Supporting Faculty and Students with Disability

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Abstract

Despite over two decades of work looking at ways to increase diversity among science, technology, engineering, and math (STEM) faculty, little has been done to increase the representation of faculty with disabilities. Moreover, despite recent attention to increasing the participation of students with disabilities in STEM education, this work has rarely been extended to include faculty with disabilities. This paper describes efforts taken by *AccessADVANCE*, a partnership between two institutions, to influence institutional change to increase the participation of women with disabilities among STEM faculty. Faculty and student successes are interrelated; the goal of *AccessADVANCE* is to identify effective interventions for systematically addressing issues impacting the career advancement and success of academic women with disabilities. In this paper we share lessons learned regarding policies, practices, and professional development efforts designed to reduce structural and workplace barriers and to make academic STEM careers more welcoming and accessible to women with disabilities.

1. Introduction

Faculty, staff, and student successes are interrelated; students from underrepresented groups frequently indicate that finding faculty who "look like" them is important to their academic success, yet is often rare to actually happen[1],[2]. Although the number of students from underrepresented groups attending college is growing, the presence of faculty from underrepresented groups is not keeping pace [3]. The goal of *AccessADVANCE* is to identify effective interventions for systematically addressing issues impacting the career advancement and success of academic women with disabilities. A central tenet of *AccessADVANCE* is that disability is not inherent in an individual, rather disability is most tightly bound to context; particularly, individuals are disabled by beliefs, attitudes, and/or physical environments [4] – [6]. Similar to skin color or perceived gender, a person may experience a physical or health impairment, but it is the societal context that determines much of disabling impacts of those very human attributes. Previous generations of Black citizens in the United States (US) were prevented via Jim Crow laws from entering "whites only" spaces; today, if someone uses a mobility device, they may be prevented from entering many public spaces due to lack of ramps, elevators, or curb cuts. Most of us would not consider going to a restaurant that advertised a "whites only" practice, however, many of us enter restaurants and other public spaces without a thought about physical (in)accessibilities. Genuinely inclusive practices require engagement of multiple stakeholders, beyond compliance-focused disability services offices, in order to create a climate that includes individuals with disabilities [7]. And yet many diversity efforts, even those

that aim to take an intersectional approach with regard to race and gender, do not address disability [8] – [10].

Ableism, as defined by Powell is "beliefs or practices that devalue and discriminate against people with disabilities (whether physical conditions, mental-health issues, chronic illnesses or cognitive differences) [11]." The impacts of ableism simultaneously value, enable,and direct unearned advantaging toward non-disabled people—and these impacts are cumulative and intersectional. That is, the experiences of a Latina non-binary faculty member with multiple sclerosis are unique from the experiences of a blind white faculty man, are unique from the experiences of a heteronormative Semitic faculty woman, are unique from the experiences of a gay white faculty man, and so on.

Data on the participation of people with disabilities varies widely depending on what questions are asked [12]. This creates "apples and oranges"-style comparisons. Despite difficulties with comparing the participation of people with disabilities in science, technology, engineering, and math (STEM) compared to their representation in the population more generally, there are systemic issues that prevent people with disabilities from pursuing STEM and faculty careers in STEM that need to be addressed. By some estimates, 26% of US adults in the workforce identify as disabled.In 2019, between 7-10% of doctorate recipients in science and engineering fields identified as disabled and about 9% of science and engineering faculty at four-year institutions identified as disabled. People with disabilities who earn Ph.D.s are more likely than those who do not have disabilities to be underemployed or become adjunct faculty [13]. Other sources estimate that an even smaller proportion of faculty have a disability [14], [15]. Unsurprisingly, institutions that serve students with disabilities such as Gallaudet University have more faculty members with disabilities [14]. Notably, when *tenured* faculty were asked to report aging-related disability conditions (e.g., reduced sight or hearing), 52% are identified as disabled [16].

When we turn our attention to the ways that we are *enabled*, disability viewed from the perspective of ableism comes into focus: If we appear to walk with ease, the physical environment has been built for us, and it is unlikely that we encounter an unknown other who, observing us wait for the elevator, feels compelled to let us know we "*could actually*" take the stairs; if we are perceived as a man, our presence is expected in STEM and other academic fields; if our skin has little melanin and/or if we speak with a 'standard' English dialect, we are less frequently asked, "But where are you *really* from?" Each of these enablements point to ways that access may be eased for us, and conversely, ways that access can be limited or curtailed by virtue of systems of social beliefs and/or built environments. Perhaps, especially to engineers, this systems view is indeed the good news—if systems are a primary source of disablement, then much of the unearned disadvantaging that accrues for members of disability communities can be undone through thoughtfully engineered changes in construction, administrative, and/or discipline-related policies and practices. Of course, these systems are populated by people who,

for the most part, are unaware of the myriad disabling impacts of any given praxis. Even if we happen to be among the one-in-four adults who experience disability in the US, we may be unaware of many of the disabling practices that exist because the disability community is particularly heterogeneous and disability may manifest uniquely dependent upon one's own dynamic constellation of impairments and/or contexts [17]. Thus, a combination of educational approaches and informed policy changes are crucial to creating and sustaining meaningful equity for all. Fortunately, in support of that end, 2021 brought a renewed focus from the federal government regarding diversity, equity, and inclusion by adding "accessibility" as a central component of those efforts [18]. Led by the University of Washington and partnered with North Dakota State University, our *AccessADVANCE* project focuses on accessibility with the goal of increasing the participation and advancement of women with disabilities in academic STEM careers.

In this paper, we first describe the efforts taken to date regarding key *Practices, Professional Development* efforts, and *Policies* that the *AccessADVANCE* project has engaged in between January 2021 and spring 2022. Each approach has been designed to reduce the structural and workplace barriers that make academic STEM careers unwelcoming and inaccessible to women with disabilities. Next, our findings, drawn from information and data collected during or through each approach, are shared as *Lessons Learned*. Finally, we offer preliminary *Conclusions* based on these findings, produced in the first year and a half of the AccessADVANCE partnership project.

1.1.About *AccessADVANCE*

The overarching goal of *AccessADVANCE* is to increase the nationwide participation and advancement of women with disabilities in academic STEM careers, including faculty positions. *AccessADVANCE* works to increase understanding of the issues related to this understudied and often marginalized group along with identification of effective interventions with the potential to systematically address issues impacting the career advancement and success of women faculty with disabilities. *AccessADVANCE* is a partnership between the University of Washington DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Center, an ongoing project dedicated to empowering people with disabilities through technology and education, and North Dakota State University. The aims of this partnership are to increase the engagement and capacity of programs that promote women in STEM, as well as support their host institutions to create campus-wide changes that make academic STEM careers more welcoming and accessible to women with disabilities.

Disability is inherently intersectional, meaning that people of all backgrounds experience disability. Leveraging a universal-design-as-social-justice paradigm developed at the University of Washington DO-IT Center, *AccessADVANCE* connects academics from across the US,

including those who identify as disabled as well as those who are working to increase disability allyship knowledge and skills, as a means to further disability equity within our own institutions.

1.2 A Word about Words

Although person-first language, as in "person/faculty with disability(ies)," is often used in the US, in the United Kingdom, social and physical environments are understood as *disabling*, thus "disabled person" framing is more commonly used. Recent scholarship invites additional considerations regarding ways that language reflects and informs social constructions of disability. The term "dis/ability" has been recommended with the assertion that the '/' "disrupts misleading understandings of disability, as it simultaneously conveys the mixture of ability and disability" [4]. Alternatively, Nakamura argues that "dis/ability" potentially reflects a disconnect between community activists and disability studies academics [19]. Avoidance of the terms 'disability' and 'disabled' may have unintended adverse consequences by suggesting that identifying as disabled is automatically negative and the '#SaytheWord' movement calls for a shift in focus to disability rights and the talents of disabled people [20]. Because formal language conventions around the term disability are in flux and there is no clear consensus regarding the use of person-first or disability-first language, in this paper we use both conventions. As is the case for other cultural identities, in interpersonal contexts or when working in cross-cultural groups it is most respectful to ask and then use the language preferred by individuals or group members.

2. Nationwide Practices

Nationwide connections and support for institutional change efforts are forged through four key *AccessADVANCE* practices: Capacity building institutes (CBIs), a Community of Practice (CoP), minigrants, and consultations. CBIs and the CoP both support *AccessADVANCE* in convening a range of conversations that connect academics from across US institutions who are working for disability equity in academia; the minigrant program and consultations allow *AccessADVANCE* to support more local or specific efforts for disability equity.

2.1 During multi-day-long *AccessADVANCEcapacity building institutes (*CBIs)**, a varietyof stakeholders, including faculty with disabilities, disability services professionals, administrators, and leaders from programs that serve to increase the representation of women faculty in STEM, come together to share challenges and solutions and learn from each others' experiences. Women faculty who identify as members of a disability community provide a keynote presentation and/or serve as panelists. Following content-rich presentations in CBIs, participants identify actions that stakeholders can take to increase the participation and advancement of women with disabilities in academic STEM careers,

focusing the discussions on systemic change. CBI proceedings are published on the *AccessADVANCE* project website [21].

2.2 The *AccessADVANCE* **Community of Practice(CoP)** operates a distribution list in which subscribers discuss disability-relevant content and share opportunities to promote the increased participation of women with disabilities in STEM faculty careers (e.g., publications and accessibility-focused webinars).

2.3 Individuals or representatives of organizations can apply for an *AccessADVANCE* **minigrant** to obtain funds available to support activities to expand, replicate, and disseminate practices related to our project goals nationwide.

2.4 Individuals or representatives of organizations can request a **consultation with** *AccessADVANCE* to receive assistance in a wide breadth of areas related to creating policies, practices, culture, and resources that are welcoming and accessible to women faculty with disabilities.

3. Professional Development

In addition to the educational benefits of the above detailed core *Practices* that solicit a nation-wide audience, the following organization-specific *Professional Development* sessions, all of which were hosted as virtual and/or hybrid events, have taken place at North Dakota State University:

- Multiple one-off brown bag panel discussions (one-hour "Including U" events titled Hidden Disabilities in January 2022 and Abilities and Access in May 2022), which have been open to all campus community members.

- A four-part learning series with structured conversations held over a one-month period (April 2022). This *Disability Equity and Advocacy Series* offered participantsan opportunity to investigate disability and accessibility on campus with the express purpose of establishing a local campus network of faculty, staff, and graduate students interested in disability equity and advocacy. Sessions were co-facilitated by one faculty member who identifies as a member of a disability community and one faculty member who is committed to disability allyship. A campus-wide invitation recruited faculty, staff, and graduate students interested in disability equity and advocacy. This series followed a model recently shared by the Disability Coalition Network (DCN), which focuses on disability rights, advocacy, and justice, with conversation topics centered on accessibility, research, pedagogy, professional development, intersections, activism, and COVID/current concerns [22].

- A series of nine 90-minute disability-focused monthly *Intersections of Disability and Academic Faculty* seminars held September-May over the 2021-2022 academic year. The seminar series, co-facilitated by a team that included a member of the disability

community and a facilitator who aspires to disability allyship, was modeled on the National SEED (Seeking Educational Equity and Diversity) Project approach to provide supportive spaces for investigating ableism as it intersects with racism, sexism, and other structural issues in educational workplaces [23]. In the words of co-founders Peggy McIntosh and Emily Styles, SEED seminars are designed to engage the "…head, heart, and soul… SEED work develops ways of understanding complex relations between self and system with regard to race, class, gender, sexual orientation, physical ability/disability, and cultural experience [23]." All academic faculty, staff, and graduate students interested in broadening their own understandings of disability and developing skills and strategies for disability equity advocacy were invited and encouraged to commit to consistent participation in all nine seminars to facilitate the building of the knowledge-base and relationships needed to engender institutional transformation for equity. This learning circle engaged with content grounded in the lived experiences of disabled academic faculty, with the express intent to better understand disability-related concerns and to consider policy and practice actions that lead to inclusive, welcoming, accessible, and equitable campus climate and workplaces for all faculty and staff, inclusive of disabled women faculty in STEM fields.

4. Policy

Policy-focused actions were initiated at North Dakota State University during an NSF ADVANCE-funded Institutional Transformation project designed to recruit, retain, and advance women, including women of color and women with disabilities[24]. A report that reviewed practices at other universities was followed by the establishment of a Women Faculty with Disabilities Task Force. Task Force members prioritized identifying barriers on the North Dakota State University campus experienced by women faculty with disabilities and looked for ways to address those barriers, beginning with the development of a faculty survey on status of disability awareness and policy/practice on campus. Faculty forums were held to discuss results of that survey and to gather additional input. Various educational activities were undertaken to inform Task Force members and the wider campus community about disability in general, while also learning more specifically about how disability manifests in academic workplaces.

The Task Force and the broader campus community also benefited from the insights and strategies shared by visiting scholars and cross-disciplinary disability awareness programming. Visiting scholar Margaret Price (University of Ohio) presented and provided working meeting sessions on the multiple facets of essential functions of faculty positions, during which collegiality was discussed as a construct that can create barriers across academia for some faculty. Tammy Berberi (University of Minnesota Morris) provided a series of universal design presentations and workshops for faculty and for students.

Based on 2011 faculty survey findings as well as other research, the Task Force recommended policy changes for tenure clock flexibility and accommodations requests processes. In 2014, through the work of the Faculty with Disabilities Task Force, North Dakota State University Policy 168 Reasonable Accommodations on the Basis of Disability was revised to standardize and improve ADA accommodations. Overall, the Task Force's work affirmed that it is often the status of physical and social environments rather than an individual's physical or health status that essentially marginalizes and "disables." Similar to any marginalized identity group, faculty with disabilities and other marginalized identities bring a rich diversity of perspective and skills that are (still) too-often missing or undervalued. From the faculty survey and follow-up faculty forum, the Task Force learned that physical and cognitive/emotional disabilities and the workplace policies that address them, were seen by North Dakota State University faculty as fundamentally different. One survey comment in that regard was that in academia, your mind is your primary tool, thus there is an additional taboo related to cognitive/emotional disabilities. In sum, the Task Force learned that we needed to continue (un)learning disability stereotypes and working to develop and implement meaningful policy and practice changes to create truly accessible, inclusive, and equitable workplaces for faculty with disability, or we would continue to miss out on the talents and scholarship of disabled faculty.

More recently, North Dakota State University has convened a Committee on ADA Accommodations for Faculty charged with reviewing and developing recommendations for improving current ADA accommodation policies and procedures (developed by the Task Force in 2014). Several recent situations highlighted some additional issues with this policy and the accommodations process; committee recommendations will be forwarded to the faculty senate for further consideration.

5. Lessons Learned

Through *AccessADVANCE's* four key practices and engagement with a national audience including faculty with disabilities, researchers interested in diversity in STEM, and other stakeholders, several important takeaways have been highlighted.

First of all, despite a dearth of research related to faculty with disabilities in STEM, there are many parties interested in this conversation. There is wide interest in joining the *AccessADVANCE* Community of Practice (128 members and growing), many in attendance at the AccessADVANCE 2021 CBI (35 attendees), and a lively conversation (over 2400 video views and 28 comments) during the 2021 STEM for All Video Showcase [25], during which A*ccessADVANCE* was awarded a Presenters' Choice Award.

Participants in these events have included a broad representation of stakeholders who identified as diversity advocates who want to ensure their institution follows best practices for recruiting

and retaining faculty with disabilities as well as faculty with disabilities who are looking for resources or a community of other disabled faculty. Proceedings from *AccessADVANCE's* inaugural CBI, held May 2021, document participants' shared challenges and solutions regarding the recruitment and participation of women with disabilities in ADVANCE activities and STEM careers [21].

On an evaluation of the CBI, participants rated the overall experience an average of 3.6 on a scale of 1 to 5 where 1 is poor and 5 is excellent. Notably, lower scores came from individuals who noted in the comments that they were interested in networking with other women faculty with disabilities and may have been less interested in learning about strategies related to institutional change, largely because of their own lived experiences and knowledge of this content. In open-ended questions, many attendees indicated that their knowledge about accessibility and universal design increased and that they left with action items to address ableism within their own institutions.

Based on conversations from the CBI, CoP, and with *AccessADVANCE* stakeholders, AccessADVANCE leaders created a set of recommendations for institutions to become more welcoming and inclusive of faculty with disabilities [26]. Some of these recommendations are shared below:

- Develop and disseminate clear information on policies and procedures for requesting accommodations and create centralized funding for accommodations so that individual departments are not discouraged from hiring faculty with disabilities.

- Consider accessibility within design, development, and procurement processes for facilities, furniture, IT, and other services.

- Include disability in climate surveys and other evaluations of departments or the university.

- Address accessibility within conversations about diversity, equity, and inclusion with explicit focus on the strengths and concerns of both disabled faculty and students, as well as for visiting scholars and community members.

- Move beyond a minimum level of compliance and accommodations toward a more broadly inclusive design.

- Secure centralized funding to cover the costs of accommodations to ensure that faculty with disabilities do not seem to place a burden on departmental funding.

- Hire students or other assistants to completeinaccessible tasks that place time burdens on faculty.

Two other topics have emerged from these conversations. One is that there are very few places to connect with other faculty with disabilities either within one's own institution or within one's field. Only ten schools nationwide have disability cultural centers on their campuses, which

reflects this lack of community around disability in higher education [27]. Despite our organizational focus on institutional change, we have found many faculty with disabilities connecting with us hoping to network with one another and find support. Indeed, multiple faculty with disabilities at the CBI shared that their departments encouraged them to attend to find communitysupport, despite the event's focus on institutional change.

The other topic that has emerged is the impact of the pandemic on faculty with disabilities. In many ways, there has been a disparate impact on faculty with disabilities who find themselves to be in a high-risk group as a result of their disability. They may find they are unable to get accommodations they need to work or teach remotely or that they are unable to resume travel that is needed to be productive in their field. Moreover, some people with disabilities have found that the greater flexibility afforded during the pandemic has slowly disappeared as institutions have lifted and loosened pandemic-related policies. Understandably, this has led to frustration.

Findings from our institution-specific *AccessADVANCE* professional development engagements include participant feedback from final evaluation surveys and input collected during sessions; many of the overall sentiments expressed by participants in these workplace professional development events mirrored the input gathered throughour nation-widepractices. In these more local contexts, a strong interest in the topic of disability in academic settings was also observed: The month-long *Disability Equity and Advocacy Series* filled (40 participants) in less than 48 hours from invitation posting and the academic-year-long *Intersections of Disability and Academic Faculty* learning circle also filled (16 participants) within days of the invitation posting. Participants reflected a broad representation of stakeholders similar to the nation-wide gatherings, including those who identified as diversity advocates in faculty, staff, or graduate student roles, along with faculty with disabilities looking for a community of other disabled faculty. The questions, concerns, and suggested actions they posed were also similarly reflective of the recommendations developed through the national *AccessADVANCE* conversations, and these participants were also concerned with the lack of opportunities for disabled faculty networking and the disparate impacts of the pandemic on disabled academics.

Preliminary qualitative data collected from participant commentary during the professional development events has indicated that participants came with a strong desire for action and a motivation for disability equity. Comments have also reflected appreciation for the opportunity to deepen understandings and insights regarding ableism through readings, films, and discussions, and for the chance to gather with others from within their own institution who are interested in disability equity.

Policy engagements at North Dakota State University include an ADA accommodations request policy advisory committee, charged with reviewing the current policy and developing recommendations for improving policies and procedures. Committee members include

administrators, staff, and faculty who are enthusiastic about possibilities for crafting a policy document that reflects a full-throated institutional commitment to disability equity in our academic workplaces and across campus. Lessons learned include that thoughtful policy change, which is necessary for meaningful systemic/structural change, takes time and must be addressed iteratively. We have also learned that it is crucial to form a committee with membership representative of people who will be impacted by the policies.

6. Conclusions

Faculty and student successes are interrelated and interdependent, and individuals from minoritized groups continue to be underrepresented in STEM fields, including women faculty with disabilities. Moreover, while the accessibility and attitudinal barriers faced by disabled faculty and students are similar, the academic workplace presents unique contexts and barriers and requires particular solutions. It is crucial that as engineering education professionals, we solve the systemic problems that create the contexts for these persistent inequities. We hope that the experiences we have shared regarding our disability equity focused practices, professional development, and policy change support your own efforts to make engineering a field that better recruits, welcomes, retains, and promotes the career advancement of academic women with disabilities.

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