

**A Continuum of Actions You Can Take Now to ADVANCE Disability Equity:
A Report from the Field**

Cali L. Anicha,¹ Cecilia Aragon,² Canan Bilen-Green,¹ Brianna Blaser,³ Sheryl Burgstahler³

¹Office of the Vice Provost for Faculty Affairs and Equity, North Dakota State University

²Department of Human Centered Design & Engineering, University of Washington, Seattle

³DO-IT Center, University of Washington, Seattle



Author Note

Cali L. Anicha  [0000-0003-0613-0001](https://orcid.org/0000-0003-0613-0001)

Cecilia Aragon  [0000-0002-9502-0965](https://orcid.org/0000-0002-9502-0965)

Canan Bilen-Green  [0000-0002-4933-5464](https://orcid.org/0000-0002-4933-5464)

Brianna Blaser  [0000-0002-0008-1643](https://orcid.org/0000-0002-0008-1643)

Sheryl Burgstahler  [0000-0003-2728-5555](https://orcid.org/0000-0003-2728-5555)

Authors listed in alphabetical order. We have no conflicts of interest to disclose.

This research was supported in part by National Science Foundation Grants # HRD-2017017 and # HRD-2017054.

Correspondence concerning this article should be sent to Cali L. Anicha, ADVANCE Program, Office of the Vice Provost for Faculty Affairs and Equity, North Dakota State University, Fargo, ND USA. Phone: 701.367.3818. Email:calianicha@gmail.com

**A Continuum of Actions You Can Take Now to ADVANCE Disability Equity: A
Report from the Field**

Although disability has been a federally protected social identity category since 1990, efforts to address disability discrimination have been, for the most part, proven ineffective in safeguarding the civil rights of individuals identifying as members of disability communities. Whether or not you identify as a person with a disability (or disabled), you may be motivated to learn more about the actions you can take individually, or collectively with your colleagues, or that your organization can take, to promote disability equity in your work settings. We offer guidance—synthesized from the work of disability scholars, allies, and activists—for advancing disability equity in academic and science, technology, engineering, and mathematics (STEM)-focused workplaces. Some of this work was based on participant input during national conversations hosted over the past two years through an NSF ADVANCE project designed to increase the participation and advancement of individuals who identify as women with disabilities in academic and STEM careers.

A range of programs within the *AccessADVANCE* project work to systematically address issues impacting the career advancement and success of faculty with disabilities. Individuals and institutional teams can engage in the online [Community of Practice](#) listserv to access asynchronous opportunities to learn about, discuss, and promote strategies for the advancement of STEM faculty with disabilities, including those from underrepresented backgrounds. The project also hosts a well-respected, searchable, frequently updated, and extensive clearinghouse of disability-related content. Individuals and organizational cohorts can access direct mentoring support and/or funds for activities to expand, replicate, and disseminate best practices. Webinars and Capacity Building Institutes bring members of academic communities together to identify

specific ways that stakeholders can work together to increase the participation and advancement of women with disabilities in academic STEM careers, with a focus on systemic change. The intention of *AccessADVANCE* is to lead members of academic and STEM workplace communities to work together in “traditions of intellectual activism” (Hill Collins, 2013, p. viii) to develop a durable and responsive praxis for advancing disability equity—as colleagues and researchers, as department members, and as institutional leaders.

We begin with a discussion of the intersectional nature and critical foundations of disability discrimination and ableism, with a focus on impacts for academic faculty and staff in STEM fields. Next, adapting an approach developed through another ADVANCE project (Advocates and Allies (A&A), a men faculty gender equity initiative; Anicha, et al., 2018; Anicha, et al., 2022; Bilén-Green, et al., 2013), we detail five steps you can take as an individual to further disability equity (*individually*). We then offer five suggestions for collaborating with colleagues (*collectively*), followed by five institutional approaches for promoting disability equity within academic and/or STEM organizations (*organizationally*).

A note on author disability identity and positionality: The phrase, “nothing about us without us” reflects a central principle of responsible disability equity advocacy. Our *AccessADVANCE* grant team leaders (and authors of this paper) include disabled and non-disabled disability equity advocates, and project events have intentionally included both disabled and non-disabled participants. This collaboration is deliberate in recognition that the work must be shared, not shouldered solely by people with disabilities, and that the benefits of an accessible, inclusive workplace are also shared by all. Disability is a federally protected social identity group due to ongoing discriminatory harms; however, many human experiences that are labeled as disabilities may not be apparent to others; and individuals may or may not make

known their disability status for many reasons (Lindsay & Fuentes, 2022). *Nota bene:* Disabled/non-disabled status cannot be assumed. We remain mindful that as advocates for disability equity we take our *individual and collective* accountability seriously, with explicit missions to seek out and center the work, perspectives, and equity needs of people who identify as members of disability communities.

Disability, Ableism/Disableism: Definitions and Inherent Intersectionalities

What is disability? What is ableism? Given the ongoing dominant culture stigmas ascribed to disability, how might novices to disability culture(s) speak respectfully of and with people with disabilities? How might we better understand the fundamentally intersectional nature of disability? How are disability communities claiming positive disability identities? Brief overviews of selected disability literatures are offered next, not as final answers, but as a review of current contexts and to provide grounding in critical perspectives from disability activists and scholars.

Definitions and Language Conventions

The word “disability” reflects and contains the culturally embedded default view of (presumed) normative abilities and their opposites; disabilities, then, are seen as problems in need of solving (Campbell, 2009; Mingus, 2011; Mitchell & Snyder, 2000). To signal this linguistic riddle and “the mutual dependency of disability and ability to define one another” (Schalk, 2018, p. 6) the creative use of punctuation has been employed as in (dis)ability (Schalk, 2018) or dis/ability (Annamma, et al., 2013; Connor, et al., 2015). Ableism has been defined as “attitudes, actions, and circumstances that devalue people” based on perceptions of disability (Ladau, 2021, p. 70). Explicit and implicit biases, held by individuals, result in (and from) ableist cultural practices and organizational policies. That is, ableism is a “system of discriminatory

practices and beliefs that maintain and perpetuate disability oppression” (Sins Invalid, 2019, p. 142). Ableism thereby produces and then pardons disableism, which is defined as discrimination aimed at disabled people (Gappmayer, 2021).

Person-first language (e.g., person with a disability) has been advocated as an invitation to recognize disability as (only) one aspect of a whole person. Alternately, social models see disability as a result of communal conditions—the political, economic, and cultural manifestations of ableism; so using identity-first language—by identifying as disabled—points not at the individual but toward the social environment. As has been true of emancipatory campaigns across time, language that has a history of being used pejoratively is being reclaimed by some, though not all, members of the disability community (Burgstahler, 2020). This is reflected in the title of a recent documentary film, *Crip Camp: A Disability Revolution* (LeBrecht & Newnham, 2020) (though the film is not without critique—see Sedgwick, 2021). A social media campaign promoted by Andrews and colleagues (2019), #SaytheWord, encourages the claiming and celebration of positive disability identities and calls attention to the ways that recognition of disability is problematically erased through use of euphemisms (e.g., differently-abled). Whether person-first or identity-first language is used, a most important consideration is a “commitment to the understanding that terminology and language choices . . . [are] crucial in the struggle against disability degradation” (Titchkosky, et al., 2022, p. 7).

Inherent Intersectionalities

Notions of disability and ability are interdependent and dynamic cultural ideas; disability is no more monolithic than any other social identity grouping and members of disability communities reflect a sweeping diversity of backgrounds. As Lorde observed (2009), none of us live “single-issue lives” and this reflects the intersectionality Crenshaw articulates (1991).

Ableism is never experienced in isolation from other forms of systemic unearned advantaging and disadvantaging (Blaser et al., 2019; Clare, 2009; Kafer, 2013; McIntosh, 2012; McRuer, 2006; Reynolds, 2022); rather, individual experiences are uniquely configured and compounded. Mingus (2011) elaborates: “Ableism plays out very differently for wheelchair users, deaf people or people who have mental, psychiatric and cognitive disabilities . . . complicated by race, class, gender, immigration, sexuality, welfare status, incarceration, age and geographic location” (para. 14).

It is also helpful to consider some ways that personal or positional perspectives matter. In antiracism work, defining racism as originating in and being perpetuated by beliefs in whiteness as the pinnacle of a racialized value-hierarchy leads us to grapple with white supremacy (Case, 2012; Giroux, 1997; Glimps & Ford, 2010). In gender equity work, a recognition that gender is far from a duality allows us to more inclusively and meaningfully support one another in showing up as the (a)gendered people we are (Bem, 1995; Dockendorff & Geist, 2018). In disability equity work, acknowledging marginalizing conceptions of “normality” reveals the foundations of ableism and invites us to see what disability justice¹ activists have identified as “the basics . . . that we are not deviant or aberrant but an essential part of humanity” (Sins Invalid, 2019, p. 5). Intentionally adopting these viewpoints profoundly alters what is observed and seen as important (Glaude, 2021; Smith, 2021; Titchkosky, et al., 2022). Always, in this perspective-taking, it is crucial to appreciate the presence of interlocking manifestations of larger

¹Project *Let's Erase The Stigma* (LETS) details the intersectional origin and priorities of the phrase “disability justice” as follows: The term disability justice was coined out of conversations between disabled queer women of color activists in 2005, including Patty Berne of Sins Invalid (and Mia Mingus & Stacy Milbern, who eventually united with Leroy Moore, Eli Clare, and Sebastian Margaret) seeking to challenge radical and progressive movements to more fully address ableism.

cultural systems that ascribe value and meaning to the various ways we humans show up. This is a “yes-and” perspective, what Du Bois calls “more than double-consciousness” (Du Bois, 1903/2019). For members of dominant groups, this involves coming to see oneself through dominant and nondominant lenses at the same time—and “recognizing the latter as a critical corrective truth” (Alcoff, 2015, p. 140). To be clear, disability justice, indeed justice writ large, is the overarching goal. In this article, we purposely use the frame “disability equity” to reflect the requisite buttressing structures (i.e., individual, collective, and organizational actions) which we propose will constitute effective means to that end.

Because theory can inform and influence lived experience, academics and activists continue to conceive alliance-building paradigms that avoid re-instantiating the human-value hierarchies we are working to dismantle (Alcoff, 1988, 2015; Moore Jr., et al., 2018; Price, 2011; Reynolds, 2022). To underscore this vital area of scholarship, we briefly proffer instructive examples of conceptual linkages among disability, gender, and race, with an important caveat: beware of the potential for reifying the “other” when metaphorically bridging the experiences of marginalized identities. For example, May and Ferri (2005) cautioned that the assertion that women are “*not* disabled by their sex” merely substitutes “one subject-object dualism (male vs. female) with another: woman vs. disability,” thus perpetuating the erasure of women with disabilities (p. 120-121). The comparison leaves a view of disability-as-deficit unchallenged, and moreover, such logics erroneously suggest that cultural locations exist as “real” and static binaries—woman/man, disabled/abled.

Campbell reminds us that we must first, “not only problematize but refuse the notion of able(ness)” (2008, para. 2) as we theorize connectivity among systems of unearned advantaging and disadvantaging. Wolbring (2012) notes that “[r]acism is often linked to cognitive ability

narratives [in which people with] certain racial or ethnic backgrounds are less cognitively able” and that women were denied the vote based on the premises “that (a) rationality is an important ability, and (b) that women do not possess rationality” (p. 79). Reynolds (2022) links race and disability when he asserts that white supremacy is the “apparatus” through which notions of abled and disabled are made. Kim weaves together perspectives of disability, illness, and race to echo the call to refuse “notion[s] of able(ness),” while steadily redirecting attention to the wider “systemic de-valuation (and oftentimes, subsequent disablement) of non-normative bodies and minds” (2017, para. 1). These examples make clear the inherent inextricability of cultural systems, and thus the unavoidable intersectionality of social identities that include disability.

Discriminatory Impacts in Academia

Given disability stigma, the great variety in the experiences of people with apparent and/or unseen disabilities, and the impossibility of extracting disability from other identity markers, it is unsurprising that academic faculty and staff with disabilities experience myriad barriers in STEM workplaces that are also impacted by their gendered, racialized, positional, and other social identities. Each of these identities may either amplify or diminish the experience of disability discrimination; for example, a white and cisgendered (i.e., birth sex and gender identity correspond) professor who uses a wheelchair is likely to experience very different discrimination than a Black gender-bending lab technician. Still, it is important to consider particular ways in which experiences of disability impact daily lives and career trajectories in academic and STEM settings.

Disabled academics who participated in a systematic review of studies from six countries reported frequent stereotyping and discriminatory treatment, difficulties with accommodation requests, and a general dearth of disability support services coupled with an abundance of

disability stigma, all of which negatively impacted their health and well-being (Lindsay & Fuentes, 2022). They also reported that these workplace contexts contributed to their decisions to not disclose their disability status or not request needed workplace accommodations (Lindsay & Fuentes, 2022).

Titchkosky observes that equating disability with a burdensome “[m]isfortune . . . is ubiquitous throughout university environments,” with campus disability services typically focused on “ascertaining and managing” disability (2022, p. 20). This view forecloses perspectives of disability as a positive identity as well as possibilities for “thinking . . . alongside disabled colleagues” (Titchkosky, et al., 2022, p. 21). A recent edited volume invited disabled academics to bring theoretical and lived experience together; topics addressed ranged from disability disclosure, to impacts of health conditions, to internalized ableism, to invisible disability, to disability activism in academia (Brown & Leigh, 2020). The individual experiences described in each chapter contribute to understanding the findings of Lindsay and Fuentes that “[f]aculty and staff with disabilities are significantly underrepresented within academia and experience alarming rates of discrimination, social exclusion and marginalization” (2022, p. 178). In a collection of essays on mental health and disability in higher education, Pryal (2017) notes that disability services offices are often more focused on students with disabilities than faculty; faculty are also often concerned about stigma connected to identifying as having a disability, particularly when that disability is connected to mental health. She further emphasizes that the current model for receiving accommodations places undue burden on faculty with disabilities, noting that “[w]hen the onus of righting disability wrongs in the workplace is on the disabled person, you have a problem” (Pryal, 2017, p 54).

However, institutional data suggests that faculty and staff in academia with disabilities are increasingly willing to report disability status in surveys (Berg & Besse, 2021; Cannon, 2023) and are also least likely to report feeling welcomed and included in academic institutions. These discriminatory impacts may be amplified for professionals in STEM fields. STEM careers offer many personal and professional benefits, and employment in STEM occupations in the United States has grown by about 80% over the past 30 years (O'Rourke, 2021). Even so, white nondisabled workers (men more than women in most fields) are overrepresented in STEM workforces (Bernard, 2021; Kennedy, et al., 2021) and one study asserts "there are ~75% fewer individuals with disabilities represented in the STEM workforce than in the general population" (Atchison, 2016). Indeed, the popularity rate of STEM positions is more than double that of other careers (Zilberman & Ice, 2021). There is increasing recognition of the need to prepare, recruit, and retain workers from all backgrounds, including people with disabilities (Gineva, 2022; Schneiderwind, 2020; Upchurch & Vann, 2021). Gordián-Vélez asserts that "[a]chieving full inclusion for people with disabilities in STEM is a matter of national security, economic prosperity, and equity" (2022, p. 1).

There is a small but growing body of research on the experiences of disabled STEM graduate students that is likely relevant to faculty as well. Graduate education differs from undergraduate education; graduate students with disabilities have different access needs, which institutions often do not properly meet. Accommodations granted for undergraduate students often do not provide adequate access in graduate school and beyond (Jain, et al., 2020; Murtaza et al, 2021). Given that graduate students and faculty both participate in similar research activities, it is likely that faculty members have unmet needs similar to graduate students. Several studies detail the extra work and emotional burdens that must be navigated by graduate students

with disabilities in order to be successful in academia (La Monica, 2016; Jain, et al., 2020; Shinohara, et al., 2021), and faculty with disabilities face similar challenges.

Despite decades of research that has addressed increasing diversity among STEM faculty, addressing accessibility and equity for disabled faculty has received short shrift. In 2019, a mere 10.5% of doctorate holders with disabilities employed in universities and four-year colleges were tenured (Hamrick, 2021, Table 9-31). Achieving tenure in STEM disciplines requires consistent, high levels of research productivity, along with significant external research funding. Typical work patterns for these full-time appointments frequently extend to evenings and weekends, and require consistent networking and presentations at conferences, expectations that create differential layers of burden for some faculty with disabilities. Moreover, STEM academic positions often come with substantial needs for laboratory space and instrumentation, along with time-limited startup funding, all of which can pose particular challenges when disabilities are not considered in the design and implementation of the workplaces. Conference participation poses a range of challenges for some faculty with disabilities, from accessible spaces, accessible technology, sign language interpreters, and additional travel and meal expenses (Trewin et al., 2019). Further, navigating communication and networking expectations with other participants can be difficult for faculty who are neurodivergent or who have physical disabilities (Irish, 2023). The physical labor demands of research in STEM disciplines may lead some faculty with disabilities to move to disciplines with fewer needs for specialized resources to manage those physical demands, such as science education (Sang, 2017).

In sum: people with disabilities, including disabled STEM faculty and staff, experience a “disability tax,” which contributes daily life stressors that can negatively impact career trajectories (Olsen et al., 2022; Torabi, 2021). Effective disability equity efforts in academia

must be informed by a comprehensive understanding of disability/ability as mutually dependent cultural constructions with real-time impacts and intentionally grounded in leadership from disabled academics. Disability communities have been creative and relentless in laying claim to a rich intersectional humanity, bringing their substantial talents to the fore and crafting positive disability identities (Nakamura, 2018; Nielsen, 2012; Shakespeare & Watson, 1997; Shildrick, 2012; Siebers, 2011; Sins Invalid, 2019; Titchkosky, et al., 2022); their vital work continues to benefit us all.

Individual, Collaborative, and Institutional Approaches for Promoting Disability Equity

Cummings asserts the “obvious” need to “mitigate the racist, homophobic, able-bodied/sound-mind, monolingual, and related biases” that are deeply embedded in U.S. society and which lead to discriminatory practices that impact “career advancement and professional trajectories” (2021, p. 2). Social systems are complex adaptive systems and within such systems, individuals create and influence cultural content—while cultural priorities and structures simultaneously influence individuals (Aragon, et al., 2022; Miller & Page, 2007). Because profound interdependencies among the *scale* (i.e., micro, meso, macro) and *content* of social systems (i.e., unearned advantaging and disadvantaging) conspire to co-create unique lived experiences, our responses to social inequities must be similarly complex and multi-tiered. Keeping in mind the inherent intersectionalities discussed above while also centering disability, we now offer five actions in each of three tiers (individually/micro, collectively/meso, and organizationally/macro) for advancing disability equity.

Micro Actions: Five Individual Actions to Advance Disability Equity

The following five actions are adapted from an approach developed in previous NSF ADVANCE projects, the Advocates and Allies (A&A) men faculty gender equity initiative

(NDSU, 2015; 2021). The A & A program has demonstrated success in supporting members of an advantaged group (men) to evolve knowledge and skills for leveraging personal and positional power to promote equity for members of disadvantaged groups (women) (Anicha, et al., 2022). Identifying as disabled provides one with membership in a community with shared experiences, needs, and sociopolitical power. However, because there is tremendous diversity within disability communities, identifying as disabled does not guarantee a complete knowledge of the myriad discriminations nor the myriad strengths that often attend the experience of disability. To support personal growth in skillfully leveraging personal and positional power to support disability equity we detail five moves you can make as an individual:

1. Hold yourself accountable for advancing disability equity. Speak with your colleagues about your commitment to disability equity and your efforts to develop your allyship and advocacy skills; take actions to address disability bias and inequities. If you are not a member of a disability community, know that you may have an advantage in raising disability equity issues because you are less likely to be perceived as acting in your own self-interest.
2. Educate yourself about the broad and diverse experiences of people who identify as members of disability communities. Seek resources that reflect the voices and experiences of disabled people. If you are a novice to understanding disability as a socio-political concept, below are several suggested resources that can get you started. Once you have a sense of what constitutes disability equity, incorporate those principles into your own syllabus, teaching methods, mentoring, lab policies and practices, accessible digital document design, and other activities.

- a) Improve your general knowledge base by watching films *by and about* people with disabilities such as “Fixed: The Science/Fiction of Human Enhancement” (2013) and “Crip Camp: A Disability Revolution” (2020; though see critique by Sedgwick, 2021).
 - b) Once you have a sense of the cultural contours of disability/ableism (Campbell, 2009), be sure to become familiar with the [10 Principles of Disability Justice](#).
 - c) Read the [Universal Design Frameworks](#) found at the University of Washington DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Center.
3. Listen. Listen. Listen. Listen attentively to your colleagues who identify as members of disability communities, and encourage others to do the same. Ask disabled colleagues about departmental climate, listen to their responses, and take concrete actions to improve your department’s climate. Promote a culture of respect and inclusivity within your department and institution by using [inclusive language](#) and avoiding assumptions about the capabilities or limitations of faculty, staff, and students with disabilities. When you or your colleagues become aware of ableist language or practices, take those opportunities to formally acknowledge errors; then translate that learning into improved personal and organizational understanding and practice.
 4. Ask disabled colleagues about their research, attend their research presentations, and look for opportunities to collaborate. Read publications by and about disabled faculty and intentionally include relevant citations of disabled scholars in your own research and publications. Invite colleagues with disabilities at other institutions to present at your institution or at events you are organizing.

5. Write a Personal Action Plan with actions you will take to promote disability equity. You might begin by thinking of actions you can take immediately or in the short term, then consider steps that can be taken longer term; examples include integrating accessibility and disability related topics into your courses, volunteering to ensure conferences you attend are accessible, and advocating for including disability into equity-related work in your department, institution, and field of study.

Meso Actions: Group Collaboration for Advancing Disability Equity

While it is vital that we each take individual personal accountability for improving our knowledge and understandings of the experiences of disability and the impacts of ableism, it is also important to do so in community in order to better understand multiple perspectives and to increase impact. Collaborative actions offer engagements with others where we can increase our knowledge, hone our skills, and practice behavioral changes. We offer five suggestions for networking with others to advance disability equity:

1. Take an active role in supporting disability advocacy and inclusion initiatives within your institution. For example, serve on an existing committee for a Diversity, Equity, and Inclusion (DEI). Work with disability services, human resources, and faculty affairs offices to ensure that accommodation policies and practices for faculty members with disabilities are equitable, accessible, and well publicized. Make sure that other DEI efforts on campus include people with disabilities and meaningfully address accessibility.
2. Support efforts to recruit and retain faculty members with disabilities. For example, collaborate with colleagues to invite faculty members with disabilities to present their research in your department or offer professional development. Sponsor and provide mentorship opportunities for faculty members who identify as disabled to support their

career advancement goals. Avoid scheduling departmental meetings early in the morning or late in the day. On days when you are interviewing for faculty or staff positions, schedule extended time for transitions and periods of quiet time.

3. Connect with your campus disability affinity group to learn how you can support disability equity efforts within your institution. Network with regional and national [disabled faculty networks found on the AccessADVANCE Resources webpage](#). Check with your faculty or staff unions regarding disability equity work groups (e.g., the [Inter Faculty Organization Disabilities Advocacy Committee](#)). Join and participate in the [AccessADVANCE Community of Practice](#).
4. Work with your departmental colleagues to update policies and practices regarding individual performance reviews, promotion, tenure, and leadership options to address the perspectives and needs of faculty with disabilities.
5. Join a campus group working to understand and implement principles of Universal Design at your university. Invite departmental or lab colleagues to complete an accessibility audit; for possible audit topics see the DO-IT [IT Accessibility in Higher Education Proceedings \(2015\) Capacity Building Institute Working Group Discussion summaries](#).

Macro Actions: Advancing Disability Equity in Institutional Policies and Practices

In this section we include five institutional approaches selected from a larger set of recommendations for promoting disability equity within academic departments and institutions. The recommendations, synthesized from input offered by participants during *AccessADVANCE* capacity building and community of practice gatherings, have provided a trove of guidance for dismantling disability discrimination in academia. We have curated and posted this abundant

database as a larger set of broad questions designed to promote investigation of structural and institutional practices that may or may not be present within your organization. The regularly updated document can be found in the *AccessADVANCE* publication [*Equal Access: Making STEM Departments More Accessible to and Inclusive of Faculty with Disabilities*](#). Consider taking the following five recommendations with the engagement and participation of departmental and/or institutional leadership and people with disabilities. Timelines for institutional change can be extensive and it may be valuable to intentionally and publicly celebrate successes because by “cementing into our explicit and episodic memories the successes we have realized, celebrations can serve to buffer the harmful effects of self-defeating and negative thinking” (Cummings, 2021, p. 3). Each item listed below will call for cross-institutional collaboration and long-term work-plans in order to create meaningful change for disability equity:

1. Develop organizational and project policies and procedures that support people with disabilities by moving beyond minimum levels of compliance to instead proactively applying universal design principles with the goal of making all campus activities welcoming, accessible, and inclusive. For example, regularly review campus policies and practices for including accessibility statements in course syllabi, sponsored events, and professional development offerings, etc. Ensure that all disabilities (including those that are not obvious, such as health impairments or mental health issues) are considered in the design process. Make sure that procedures for requesting disability-related accommodations are visible. A sample statement is, “To request accommodations related to disabilities—such as those that impact sight, hearing, mobility, learning, attention, mental health, and chronic illness—contact . . .”

2. Create explicit, simple, and transparent procedures to ensure timely responses to disability-related accommodation requests and ensure that all campus stakeholders are aware of those services and how to access them. Hire students and other assistants to complete inaccessible tasks that place disproportionate time-burdens on faculty with disabilities. Adopt and cultivate an equity mindset rather than an accommodation mindset. For example, consider developing trainings related to disability and accessibility for administration, faculty and staff or integrating relevant topics into existing training. Be certain that the process for arranging accommodations includes clear guidance and support for individuals requesting accommodations as well as for staff and faculty who are expected to respond to the requests.
3. Draft a statement about the organization's commitment to diversity, equity, and inclusion that includes disability and information about requesting disability-related accommodations. For example, a project website could include the following statement: "The [department] values diversity, equity, and inclusion and strives to make project facilities, technology, courses, information resources, and services welcoming and accessible to everyone, including those with disabilities. Please inform [project staff] of accessibility barriers you encounter. In addition, requests for disability-related accommodations can be directed to [appropriate office and email]." Ensure that accommodations are funded at the institutional level rather than by individual departments to reduce concern that a particular faculty member is a drain on their department because of an accommodation.
4. Offer hybrid (in-person and remote) access options for meetings, activities, and teaching *as the organizational default*. Since some aspects of virtual participation may be

inaccessible to some individuals, make the process for requesting accommodations clear to all potential attendees. When possible and appropriate, record events and share with those who cannot attend a meeting. Ensure that recordings are accurately captioned and transcripts are available. Develop guidelines for departments and units to follow as hosts of online, hybrid, or on-site meetings and provide current technology and equipment as needed.

5. Ensure *all* campus activities are welcoming, accessible, and inclusive. Regularly review the campus policy for including accessibility statements in course catalogs, sponsored events, and professional development offerings, etc. Ask: Are all disabilities (including those that are not obvious, such as health impairments or mental health issues) considered in disability accommodations and initiatives? Consider emphasizing this with statements such as, “To request accommodations related to disabilities—such as those that impact sight, hearing, mobility, learning, attention, mental health, and chronic illness—contact...”

Conclusions

The possibility of achieving disability equity in post-secondary STEM academic workplaces increases when we all hold ourselves accountable for doing our share—as individuals, as departmental group members, and as institutional leaders—in developing a durable and responsive environment that advances disability equity. The actions we have described apply universal design principles and can be tailored for individual, department, and institution education and employment settings. Suggested approaches are gleaned from the scholarship and suggestions of disabled faculty and disability equity allies and accomplices, and provide a foundation for action. From here we can all continue to assess and build our personal

disability equity literacy skills, join with like-minded colleagues in the pursuit of collective action, and launch inquiries into the status of disability equity in our organizations, inquiries that lead to transformed policies and practices.

We are not suggesting ease or simplicity or that meaningful and enduring change will happen swiftly. Certainly, the sheer magnitude and pervasive presence of ableism, intertwined with other marginalizing social systems, is overwhelming. It may be helpful to be aware—and wary—of Hirschman’s 1991 three “rhetoric[s] of reaction” reviewed by Dolmage as: the futility thesis which “holds that nothing we do can have much positive impact at all,” the perversity thesis which “suggests that anything we do to help also creates harm,” and the jeopardy thesis which “argues that any change we make will likely endanger something else, something already established, something much more important” (Dolmage, 2017, p. 150-151). To be successful, promoters of change should support one another in *not* capitulating to perspectives that derail efforts for institutional change. By engaging in the application of one “critical corrective truth” (Alcoff, 2015) at a time, we can co-create the equitable world in which we all want to live. We hope that this early report from the field regarding the current findings from our *AccessADVANCE* project offers you multiple pathways for improving workplace climate and disability equity in your institution. Although cultural and institutional change can be daunting, we can be inspired by the oft-quoted Margaret Mead in “[n]ever doubt[ing] that a small group of committed citizens can change the world.”

References

- Alcoff, L. M. (1988). Cultural feminism vs. post-structuralism: The identity crisis in feminist theory. *Signs*(Spring), 405-436.
- Alcoff, L. M. (2015). *The Future of Whiteness*. Cambridge, UK: Polity Press.
- Andrews, E. E., Forber-Pratt, A. J., Mona, L. R., Lund, E. M., Pilarski, C. R., & Balter, R. (2019). #SaytheWord: A disability culture commentary on the erasure of “disability.” *Rehabilitation Psychology, 64*(2), 111-118. doi: 10.1037/rep0000258.
- Anicha, C. L., Bilen-Green, C., & Burnett, A. (2018). Advocates & allies: The succession of a good idea or what’s in a meme? [Dispatches]. *Studies in Social Justice, 12*(1), 152-164. doi: 10.26522/ssj.v12i1.1613.
- Anicha, C. L., Bilen-Green, C., & Burnett A. (2022). “The men need to be involved: A critical frame analysis of gender+ equity narratives.” *ADVANCE Journal 3* (1). <https://doi.org/10.5399/osu/ADVJRNL.3.1.13>.
- Annamma, S. A., Connor, D., & Ferri, B. (2013). Dis/ability critical race studies (DisCrit): Theorizing at the intersections of race and dis/ability. *Race Ethnicity and Education, 16*(1), 1-31. doi: 10.1080/13613324.2012.730511.
- Aragon, C., Guha, S., Kogan, M., Muller, M., & Neff, G. (2022). *Human-Centered Data Science: An Introduction*. Cambridge, MA: MIT Press.
- Atchison, C. L. & Libarkin, J. C. (2016). Professionally held perceptions about the accessibility of the geosciences. *Geosphere, 12*(4), 1154–1165. doi: 10.1130/GES01264.1.
- Bem, S. L. (1995). Dismantling gender polarization and compulsory heterosexuality: Should we turn the volume down or up? *Journal of Sex Research, 32*(4), 329-334.

- Berg, E. & Besse, R., (2021). 2021 NDSU Campus climate survey. North Dakota State University. https://www.ndsu.edu/oira/institutional_reports/campus_climate_survey/
- Bernard, M. A., (2021). Advancing disability inclusion in the scientific workforce. National Institutes of Health. [Advancing Disability Inclusion in the Scientific Workforce | COSWD \(nih.gov\)](#).
- Bilen-Green, C., Green, R., McGeorge, C. R., Anicha, C. L., Burnett, A. (2013). Engaging Male Faculty in Institutional Transformation. ASEE Annual Conference and Exposition, Paper ID #5965. Doi: 10.18260/1-2—19504.
- Blaser, B., Bennett, C., Ladner, R. E., Burgstahler, S. E., & Mankoff, J. (2019). Perspectives of women with disabilities in computing. In *Cracking the Digital Ceiling: Women in Computing Around the World*, C. Frieze and J. L. Quesenberry, Eds. Cambridge: Cambridge University Press, 159–182.
- Brown, N., & Leigh, J. (Eds.). (2020). *Ableism in Higher Education: Theorising Experiences of Disabilities and Chronic Illnesses in Higher Education*. London: UCL Press.
- Burgstahler, S. E. (2020). *Creating Inclusive Learning Opportunities in Higher Education: A Universal Design Toolkit*. Cambridge, MA, USA: Harvard Education Press.
- Campbell, F. K. (2008). Refusing able(ness): A preliminary conversation about ableism. *Media and Culture Journal*, 11(3). <https://doi.org/10.5204/mcj.46>.
- Campbell, F. K. (2009). *Contours of ableism: The production of disability and abledness*. New York, NY: Palgrave Macmillan.
- Cannon, J. A. (2023). Revisioning accessibility in higher education post COVID-19. In S. Hai-Jew (Ed.), *Handbook of Research on Revisioning and Reconstructing Higher Education After Global Crises* (pp. 22-33). Hershey, PA: IGI Global.

- Case, K. A. (2012). Discovering the privilege of whiteness: White women's reflections on anti-racist identity and ally behavior. *Journal of Social Issues*, 68(1), 78-96. doi: 10.1111/j.1540-4560.2011.01737.x.
- Clare, E. (2009). *Exile & pride: Disability, queerness & liberation*. Cambridge, MA: South End Press.
- Connor, D. J., Ferri, B. A., & Annamma, S. A. (Eds.). (2015). *DisCrit—Disability Studies and Critical Race Theory in Education*. New York, NY: Teachers College Press.
- Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, 43(6), 1241-1299. doi: 10.2307/1229039.
- Cummings, A. (2021). The intervention: Mitigating unconscious bias and overt discrimination, celebrating successes, and transcending the feedback & criticism into positive change for ourselves and our communities. *Academia Letters*, Article 2199. doi: doi.org/10.20935/AL2199.
- Dockendorff, K. J., & Geist, C. (2018). Gender trouble beyond the LGB and T: Gender image and experiences of marginalization on campus. *SocArXiv Papers*.
<https://doi.org/10.31235/osf.io/kg6f2>.
- Dolmage, J. T. (2017). *Academic Ableism: Disability and Higher Education*. University of Michigan Press. <http://www.jstor.org/stable/j.ctvr33d50>.
- Du Bois, W. E. B. (1903/2019). *The Souls of Black Folk* (original classic edition ed.). London: G&D Media.
- Gappmayer, G. (2021). Disentangling disablism and ableism: The social norm of being able and its influence on social interactions with people with intellectual disabilities. *Journal of Occupational Science*, 28(1), 102-113. doi: 10.1080/14427591.2020.1814394.

- Gineva, S. (2022). How remote work could close the gender and diversity gap in STEM, ReadyTal.com. <https://readytal.medium.com/how-remote-work-could-close-the-gender-and-diversity-gap-in-stem-923c0ae2de34>.
- Giroux, H. (1997). Rewriting the discourse of racial identity: Towards a pedagogy and politics of whiteness. *Harvard Educational Review*, 67(2), 285-321.
- Glaude, E. S. J. (2021). *Begin Again: James Baldwin's America and Its Urgent Lessons for Our Own*. New York, NY: Crown Publishing Group.
- Glimps, B. J., & Ford, T. N. (2010). White power and privilege: Barriers to culturally responsive teaching. *International Journal of Educational Policies*, 4(1), 39-52. [White Power and Privilege: Barriers to Culturally Responsive Teaching \(icpres.org\)](#)
- Gordían-Vélez, W. (2022). Ensuring the inclusion of people with disabilities in STEM education and careers. *Journal of Science Policy & Governance*, 20(2). doi: 10.38126/JSPG200203.
- Hamrick, K. (2021). Women, minorities, and persons with disabilities in science and engineering. NSF. <https://nces.nsf.gov/pubs/nsf21321/report>.
- Hill Collins, P. (2013). *On intellectual activism*. Philadelphia, PA: Temple University Press.
- Hirschman, A. O. (1991). *The Rhetoric of Reaction: Perversity, Futility, Jeopardy*. Cambridge, MA: Harvard Belknap Press.
- Irish, B. J. (2023). How to make room for neurodivergent professors. *The Chronicle of Higher Education*. <https://www.chronicle.com/author/bradley-j-irish>.
- Jain, D., Potluri, V., & Sharif, A. (2020). Navigating graduate school with a disability. *The 22nd International ACM SIGACCESS Conference on Computers and Accessibility*, pp. 1–11, Oct. 2020. doi: 10.1145/3373625.3416986.
- Kafer, A. (2013). *Feminist, queer, crip*. Bloomington, IN: Indiana University Press.

- Kennedy, B., Fry, R., & Funk, C. (2021). 6 facts about America's STEM workforce and those training for it. *Pew Research Center*. <https://www.pewresearch.org/short-reads/2021/04/14/6-facts-about-americas-stem-workforce-and-those-training-for-it/>
- Kim, J. B. (2017). Toward a crip-of-color critique: Thinking with Minich's "Enabling Whom?" *Lateral Journal of the Cultural Studies Association*, Spring(6.1).
<https://doi.org/10.25158/L6.1.14>
- Ladau, E. (2021). *Demystifying Disability: What to Know, What to Say, and How to Be an Ally*. Westminister, MD: Penguin Random House.
- LeBrecht, J., & Newnham, N. (2020). *Crip Camp: A Disability Revolution* [Film]. United States: Higher Ground Productions.
- La Monica, N. (2016). Surviving or thriving in academia: Autoethnographic accounts of non-visibly disabled grads' experiences of inclusion and exclusion. Ph.D. thesis, Geography and Earth Science, McMaster University, Hamilton, ON, CA. Available:
<http://hdl.handle.net/11375/20404>
- Lindsay, S., & Fuentes, K. (2022). It is time to address ableism in academia: A systematic review of the experiences and impact of ableism among faculty and staff. *Disabilities*, 2, 178–203. <https://doi.org/10.3390/disabilities2020014>
- Lorde, A. (2009). *I Am Your Sister: Collected and Unpublished Writings of Audre Lorde*. New York, NY: Oxford University Press.
- May, V. M., & Ferri, B. A. (2005). Fixated on ability: Questioning ableist metaphors in feminist theories of resistance. *Prose Studies*, 27(1-2), 120-140. doi: 10.1080/01440350500068999.

McIntosh, P. (2012). Reflections and future directions for privilege studies. *Journal of Social Issues*, 68(1), 194-206. <http://www.doi.org/10.1111/j.1540-4560.2011.01744.x>.

McRuer, R. (2006). *Crip theory: Cultural signs of queerness and disability*. New York, NY: New York University Press.

Miller, J., & Page, S. E. (2007). *Complex Adaptive Systems: An Introduction to Computational Models of Social Life*. Princeton, NJ: Princeton University Press.

Mingus, M. (February 12, 2011). *Changing the Framework: Disability Justice: How Our Communities can Move Beyond Access to Wholeness*. Leaving Evidence—a blog by Mia Mingus. <https://leavingevidence.wordpress.com/2011/02/12/changing-the-framework-disability-justice/>

Mitchell, D. T., & Snyder, S. L. (2000). *Narrative Prosthesis: Disability and the Dependencies of Discourse*. Ann Arbor, MI: University of Michigan Press.

Moore Jr., L. F., Lewis, T. A., & Brown, L. X. Z. (2018). *Accountable reporting on disability, race, & police violence: A community response to the “Ruderman white paper on the media coverage of use of force and disability.”* Harriet Tubman Collective Response. Harriet Tubman Collective. <https://docs.google.com/document/d/117eoVeJVP594L6-1bgL8zpZrzgojfsveJwcWuHpkNcs/edit>

Murtaza, T., Tamjeed, M., Tibdewal, V., Russell, M., McQuaid, M., Oh, T., & Shinohara, K. (2021). Understanding disability services toward improving graduate student support. *The 23rd International ACM SIGACCESS Conference on Computers and Accessibility*, pp. 1–14, Oct. 2021. doi: 10.1145/3441852.3471231

Nakamura, K. (2018). Disability Studies as White Disability Studies / Disability Studies as Intersectional Disability Studies. *Haas Institute Disability Studies Cluster Research to*

Impact Series [Othering & Belonging Institute Videotaped Talk]. Berkeley, CA: University of California.

Nielsen, K. E. (2012). *A Disability History of the United States*. Boston, MA: Beacon Press.

NDSU (North Dakota State University) (2015). ADVANCE Institutional Transformation Award: NDSU ADVANCE FORWARD - Transforming a Gendered Institution (Award # 0811239). National Science Foundation.

https://www.nsf.gov/awardsearch/showAward?AWD_ID=0811239

NDSU (North Dakota State University) (2021). Engaging Male Colleagues as Advocates and Allies for the Advancement of Women Faculty (Award # 1500604). National Science Foundation. https://www.nsf.gov/awardsearch/showAward?AWD_ID=1500604

Olsen, S. H., Cork, S. J., Anders, P., Padrón, R., Peterson, A., Strausser, A., & Jaeger, P. (2022). The disability tax and the accessibility tax: The extra intellectual, emotional, and technological labor and financial expenditures required of disabled people in a world gone wrong . . . and mostly online. *Including Disability*(1), 51-86.

<https://doi.org/10.51357/id.vi1.170>

O'Rourke, B. (2021). Increasing access and opportunity in STEM crucial, say experts. *Harvard Gazette*. <https://news.harvard.edu/gazette/story/2021/11/increasing-access-and-opportunity-in-stem-crucial-say-experts>

Price, M. (2011). *Crippling Revolution: A Crazy Essay*. Paper presented at the Society for Disability Studies Annual Conference, San Jose, CA.

Pryal, K. R. G. (2017). *Life of the Mind Interrupted: Essays on Mental Health and Disability in Higher Education*. Norris, MT: Raven Books.

- Reynolds, J. M. (2022). Disability and White supremacy. *Critical Philosophy of Race*, 10(1), 48-70. doi: <https://doi.org/10.5325/critphilrace.10.1.0048>
- Sang, K. (2017). Disability and academic careers. Intercultural Research Centre, Edinburgh, Scotland. <https://migrantacademics.files.wordpress.com/2017/05/disability-sang-may-2017.pdf>.
- Schalk, S. D. (2018). *Bodyminds Reimagined: (Dis)Ability Race and Gender in Black Women's Speculative Fiction*. Durham, NC: Duke University Press.
- Schneiderwind, J. & Johnson, J. M. (2020). Disability and invisibility in STEM education. *JHETP*, (20) 14. Dec. 2020, doi: 10.33423/jhetp.v20i14.3854.
- Sedgwick, M. (2021). Review of: Crip Camp. *Disability Studies Quarterly*, 41(1).
- Shakespeare, T., & Watson, N. (1997). Defending the social model. *Disability & Society*, 12(2), 293-300. doi: 10.1080/09687599727380.
- Shildrick, M. (2012). Critical disability studies: Rethinking the conventions for the age of postmodernity. In N. Watson, A. Roulstone & C. Thomas (Eds.), *Routledge Handbook of Disability Studies* (pp. 30-41). New York, NY: Routledge.
- Shinohara, K., McQuaid, M., & Jacobo, N. (2021). The burden of survival: How doctoral students in computing bridge the chasm of inaccessibility. *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, pp. 1–13, May 2021. doi: 10.1145/3411764.3445277.
- Siebers, T. (2011). *Disability Theory*. Ann Arbor: The University of Michigan Press.
- Sins Invalid. (2019). *Skin, Tooth, and Bone: The Basis of Movement is Our People: A Disability Justice Primer* (2nd ed.). Berkeley, CA: sinsinvalid.org

Smith, L. T. (2021). *Decolonizing Methodologies: Research and Indigenous Peoples* (Third ed.). London: Zed.

Titchkosky, T., Cagulada, E., DeWelles, M., & Gold, E. (Eds.). (2022). *DisAppearing: Encounters in Disability Studies*. Toronto, ON Canada: CANADIAN SCHOLARS.

Torabi, Farnoosh (Host). (2021, May 24). The Financial Cost of Having a Disability: Emily Rapp Black, Author of *Frida Kahlo and My Left Leg* (No. 1203) [Audio podcast episode]. In *So Money*. Apple Podcasts. <https://podcast.farnoosh.tv/episode/emily-rapp-black/>

Trewin, S. , Hanson, V., Rode, J., Mankoff, J., Brady, E., Morris, M. R., Fitzpatrick, D., & Hwang, F. (2019). Accessible Conference Guide. *SIGACCESS*, Ver. 2.6 (August 2019). <https://www.sigaccess.org/welcome-to-sigaccess/resources/accessible-conference-guide>

Upchurch, P. & Vann, S. (2021). Trends on students and staff with disabilities in STEM. royalsociety.org. <https://royalsociety.org/blog/2021/01/trends-on-students-and-staff-with-disabilities-in-stem>

Wolbring, G. (2012). Expanding ableism: Taking down the ghettoization of impact of disability studies scholars. *Societies*, 2(3), 75-83. <https://doi.org/10.3390/soc2030075>

Zilberman, A. & Ice, L. (2021). Why computer occupations are behind strong STEM employment growth in the 2019–29 decade. Bureau of Labor Statistics, vol. 10, no. 1, 2021. <https://www.bls.gov/opub/btn/volume-10/Why-computer-occupations-are-behind-strong-stem-employment-growth.htm>

Acknowledgements

AccessADVANCE is funded by the National Science Foundation (NSF Award HRD-2017017, HRD-2017054). Any questions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the NSF.

Dr. Cali L. Anicha is a former public school educator, has served as a university adjunct instructor, and as an NDSU ADVANCE Research Associate. She has an MS degree in Special Education from Minnesota State University Moorhead, as well as an MS in Experimental Psychology and a PhD in Institutional Analysis from North Dakota State University. She is engaged in a range of community and education-based equity and justice efforts, and has worked with the NDSU ADVANCE team since 2010.

Dr. Cecilia Aragon, Department of Human Centered Design & Engineering Professor and Director of the Human-Centered Data Science Lab at the University of Washington, Seattle, earned her Ph.D. in Computer Science, UC Berkeley in 2004, and her B.S. in Mathematics from the California Institute of Technology. Aragon is a Senior Data Science Fellow at the eScience Institute at UW, Distinguished Member of the ACM, and the recipient of numerous awards, including the Presidential Early Career Award for Scientists and Engineers (PECASE). Her latest book, Human-Centered Data Science: An Introduction, was released by MIT Press in 2022.

Dr. Canan Bilen-Green is Vice Provost for Faculty Affairs and Equity, and Dale Hogoboom Professor of Industrial and Manufacturing Engineering at North Dakota State University. She received her Ph.D. from the University of Wyoming. She holds MS degrees from Bilkent University and University of Wyoming. She served as lead investigator and director of the National Science Foundation funded ADVANCE FORWARD Institutional Transformation program and the ADVOCATE FORWARD PLAN-D partnership project. Dr. Bilen-Green

formed, led, or served on various institutional committees, including Commission of the Status of Women Faculty, Women with Disabilities Task Force, and Promotion to Professor Task Force.

Dr. Brianna Blaser seeks to increase the participation of people with disabilities in science and engineering careers through her work at the DO-IT Center at the University of Washington. She is the associate director for AccessComputing and AccessADVANCE. Her work includes direct interventions for individuals with disabilities and working with faculty, employers, and other stakeholders to create institutional change. Previously, Brianna was Project Director of Outreach for AAAS & Science Careers. Brianna earned her PhD in Women's Studies at the University of Washington in 2008.

Dr. Sheryl Burgstahler founded and from 1992-2023 directed Accessible Technology Services—which includes the DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Center and the IT Accessibility Team (ITAT)—at the University of Washington (UW). These groups (1) offer mentoring and other interventions to support the success of students with disabilities in postsecondary education and careers, and (2) promote the universal design (UD) of learning opportunities; facilities; websites, media, documents and other IT; and services to ensure that they are accessible to, usable by, and inclusive of individuals with disabilities. Her latest book is Creating Inclusive Learning Opportunities in Higher Education: A Universal Design Toolkit. She is currently engaged in the field as an affiliate professor at the UW and City University of New York, a public speaker, and a consultant.