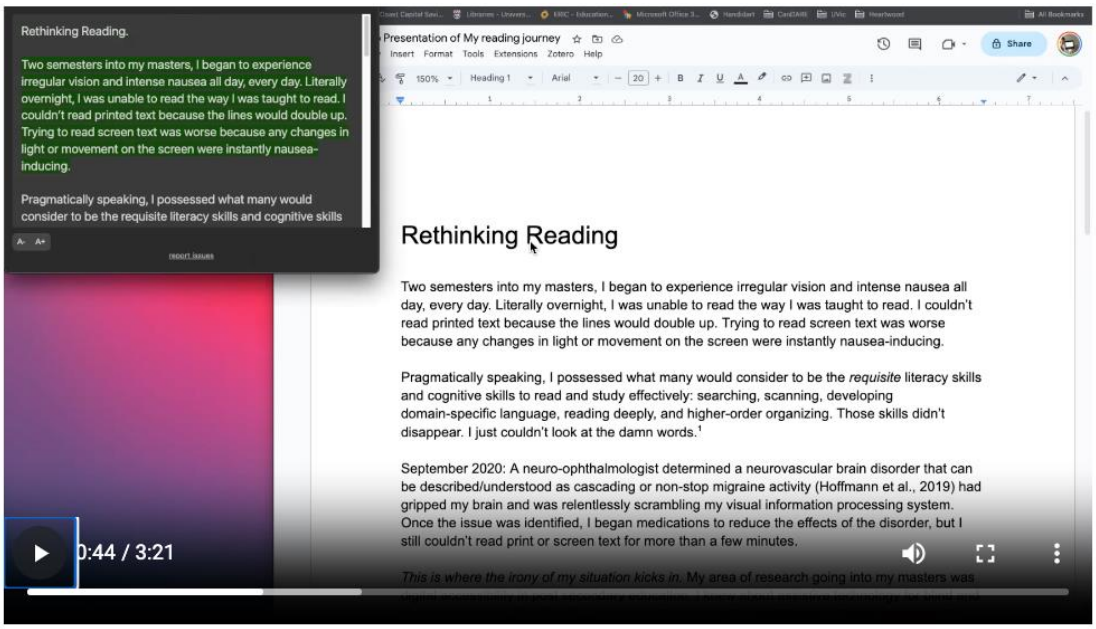
The Learning from Learners section offers a curated mix of experiences for educators to think about, feel out and work with. Some of those presented are my own experiences as a learner with disabilities and some are experiences pulled from the literature. In my research journey, I found myself compelled by, and learning from, the generous descriptions and artistic

expressions of people like me who shared their experiences of accessibility, inaccessibility, and disability. My goal has been to illuminate and learn from human experiences of engaging with digital accessibility and inaccessibility, and so I needed to first deepen my own engagement and build on the fullness of what was being shared with me. I felt I needed to explore my own experiences by letting myself be vulnerable and creative.

- The poem Awkwardly Able draws parallels between digital obstructions on a research path and obstructions on a wheelchair accessible path.
- The three-minute video What I Didn't Know About Text-to-speech When I Started Using it in University documents my text-to-speech tool reading a text about an early realization of just how different reading with text-to-speech would be. This post also represents a digital accessibility judgement call that I as a media producer had to make. It includes a downloadable Word transcript of the video. I decided not to add closed captions to the video because the visuals for the video show most of the words that are being voiced in two places on the screen already. Adding closed captions would offer little informational benefit and add considerable visual noise. Whereas a complete transcript of this three-minute video offers both described audio and script transcription, which seemed the better ramp to an accessible experience of the video in this instance. I will need to have this tested by multiple users to assess if this decision was correct.

Figure 6

Learner Experiences Post with Video and Transcript



Note: This screenshot from the What I Didn't Know About Text-to-speech When I Started Using it in University post on the Candare.ca website shows the video player with a button below to download a transcript of the video.

Using transformative inquiry, I also spent a lot of time with certain handfuls of learners' words. Specifically, I worked with words that related to experiences in and around the body. In some posts I structure editorial or prompts around learners' words. Often, these words carried emotions; frustration, anger, and annoyance are common. I would try to hold the imbued emotion of the voice in whatever way the words would get re-purposed, holding respect for the original context and citing appropriately so that educators can go deeper with their understanding.

- For example, the post Technology Restrictions and Able Inconveniences uses quotes from creative works to bring the body and the energy enmeshed in their experiences of learning to the fore. Eli Clare's memoir Exile and Pride (2015) was a major influence on my understanding of disability and ableism. On first reading, the passage I selected might seem unrelated to digital accessibility because it is about an experience writing a handwritten test. Here, the author's words work to highlight the effect of technology restrictions, which are an aspect of our digital praxis that need critical reflection as much as the digital actions we take.

I also looked for opportunities to illustrate more fulsome pictures of common experiences raised in the literature, experiences that educators might think they understand but likely don't until they have been through the mess of a given situation themselves. For example, we have more than enough literature, including court filings, documenting the use of inaccessible course materials in post-secondary education to know that it is a significant problem (Almog, 2018; *MARY FERNANDEZ, and THE NATIONAL FEDERATION OF THE BLIND, INC., Plaintiffs, v. DUKE UNIVERSITY, Defendant.*, 2021; Moriarty, 2018; Wood et al., 2017). Digital accessibility research that uses student voice often discusses the extra work learners with disabilities must undertake, but I'm not sure that the full scope of the extra work is always evident to educators, or even to the learners who slog through it for that matter. I documented some of my attempts to source accessible versions of materials to itemize and make real the efforts taken to secure digitally accessible versions of readings that other learners can access with the click of a button.

- As an example, the post Digitally Inaccessible Readings Take Extra Time and Extra Cognitive Load offers editorial and statistics taken from an experience of working through the proper channels to try to get access to a digitally accessible copy of a book,

which I documented. The process involved eight paid staff from disability services, the library, the publisher, and a third-party vendor, none of whom were able to find me a digitally accessible version of a book. I eventually found it with the help of a disabled friend working at another university. The post offers educators a glimpse of what students might need to do if they curate readings without regard for digital accessibility. This kind of deepened understanding might help an educator decide to proactively contact the library to source accessible versions of course readings before the start of class, so that no one is stuck searching for accessible versions mid-semester, when time is precious.

The Learning from Learners Section of the site offers educators a mix of visceral, emotional, and documentary descriptions of experiences, and some digital accessibility interventions. In future, I would like to invite more learners to share experiences in this space and workshop the accessibility of the media being used in the posts. Some of these pages have passed testing by a screen reader user and a text-to-speech user. More testing will need to be done by people who engage with content in different ways as more content is added.

The Praxis Section.

Q 1C: As an educator, how might I use critical and liberatory pedagogical approaches to support educators to reflect on their digital practices?

The Praxis section of the site is the most provocative and may be the most challenging for educators. The content will be useful as discussion starters in workshops and seminars but might prove challenging for individual educators to engage with on their own. Coming to what Freire (2020) would call “conscientização”, or critical consciousness, isn’t a solitary practice. We need to bump into each other. This section offers the beginnings of ideas to bump into and tools for discussion and certainly an educator is welcome to use them independently, but the deeper

reflection and praxis-shifting work is more likely to happen when these tools can be used in a learning community.

Praxis Provocations use images and text to trouble the taken-for-granted and spark unexpected connections. These can be useful discussion starters. In a small group, the text cited in the provocation might be given as reading to discuss along with the provocation post. The group might also be asked to write alternative text descriptions for the images to both build that accessibility skill and discuss what information they are taking from images.

- One such provocation relates to a prominent concern in the literature, that of disabled learners being marginalized and set apart from their learning communities. The post Individualized accommodations for digital accessibility issues pull disabled learners out of community uses images and text, including a quote from an important piece of research authored by a self-described learner and researcher with disabilities, Dr. Karen Jung for her PhD dissertation. This research is included to prompt consideration of the learner's experience of being marginalized in their learning community. The post also questions taken-for-granted practices related to the overreliance on academic accommodations and third-party service providers, and challenges educators to question how shifts in digital accessibility praxis might bring some critical attention to that reliance.
- The provocation post When Would be a Good Time establishes a timeline for digital accessibility work in education within a broader technology timeline. By combining dates for revolutionary technology advancements and narratives of accessibility stagnation, the post creates tension and hopefully a sense of urgency that educators will carry with them

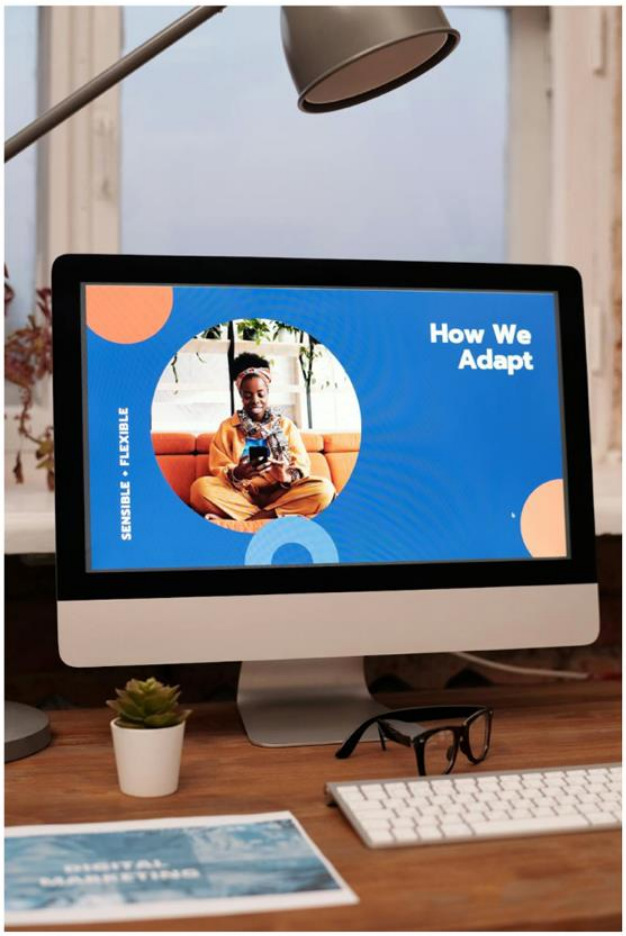
as they engage with this work. It also illustrates the 20 years of inaction on normalizing digital accessibility practices in education that the literature review bears out.

Figure 7

Provocation Post When Would be a Good Time

Note: One of two screenshots documenting this section of the post.

Figure 7 (continued).



Progress: a lot has changed in the past 20 years.

- 2004 Google goes public and revolutionizes search.
- 2005 Google Maps comes on line, changing the way we trip plan, and perceive our routes and physical environments.
- 2005 YouTube posts its first video.
- 2007 Apple releases the iPhone, fundamentally changing the way we use phones. (By 2017, Face ID normalizes handheld biometric authentication. Today, some accessibility features built into this mainstream device outshine purpose-built assistive tech.)
- 2014 the Curiosity Mars Rover discovers water under the crust of the surface of Mars.
- 2015 two separate companies successfully land reusable rockets, massively reducing the cost of (speculative) commercial space travel.
- 2022 Chat GPT sends shockwaves through the Academy, polarizing those who see AI as a "cheating" technology and those excited by the potential applications.

Progress: some things stay the same.

- 2024 learners who use screen readers are still marginalized in, or outright excluded from, social learning opportunities in LMS forums and discussion tools that *still* don't work with their assistive tech. The market has not found solutions in 20 years and the field of Education hasn't pushed.

Note: Two screenshots taken from part of the When Would be a Good Time post on candare.ca.

Creating these provocations was typically a multi-step process. Very often I would try to visually build an idea from words and images and see if it held together. Other times I'd attempt to build a dialogue between authors. Some posts came about because of a single statement that stayed with me. But as meaningful as this process of uncovering meaning and deepening understanding was to me, many of the posts would have seemed untethered to educators visiting the site. The posts that are live are edited to be sufficiently provocative conversation starters and some link to or cite other works for educators to go deeper if they choose.

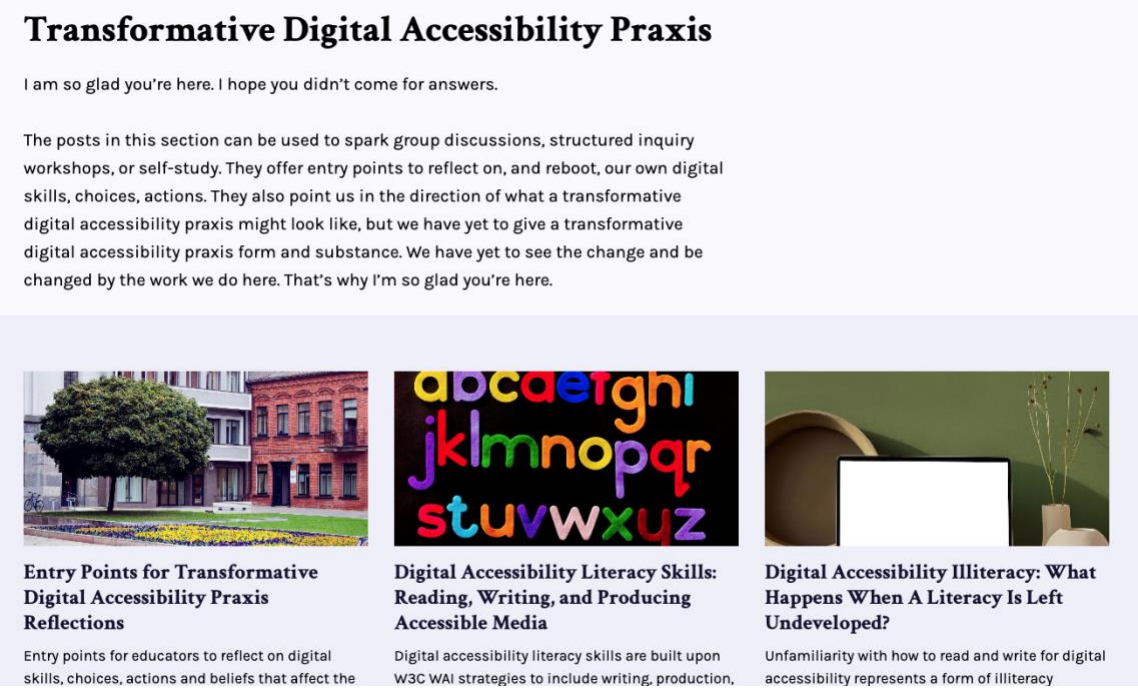
The Transformative Digital Accessibility Praxis section is the work I am most interested in workshopping with educators. This section features three of the key offerings from my research for educators to reflect on:

- The Digital Accessibility Literacy Skills: Reading, Writing, and Producing Accessible Media post features the material from Table 1 of this manuscript. These literacy skills could be taught and assessed for proficiency. They are built out from WCAG 2.0 content strategies and drafted as literacy skills in the hopes that the field of Education will take them up in some way soon.
- The Digital Accessibility Illiteracy: What Happens When a Literacy a Left Undeveloped? post offers educators a somewhat polemic definition of *digital accessibility illiteracy*. It is offered alongside the list of skills to ensure digital accessibility literacy is seen through a social justice lens. It could be used as discussion prompt or a self-reflection prompt.
- The Entry Points for Transformative Digital Accessibility Praxis Reflection post features the material from Table 2. The entry points were synthesized from the cited literature and, in a workshop or seminar, would be best discussed along with the related readings. This is a complex reflection tool designed to accompany multiple group discussions, or for someone to come back to for self-guided study.

This section of candare.ca is pictured in Figure 8 on the following page.

Figure 8

Transformative Digital Accessibility Praxis Landing Page



Note: A screenshot of the Transformative Digital Accessibility Praxis section of the site.

Research Results

To discuss the results of this research project, I will return to my primary research question:

> **Q 1:** How might learner voice (including my voice) and critical problem posing be used to support educators to critically attend to the digital marginalization of disabled learners in post-secondary, and adopt a transformative digital accessibility praxis?

Transformative inquiry challenges us to work deeply with inquiry partners and material to make new creative connections that make meaningful change in us as researchers and in our communities. Through close reading and creative paths to sense-making, I used both curated

research materials and artifacts of my own experiences to craft provocations, interventions, personal reflections, and tools for reflection that were meaningful for me as a researcher and potentially meaningful to educators. This required quite a great deal of synthesis and was, in and of itself, a transformative process.

The site's Library is my searchable memory bank of research and initial research connections, digitized and carefully documented for others to access. The Praxis Provocations is where much of my sense-making for the site began. Learner Experiences is where some of the experiences of marginalization are made palpable. Entry Points for Transformative Digital Accessibility Praxis Reflection is the culmination of my research and transformative sense-making journey. I feel the site well represents digital accessibility research, but it also demonstrates the potential for both the gentler transformative inquiry strategies and the more direct critical consciousness-raising problem-posing to be used together to transform educators' understanding of, and engagement with, digital accessibility.

Limitations of the Research

I realized far too late that although I focused in on a shortlist of theorists, practitioners, and creative influences (see Figure 2), I was still working with far too much material. I had to give up on coming to a synthesis on a disappointing number of partially formed connections for this dissertation and website project. Also, as a Master of Education Project, I was not able to undertake the kind of accessibility testing I would have liked to do. Specifically, I would have liked to work with five or six learner-testers who use technology in various ways and who could look at the site with various perspectives. I did share a job posting with the University of Victoria Society for Students With a Disability to hire learner-testers on a small contract basis with the BCcampus Fellowship funds, and followed the posting with outreach on social media, but the

search was unsuccessful. I will add that it can be challenging to recruit learners with disabilities into work or research opportunities during the semester due, in part, to the inequitable workload they manage.

The very nature of digital accessibility is relational and dynamic. Likewise, my reading of what is or is not accessible in this text and on the website is offered from my perspective, both as a person with disabilities and as a practitioner/researcher in the area. That said, it is likely that there will be those who find elements of the work digitally inaccessible. I welcome their ongoing input and feedback via the website and will look forward to learning and evolving my own understanding as I come to understand others' perspectives.

Project Conclusion

The CanDARE website now feels somewhat like a proof of concept. I would like to continue this project in a PhD or in another funded research capacity to work with educators and learners with disabilities to build out a repertoire of experiences, interventions, and tools for reflection and research that would more fully support post-secondary educators and learners to engage with transformative digital accessibility praxis. The website is simply one tool that we can use to spark a shift of inclusion and access for learners with disabilities on campus and in the digital commons. The process of creating the site, finding the words, finding the fixes, finding the friends with feedback, and returning again and again to the transformative inquiry questions has undoubtedly shifted my own digital accessibility praxis for the better.

Chapter 5: Conclusion and Recommendations for Future Research

Through this research project, I have come to understand that any path to centring digital accessibility practices in post-secondary education will have obstacles. We can continue to try utilitarian how-to guides and policy-compliance workshops for educators or we can, like Alice Sheppard, work creatively and transformatively with people with disabilities to build joyous, transformative ramps. Transformative digital accessibility praxis carries the potential for transforming learning experiences and social experiences for and with learners with disabilities in post-secondary. The literature supports this potential. Lisa Melonçon (2017, 2018), Sushil Oswal (2017, 2018), Jason Palmeri (2006), Jane Seale (2006, 2013, 2017, 2020, 2023, 2024), and Sean Zdenek (2019, 2020), cumulatively, have built a corpus of literature that points us very clearly toward a possible future where transformative digital accessibility praxis could be normalized, or as Oswal and Melonçon might rightly rephrase "included," in education. Of course, their work also reveals how far we are from that future today.

Contributions to the Field

This research project makes multiple contributions to the field. First and foremost, it honours the visceral – the embodied – lived experiences of learners with disabilities who can experience digital disablement, digital enablement, digital inclusion, and digital marginalization in post-secondary, and by extension, in the digital commons. From that place of understanding it offers the following:

1. It gathers sociocultural critiques and pedagogical perspectives that can be used to build a case for post-secondary leadership, education scholars, and educators within faculties of education to share responsibility for building tools to teach and assess

digital access and inclusion skills and practices in post-secondary and in teacher training programs for K-12.

2. It offers two possible practical interventions to shift praxis that are built on those same sociocultural critiques and pedagogical perspectives, and on the internationally accepted WCAG POUR framework (2008): Table 1 Digital Accessibility Literacy Skills and Table 2 Transformative Digital Accessibility Praxis Entry Points for Reflection.
3. The CanDARE website shares research from the field, including various materials for educators to better understand experiences of digital accessibility and inaccessibility, and to reflect on their own digital praxis.
4. These contributions have already been shared via research presentations at the Open/Technology in Education, Society, and Scholarship Association (OTESSA) Conference (2020, 2024c), and as a BCcampus research fellow to the BCcampus community (2024f).

With each opportunity, I have looked to open space for disabled learners, educator-colleagues, and learner-colleagues to build knowledge together to consciously foster liberatory learning experiences with and for disabled learners. With and for people like me.

Future Research Recommendations

I believe research is needed to identify digital accessibility and inclusion issues and interventions across the research areas of literacy and digital literacy, learning theory, educational technology, pedagogy, curriculum, and instructional design. Researchers working in these areas with an interest in transformative outcomes would do well to attend to the following research criteria:

(a) respects the lived experiences of learners and educators with disabilities, this is paramount;

(b) pedagogically attends to Disability Justice;

(c) supports learning, inclusion, and agency in the learning community;

(d) technically complies with WCAG and POUR framework standards; and

(e) is typically, and primarily understood to be within the educator's domain.

This research would have implications for course culture, course content curation, student collaboration and cocreation practices, information design for learning, assessment design, course communication, technology selection, search, digital knowledge sharing, archive development and use, and beyond. I also look forward to research that situates transformative digital accessibility praxis and educators' digital practices in the global digital justice paradigm.

In terms of theory, I would be curious to see connections between digital accessibility and both Vygotsky and Freire's work explored further, as digital accessibility has implications for learner agency, the social construction of knowledge, and language acquisition at it relates to literacy skill building as an instrument for social and cultural change (Freire et al., 2018; Reunamo & Nurmilaakso, 2007; Vygotsky, 1978; Zdenek, 2020). I would also be interested to see how this line of inquiry might tie into Melonçon's orienting access framework for course design: access, agency, inclusion, and respect. I hope to see more up-and-coming theorists and researchers from the disability community take up this sort of theoretical inquiry and ground it in lived experiences, bringing embodied and intersectional ways of knowing to the work.

To conclude, despite having international standards and how-to knowledge to do better for the past 20 years, a shrouded legacy of ableism has held post-secondary back from "normalising," or including, digital accessibility skills in curriculum, assessment, and academic

scholarship requirements in post-secondary; skills that would make education and the digital commons more accessible to people with disabilities and people who use assistive technologies. Likewise digital accessibility practices have been slow to catch on, thwarted in part by additional time accommodations that obscure the need for praxis interventions. However, the tide is turning. Legislation is increasingly forcing institutions to confront their accessibility practices and although evidence to date shows the compliance framework is the wrong framework for educators, we do now have a growing body of critical literature to build on. Pairing the literature with reflections on the daily digital praxis of educators we can see that a transformative digital accessibility praxis is possible.

Some digital accessibility skills are quite simple, such as authoring hyperlinks instead of URLs, but some practices will require educators to learn to make difficult judgment calls. Educators won't always get digital access and inclusion right, so part of the transformative process is being OK with making mistakes and iteratively improving. Through research that shares experiences of digital accessibility and guidance for appropriate ways to work with learners with disabilities and support service providers, educators will build their capacity to make sound judgement calls based on digital accessibility knowledge and empathy for learners' experiences, and an openness to work with learners with disabilities in a good way. That, combined with appropriate professional development, is how we move toward transformative digitally accessible and inclusive learning experiences and community-building in post-secondary. It starts with us. It starts with learners with disabilities, researchers, and educators cocreating knowledge together, modelling transformative digital accessibility praxis to the campus community, and then disseminating that knowledge in digitally accessible and inclusive ways through the digital commons, to the best of our abilities.

References

Ahmed, S. (2006a). Orientations: Toward a Queer Phenomenology. *GLQ: A Journal of Lesbian and Gay Studies*, *12*(4), 543–574.

Ahmed, S. (2006b). *Queer Phenomenology: Orientations, Objects, Others*. Duke University Press. https://doi.org/10.2307/j.ctv125jk6w

Ahmed, S. (2013, September 11). *Making Feminist Points*. Feministkilljoys. https://feministkilljoys.com/2013/09/11/making-feminist-points/

Ahmed, S. (2017, October 24). *Institutional As Usual*. Feministkilljoys. https://feministkilljoys.com/2017/10/24/institutional-as-usual/

All Arts. (n.d.). Past, Present, Future. *ALL ARTS*. Retrieved July 24, 2024, from https://www.allarts.org/programs/past-present-future/

Almog, N. (2018). "Everyone Is Normal, and Everyone Has a Disability": Narratives of University Students with Visual Impairment. *Social Inclusion*, *6*(4), Article 4. https://doi.org/10.17645/si.v6i4.1697

Ashbourne, K. (2020). *Reframing Web Accessibility in Higher Education: Examining The Role of the Educator in the Curation and Creation of Accessible Course Content*. The Open/Technology in Education, Society, and Scholarship Association Conference, London, Canada and Online.

Ashbourne, K. (2021). Reframing Web Accessibility in Post-Secondary Education: Examining the Role of the Educator in the Curation and Creation of Accessible Digital Course Content. *The Open/Technology in Education, Society, and Scholarship Association Conference*, *1*(1), Article 1. https://doi.org/10.18357/otessac.2021.1.1.55

Ashbourne, K. (2024a). *Praxis*. CanDARE (Digital Accessibility Research in Education). https://www.candare.ca/praxis/

Ashbourne, K. (2024b, March 2). *Provocations: Digital Accessibility Illiteracy: What Happens When A Literacy Is Left Undeveloped?* CanDARE (Digital Accessibility Research in Education). https://www.candare.ca/2024/03/provocations-digital-accessibility-illiteracy/

Ashbourne, K. (2024c, June 21). *A Sensory Exploration of Inaccessible Digital Practices: Culturally acceptable marginalization in praxis.* The Open/Technology in Education, Society, and Scholarship Association Conference, Montreal, Canada and Online. https://otessa.org/2024/program/

Ashbourne, K. (2024d, October 12). *Digital Accessibility Literacy Skills: Reading, Writing, and Producing Accessible Media*. CanDARE (Digital Accessibility Research in Education). https://www.candare.ca/2024/10/digital-accessibility-literacy-skills/

Ashbourne, K. (2024e, October 14). *Entry Points for Transformative Digital Accessibility Praxis Reflections*. CanDARE (Digital Accessibility Research in Education). https://www.candare.ca/2024/10/entry-points-for-transformative-digital-accessibility-praxis-reflections/

Ashbourne, K. (2024f, October 29). *Centering Digital Accessibility in Research Praxis*. BCcampus Research Speakers Series, BCcampus Online. https://bccampus.ca/event/research-speaker-series-centring-digital-accessibility-in-research-praxis/

Association on Higher Education and Disability. (2022, April 27). Digital Accessibility: Six Core Skills. *Accessing Higher Ground*. https://accessinghigherground.org/digital-accessibility-six-core-skills/

B.C. Digital Literacy. (n.d.). *About Digital Literacy | B.C. Digital Literacy*. Retrieved April 11, 2024, from https://bcdl.devbcc.com/about

Bie, A. de, & Brown, K. (2017). *Forward with FLEXibility*. McMaster University. https://flexforward.pressbooks.com/

Bie, A. de, Brown, K., Grearson, A., & Ramkishun, A. (2020). Care work: Dreaming disability justice. *Disability & Society*, *35*(2), 341–343. https://doi.org/10.1080/09687599.2019.1648369

Bradbard, D. A., & Peters, C. (2008). Web Accessibility: A Tutorial for University Faculty. *Communications of the Association for Information Systems*, *22*. https://doi.org/10.17705/1CAIS.02208

Bradbard, D. A., & Peters, C. (2010). Web Accessibility Theory and Practice: An Introduction for University Faculty. *The Journal of Educators Online*, *7*(1).

Bradbard, D. A., Peters, C., & Caneva, Y. (2010). Web Accessibility Policies at Land-Grant Universities. *Internet and Higher Education*, *13*(4), 258–266.

Bühler, C., Burgstahler, S., Havel, A., & Kaspi-Tsahor, D. (2020). New Practices: Promoting the Role of ICT in the Shared Space of Transition. In J. Seale (Ed.), *Improving Accessible Digital Practices in Higher Education: Challenges and New Practices for Inclusion* (pp. 117–141). Springer International Publishing. https://doi.org/10.1007/978-3-030-37125-8_6

Burgstahler, S., Havel, A., Seale, J., & Olenik-Shemesh, D. (2020). Accessibility Frameworks and Models: Exploring the Potential for a Paradigm Shift. In J. Seale (Ed.), *Improving Accessible Digital Practices in Higher Education: Challenges and New Practices for Inclusion* (pp. 45–72). Springer International Publishing. https://doi.org/10.1007/978-3-030-37125-8_3

Campbell, F. K. (2009). The Project of Ableism. In F. K. Campbell (Ed.), *Contours of Ableism: The Production of Disability and Abledness* (pp. 3–15). Palgrave Macmillan UK. https://doi.org/10.1057/9780230245181_1

Campbell, K. (2004). *E-ffective writing for e-learning environments*. Information Science Pub.

Canadian Association of the Deaf. (n.d.). *Terminology*. Canadian Association of the Deaf - Association Des Sourds Du Canada. Retrieved October 3, 2024, from https://cad-asc.ca/our-work/terminology/

CAST Inc. (n.d.). *The UDL Guidelines*. Retrieved August 20, 2024, from https://udlguidelines.cast.org

Clare, E. (2015). *Exile & Pride: Disability, Queerness, and Liberation*. Duke University Press.

Condra, M., Dineen, M., Gills, H., Jack-Davies, A., & Condra, E. (2015). Academic Accommodations for Postsecondary Students with Mental Health Disabilities in Ontario, Canada: A Review of the Literature and Reflections on Emerging Issues. *Journal of Postsecondary Education and Disability*, *28*(3), 277–291.

Convention on the Rights of Persons with Disabilities and Optional Protocol. (2006). United Nations. https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf

Coughlan, T., & Lister, K. (2018). The accessibility of administrative processes: Assessing the impacts on students in higher education. *Proceedings of the Internet of Accessible Things on - W4A '18*, 1–10. https://doi.org/10.1145/3192714.3192820

Das, M., Gergle, D., & Piper, A. M. (2019). "It doesn't win you friends": Understanding Accessibility in Collaborative Writing for People with Vision Impairments. *Proceedings of the ACM on Human-Computer Interaction*, *3*(CSCW), 191:1-191:26. https://doi.org/10.1145/3359293

Digital Age Skills for Educators. (2015, February 10). Mozilla Foundation. https://blog.mozilla.org/foundation-archive/mozilla-learning/digital-age-skills-for-educators/

Dolmage, J. (2015). Universal Design: Places to Start. *Disability Studies Quarterly*, *35*(2), Article 2. https://doi.org/10.18061/dsq.v35i2.4632

Dolmage, J. (2017). *Academic Ableism: Disability and Higher Education*. University of Michigan Press. https://doi.org/10.3998/mpub.9708722

Epshteyn, E. (2019). *From Policy to Compliance: US Higher Education Faculty Concerns over Institutional Digital Content Accessibility Policies* [Ed.D., Northeastern University]. https://www.proquest.com/docview/2308668828/abstract/75E1C78BCE5D4785PQ/1

Fichten, C., Asuncion, J. V., Barile, M., Ferraro, V., & Wolforth, J. (2009). Accessibility of e-Learning and Computer and Information Technologies for Students with Visual Impairments in Postsecondary Education. *Journal of Visual Impairment & Blindness*, *103*(9), 543–557. https://doi.org/10.1177/0145482X0910300905

Fichten, C., Asuncion, J. V., Wolforth, J., Barile, M., Budd, J., Martiniello, N., & Amsel, R. (2012). Information and communication technology related needs of college and university students with disabilities. *Research in Learning Technology*, *20*(4). http://dx.doi.org/10.3402/rlt.v20i0.18646

Fichten, C., Olenik-Shemesh, D., Asuncion, J., Jorgensen, M., & Colwell, C. (2020). Higher Education, Information and Communication Technologies and Students with Disabilities: An Overview of the Current Situation. In J. Seale (Ed.), *Improving Accessible Digital Practices in Higher Education: Challenges and New Practices for Inclusion* (pp. 21–44). Springer International Publishing. https://doi.org/10.1007/978-3-030-37125-8_2

Foucault, M. (1971). *L'ordre du discours ; leçon inaugurale au Collège de France prononcée le 2 décembre 1970. Gallimard.*

Freire, P., Macedo, D. P., & Shor, I. (2018). *Pedagogy of the oppressed* (M. B. Ramos, Trans.; 50th anniversary edition). Bloomsbury Academic.

Gagné, A. (2023, March 26). *Episode 3 of Accessagogy Transcript*. Ann Gagné, PhD. https://anngagne.ca/2023/03/26/episode-3-of-accessagogy-transcript/

Gagné, A. (2024, May 13). *Holistic Approaches to Accessible Pedagogy*. Accessibility and The Lived Experience; and Accessible Teaching, University of Limerick. https://www.ul.ie/eatc/events/webinar-global-accessibility-awareness-real-life-experience-and-accessible-teaching

Gallaher, S. (2023, November 9). *Baylor professor advocates for blind, visually impaired students in labs | The Baylor Lariat*. https://baylorlariat.com/2023/11/09/baylor-professor-advocates-for-blind-visually-impaired-students-in-labs/

Goodley, D. (2014). *Dis/ability Studies: Theorising disablism and ableism*. Routledge. https://doi.org/10.4324/9780203366974

Government of Canada, S. C. (2017, February 6). *Canadian Survey on Disability—2017*. https://www23.statcan.gc.ca/imdb/p3Instr.pl?Function=assembleInstr&a=1&&lang=en&Item_Id=348023#qb353326

Government of Canada, S. C. (2023, October 3). *Print material accessibility in Canada, 2023*. https://www150.statcan.gc.ca/n1/pub/89-654-x/89-654-x2023003-eng.htm

Gronseth, S. (2018). Inclusive Design for Online and Blended Courses. *Educational Renaissance*, *7*(1), 14–22. https://doi.org/10.33499/edren.v7i1.114

Hall, M. C. (2019). Critical Disability Theory. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2019). Metaphysics Research Lab, Stanford University. https://plato.stanford.edu/archives/win2019/entries/disability-critical/

Heiman, T., Coughlan, T., Rangin, H., & Deimann, M. (2020). New Designs or New Practices? Multiple Perspectives on the ICT and Accessibility Conundrum. In J. Seale (Ed.), *Improving Accessible Digital Practices in Higher Education: Challenges and New Practices for Inclusion* (pp. 99–115). Springer International Publishing. https://doi.org/10.1007/978-3-030-37125-8_5

Hernandez-Saca, D. I. (2019). My Learning Dis/Ability and Disability Studies in Education Activism. *Peace Review*, *31*(4), 487–496. https://doi.org/10.1080/10402659.2019.1800935

Hobbs, R. (2017). *Create to learn: Introduction to digital literacy*.

hooks, bell. (1994a). *Teaching to transgress: Education as the practice of freedom*. Routledge Taylor & Francis Group.

hooks, bell. (1994b). *Teaching to transgress: Education as the practice of freedom*. Routledge Taylor & Francis Group.

Jackson, R. M. (2021). Audio-Supported Reading for Students Who Are Blind or Visually Impaired. *National Centre on Accessible Educational Materials*, 19.

Jay T Dolmage. (2017). *Academic Ableism: Disability and Higher Education*. University of Michigan Press. https://resolver.ebscohost.com/Redirect/PRL?EPPackageLocationID=2418090.15315533.51193291&epcustomerid=s2947694

Jones, N. N., Moore, K. R., & Walton, R. (2016). Disrupting the Past to Disrupt the Future: An Antenarrative of Technical Communication. *Technical Communication Quarterly, 25*(4), 211–229. https://doi.org/10.1080/10572252.2016.1224655

Jorgensen, S., Fichten, C. S., Havel, A., Lamb, D., James, C., & Barile, M. (2005). Academic Performance of College Students with and without Disabilities: An Archival Study. *Canadian Journal of Counselling*, *39*(2), 101–117.

Jung, K. (2003). Chronic Illness and Academic Accommodation: Meeting Disabled Students' "unique needs" and Preserving the Institutional Order of the University. *The Journal of Sociology & Social Welfare*, *30*(1). https://scholarworks.wmich.edu/jssw/vol30/iss1/6

Keast, Q. (2020, October 26). *I'm deaf, and this is what happens when I get on a Zoom call*. Fast Company. https://www.fastcompany.com/90565930/im-deaf-and-this-is-what-happens-when-i-get-on-a-zoom-call

Kimmons, R. (2017). Open to all? Nationwide evaluation of high-priority web accessibility considerations among higher education websites. *Journal of Computing in Higher Education*, *29*(3), 434–450. https://doi.org/10.1007/s12528-017-9151-3

King, L., Burgstahler, S., Fisseler, B., & Kaspi-Tsahor, D. (2020). New Perspectives on Stakeholders: Who Needs to Step Up to the Plate and How? In J. Seale (Ed.), *Improving Accessible Digital Practices in Higher Education: Challenges and New Practices for Inclusion* (pp. 73–97). Springer International Publishing. https://doi.org/10.1007/978-3-030-37125-8_4

Knoll, K. R., Woiak, J., Lang, D., Goering, S., & Cory, R. C. (2017). Disability Studies Curriculum Transformation: Building a Program and Cultivating a Community. *Journal*

of Disability & Religion, *21*(4), 360–380. https://doi.org/10.1080/23312521.2017.1386606

Lewin, T. (2015, February 12). Harvard and M.I.T. Are Sued Over Lack of Closed Captions. *The New York Times*. https://www.nytimes.com/2015/02/13/education/harvard-and-mit-sued-over-failing-to-caption-online-courses.html

Lewthwaite, S., & Sloan, D. (2016). Exploring pedagogical culture for accessibility education in computing science. *Proceedings of the 13th Web for All Conference on - W4A '16*, 1–4. https://doi.org/10.1145/2899475.2899490

Linder, K., & Ecampus, O. S. U. (2016). *Student Uses and Perceptions of Closed Captions and Transcripts*. 52.

Ling, M. (1999). *The anthropology of everyday life: Teaching cultural anthropology in schools. In R. Case, & P. Clark. (Eds), The Canadian anthology of social studies: Issues and strategies for teachers (pp.51-58)*. Vancouver: Pacific Educational Press.

Lorbeer, E. R. (2020). Digital Accommodations for Students Living with Print Disabilities: A Literature Review. *Medical Reference Services Quarterly*, *39*(2), 139–152. https://doi.org/10.1080/02763869.2020.1738831

Lorca, P., Andrés, J. D., & Martínez, A. B. (2018). The Relationship Between Web Content and Web Accessibility at Universities: The Influence of Social and Cultural Factors. *Social Science Computer Review*, *36*(3), 311–330. https://doi.org/10.1177/0894439317710435

Manchester Metropolitan University. (2002). *Web Accessibility Issues for Higher & Further Education. EDNER (Formative Evaluation of the Distributed National Electronic Resource) Project. Issues Paper*. https://files-eric-ed-gov.ezproxy.library.uvic.ca/fulltext/ED470055.pdf

Marquis, E., Schormans, A. F., Jung, B., Vietinghoff, C., Wilton, R., & Baptiste, S. (2016). Charting the Landscape of Accessible Education for Post-secondary Students with Disabilities. *Canadian Journal of Disability Studies*, *5*(2), 31–71. https://doi.org/10.15353/cjds.v5i2.272

MARY FERNANDEZ, and THE NATIONAL FEDERATION OF THE BLIND, INC., Plaintiffs, v. DUKE UNIVERSITY, Defendant., 1:20CV492 ___ (United States District Court, Middle District of North Carolina 2021). https://casetext.com/case/fernandez-v-duke-university

Melonçon, L. (2018). Orienting Access in Our Business and Professional Communication Classrooms. *Business and Professional Communication Quarterly*, *81*(1), 34–51. https://doi.org/10.1177/2329490617739885

Mertens, D. (2017). Transformative research: Personal and societal. *International Journal for Transformative Research*, *4*, 18–24. https://doi.org/10.1515/ijtr-2017-0001

Ministry of Education. (n.d.). *Digital Literacy—Province of British Columbia*. Retrieved November 28, 2019, from https://www2.gov.bc.ca/gov/content/education-training/k-12/teach/resources-for-teachers/digital-literacy

Morales, E., Kalir, J. H., Fleerackers, A., & Alperin, J. P. (2022). *Using social annotation to construct knowledge with others: A case study across undergraduate courses* (11:235). F1000Research. https://doi.org/10.12688/f1000research.109525.2

Moriarty, S. (2018, July 30). Building a Culture of Accessibility in Higher Education. *Educause Review*. https://er.educause.edu/blogs/2018/7/building-a-culture-of-accessibility-in-higher-education

Nierling, L., & Maia, M. (2020). Assistive Technologies: Social Barriers and Socio-Technical Pathways. *Societies*, *10*(2), Article 2. https://doi.org/10.3390/soc10020041

Ostiguy, B. J. (2018). The Inherent Value of Disability in Higher Education. *Social Inclusion*, *6*(4), Article 4. https://doi.org/10.17645/si.v6i4.1737

Oswal, S. K. (2018). Can Workplaces, Classrooms, and Pedagogies Be Disabling? *Business and Professional Communication Quarterly*, *81*(1), 3–19. https://doi.org/10.1177/2329490618765434

Oswal, S. K., & Meloncon, L. (2014). Paying Attention to Accessibility When Designing Online Courses in Technical and Professional Communication. *Journal of Business and Technical Communication*, *28*, 271–300. https://doi.org/10.1177/1050651914524780

Oswal, S. K., & Melonçon, L. (2017). Saying No to the Checklist: Shifting from an Ideology of Normalcy to an Ideology of Inclusion in Online Writing Instruction. *WPA. Writing Program Administration*, *40*(3), 17.

Oswal, S. K., & Meloncon, L. (2017). Saying No to the Checklist: Shifting from an Ideology of Normalcy to an Ideology of Inclusion in Online Writing Instruction. *WPA. Writing Program Administration*, *40*(3), 17.

Palmeri, J. (2006). Disability Studies, Cultural Analysis, and the Critical Practice of Technical Communication Pedagogy. *Technical Communication Quarterly*, *15*(1), 49–65. https://doi.org/10.1207/s15427625tcq1501_5

Parr, M. (2012). The Future of Text-to-Speech Technology: How Long before it's Just One More Thing we do When Teaching Reading? *Procedia - Social and Behavioral Sciences*, *69*, 1420–1429. https://doi.org/10.1016/j.sbspro.2012.12.081

Petrie, H., Savva, A., & Power, C. (2015). Towards a unified definition of web accessibility. *Proceedings of the 12th Web for All Conference on - W4A '15*, 1–13. https://doi.org/10.1145/2745555.2746653

Piepzna-Samarasinha, L. L. (2018). *Care Work: Dreaming Disability Justice*. Arsenal Pulp Press.

Reunamo, J., & Nurmilaakso, M. (2007). Vygotsky and agency in language development. *European Early Childhood Education Research Journal*, *15*(3), 313–327. https://doi.org/10.1080/13502930701679320

Roberts, J. B., Crittenden, L. A., & Crittenden, J. C. (2011). Students with disabilities and online learning: A cross-institutional study of perceived satisfaction with accessibility compliance and services. *The Internet and Higher Education*, *14*(4), 242–250. https://doi.org/10.1016/j.iheduc.2011.05.004

Rodríguez, G., Pérez, J., Cueva, S., & Torres, R. (2017). A framework for improving web accessibility and usability of Open Course Ware sites. *Computers & Education*, *109*, 197–215. https://doi.org/10.1016/j.compedu.2017.02.013

Seale, J. (2006). *E-Learning and Disability in Higher Education: Accessibility Research and Practice*. Taylor & Francis Group. http://ebookcentral.proquest.com/lib/uvic/detail.action?docID=268763

Seale, J. (2013). When Digital Capital is Not Enough: Reconsidering the Digital Lives of Disabled University Students. *Learning, Media and Technology*, *38*(3), 256–269. https://doi.org/10.1080/17439884.2012.670644

Seale, J. (2017). From the voice of a ‘socratic gadfly’: A call for more academic activism in the researching of disability in postsecondary education. *European Journal of Special Needs Education*, *32*(1), 153–169. https://doi.org/10.1080/08856257.2016.1254967

Seale, J. (Ed.). (2020a). *Improving Accessible Digital Practices in Higher Education: Challenges and New Practices for Inclusion*. Springer International Publishing. https://doi.org/10.1007/978-3-030-37125-8

Seale, J. (2020b). Introduction. In J. Seale (Ed.), *Improving Accessible Digital Practices in Higher Education: Challenges and New Practices for Inclusion* (pp. 1–19). Springer International Publishing. https://doi.org/10.1007/978-3-030-37125-8_1

Seale, J. (2023a). It’s Not All Doom and Gloom: What the Pandemic Has Taught Us about Digitally Inclusive Practices That Support People with Learning Disabilities to Access and Use Technologies. *British Journal of Learning Disabilities*, *51*(2), 218–228. https://doi.org/10.1111/bld.12497

Seale, J. (2023b, December 5). *Creative Methods for Enabling the Participation of People with Disabilities in Research*. Research Speaker Series, BCcampus. https://bccampus.ca/event/research-speaker-series-creative-methods-participation-disabilities/

Seale, J. (2024). *A Research Agenda for Disability and Technology*. https://www.elgaronline.com/edcollbook/book/9781800888647/9781800888647.xml

Seale, J., Draffan, E. A., & Wald, M. (2010). Digital agility and digital decision-making: Conceptualising digital inclusion in the context of disabled learners in higher education. *Studies in Higher Education*, *35*(4), 445–461. https://doi.org/10.1080/03075070903131628

Seita, M., Andrew, S., & Huenerfauth, M. (2021). Deaf and hard-of-hearing users' preferences for hearing speakers' behavior during technology-mediated in-person and remote conversations. *Proceedings of the 18th International Web for All Conference*, 1–12. https://doi.org/10.1145/3430263.3452430

Sheppard, A. (2019, February 27). Opinion | I Dance Because I Can. *The New York Times*. https://www.nytimes.com/2019/02/27/opinion/disability-dance-alice-sheppard.html

Sheppard, A. (2021). *Disability will (re)make the arts* [Keynote]. https://congress2021.ca/big-thinking

Silberman, E. (2018, March 9). Promoting Accessibility in the Context of 21st-Century Higher Education. *Educause Review*. https://er.educause.edu/blogs/2018/3/promoting-accessibility-in-the-context-of-21st-century-higher-education.

Sins Invalid. (2016). *Skin, Tooth, and Bone: The Basis of Movement is Our People. A Disability Primer* (first). Berkeley, CA. https://www.sinsinvalid.org/disability-justice-primer

Sins Invalid. (2020, June 16). *What is Disability Justice?* Sins Invalid. https://www.sinsinvalid.org/news-1/2020/6/16/what-is-disability-justice

Stauffer, B. (n.d.). *What Are 21st Century Skills?* Retrieved October 5, 2020, from https://www.aeseducation.com/blog/what-are-21st-century-skills

Transformative Inquiry. (n.d.). *What is Transformative Inquiry*. Retrieved August 27, 2024, from http://www.transformativeinquiry.ca/TIbook/c1/c1/c1s1.html

Treviranus, J., Richards, J., & Clark, C. (2019). Inclusively Designed Authoring Tools. In Y. Yesilada & S. Harper (Eds.), *Web Accessibility: A Foundation for Research* (pp. 357–372). Springer London. https://doi.org/10.1007/978-1-4471-7440-0_20

University of Victoria. (2024, August 2). *Creating accessible course content*. Teach Anywhere. https://teachanywhere.uvic.ca/learning-tech/brightspace/how-can-i-check-or-improve-the-accessibility-of-my-content-in-brightspace/

Vygotsky, L. S. (1978). *Mind in Society: Development of Higher Psychological Processes*. Harvard University Press. https://doi.org/10.2307/j.ctvjf9vz4

w3c_wai. (2019, November 12). *Tips for Getting Started Writing for Web Accessibility*. Web Accessibility Initiative (WAI). https://www.w3.org/WAI/tips/writing/

Web Accessibility Initiative. (2019, November 12). *Tips for Getting Started Writing for Web Accessibility*. WAI | W3C. https://www.w3.org/WAI/tips/writing/

Web Accessibility Initiative. (2024). *Introduction to Understanding WCAG 2.2*. WAI | W3C. https://www.w3.org/WAI/WCAG22/Understanding/intro#understanding-the-four-principles-of-accessibility

Wilkens, L., Haage, A., Lüttmann, F., & Bühler, C. R. (2021). Digital Teaching, Inclusion and Students' Needs: Student Perspectives on Participation and Access in Higher Education. *Social Inclusion*, *9*(3), 117–129. https://doi.org/10.17645/si.v9i3.4125

Wisdom, J. R., White, N. A., Goldsmith, K. A., Bielavitz, S., Davis, C. E., & Drum, C. (2006). An Assessment of Web Accessibility Knowledge and Needs at Oregon Community Colleges. *Community College Review*, *33*(3–4), 19–37.

Wong, B. (2019). It's Perfectly OK To Call A Disabled Person 'Disabled,' And Here's Why | HuffPost Life. *Huffpost*. https://www.huffpost.com/entry/what-to-call-disabled-person_l_5d02c521e4b0304a120c7549?g3

Wood, L. C., Axelrod, J., Downie, J. S., Furlough, M., Unsworth, J., & Wedaman, D. (2017). *Libraries: Take AIM! Accessible Instructional Materials and Higher Education*. 44.

World Wide Web Consortium. (n.d.-a). *Accessibility Mission*. W3C. Retrieved November 11, 2024, from https://www.w3.org/mission/accessibility/

World Wide Web Consortium. (n.d.-b). *Web Content Accessibility Guidelines 1.0*. W3C. Retrieved August 15, 2024, from https://www.w3.org/TR/WAI-WEBCONTENT/

World Wide Web Consortium. (2008). *Web Content Accessibility Guidelines (WCAG) 2.0*. https://www.w3.org/TR/2008/REC-WCAG20-20081211/

Yesilada, Y., Brajnik, G., Vigo, M., & Harper, S. (2012). Understanding web accessibility and its drivers. *Proceedings of the International Cross-Disciplinary Conference on Web Accessibility - W4A '12*, 1. https://doi.org/10.1145/2207016.2207027

Yesilada, Y., & Harper, S. (Eds.). (2019). *Web Accessibility: A Foundation for Research* (2nd ed.). Springer-Verlag. https://doi.org/10.1007/978-1-4471-7440-0

Youngblood, N. E., Tirumala, L. N., & Galvez, R. A. (2018). Accessible Media: The Need to Prepare Students for Creating Accessible Content. *Journalism & Mass Communication Educator*, *73*(3), 334–345. https://doi.org/10.1177/1077695817714379

Younging, G. (2025). *Elements of Indigenous Style: A Guide for Writing By and About Indigenous Peoples*. Brush Education. https://www.youngw.ca/product/elements-of-indigenous-style-by-gregory-younging/

Zaparyniuk, N., & Montgomerie, T. C. (2005). The Status of Web Accessibility of Canadian Universities and Colleges: A Charter of Rights and Freedoms Issue. *International Journal on E-Learning*, *4*(2), 253–268.

Zdenek, S. (n.d.). *Podcasting 2.0: Towards an accessible Web*. Sean Zdenek, PhD. Retrieved April 11, 2024, from https://seanzdenek.com/accessible-podcasting

Zdenek, S. (2019). Guest editor's introduction: Reimagining disability and accessibility in technical and professional communication. *Communication Design Quarterly*, *6*(4), 4–11. https://doi.org/10.1145/3309589.3309590

Zdenek, S. (2020). Transforming Access and Inclusion in Composition Studies and Technical Communication. *College English*, *82*(5), 536–544.