

National Disability Center for Student Success

A. Significance

A1. Center Design Rationale

A.1.a Practical Importance. At any given time, up to one in four adults in the US experience at least one disability (Centers for Disease Control, 2022). In the US, federal laws, including the Americans with Disabilities Act (1990), Individuals with Disabilities Education Act (2004), and Rehabilitation Act of 1973 (as amended by WIOA, 2014), have had a significant influence on improving the rates of students with disabilities enrolling in and completing postsecondary training and degrees (Newman et al., 2010, 2011). Postsecondary training and education experiences are positively associated with employment outcomes (Ng & Feldman, 2009). Enrollment patterns, however, are different for disabled students than for their peers. Disabled students are twice as likely to enroll in 2-year programs but half as likely to enroll in a 4-year college (Newman et al., 2011), with significant variation by type of disability, multiple disabilities, and financial resources. Career and technical training programs, such as those focused on certification for plumbing, electrical, computer, culinary arts, medical tech, and so forth, also serve as an important pathway through postsecondary opportunities. And yet employment discrepancies for disabled people continue, with labor force participation rates at only half of their peers (Bureau of Labor Statistics, 2022).

A.1.b. Contextualizing Disability. Disability is a broad and wide-ranging part of our lives. Some people are born with a disability, whereas others acquire one or more during their lifetime. Some disabilities are apparent to a casual observer, whereas others remain hidden unless disclosed (Moriña, 2022). Many young people with disabilities experience high levels of bullying and stigma (Lund & Ross, 2016), including high levels of cyberbullying (Green, 2018). With regard to postsecondary students with disabilities (PSWD), previous experience with stigma is one of the key reasons that students do not disclose their disabilities to institutions (see A.2.a.). Language and identity around disability are also nuanced and evolving: there are active discussions about person-first (e.g., a person who is autistic) vs. disability first (e.g., an autistic person) language preferences, with the younger generation (e.g., Gen Z) far more likely to embrace a disability-first identity. This Center narrative will include both identity-first and person-first descriptors of disability, with attention to personal preferences in Center activities.

A.1.c. Promoting Student Success. Student success initiatives strategically target both (a) the quality of the learning environment (Ballen et al., 2017) and (b) the social, identity, and community-based context that surrounds and supports students as they enroll, persist, and complete their degree programs. However, the research literature on success initiatives does not adequately address how they support opportunities for disabled students. There is also an overwhelmingly deficit narrative about disabled people in the research (Kezar et al., 2019), with a focus on individual student deficiencies, without considering the lack of accessibility and non-inclusive nature of higher education. While offices that focus on accommodations are essential in the overall network of student success initiatives (Moriña & Orozco, 2021), supporting disabled students requires more than ADA compliance. Furthermore, **supporting PSWD benefits the whole campus.** Inclusive campus practices as a whole are on the rise, with an increased focus on belonging and engagement as a significant factor in degree attainment (Harper, 2009). A diverse student body, including disabled students, is a gain for the entire learning enterprise.

A.1.d. Importance of the Lived Experience of Disability. Part of the knowledge and practice gap in higher education is due to the significant under-representation of disabled perspectives in research. These gaps can be seen in the literature across pathways in postsecondary education and training -- whether career and technical training, a 2-year

community college, or a 4-year program. This is, in part, the outcome of a small pipeline of researchers in the field who have direct experience with disability. There is, therefore, a disconnect between the lived experiences of PSWD, current policies and practices to support their postsecondary success, and the research foundation for future interventions. This Center plan aims to close that gap.

A.1.e. Accessibility to Increase Student Engagement and Achievement. We are at a significant turning point in how higher education operates: The response to the COVID-19 pandemic put a spotlight on how educational settings can be flexible in a dynamic landscape, opening up promising conversations about postsecondary accessibility in new and innovative ways. The historical “retrofit” approach to learning design is ineffective and unsustainable (Collins et al., 2019). Intentional design of learning (and work) environments not only fosters inclusion for a diverse student body but is also more amenable to ADA accommodations. Accessibility mindsets reduce the need for one-off decisions by instructors and can be a catalyst for a more collaborative institutional environment (Cawthon, 2022).

A.1.f. Current practices and policies are not enough. It is time to take a different approach. Center Goals include:

1. Provide a **comprehensive and actionable research foundation** that identifies factors at the individual, instructor, and institutional levels that support PSWD in program persistence, degree completion, and entry into the workforce.
2. Provide **interdisciplinary training experiences for undergraduate and graduate students**, including those with disabilities and intersectional identities, to prepare the next generation of researchers in the field.
3. Develop **accessible research translation materials** for researchers, instructors, and administrators to readily and effectively utilize research findings in their relevant settings.
4. Leverage a **collaborative model of a student-centered, asset-based, proactive approach** to research, leadership, and capacity building that includes stakeholders across the system.



A.2. Center Conceptual Framework

This Center is designed around a systems approach (Bronfenbrenner, 1997) to support academic and career success for PSWD. Factors that act as potential supports for PSWD include:

1. **Individual student level:** Facing stigmas and lack of access, PSWD need to feel more connected to their postsecondary experiences, which will increase **engagement** and lead to improved academic and employment outcomes. Engagement is conceptualized as comprising of Participatory, Cognitive, and Social components, each shaped by disability.
2. **Instructor and classroom level:** Instructors are often the front line for daily interaction in higher education. An **accessibility knowledge base and mindset** are required to leverage the opportunities afforded by the ADA and create learning environments in which PSWD can fully participate. This includes ways to apply the Universal Design for Learning (UDL) principles into action through flexible and proactive pedagogy.
3. **Institution and administrative level:** Higher education systems are largely siloed; efforts to increase the accessibility of campus activities need to be in conversation with

legal compliance, social supports, student success initiatives, and accountability measures. **Intentional dialog across these separate systems**, with a focus on data about disabled student experiences, is required to create policies and practices that support an accessibility mindset on campus.

Further discussion of key factors at these three levels is provided below.



A.2.a. Individual Student Level Factors: Journey of Enrollment, Persistence, and Graduation. Student demographic characteristics such as gender, race/ethnicity, high school preparation, and financial resources all have a significant and well-established effect on the rate of postsecondary enrollment and the variability in type of programs, persistence, and degree completion. The Center will consider these general demographic characteristics in conjunction with the following disability-influenced constructs: Disability, College Readiness, Transition Planning, Disclosure, Self-Determination, and Engagement.

Disability: Disability is a broad and heterogeneous construct. Some disabilities are congenital, whereas others are acquired later in life. The majority of research literature related to disability in postsecondary settings follows the categorization of IDEA. These categories are typically grouped by learning disabilities (e.g., dyslexia), sensory disabilities (e.g., deaf, low-vision), intellectual disability, autism, orthopedic, speech/language impairments, mental health (e.g., emotional disturbances), or “multiple disabilities.” These categories often do not reflect how disabled youth view themselves and are less useful in understanding engagement (see below) than thinking about how students best attain their postsecondary goals. Another relevant factor is the extent to which a disability is visible or not to the casual observer (Moriña, 2022). Because stigmas and biases are often a part of how disabled students navigate their postsecondary setting, the extent to which this is salient to their social environment, much like gender or race and ethnic identities, may impact the role disability plays in individual student experiences.

College and Training Program Readiness: Many disabled students experience academic attainment delays above and beyond those of their peers (Newman et al., 2016). This may be because their disability has a direct impact on their capacity to engage with classroom instruction or because of the delays in their developmental trajectories. It is challenging to track which students are taking what courses in postsecondary settings because of the issue of disclosure (NCES, 2022). That said, across all students, those enrolled in 2-year colleges are more likely than those in 4-year colleges to enroll in remedial level courses, with slightly higher rates for PSWD in 2-year colleges (NCES, 2022). This trend indicates areas where PSWDs need to gain knowledge and skills before they are ready for college-level courses, potentially extending the time needed to complete credentials and degrees (Lin & Liou, 2019).

Transition Plan: For students with an identified disability during K-12 education, they may have an Individualized Education Plan (IEP)/Transition Plan. These transition plans are meant to support students as they transition from secondary to post-high school experiences, including strengths inventories, career planning, course taking, placement exams, internships, and postsecondary education and training goals (Heal et al., 1997; Test et al., 2009). Transition planning is central to how state agencies and regional offices implement their responsibilities under IDEA and the Rehabilitation Act. Transition planning can focus on academic preparation, self-determination (see below), and independent living skills (Gothberg et al., 2015). Federal and

state guidelines also shape the kinds of transition support PSWDs may receive, including tuition, equipment, and accommodations. The presence and quality of transition planning support may have a long-term impact on PSWD success (Cawthon et al., 2016; Mazzotti et al., 2016).

Disclosure: The majority (an estimated 65-70%) of PSWD do not disclose their disability to their home institution (NCES, 2022), forgoing official accommodations and legal protections in the process (Newman et al., 2011). This, in turn, may perpetuate barriers to their postsecondary success. However, disclosure is a deeply personal and contextualized decision that varies by individual (Kerschbaum et al., 2017). Here we conceptualize disclosure as occurring on three levels: To peers, instructors, and the institution:

Disclosure to Peers: Peer disclosure of identities is one way to gain social support (Bromley et al., 2021; Miller et al., 2019), an essential contributor to both a sense of belonging and resultant successful postsecondary outcomes. Disability is a profoundly personal identity issue, one that is tied to the perception of stigma and status (Brown et al., 2018). Younger generations are also, on the whole, far more open about discussing identity, including disability, as part of their development in adolescence and early adulthood (Shapiro, 2020).

Disclosure to Instructors: Instructor disclosure may be directly related to a request for course flexibility, within the context of an assignment or to an opening for a student to discuss personal experiences. Suppose flexibility in course assignments is requested in this informal manner. In that case, the instructor typically has complete discretion on whether or not to respond because the request was not made to the institution. This “grey area” can lead to confusion, frustration, and a “fear of cheating” that is associated with flexibility and accommodations (Cawthon, 2022). Previous research is mixed on the effects of gender, time in the program, and type of disability on the willingness of students to disclose (Brown et al., 2018; Cole & Cawthon, 2015; Mamboleo et al., 2020). Student perceptions of faculty willingness to accommodate and the nature of past experiences with accommodation influence this decision (Cawthon & Cole, 2010).

Disclosure to Institution: From a legal and programmatic standpoint, the process of obtaining services via ADA is a critical one for the institution and how it supports accessibility. This process typically requires current documentation of a disability (Wadlington et al., 2017), an intake process, and a letter from that office to university faculty and staff where the accommodation may apply. Institution disclosure can come at a significant psychological and financial cost to the student, depending on the challenges of navigating the request system. In Herbert et al. (2014), less than half of the students who applied for accommodations eventually received them, 82% due to issues with documentation or out-of-date paperwork. This is a major barrier to accessibility, one that is largely overlooked in the overall approach to improving campus inclusion for disabled students. The majority of the research literature focuses solely on institutional disclosure. Relying on reports from student services results in a significant undercount of students with disabilities and their experiences (Bromley, 2021). This approach also does not capture the reasons why students do not disclose or what factors prompt disclosure.

Self-Determination: Self-determination theory focuses on autonomy, agency, and self-realization as malleable predictors of goal attainment, both in school and in life (Shogren et al., 2007; Wehmeyer, 1996). A self-determined person has the beliefs, strategies, and self-awareness to set goals, evaluate options, and accept the consequences of one’s actions (Rowe et al., 2015).

Because PSWDs are likely to face significant social and institutional access barriers, self-determination can play a crucial role in the thoughts, behaviors, and problem-solving needed to successfully navigate and persist in higher education. Self-determination is considered an evidence-based intervention for disabled people (Mazzotti et al., 2021; Test et al., 2009; Wood et al., 2005), and it has potential value for intersectionally-identified disabled students when contextualized within their cultural experiences (Shogren, 2011; Trainor, 2005).

Engagement: Student engagement is a cornerstone of any student success initiative and an important predictor of academic success (Kahu, 2013). Engagement is particularly essential in that first-year experience (Ribeiro et al., 2019), particularly for under-represented populations (Engle, 2007; Hermann et al., 2017). Understanding why disabled students *disengage* is one way to identify possible strategies to support engagement. We conceptualize engagement as having three components: Participatory, Cognitive, and Social. The Participatory focuses on the extent to which students participate in training and coursework, interact with faculty, attend events, and otherwise be present in the institution's technical, academic, and social climate. The Cognitive considers the degree to which students complete higher-order thinking tasks and are academically successful. It is an indicator of engagement. Course design and instructor behavior play an important role in invoking student motivation to engage cognitively (Steele & Fullagar, 2009). The last indicator is the Social: To what extent do students feel connected to the people and mission of the institution? Do they feel valued and cared for in their investment of time, energy, and passion? Without an accessible campus, there are few opportunities for disabled people to derive a sense of belonging and connect with the institution.



A.2.b. Instructor and Classroom Level Factors: Towards an Accessibility

Mindset. The accessibility of learning environments and extra-curricular activities are hypothesized to be a major predictor of engagement - physically, cognitively, and socially - for disabled students. Faculty is a key player in improving inclusion in postsecondary education and training (Lopez-Gavira et al., 2019). Whether in a lecture hall, a lab, or out in the field, instructors hold a pivotal role in how the learning context is designed, expectations for how students engage (see above), and how their knowledge and skills are measured. The majority of learning environments consist of a group of diverse students and one instructor, requiring an understanding of student characteristics, teaching strategies, and pedagogical content knowledge.

Knowledge of Disability: The Center starts at the heart of accessible teaching, which is knowledge of disability and disabled student experiences. Because disclosure rates are low and accommodations service requests intentionally share only the modifications needed (and not the reasons why), faculty can be unaware of the experiences of disabled students and how it impacts their engagement in learning. They may not have a clear sense of how disability interacts with the course design or how to improve it to be more inclusive. Because of this disconnect, instructors are also unlikely to be aware of ableism (Resnick, 2022) -- the negative stigma and attitudes that students experience both as micro and macroaggressions on campus.

Accessible Strategies: Universal Design for Learning (UDL) is the foundation of most conversations around inclusive teaching and training practices. UDL principles include an emphasis on multiple formats both for information sharing and assignments. UDL also seeks to create meaningful learning experiences through personal connections and connections tailored to students' interests, fostering autonomy and goal setting (CAST, 2018). For example, within the framework of UDL, active learning -- in contrast with passive, lecture- and memorization-based

learning -- is designed to connect students with course material in a meaningful way (Freeman et al., 2014). Beyond academic outcomes, UDL may offer benefits related to a sense of belonging and care (King-Sears et al., 2014.)

Yet there is a growing concern that UDL is not accessible for all disabled students (Gin et al., 2020; Griful-Freixenet et al., 2017). Because disability is so variable, individual learning needs sometimes cannot be fully anticipated for each student in a course design. Sometimes an inclusive model requires both the foundation of UDL and the ways in which it can be adapted for different students. For example, active learning often includes small group conversations and group projects. For these to be accessible, they need to be structured so that accommodations can be integrated, including reduced distraction in a multi-conversation environment, remote captioning, turn-taking, and clear discussion goals. Instructors thus need more than UDL strategies to create an accessible classroom.

Accessibility Knowledge, Efficacy, and Mindset: Explicit training in UDL has the potential to impact the change in the mechanics of teaching (Davies et al., 2013), but how to implement that training is a gap that is largely unfilled in higher education. In the work of the Collaborative for Access and Equity, PI Cawthon and her team explored how faculty deepened their knowledge and mindset about disability, flexibility, and course goals during a year-long professional learning community experience that – most importantly – was led by disabled students (Cawthon, 2022; Sievers et al., 2022). One key starting point was understanding that their students with disabilities have had many challenges during their academic careers and that disclosure is a very personal and often challenging process. Starting to note their own unintentional use of ableist language was a learning experience for many faculty, as well as thinking about mental health and wellness as a focus in communications throughout the semester. A second important insight was the importance of becoming solution-oriented and efficacious in their efforts. Instead of feeling defensive and overwhelmed by an accommodation request, participating faculty came to approach changes to their instruction as improvements that would benefit the whole classroom. They also learned that proactive solutions are often available through technology or other tweaks to their practice: having a clear syllabus, creating flexible timelines, using individual communications strategically, and reducing the need for an official accommodations request (because the course was designed with more accessible features).

Instructor Motivation: Research on what causes faculty to change their instructional practices tends to focus more on perceived barriers than on positive motivation (Henderson et al., 2011). This study draws upon the Expectancy-Value theory (Wigfield & Eccles, 2000) in thinking about faculty motivation. There are individual and contextual factors in instructor decision-making around teaching innovations (Finelli et al., 2014; Lund & Stains, 2015). In McPartlan et al. (2022), instructors who identified as women, as a minoritized race/ethnicity, and with fewer years of experience were more likely to express both an intention to implement new strategies and the motivation to do so. These outcomes were also influenced by the expectation for success, the perceived value of the intervention, and the perceived cost or burden of that choice. With regard to accessibility, instructors are often de-motivated by perceived costs, including the time it takes to change a course's design, lack of institutional resources, fear of students cheating, and the perception of a greater workload burden (Cawthon, 2022). A direct, positive experience with disability may also be a supportive factor, as well as a perceived value by the institution and alignment with its goals and mission.



A.2.c. Institutional and Administrative Level Factors: Collaboration as Key to Change.

Without a holistic, embedded approach to accessibility and inclusion, higher education institutions and career preparation programs may not be fully prepared to support disabled student success (Cawthon et al., 2014). For example, certification exams, often part of career and technical programs for professional licensure, are not typically designed with disabled participants in mind (National Deaf Center, n.d.). While institutional offices that support accommodations requests under ADA are commonplace, an accessibility lens on student success initiatives and support programs, as a whole, requires a more systemic approach. Institutional level factors can be found in both the ways it encourages student engagement and in its integration of disability and accessibility into its overall mission and purpose.

Accessible Student Success Initiatives: Beyond academic achievement, student success relies upon strong social support. Promoting belonging often begins with representation and connecting with communities with disabled members and providing spaces to build social capital (Bourdieu, 1986). The impact of social support for disabled students is similar to findings on factors that foster belonging for other marginalized populations (e.g., Benitez et al., 2017), including students from BIPOC communities, first-generation students, genderqueer, and LGBTIA+ orientations. Social support and belonging can be activated via programs specifically designed for PSWD and accessible student success initiatives that are inclusive of the campus population as a whole. Accessibility of student success initiatives thus has a direct impact on disabled student participation. And yet, in a recent volume on equity and best practices in student success (Zilvinskis et al., 2022), disability and accessibility are not mentioned in any of the chapters. This compendium of high-impact practices follows much of the conceptual framework proposed for this study – inclusion, belonging, engagement, and an asset-based mindset – promising models for an accessible campus community. Nevertheless, there is still a significant gap between the research literature on student success initiatives and the inclusion of PSWD.

De-Siloing Institutional Resources: Higher education is siloed in many ways, especially in accountability systems where Human Resources, Admissions, Faculty Development, Diversity, Equity and Inclusion, and Student Support are managed by entirely separate divisions (Brown, 2017). Transforming campuses to be more inclusive of disability requires (a) collaborative dialog and (b) intentional information gathering to understand challenges and identify opportunities to support PSWD. Communication and resource sharing continue to be critical to a coherent higher education administration and consistent student and trainee experience. Specific to this Center, collaborative and structured dialog is designed to fill information gaps about ways to support PSWD. Most administrators and decision-makers outside of ADA compliance offices (and, arguably, even within) are unfamiliar with disabled student experiences and ways to make both learning environments and institutional systems more accessible. Higher education decision-makers are responsible for ensuring legal compliance and promoting student success. One way to leverage and build upon these responsibilities is to “connect the dots” between the academic and professional success of PSWDs and full-campus priorities.

This Center design leverages innovative community-driven approaches that seek to break down the silos of postsecondary experiences and outcomes for PSWD. This approach focuses on building interdisciplinary partnerships (Cawthon, 2022; Cook-Sather et al., 2014) that shift the status quo of identifying problems and offering potential solutions. These partnerships are effective when they have a shared goal, structured communication, and mutual respect between

partners (Cook-Sather et al., 2016; Garberoglio et al., 2020). The Center design thus provides capacity-building opportunities across institutions, agencies, and industries.

Alignment with Campus Priorities: In an effort to promote equity and inclusion, many institutions and programs engage directly in conversations about diversity on their campus (Moriña et al., 2020). Systematic data collection related to diversity in higher education drives evidence-based practices and decision-making to improve student and faculty outcomes (Espinosa et al., 2019; Taylor et al., 2020). While these diversity initiatives often focus on gender and race (Stewart & Valian, 2018), expanding data-driven conversations to include disability and accessibility is a key step towards integrating disability into the mission of the overall campus (Choi & Rhee, 2014). For example, initiatives to promote faculty development rarely make explicit links to important student outcomes (Condon et al., 2016). Finding ways to include disability within measures of student success is one strategy for aligning accessibility with overall campus initiatives (Lombardi et al., 2020).

A.3. Research Questions: Research Questions for this Center are rooted in the following factors that support or are barriers to outcomes for PSWD. Center research questions address factors at each of the system's three levels (individual, instructor, and institution).

1. What (individual, instructor, and institutional) factors predict **engagement, persistence, and academic achievement** in PSWD?
2. What is the **degree of accessibility** in the postsecondary experience of PSWD in the classroom and at the institution? How does accessibility moderate the RQ1 relationships?
3. What opportunities and potential barriers exist within **student success initiatives** for PSWD, both those targeted to PSWD and those designed to promote success for the general campus population?
4. What disability-related individual factors predict the **degree of disclosure** (to peers, instructors, and institutions) of disability by PSWD? To what extent do self-determination and campus accessibility moderate this relationship?
5. What instructor and campus-level factors predict **instructor mindset, knowledge, and practice related to accessibility and inclusive pedagogy**?
6. What supports or barriers do PSWD graduates experience in their **transition from postsecondary to workplace and career**? What are possible strategies for success?
7. What opportunities or roadblocks do **institutional leaders** face related to accessibility, supports, and positive outcomes for PSWD? What are possible strategies for success?

B. Research Plan

B.1. Overall Research Plan. In this section we describe the Research Plan for the proposed Center. A timeline for Research activities is provided in Appendix C. This Research Plan is centered on 10 Study Sets, 8 that are derived from the Research Questions described in the Significance Section, and two that are left open to respond to questions that arise during the course of the grant. Table B.1 summarizes Study Set variables. Variables are noted individual student ^a, instructor ^b, and institution ^c levels, respectively.

Table B.1. Study Set Research Plan Summary

Study Set #	Outcome(s)	Predictors	Covariates	Moderators	New ^d
1.	Perceived Accessibility ^{b, c}	Demographics ^c Support Service Use ^a	Demographics ^a	n/a	✓
2.	Engagement ^a Persistence ^a Achievement ^a	Readiness ^a Support Service Use ^a	Demographics ^{a, b}	Perceived Accessibility ^{b, c}	
3 + 4.	Experiences ^a Opportunities ^c Barriers ^c	Demographics ^{a, c} Design Elements ^c	n/a	n/a	✓
5.	Disclosure ^a	Demographics ^a Transition Plan ^a Disclosure History ^a	Demographics ^{a, c}	Disability Type ^a Self Determination ^a Perceived Accessibility ^{b, c}	✓
6.	UDL Course Design ^b Access Knowledge ^b Access Mindset ^b	Disability Knowledge ^b UDL Training Content ^b Feedback ^b	Demographics ^{b, c} Campus Support ^c	Motivation ^b	✓
7.	Employment ^a Career Readiness ^a Disclosure ^a	Demographics ^a Accessibility ^{b, c} Disclosure History ^a Support Services ^c	Demographics ^{a, c}	Self Determination ^a	✓
8.	Program Design ^c Decision making ^c Policy Alignment ^c Current Issues ^c	Demographics ^c	n/a	n/a	✓
9 + 10.	TBD.	TBD.	TBD.	TBD.	

^a Individual Student Level, ^b Instructors and Faculty Level, ^c Institution Level

^d New Measure or Rubric

B.1.a. Measure Development. The majority of the constructs do not have readily available measures that have been validated for use in this context. Unless noted, measure development will be integral to the Research Plan sequence within each study set and a key contribution of this Center’s activities to future research. The overall flow of measure development is as follows:

Lit Review → Focus Groups → Item Development → Cognitive Lab → Pilot + Analysis → Revision → Implementation in Study Set

Measure development is an area of strong depth in the Center Personnel. Constructs of interest will be grounded in salient literature and fully developed via dialog with key stakeholder groups. We will first develop preliminary measurement models that map indicators to important constructs. Item banks will be developed based on these models, and subsets of items will be systematically pilot tested in small, diverse - though relevant - groups from targeted populations using purposive sampling methods. Members of these pilot groups will be asked to comment on the format and readability of measures as well as on items' appropriateness. Revised versions of the measures will be administered to a validation sample recruited using a stratified sampling approach (Chauvet, 2009). The stratified approach can optimize external validity by dividing the inference population into relatively homogenous strata using cluster analysis and identifying sample targets based on distance rankings. This represents a fairly sophisticated and resource-intensive approach to sample development, and it will be used to validate and finalize only the highest priority measures. For measures lower in priority, less costly methods will be employed to recruit validation samples though the stratified approach will be approximated to the extent feasible and affordable. As necessary, we will also apply post-hoc sample weights (Lenis et al., 2019) to correct for bias related to non-response, etc. Confirmatory factor models (CFA; Jackson et al., 2009) will be used to evaluate final measurement models. With sufficiently large samples, models based on item-response theory (IRT) will be estimated using Mplus 8 to derive item-level parameters related to difficulty and discrimination. CFA and IRT are model-based approaches to characterizing the relationship between observed and latent variables, although they represent different facets of the construct/item relationship. The former frames this relationship based on a linear model. IRT estimates the probability of a particular item response based on a nonlinear model. Used together, they provide compelling and flexible framework for developing reliable and optimally efficient measures. Roberts and the data team have expertise with these tools.

B.1.b. Data preparation and analytic approach. Descriptive features of data used for each study set will be examined prior to analysis. Non-normal dependent variables will be transformed (logarithmic, square root, inverse, etc.) as necessary and appropriate. Outliers will be identified using modified z-score analysis and handled on a case-by-case basis according to their leverage and influence in specific models. Assumptions that errors are normally distributed, homoscedastic, and independent across sampling units and levels of the model will be evaluated by analyzing residuals. We will augment residual analyses with influence diagnostics. Heterogeneity will be addressed according to its apparent source(s), using nonlinear transformations of predictor and/or dependent variables as appropriate and necessary. We will address research aims (apart from those involving measurement development) using multilevel regression (and/or cluster robust estimation), estimating two-level models with students nested in university/college and instructors nested in university/college and three level models with students nested in instructors in university/college. We will use multilevel structural equation models when latent variables can be estimated and when their estimation increases precision. Multilevel models account for dependencies in nested data structures by estimating residual components (i.e., random effects, errors, etc.) at each level and partitioning total variance into its level-specific component parts. As a preliminary step for each study set, we will fit intercept only models to estimate intraclass correlations, then fit the most parsimonious models to address each question. Cluster robust estimation addresses bias in nested data by adjusting standard errors and degrees of freedom, yielding unbiased parameter estimates. Structural equation models (SEM) comprise a measurement model and a structural model. The measurement model is a CFA. The structural model represents relationships among latent variables and other

manifest variables in a model. Multilevel structural equation models, like multilevel models, is used to address bias that may result when data are nested.

B.2. Study Set One: Measuring Accessibility

Measure development procedures described in B.1.a will ground this work. There are few measures of accessibility of higher education settings that are available for use in a research context (Lombardi, et al. 2020). While climate surveys often include demographic variables related to disability, mediator and outcome variables related to the experience of being disabled while pursuing postsecondary degrees is in its nascent stages. PI Cawthon et al. (2020) developed a robust campus accessibility framework for deaf students. This original measure contained 38 items; the current measure will be abbreviated to 15 items to fit the NSSE and CCSSE (see B.2.a) dissemination requirements and will reflect experiences of students with disabilities more broadly. The measure will consist of two subscales, one for instructor-level accessibility and one for institutional-level accessibility. We will validate the measure through the administration of the NSSE and CCSSE surveys. This will be followed by analyses of the relationships between the completed accessibility measure and key research plan variables, described below. Analyses will be run separately for the two datasets as they are not entirely comparable and have different sampling frames.

B.2.a. Dataset and Variables. This study set focuses on *National Survey of Student Engagement* (NSSE) (4-year colleges and universities) and *Community College Survey of Student Engagement* (2-year colleges) datasets. Institutional characteristics (IC) are linked with data from the Integrated Postsecondary Education Data System (IPEDS).

NSSE dataset. NSSE annually collects information at hundreds of 4-year colleges and universities about first-year and senior students' participation in programs and activities that institutions provide for their learning and personal development (McCormick, et al., 2013). Engagement as a construct in the NSSE includes: Academic Challenge, Learning with Peers, Experiences with Faculty, and Campus Environment. A fifth category, High Impact Practices, focuses on six practices that have been shown to have positive associations with undergraduate learning and retention: Service learning, Learning Community, Research with Faculty, Internship, Study Abroad, and a Culminating Senior Experience (Kuh, 2008; NSSE, 2007; Zilvinskis et al., 2022). There is no comparable dataset that provides such comprehensive data from four-year institutions in the US: A total of 469 colleges and universities and over 250,000 participated in NSSE in 2022. Reliability and validity studies of the NSSE include Carini, et al., 2003; Miller et al., 2013; NSSE, 2022).

CCSSE dataset. CCSSE was adapted from the NSSE and collects data annually from hundreds of community and technical colleges interested in improving educational quality through strengthened student engagement and student success. Engagement as a construct is slightly different for the CCSSE than the NSSE, but capture similar elements: Active and Collaborative Learning, Academic Challenge, Student Effort, Student-Faculty Interaction, Supports for Learners. Validation studies include McClenney & Marti (2006), Mandarino & Mattern (2010). This data set includes a three-year cohort which includes over 650 institutions and up to 275,000 students.

Predictors. Student use of institutional support services (e.g., first year programs, students with disabilities service offices, climate of support, skill development services). Student use of institutional support services will be an ordinal variable (count of 0 – 5, 1 for each).

Individual demographics (disability, first gen status, gender, race/ethnicity) and the institution (size: small, medium and large) will also serve as predictors.

Outcomes. Accessibility overall score, an instructor sub score, institution sub score.

B.2.b. Research Questions. Once measure development is complete, we will examine the relationship between demographic factors and Perceived Accessibility scores. (Study Set 2 includes use of the Perceived Accessibility score as a moderating variable in the relationship between individual demographic predictors and student outcomes).

RQ2a. What is the degree of perceived accessibility in the postsecondary experience of PSWD? Does perceived accessibility rating vary by individual student, by institutional demographics, or by a combination of individual and institutional factors? Is there an interaction between disability type and race/ethnicity in accessibility scores?

RQ2b. Does student use of institutional supports predict perceived accessibility scores?

B.2.c. Recruitment and Sampling. NSSE and CCSSE both recruit from their large set of member institutions with support from the survey management. Some institutions participate on an annual basis, while others distribute the surveys to their campus every few years. Administration occurs in the spring term and is sent to all students enrolled in any credit bearing or developmental education courses. NSSE distribution is fully online and CCSSE offers both online and paper-pencil options. Online options involve providing each student with an access code and can be taken anywhere there is an internet connection. Paper-pencil options are administered in a classroom with a proctor. The survey takes approximately 45 minutes to complete. The Accessibility measure itself will be included in the distribution of the overall surveys, and will take no more than 5 min to complete.

B.2.d. Power and Planned Data Analyses. Section B.1.a and B.1.b describe the data analytic approach for the Perceived Accessibility measurement development. The NSSE and the CCSSE are a large-sample survey programs that include student data nested in college/institution. We do not evaluate power-related properties for research questions **RQ2a** and **RQ2b**, given the large-sized samples recruited by the two programs. **RQ2a** will be addressed using descriptive analysis and multilevel regression models (student in university/college). Variance at the individual and institutional levels will be estimated by fitting intercept only models. The interaction of disability and ethnicity will be modeled as a product term, and direct effects for disability type and for race/ethnicity will be interpreted in the context of significant effects for the interaction. **RQ2b** involves regression within level 1 only. We will adjust standard errors using multilevel models or cluster robust estimators. We will fit independent models in NSSE and CCSSE given their measurement differences. We will also fit models as multilevel SEMs when latent variables (e.g., Perceived Accessibility) are involved.

B.3. Study Set Two: Engagement, Persistence, and Achievement

This study set capitalizes on the CCCSE and NSSE engagement surveys and the capacity to introduce Perceived Accessibility as a moderator variable between demographic predictors and PSWD student outcomes. The Perceived Accessibility measure developed in Study Set 1 (above) will be used in the analyses below.

B.3.a. Dataset and Variables.

Predictors. Predictor variables include individual preparation for postsecondary training (completion of one or more developmental courses) and student use of institutional support services (e.g., first year programs, students with disabilities service offices, climate of support,

skill development services). Student use of institutional support services will be an ordinal variable (count of 0 – 5, 1 for each).

Covariates. Covariates consist of demographic characteristics of individuals (disability, first gen status, gender, race/ethnicity) and the institution (size: small, medium, and large).

Moderator. The measure of perceived accessibility (instructor and institution subscales) will be included as a moderator.

Outcomes. Outcome variables will include NSSE and CCSSE measures of (a) Engagement (using scales within each dataset), (b) Persistence (credit hours complete, intention to complete) and (c) Achievement (GPA, credit hours taken, critical thinking in courses).

B.3.b. Research Questions

RQ2a. After controlling for individual student and institutional characteristics, does **student readiness** (taking honors courses or remedial courses) for postsecondary training significantly predict **engagement, persistence, and achievement** for PSWD at two-year and four-year institutions? Are there differences in student outcomes by disability status? Is this relationship moderated by perceived accessibility (in the classroom or at the institution as a whole). Analyses will include testing for interaction effects.

RQ2b. After controlling for individual student and institutional characteristics, does **degree student use of institutional support services or high impact practices** for postsecondary training predict **engagement, persistence, and achievement** for PSWD at two-year and four-year institutions? *Parallel sub-questions as above.*

B.3.c. Recruitment and Sampling (same as Study Set 1).

B.3.d. Power + Planned Data Analyses. The NSSE and the CCSSE are a large-sample survey programs that include student data nested in college/ institution. We do not evaluate power-related properties for research questions **RQ3a** and **RQ3b**, given the large-sized samples recruited by the two programs. **RQ3a** will be addressed using multilevel regression models, with students nested in university/college. We will estimate independent models in NSSE and CCSSE given their measurement differences. In both datasets, we will rely on measures of engagement, persistence, and achievement already embedded in the two surveys. Readiness will be modeled as completion of developmental courses. We will model Perceived Accessibility per results of **B.1.a** and **B.1.b**, modeling it as a latent variable using SEM. The moderating effects of disability status and perceived accessibility will be modeled as a cross-level interaction, under the assumption that Perceived Accessibility exists at level 2 (or level 3) of the model (institutional). We will further evaluate significant interactions using Johnson-Neyman's technique (Miller, et al., 2013) to identify values along a moderator's range where the X-Y relationship differs significantly from 0.

B.4. Study Sets 3 + 4: Design Studies of Student Success Initiative Experiences for PSWD

Study sets 3 and 4 emphasize an iterative design approach that draws not only on the educational research traditions but also on user experience (UX) methods used in human-computer interaction and design. This approach examines programs and practices through a focused, contextualized, and iterative model of data collection, analysis, and feedback. UX research concentrates on the human response to design interventions with a view to gaining data that can shape improved iterations of a product, process, or platform across all stakeholders. With its roots in industrial engineering and psychology, UX research in the context of disability and accessibility examines how the person (student, instructor, etc.) really interfaces with the intended design in meaningful and realistic contexts (see e.g., Ayon & Dillon, 2021). These

methods, taken together, shape the design study approach for study sets three and four. Personnel section illustrates the capacity of the Center staff to draw on this approach. This is valuable in thinking about the lens of disability and accessibility and the application of these ideas in institutional policy, programs, and practice.

B.4.a. Dataset and Variables. Study Set Three will focus on those initiatives that are readily available for analysis at the UT Austin campus and that can be integrated into the Center process at short notice in the first year of the Center. These student success initiatives will also serve as a space further validate study protocol and refine for continued use in later stages of the Center. A list of potential UT Austin programs is provided in Appendix C. These initiatives range from online accessibility checkers for Learning Management Systems to the launch of a new Disability Cultural Center to the Longhorn Leadership skill development program. The second set (Study Set Four), will follow a similar approach, but will focus on a diverse range of postsecondary settings and programs outside of UT, with two cohorts of studies during the Center lifecycle (See Timeline).

For these design studies, we examine student success initiatives at postsecondary institutions with the following key research questions:

- **RQ3a. Individual Level.** How are PSWD experiencing initiatives, both in the opportunities and supports they provide and in potential barriers to their impact? How do these initiatives support key indicators of PSWD success including engagement, persistence, completion, and transition into the workplace?
- **RQ3b. Program Design Level:** To what extent are issues of disability and accessibility present in the initiative design, recruitment, and implementation? To what degree are administrators, faculty, and staff aware of resources and approaches that support accessible student success initiatives?
- **RQ3c. Institutional Level:** What are key decision making points for student success initiatives in terms of institutional resources, tracking outcomes for students, alignment to program and campus planning, and leadership?

B.4.b. Data Collection. The student success initiative analyses will take a mixed-methods, case analysis approach with the following sequence of research activities (Shalveson et al. 2003).

Intake: The first step will be an intake process that will include both a self-report rubric as well as an intake interview (at least one) to discuss the initiative history, design, intention, and plan. The key question in this initial intake is this: What opportunities and barriers to student success is this program meant to address? The intake interview will include open-ended questions for the point of contact regarding areas that they would like to see included in the data collection process in addition to standard areas address across all analyses.

Immersion: After the intake, the research team will also review documents, observe sessions, and otherwise immerse themselves in the context of the initiative. This may be done in person or virtually, depending on the format of the initiative.

Survey: The second step will be a survey of current (and if applicable, former) initiative participants. This survey will include detail about the participant's demographic characteristics, with an expanded section on disabilities and intersectional identities. The survey will also ask students to provide information about their interaction with the student success initiative (frequency and method) as well as what they think is most valuable to the program (and its areas for improvement). More specific questions will tie to constructs that are the focus of the center including disclosure, accessibility, engagement, persistence, and tie to future workplace and career goals.

Interviews: The next step will be a series of interviews of current PSWD participants in the student success initiative. These interviews will follow the survey and will be an invitation based on a diverse sampling of survey participants. The focus of these interviews will be largely reflective, asking participants to follow up survey questions with examples, stories, and prompts that both directly and indirectly ask about key center constructs within the context of the student success initiatives.

Shadowing: These interviews will be supplemented by an in person or virtual shadow experience within the initiative, where applicable (e.g., attending meetings with the student, a text log of the experience during and after an event, etc.). After the course of these cognitive labs, participants will reflect and debrief on their experiences with the research team.

Case analysis: Notes from each stage of this data collection process will be saved in a structured, secure document location. The research team will then work through the notes to compile their findings. This will include a draft report to both the administrative team and to the student members of the initiative.

Discussion and Reflection: Feedback and discussion will be integrated into the draft sharing of the report. This will happen both synchronously and asynchronously to allow for dialog and a degree of safety where needed. The goal is to both understand the context of the findings and to understand the context for future iterations of the student success initiative.

Final case recommendations: A final report will be shared on the Center website and used as part of cross-stakeholder dialog sessions both on lessons learned and on potential areas for future investigation.

B.4.c. Recruitment and Sampling. Study Sets 3 and 4 will have different recruitment and sampling approaches.

Study Set 3 UT Austin: Recruitment of potential student success initiatives at the UT Austin host site occurred during the development of this Center grant proposal. A final decision on the final slate UT Austin design initiatives will be a joint decision between the Center Leadership Committee and program initiative leads, with input from the Advisory Networks. This decision will consider the diversity of initiatives in the first cohort, their readiness for a design study process, and the availability of data collection activities within each site.

Study Set 4 National: Recruitment of potential student success initiatives at the national level will begin in Spring, 2024. There will be two cohorts for national level design studies, one to begin implementation in year 2 and the other in year 4, allowing for enough time for processing, dialog, and iteration of processes as needed. Invitations will be sent via our Networks and via our website and social media platforms (See Section C and D). The invitation will include a link to a brief screening survey about the program to determine readiness and fit with the design study process. Final decision will occur with input from Advisory Networks.

B.5: Study Set Five: Understanding Disclosure

This will be both a survey plus follow up focus groups for a mixed methods approach. This will be a new survey that builds upon previous measures of disclosure as well as the Self Determination Inventory (Shogren et al., 2017) and the Accessibility measure developed in Study Set 1. Focus groups will complement the survey and scale analyses with contextual and narrative data about disclosure decision and impact on lived experiences.

B.5.a. Dataset and Variables. The survey dataset will be a national sample of students currently enrolled in both two- and four-year institutions.

Predictors. Individual disability-related demographics (disability type, transition planning experiences, history of disclosure) will be collected as part of the disclosure survey measure.

Covariates. Individual characteristics (gender, race/ethnicity, credits completed). Institutional characteristics (career training, 2-year, 4-year; size).

Moderators. Self-Determination Inventory score, Accessibility scores (both instructor and institution) on measure developed for Study Set 1.

Outcomes. Outcomes will be scores on three levels of disclosure from the survey: To peers (e.g., to share their experiences, form alliances, stand up to bullying, etc.), to instructors (e.g., to ask for an extension on an assignment), and to the institution (e.g., to request formal accommodations).

The focus group data set will be selectively sampled students to represent the broad diversity of disability, type of program, and responses to the survey and scales. We will conduct 8-10 focus groups with a diverse set of members within each group. Focus group questions will ask students to share their experiences with disclosure (or not) in their postsecondary settings and decisions around disclosure. Probes will include questions about transition to their programs, interactions with different members of campus, and their thoughts on what institutions can do to help support students with disabilities as they navigate the disclosure process. We will refine these focus group questions as part of the overall measurement development process.

B.5.b Research Questions.

RQ5a. While controlling for individual and institutional characteristics, what individual disability-related demographic variables predict different levels of disclosure (peers, instructor, and institutional) while in postsecondary programs? Does level of self-determination or perceived accessibility (instructor, institution) moderate this relationship? (survey)

RQ5b. What factors do disabled students consider in their decision whether or not to disclose to peers, instructors and to the institution? What factors support disclosure? What factors inhibit disclosure? (focus groups)

RQ5c. What is the impact of disclosure on disabled student experiences in their programs? (focus groups)

B.5.c. Recruitment and Sampling. We will use convenience, snowball sampling through our large network of Center partners, previous research participants, and members of our social media community. Participants will receive \$30 gift cards for participation. We will use the IPEDS data to guide stratification by institution type (career/technical program, 2-year community college, and 4-year institution) and US region (West, Midwest, Northeast, and South). Individuals who respond with a willingness to participate in an online focus group will be invited to discuss their disclosure experiences, particularly in the context of their postsecondary experiences. This will be incentivized at \$50 each. Focus groups will be fully accessible, held online via Zoom, with individual or dyad formats available for PSWD who are more comfortable sharing their experiences in that setting.

B.5.d. Power + Planned Data Analyses. Power-related inputs (e.g., intraclass correlations, measurement properties, etc.) are unavailable given the dearth of extant research in this area. However, Maas & Hox (2005) provide very general guidelines for level 2 sample sizes. Using simulations, they found that the standard errors of the second-level variances were underestimated when the number of groups is substantially lower than 100. With 50 groups, rates of noncoverage are about 7.3%, which differs from the nominal value of 5%, although Maas & Hox suggest that 50 may nonetheless be acceptable in practice. We will set 50 universities/colleges/

programs as a lower bound for recruitment based on the Maas & Hox recommendation, with the understanding that a level 2 sample of closer to 75 may have benefits (see also Kreft & De Leeuw, 1998; Van der Leeden et al., 1997). **RQ5a** will be addressed using multilevel regression models and multi-level SEM. We will build models that control for confounding individual and institutional characteristics to model the relationship of individual disability-related demographic variables and different levels of disclosure (peers, instructor, and institutional) while in postsecondary programs. Self-determination and perceived accessibility at the instructor and institution levels will be modeled as moderators of the relationship of demographic variables and disclosure.

RQ5 b and c will be addressed using a thematic analysis approach and aligned with the theories and literature of the Significance Section. This analysis will use an inductive approach to the thematic analyses. Verbatim transcripts, inclusive of pauses, laughter, and emphasis, will first be developed from each focus group. Focus group members will be de-identified for confidentiality. The coding for the focus groups will follow both open- and axial coding approaches to student responses (Corbin & Strauss, 2014; Saldana, 2021). Coding will utilize Microsoft Excel or a similar database approach for easy tracking of codes and themes from each reviewer (Bree & Gallagher, 2016). Researchers will review participant responses to identify patterns and develop preliminary codes and an initial code book. Initial coding will occur on a random sample subset of 25% of the data by two researchers who were not involved in the focus groups. As further refinement of codes and themes arise, these will be documented in a comprehensive code book and reviewed after each focus group coding process (Braun & Clarke, 2006). We will seek to attain an initial interrater reliability above 95%, and will resolve any remaining discrepancies through discussion and consensus.

B.6. Study Set Six: Instructor Accessibility Mindset, Knowledge and Practice

This study set will focus on instructors at postsecondary institutions. There are three elements to this study set: A Survey, Constructed Scenarios, and Focus Groups. This study will explore instructors on topics related to their mindset, efficacy, knowledge and implementation of disability and accessibility related practices. The factors included in this study design consider the contextualized nature of decision making by instructors in the day-to-day implementation of accessibility strategies, drawing on Expectancy-Value theory (Wigfield & Eccles, 2000) to explain faculty motivation to adopt evidence-based practices.

B.6.a. Dataset and Variables. This study set contains three main elements: *Survey*, *Constructed Scenarios*, *Focus Groups*.

Survey. The purpose of the survey is to explore predictors and moderators of accessible course design, knowledge, and mindset.

Predictors. Instructor level predictors include measure of experience with disability and disabled people, previous UDL professional development, and engaging in feedback experiences from students, peers, and supervisors.

Covariates. Covariates include instructor level (gender; race/ethnicity; years teaching; online, face to face, hybrid) and institutional level factors (e.g., career training, 2-year, 4-year; size; institutional supports for instructors (ordinal)).

Moderators. A measure of instructor motivation and self-efficacy, as well as perceived costs and risks of accessibility strategies, will be developed and included as a moderator. This measure will be guided by Bandura (2006) and (Siwatu, 2007) which

include how to think about culturally responsive self-efficacy for educators and their outcome expectancy beliefs.

Outcomes. Outcomes are accessibility related variables including UDL course design elements (e.g. syllabus), knowledge about accessibility strategies (e.g., facilitating class discussion), and accessible mindset of instructors (see Cawthon, 2022) to manage the day-to-day approach to instruction and inclusion for disabled students. This measure will be developed and validated as part of this study design process.

Scenarios. We will create and randomly assign constructed scenarios to survey participants to measure their strategies and attitudes about accessibility. A similar approach was previously used to measure accommodations use for students with disabilities (Cawthon, 2008), and scenario-based research is highly adaptive to higher education research (Sankaran, et al., 2014). These scenarios will be derived and developed as part of dialog in the many outreach aspects of this Center grant. The scenarios will vary based on the following predictors:

Disclosure Type: Instructor only or with Institutional Letter

Accommodations Type: Alternate format vs. Extended Time vs. Attendance

Timing of Request: More than two weeks in advance, week of, after due date.

The constructed Scenarios will ask instructors to respond to the likelihood of granting the accommodations request, with follow up open ended questions that tap into the reasons for or against granting request, previous experiences with this kind of request, and what additional information, if any, might be needed to make this decision. We will include instructor level predictor, moderator, and outcome variables from the survey as part predictors for this analysis.

Focus Groups. The focus group data set will be selectively sampled instructors who responded to the survey to represent the broad diversity of experience, type of program, and responses to the survey and scales. We will follow similar procedures as outlined in Study Set 5. Participation is incentivized to help broaden the reach of sample demographics.

B.6.b. Research Questions:

RQ6a. While controlling for instructor and institutional demographic characteristics, do instructor level experience and knowledge about inclusive teaching practices predict accessible teaching approach (course design, accessibility knowledge, and accessibility mindset)? Does level of motivation moderate this relationship? (survey + constructed scenario)

RQ6b. What factors do instructors students consider in their decision whether or not provide requested accommodations? What factors support providing accommodations? What factors inhibit? (focus groups)

RQ6c. What supports are needed from institutions to increase likelihood of instructors implementing accessibility strategies? (focus groups)

B.6.c. Recruitment and Sampling. We will follow a similar sampling approach as Study Set 5.

B.6.d. Power + Planned Data Analyses. See our comments about power for Study Set 5. For Question **RQ6a**, we will fit intercept only models will be fit to estimate intraclass correlations at the student, instructor, and institutional levels. Multilevel models will be fit to estimate the effects of instructor experience and knowledge on accessible teaching approaches. Instructor motivation will be modeled as a level-1 factor, and a cross level interaction with instruction experience and knowledge will be estimated to address the moderation question. A Johnson-Neyman analysis will be used to follow-up signification interaction terms. Analyses for **RQ6b** and **c** will follow the same approach used to address **RQ5b** and **c**.

B.7. Study Set Seven: Transition to Career and Employment

This study set focuses on recent attendees and graduates from 2- and 4-year programs and their transition experiences from post-secondary into career and the workforce. The sample will be recent (within 5 years) completers and non-completers (exiters) of the postsecondary institutions across the broad range of types. Focus groups will also be a part of this study set design.

B.7.a. Dataset and Variables. This study set will use both a survey and focus groups:

Survey. The survey dataset will be a national sample of students who have completed and those who have not completed (but still exited) their postsecondary training within the last 5 years. Emphasis will be on representation across three pathways: Career training, 2-year, and 4-year institutions. The importance of collecting data from students who have attended but did not persist to degree is to better understand how postsecondary experiences support (or are barriers) to multiple pathways to employment and career.

Predictors. Individual disability-related demographics (disability type, transition planning experiences, history of disclosure) will be similar to those in Study Set 5. Predictors will include the institutional subscale of the Perceived Accessibility measure (Study Set 1), expanded with institutional support items related to career and transition support services + participation in job shadowing/ internship.

Covariates. Individual characteristics (gender, race/ethnicity, credits completed, degree completed). Institutional characteristics (career training, 2- vs 4- year; size).

Moderators. Self Determination Inventory (Shogren, et al., 2017) score.

Outcomes. Outcomes will be focused on employment (volunteer/part time/full time; job satisfaction; perceived opportunities for advancement); career readiness (as measured by the Student Career Readiness Index (SCRI), Dodd, et al., 2022); and level of disclosure in the workplace (i.e.: none, colleagues only, immediate supervisor, human resources).

Focus Groups. The focus group data set will be selectively sampled participants to the survey to represent the broad diversity of experience, type of disability, employment status, type of program, and responses to the survey and scales. We will follow similar procedures as outlined in Study Set 5.

B.7.b. Research Questions.

RQ7a. While controlling for individual and institutional demographic characteristics, do disability related demographics, instructor and institutional accessibility, disclosure history, and career related support services predict employment, career readiness, and disclosure in the workplace? Does level of self-determination moderate this relationship? (survey)

RQ7b. What postsecondary institutional factors do graduates say supported or were barriers to their transition into the workplace? (focus group)

RQ7c. What recommendations to graduates have for currently enrolled disabled students, instructors, or institutions on the transition from postsecondary experiences? (focus group)

B.7.c. Recruitment and Sampling. We will recruit institutions to share information with alumni as well as the vocational rehabilitation and workforce commissions at a state and national level. We will supplement these activities with the snowball approach described in Study Set 5 and 6.

B.7.d. Power + Planned Data Analyses. Our approach to power and analysis will follow the approach described for research questions 5 and 6.

B.8: Study Set Eight: Institutional Leadership: Issues and Practice

This study set will be a mixed methods approach to measure decision making and institutional leadership as it applies to supports for PSWD. This will follow a survey and focus group approach as utilized in study sets 5, 6, and 7. This study set occurs towards the end of the grant cycle so that the data collected from study sets 1-7 can be used to inform and shape the questions and examples provided to participants in this study.

B.8.a. Dataset and Variables. Some of the constructs and prompts related to institution and program level initiatives for student success will be parallel to the Design Study approaches that are in Study Sets 3 + 4. These constructs will be integrated into a two-part approach (survey + focus groups) to understanding the issues, practices, and approaches to solutions that occur at an institutional level related to supporting students with disabilities as well as accessibility on campuses as a whole. These issues will be delineated between program design features and institutional decision-making factors.

Predictors: Institutional type (career/technical, 2-year, 4-year; size).

Outcomes: Outcome variables will be an institutional and programmatic inventory developed as part of this study design. This will consist of a checklist of resources available and the issues that have arisen related to creating accessible and supportive experiences for PSWD. For example, this may include issues around student disclosure, willingness of instructors to provide accommodations, accessibility of the program or campus facilities, and student groups. The inventory will include sub scores for program resources, institutional resources, ADA issues, financial issues, and data tracking (who are the PSWD and what are their needs). Breadth will be a total score (capturing the range across sub categories) and depth will consist of category sub scores. This inventory will be developed over the course of the first three years of the Center and will undergo the measurement development process outlined in section **B.1.a.**

B.8.b. Research Questions.

RQ8a. Does the breadth and depth of resources available to support for PSWD vary by institutional demographics? Do current issues and challenges that impact institutional capacity to support PSWD vary by institutional demographics? (survey)

RQ8b. Program Design Features: To what extent are issues of disability and accessibility present in the initiative design, recruitment, and implementation? To what degree are administrators, faculty, and staff aware of resources and approaches that support accessible student success initiatives? (focus groups)

RQ8c. Institutional Decision-Making: What are key decision-making points for student success initiatives in terms of institutional resources, tracking outcomes for students, alignment to campus and program planning, and leadership? What kinds of best practices have been useful in improving systems around supporting PSWD? How is this effort aligned with other initiatives on campus? (focus groups)

B.8.c. Recruitment and Sampling. Survey recruitment and sampling will follow similar approaches as Study Sets 5, 6, and 7, with a focus instead on program leadership and administrators. The participants need to be in an administrator role where they have programmatic responsibility for student success, are aware of the current needs of PSWD at their program or institution, and who supervise staff or students in program leadership and implementation. Once the survey phase is complete, the goal is to conduct a series of focus groups stratified by administrators in career training programs, 2-year institutions, and 4-year institutions. The focus groups will only include members from like institutions, and will be limited to 5 participants each. Our goal will be to have at 3-5 focus groups for each institution

type, for a total of 9-15 focus groups. Recruitment will occur across all of the points of community engagement, but is most likely to occur within the set of institutions and decision makers who participate directly in the Town Halls that will be spaces for constructive dialog and issue sharing, as well as referrals from the students, instructors, and alumni from Study Sets 5, 6, and 7.

B.8.d. Planned Data Analyses. We will use descriptive analyses and visual analytics (Keim et al., 2008) to address *RQ8a*. *RQ8b* and *RQ8c* will follow similar analyses used for *RQ5b* and *RQ5c*.

Study Sets Nine and Ten will be TBD pending results from Study Sets 1-8 and emerging trends during the life of the grant.

C. National Leadership Activities

An overall timeframe for all Center activities, including National Leadership Activities, is provided in Appendix B.

C.1. Leadership Framework.



The Center National Leadership Activities are integrated into all aspects of the Project plan. Connecting with diverse stakeholders and building relationships is central to our vision for building capacity and supporting disabled students in postsecondary settings across the US. **For all activities, we follow an iterative and engaged process model: Launch, Engage, Build, Engage, Iterate.**

C.1.a. Focus on Engagement. The Research Plan includes several key dialog points that will also serve as engagement opportunities for Leadership Activities: focus groups for measurement development across six Study Sets, case study interviews for design studies in Study Sets 3 and 4, focus groups for students (Study Set 5), instructors (Study Set 6), graduates (Study Set 7) and administrators (Study Set 8). We will also solicit input via our website and social media platforms, particularly those that spotlight disabled students' perspectives and stories from the field. The engagement components will also occur via our established Center networks (Internal, External, and Communications) and Town Hall gatherings (see C.5.) designed to foster cross-stakeholder dialog around research findings and generate action steps for practice.

C.1.b. Research Dissemination. Research findings from the Center will be synthesized, contextualized in the current research literature, and shared via traditional research dissemination networks. This is a critical step toward the Center's capacity to achieve its first aim: To provide a robust and comprehensive research foundation for future design of interventions to support PSWD. Members of the Center Leadership and Faculty Cadre have extensive experience publishing research on disability, accessibility, education, postsecondary success, faculty development, and higher education leadership. The Center will disseminate findings in a wide array of scholarly journals and conference presentations, both in how it shares Center findings and how it mentors the undergraduate and graduate students on the team. In later years of Center activities, we will seek opportunities to write book chapters and longer monographs that summarize the research from the Center and recommendations for practice.

C.1.c. Accessible and Relevant Online Resources. Research translation is a critical component of the Center design. Center activities will include a robust set of products that take key findings from the Research Plan and share them in relevant and usable ways by researchers, instructors, administrators, and students. This will include rubrics and metrics that institutions can use to administer to their own students, faculty, and staff to track their progress in supporting PSWD. These research translation products will focus on digital assets that are easily sharable such as one-page research summaries, “hot topics,” newsfeed posts, videos, and resources that can be distributed across all components of the Communications Plan below.

C.1.d. Online Learning Opportunities. The Center will leverage the contemporary “badging” certification approach in training for students and professionals across higher education. These badging learning formats allow participants to document their expertise and communicate its value to their supervisors and (especially for students) their future employers. The Center will develop a series of “badged” learning opportunities on topics that are novel to the Center and draw from the learnings in the overall Center activities, especially those from the Research Plan. The content developed for research translation activities will be particularly valuable as part of the process of creating “badged” learning opportunities. This is a primary method for formal training for instructors, institutional leadership, and researchers. We will start by focusing on content aligned with Capacity Building goals outlined in C.4.

C.2. Communications Plan: Reaching our Stakeholders Where They Live

The proposed Center has a robust capacity for effective, efficient, and integrated communications in its Leadership, Personnel, and Infrastructure. We will leverage our Advising and Communications Networks (see Appendix C) to promote cross-sharing and collaboration to amplify reach and strengthen connections between the Center and the larger community. The Center will continue to grow this network for the life of the grant. The Communications Plan will focus on accessible, reliable, relevant, and timely information for our targeted stakeholder groups. The following marketing tactics will disseminate Center research and resources, dispel myths and misconceptions about PSWD, and promote improved postsecondary outcomes.

C.2.a. Website. An accessible, high-quality, robust website is the heart of the Center Communications Plan. The Leadership team and Faculty Cadre include members from the UT Austin School of Information, with expertise and resources to shape a fully accessible and responsive web design. We will focus on user needs, intuitive navigation tools, mobile responsive design, and UX principles that result in the strongest return on investment and impact on user experience.

C.2.b. Newsfeed. Stakeholders benefit from timely, reliable, and understandable information. The Leadership team and Center staff members are highly experienced in implementing successful content marketing initiatives that optimize newsfeeds to translate research into information everyone can use. The Center’s website newsfeed will publish a monthly summary of information, in addition to regular announcements of resource releases, research publications, media mentions, community stories, student spotlights, best practices and tips, and invitations to participate in educational opportunities and live events. Newsfeed posts will be a foundation for email outreach, tagged for organic search engine optimization, and shared on social media.

C.2.c. Social Media. The Center will maintain a consistent and engaging presence on social media to disseminate its content and consider cross-sharing relevant content from Communications Network partners, the Department of Education, and IES. While the exact

platforms may vary, the Center will utilize custom posts designed to reach our diverse target audiences. The Center will maintain at least one platform to reach and connect with PSWD (e.g., TikTok), plus one geared more towards professionals (e.g., LinkedIn). A Center channel on YouTube, the most popular U.S. website besides Google (Similarweb, Oct. 2022), will be established, leveraged for video content, and integrated into digital content dissemination.

C.2.d. Professional and Community Organizations. Our members are interdisciplinary and active in their professional and community-based organizations. We have included the expectation that Center members connect the work of the Center to their organizational networks, such as social media, conferences and speaking opportunities, guest newsletter or blog posts, partnership spotlights, and so on.

C.2.e. Media Relations. The Center will also seek ways to share research findings and recommendations to support PSWD in media outlets. For example, stories in the *Chronicle of Higher Education* may reach faculty and administrators, *American Educational Research Association* may be a better fit for researchers, and college newspapers may reach students and campuses. The Center has access to robust communications expertise and outlets through its members and UT Austin Central Communications. Findings from the Center will be pitched and disseminated throughout our Networks.

C.2.f. Events and Conferences. In addition to the Center's own educational offerings (see C.1.d) and Town Halls (see C.5), it will explore other informational events, for example, webinars each summer for PSWD on how to navigate the first year of college. Conference workshops and presentations by Center Leadership and Personnel will also be leveraged to amplify research findings.

C.2.g. Measurement. All communications plan components will be measured regularly (e.g., website visitors, resource downloads, social media followers, and engagement). The findings will be used to adjust communications planning and reported to Leadership.

C.3. Staying Current: A Timely and Responsive Approach

The content of our Communications Plan will be structured in a way that is responsive to our stakeholders' needs and provides the most substantial return on investment for IES. There are three ways that we will continue to gather information about current trends and hot topics:

C.3.a. Center All Hands Meetings. We will be able to examine, in real time, the trends that arise from each data source as analyses are underway. We will analyze how stakeholders engage with different topics shared through our Communications plan. The quarterly All Hands meetings with Center Networks will also include a Hot Topics section where each member will bring one emerging story, data point, or insight that might lead to a timely and responsive approach.

C.3.b. Polling in Engagement Activities. In all engagement activities, we will include space and time for asking questions and gathering information from participants about hot topics, wins, and pain points. These informal conversations and insights will be documented and integrated into our planning process.

C.3.c. Advisory Networks. We have a robust set of internal and external advisors (see Appendix C) who will guide our work. Quarterly surveys will be sent out to these individuals with a short set of questions geared toward learning about their hot topics, wins, and pain points. Summaries of these will be shared with the networks and added to agendas for the Leadership team and All Hands meetings.

C.4. Capacity Building Content: What Do Stakeholders Need to Know

Campus administrators, instructors, and PSWD all come to postsecondary education with personal and professional histories, experiences, and perceptions of what is supportive of PSWD in their pursuit of certifications and degrees. The work of the Center is rarely to introduce entirely new information but rather to deepen understanding, connect the lived experiences of disabled students with higher education practices, and identify examples of how pain points are addressed and problems solved in similar contexts. In some cases, the accessibility framework can be connected to existing understandings of diversity, inclusion, and student success. In other cases, an awareness of ableism and the disabled student experiences are the missing links in student support. The Center aims to target the following content areas by stakeholder group:

Postsecondary Students with Disabilities

- Navigating the journey: Postsecondary search, admission, arrival, survival, thriving, and transition to a career.
- Deciding to disclose: How, when, and why to disclose a disability status in postsecondary settings and in the transition to the workforce.
- Finding a social network: Building a peer network, connecting with instructors, leveraging institutional resources and partnerships with industry.

Instructors in Career Training, 2-Year, and 4-Year Programs

- Learning about disabled student experiences and how they engage with course materials.
- Accessibility strategies and mindset, including syllabus, course activities, and grading.
- Seeking support: Advocating for institutional support for classroom accessibility.

Higher Education and Training Program Administrators

- Awareness raising about disability and access needs for PSWD.
- Strategies to support PSWD in enrollment, persistence, and completion.
- Systemic approaches to accessible programs that benefit all participants.

Researchers

- Conducting research with or on PSWD that reflects their lived experiences.
- Mentoring PSWD on research teams and building a pipeline of future researchers.
- Translating research for and with the disability community.

Researchers are a critical target audience for Center National Leadership Activities. In our research dissemination and capacity-building activities, we will include the kind of “how to” and “what to consider” information that is essential to building valid and culturally responsive research designs and is also critical in interpreting findings related to disabled people in postsecondary settings. (As an example, see Cawthon & Garberoglio, 2021, article in *Review of Research in Education*.) Dissemination will also include validated measures and supports on how to use them in a culturally responsive approach when measuring outcomes for PSWD. These learning opportunities for researchers will be included in our scholarly articles, as well as in separate opportunities for dialog at conferences and through Center Town Halls.

C.5. Center Town Halls: Capacity Building Through Structured Dialog

The Center seeks to provide structured, unique experiences for members from all stakeholder groups to learn from each other. The success of the Engage for Change series at the National Deaf Center on Postsecondary Outcomes serves as a model for this work (see Cashman et al., 2014 and Garberoglio et al., 2020, for more information). This will be a particularly valuable

space for instructors and institutional administrators who may not have previous exposure to accessibility concepts.

Center Town Halls as spaces for dialog require a deep understanding of how people use information and make decisions about future behaviors (Markman & Medin, 2002). The Center Town Hall structure leverages best practices in:

- Creating a need to know.
- How people have difficult conversations.
- What changes behavior at the individual level.
- How social connections make a difference.
- How institutions evolve and change.

C.5.a. Priming the Pump. The topic selection will be rooted in a “hot topic,” a problem that will bring people into the conversation and spark a desire to explore causes and potential solutions. These “hot topics” will be curated across the Center activities and include input from the Center networks. In the quarter ahead of a planned event, the Center will “prime” the Town Hall “hot topic” via the Communication channels. For example, marketing and RSVP sign-ups can include pre-questions about the topic. Communication Partner networks will be leveraged to ensure a diverse stakeholder group. Each Town Hall will consist of a panel of perspectives from disabled students, instructors, administrators, and community members.

C.5.b. Laying the Groundwork. Registrants will receive information to help them prepare for the Town Hall. This packet is designed to disrupt what can be a power imbalance between participants who are more closely connected to the issue and provide some common language, data, and reflection opportunities before the event. This packet will include an issue summary – a one-page infographic that summarizes the topic, what we know, what we don’t know, and what we need to know. It will include available key data points, some suggested readings, links to videos with diverse perspectives, pertinent slide deck content, and thought questions for consideration. This approach also supports an accessible meeting and reduces barriers for disabled participants.

C.5.c. Dialog for Understanding. The virtual town hall's structure will seek to maximize the time available. People are very busy, so we want to ensure this experience is a value-add for participants. There will be standard accessibility features (e.g., professional captions, ASL interpreters, and image descriptions) for each event. A total of 90 minutes will be scheduled to allow for set up, introductions, and informal conversation after the end of the main conversation. Depending on the group size, there will be an interactive warm-up exercise, such as a poll or chat sharing, to provide a space for each person to engage from the beginning of the conversation. Each dialog will include a case scenario or a data summary to anchor the discussion and allow for reflection on concrete challenges. Breakout rooms will be utilized as needed to keep the groups small enough (6-8 people) for full participation. Although the Center team will take notes on critical themes, the Town Halls will not be recorded for confidentiality purposes

C.5.d. Reflection and Next Steps. Summaries of each event and concrete action items will be created (with content aggregated and anonymized for confidentiality) into a one-page document. Registered participants will first receive a summary of the Town Hall themes and resources after the event, with an opportunity to provide feedback, offer corrections if something was misrepresented, and add any additional thoughts. Once revised, these summaries will also be shared via all Communications channels. Dissemination will include invitations to suggest follow-up topics or request repeat events, given demand. Follow-up communications over the

course of later quarters will focus on the ways the Town Hall information influenced their thinking and downstream actions that have been taken (or planned) due to this experience.

C.6. Student Training Development Plan

The Center places high value in both engaging with the disability community and in developing a strong pipeline of trained researchers who can contribute to future knowledge and capacity building in the field. This Center design includes a robust mentoring capacity for undergraduate and graduate students at UT Austin. An example mentoring plan is provided in Appendix B.

C.6.a. Vertical Team Mentor Design. The Center mentoring plan is rooted in a vertical team design. The Center Leadership and Faculty Cadre consist of faculty who are highly engaged in student success. These members will guide undergraduate and graduate students and their participation in the research and national leadership activities outlined in this proposal. The Center team will supplement the advising that students receive in their home departments, allowing for a diverse and interdisciplinary cohort of students who are, at the same time, deeply connected to their home disciplines. Each student will have a primary Faculty Cadre advisor and a secondary advisor. To the extent that an advisor has additional students who are not funded by the Center but doing aligned work, there will be opportunities for the Center's activities to have a multiplicative impact, particularly in training and community building. This approach also strengthens the relationship between the Center activities and the rest of campus, working to raise awareness and connect accessibility to the campus mission as a whole.

C.6.b. Recruitment. Recruitment is slightly different for undergraduate and graduate student team members. Undergraduate students will be recruited via general channels such as Eureka (UT internal undergraduate research opportunities) and the UT Advisory network, one that has representatives from all reaches of the campus, including Admissions, Student Affairs, Athletics, Division of Diversity and Community Engagement, and Dean for Undergraduate Studies. UT Austin also has a newly established Disability Culture Center (DCC). The DCC is part of a network of culture centers that seeks to build a more interdisciplinary approach to identity and alliance on campuses. This Center will connect with the culture center network in recruitment efforts. Application information will also be shared with that network and on student-facing social media and campus information channels (e.g., video announcement boards and email newsletters). This will raise the likelihood of a diverse, intersectional talent pool for the undergraduate team members on this project.

Graduate student applications are a collaborative process with their faculty advisor. We will focus on incoming and first-year masters and doctoral students. UT Austin is a large public university that attracts top graduate students throughout the U.S. They are first recruited to the university via their home department and the Graduate School. In some cases, incoming students will be recruited directly into the project during their first year on campus; in other cases, students may be already on campus and in their first year in their training program. The Faculty Cadre will promote the Center and its training aims during recruitment.

C.6.c. Applications. All applications will include a set of questions to understand better their interest in the work of the Center, their strengths, what they hope to learn, and what kinds of learning environments are a good match for them. We will seek a diverse and intersectional cohort with interests that will support the Center's aims. All undergraduate and graduate student applications will be reviewed by the Leadership Committee, Faculty Cadre, and Student Partners. Applications will occur in the Spring, with decisions made in time for connecting in the

Summer 1 and starting their full participation in the fall of Year 1. Once selected, students will be invited into the Center program with the following timeline of activities and experiences:

C.6.d. Training Timeline. The Center mentoring design is flexible to meet the diverse postsecondary pathways of our student members and leverage the UT Austin resources and programs:

Summer 1: Connecting. If possible, we plan to connect with students as they prepare to come to campus (or return). The goal is to establish relationships, set up online infrastructure, and provide an informal space for background reading, discussion, and a complete intake process. This will include an individualized plan for Year 1, described below.

Year 1: Immersion. Students will be taking core courses in their home departments. We will ask that one elective course be related to disability or a related topic during their first year (if they do not already have this content in their program of study). We will expect students to participate in weekly one-hour meetings with all the students on the project (led by our Student Partnerships Coordinator), monthly internal team meetings, and quarterly external All Hands meetings. Students will be assigned to a research Study Set that is underway when they join the Center team. Students will also be assigned to a National Leadership activity team (i.e., Research dissemination, Research translation, Communications, and Town Halls).

Year 2: Internship. Starting in the Fall of Year 2, students will continue their meeting participation and research team assignments as in Year 1. Instead of their National Leadership activity, they will shift to an Internship opportunity. (See Appendix C for Internship sites at UT Austin and external organizations, including corporate partners heavily invested in accessibility, such as Nike and Microsoft.) Internship sites and students will collaboratively work to find a match for this experience. Sites will provide a context for the intern to learn about the implementation of student support initiatives, how research is implemented in practice, and/or how to measure the impact of initiatives on student outcomes. Depending on the tasks, the work may occur remotely, hybrid, or on-site. Specific goals and objectives will be co-developed between the student, the internship site, and the Center team.

Year 3: Independent Study (optional). Many undergraduate and some masters students will leave the program upon graduation after Year 2. However, for those students who remain enrolled in the third year, we will focus on independent study and application of Center activities as part of their preparation to transition into the workforce. They will continue their participation in team meetings and, where relevant, their roles on the research and national leadership activity teams. This third year is an opportunity for students to continue their mentorship with a member of the faculty cadre on an independent project related to accessibility. For example, undergraduates have options such as the Longhorn Leadership program, Bridging Disciplines project, or a senior honors thesis, each requiring a primary or secondary mentor outside their home departments. Graduate students completing an independent Capstone project, thesis, or dissertation may also seek to build upon the connections they have through their work at the Center. Faculty Cadre and Leadership Team members will work to leverage opportunities at the Center to support students as they build their portfolios and expertise in the field. Students will be expected to contribute outcomes from their work with the Center Networks and will be spotlighted in Center Communications.

Year 4 and Beyond (optional). Students are welcome to participate in Center activities as long as they are enrolled in their graduate program. They are also invited to participate as an External Advisory, Internship Site, or Communications team member once they graduate and enter the workplace.

C.7. Formative Evaluation Program.

The Center will embed formative evaluation program into its National Leadership Activities for the purpose of fostering continuous improvement. As part of the “build” component in the iterative and engaged process model (i.e., Launch, Engage, Build, Engage, Iterate), we will collect timely and targeted data from key stakeholder groups for the purpose of fine-tuning Center products, processes, and its community support efforts. We will use surveys, interviews, and focus groups to determine the relevance and utility of the Center’s leadership-building efforts. The evaluation will be conducted by the Evaluation Group at the Meadows Center for Preventing Educational Risk (MCPER). The MCPER team conducts large scale formative and summative evaluations of technical assistance centers funded by the Office of Special Education Programs (National Center for Continuous Improvement, National Deaf Center, National Center on Improving Literacy, among others), and a number of mentorship programs provided by the University of Texas Provosts Office and by the UT Office of the Vice President of Research. The Evaluation Group is internal to the proposed Center, which represents an asset, given the formative purpose of the proposed evaluation and the plan to involve members (Roberts) of the Evaluation Group in other aspects of the Center’s work (e.g., study sets). The internal role of the Evaluation Group does not represent a conflict because we do not propose summative evaluation activities and because our focus on evaluation is voluntary (the RFA does not require an evaluation component) and because the findings will be used for internal purposes only.

Overview of Formative Plan. In this section, we present a preliminary overview of the plans for formative evaluation (see table in Appendix B). The Evaluation Group will work with Center leadership to fine tune all formative activities. Findings will be presented using graphical displays. The Evaluation Group will meet monthly with leadership to discuss findings and to plan upcoming and ongoing evaluation.

D. Management and Institutional Resources

The Center is uniquely positioned to carry out and effectively manage this project. Beyond the individual strengths of each team member described in the Personnel section below, we have created a world-class infrastructure to meet Center Goals.

D.1. Organizational Structure.

This Center has a highly intensive, interdisciplinary, people-facing design. This degree of interaction requires a clear organizational structure with opportunities for conversation, shared understanding, and collaborative work toward Center deliverables. Letters from members of each team are provided in Appendix C.

Leadership Team. The Leadership Team includes members with diverse experiences and perspectives, including two student members, one graduate student, and one undergraduate. This team will set priorities for each phase of the Center’s activities, be engaged in problem-solving and decision-making, and be responsible for the high-quality implementation of Center deliverables. The Leadership Team will assist the PI in responding to requests from IES and the field.

Faculty Cadre. Each member of the Cadre has expertise in content and methods related to the Research Plan objectives for this Center, as well as a passion for mentorship for students from under-represented backgrounds. The Faculty Cadre will be responsible for the final

decisions around Study Set design, supervise data collection, and be lead contributors to research deliverables. The Faculty Cadre will also serve as mentors to student members, through their work on individual Study Sets and collectively as members of the Center team.

Student Members. Students are at the heart of all phases of Center activities, from research to leadership to capacity-building in the field. Students will be assigned to both research and communications teams as part of their immersive experience. We have recruited a diverse set of students to participate in the launch of the Center who have experience with projects related to the Center's conceptual framework.

Design Study Sites. The Center Research Plan (Study Sets 3 and 4) includes design studies that focus on emerging initiatives that may support PSWD. These units are particularly interested in data and findings that indicate where they can improve their initiatives to be inclusive and supportive of disabled students. We currently have a set of UT Austin Design Study sites for Study Set 3, and will expand to solicit, vet, and finalize a diverse group of National Design Study sites for Study Set 4. These will include a concentration of sites from career/technical programs and 2-year institutions.

Internship Sites. We have a range of units within UT Austin and through our external partners that have agreed to serve as potential internship sites for Center students. These sites will collaboratively work with the Center to identify internship contexts that benefit both the student intern and the internship site in their progress toward greater accessibility. We will continue to expand these options during the Center launch and implementation in Year 2.

Advisory Networks (Internal and External). The Center is deeply rooted in engagement and dialog. We will begin our conversations at our home institution of UT Austin with our Internal Advisory Network, with members from across the many units that touch upon student success. This is critical not only in our understanding of access barriers that still exist in our own institution but also in creating a strong circle of support for Center activities. UT Austin is also connected through a wide variety of alliances, coalitions, and networks; these will be leveraged to support the reach of Center activities. The Center's diverse External Advisory Network will be comprised of seasoned researchers, community members, industry partners, and organizations to work toward disabled student success in postsecondary training, education, and transition into the workplace. A list of Advisory Network members is in Appendix C. We will expand this Network once funded for additional content area expertise.

Communications Network. We have formed a Communications Network that consists of community organizations, research units, and allied Centers to support the dissemination of research findings, make recommendations for stakeholders, and invite people to engage with the Center in its research studies and events (e.g., Town Halls). A list of Communications Network members is in Appendix C, and this will be expanded during the Center launch.

Evaluation Team. The Center has employed an evaluation team led by the Meadows Center for Preventing Educational Risk (MCPER) at UT Austin. The Center Leadership places a high value on formative assessment, part of the build-engage-iterate philosophy that guides Center activities. These formative assessments will track the Center activities by aggregating feedback from stakeholders who engage in each of the main capacity-building activities, such as resources available on the website, the online learning opportunities, and the Center Town Halls. The Evaluation Team will also assist Leadership as they seek to monitor the success of Center activities and responds to data requests from IES.

D.2. Management Plans.

Communication and transparency are at the heart of any successful management plan. This Center will achieve its aims through consistent, clear, and timely communications. We model this both in our external leadership activities and in internal management. In addition to the Communications plan, the following communications structure will support the Center's activities:

- **Leadership Team Check-Ins (weekly).** These meetings will systematically check in on our team, projects, timelines, and planning pivots.
- **What's Happening Email (weekly).** These email summaries to the internal team are a chance to make sure the entire team is aware of Center activities, what is on deck, and what they need to keep in mind as they plan their next few weeks.
- **Internal Messaging Board (daily).** We will use an internal messaging board for informal conversation and check-ins, such as team-building activities. Internal messaging boards will also include separate spaces for the Leadership Team, Student Cohort, Research Team, and Communications Team to stay in a dialogue between team meetings.
- **Student Cohort Check-Ins (weekly).** The Student Partnerships Coordinator will lead these weekly check-ins for students to share their mentorship experiences, what they need help with, and to seek peer social support. An example of a Student Cohort check-in meeting agenda is provided in Appendix C.
- **Research Team Working Groups (bi-weekly).** Research teams will meet at least bi-weekly to share updates and problem-solve issues that arise when implementing the Center's Research Plan. The Leadership team and Faculty Cadre members connected to the Study Sets will also attend these meetings.
- **Communications Team Working Groups (bi-weekly).** The Communications Team, led by the Director and supported by the Digital Content Manager and student team member, will meet at least every two weeks to plan strategy and set priorities for the upcoming months.
- **Internal Team Meetings (monthly).** We will have internal team meetings every month. These will focus on steps toward launch for activities in the upcoming quarter and input on research activities, in particular. Periodically we will have special presentations about current, relevant research from external scholars. These meetings will vary between in-person, hybrid, and online, depending on the schedules and needs of the team.
- **All Hands Community Meetings (quarterly, except summer).** The purpose of the All Hands meeting is to engage with all of our partnerships across the Center to gather input during the formative stages of Center activities and to spotlight the work of its members. This meeting will be required for the Center staff and Advisory Network members. There will be an open invitation to our Design Study Site, Internship Site, and Communications Network partners. An example of an All Hands meeting agenda is in Appendix B.

Whether in-person or online, meetings will follow best practices for accessibility and inclusion. We will send a set of communication guidelines out in advance of each meeting. Meeting structures include the following steps:

- Agendas, slides, and external links are sent a week in advance.
- Time is allotted for touching base and making connections.
- Dedicated notetakers are assigned or provided, rotating for each meeting.
- Meetings are recorded for the internal archive.

Although most of our interactions will be remote due to the sheer number of participants and the complexity of our schedules, there will be times when the Center team will gather together in person. These events will focus on (a) planning priorities and (b) sharing needed to build trust and comradery within our teams. This is particularly important for the students and the Faculty Cadre working on research activities and communications planning.

D.3. Resources.

UT Austin as a home site for this Center is an essential strength in this application. UT Austin is a public Hispanic Serving Institution (HSI) and Asian American and Native American Pacific Islander Serving Institution (AANAPISI), with a large and diverse student body: 52,000 students representing all 50 states. The student body (as of Fall 2021) is 24% Hispanic, 21% Asian, 5% Black, and 37% White. UT Austin is the flagship research institution in Texas and is one of the largest recipients of federal funding in the US. UT Austin is a member of a broad range of research, teaching and learning, student organization, and administrative networks. UT Austin has significant administrative resources available to support the management of this Center. The internal Advising Network (Appendix C) is a key component of building a circle of support around this Center and its work and represents UT Austin's investment in its success. Dedicated resources that will be part of Center activities include:

D.3.a. UT Austin Administrative Units.

Texas Center for Equity Promotion (TexCEP). With a focus on populations burdened with the greatest impact of educational and health disparities as a result of adverse social and economic conditions, TexCEP supports and conducts high-quality applied culturally-centered research, disseminates evidence-based information, and trains future professionals regarding the nature, origins, contexts, effects, and elimination of inequalities in education and health. Housed in the College of Education, it brings together a diverse set of interdisciplinary scholars across UT Austin's colleges and schools. It has a commitment to scientific equity, which calls for increased representation, accountability, and engagement to produce research that is meaningful and impactful to diverse communities and particularly those that have been historically excluded in science. (<https://texcep.education.utexas.edu/>)

College of Education Office of Research Administration (COERA). The College of Education's research administration team is a branch of the Office of Educational Research Support (OERS) headed by the Associate Dean for Research and Graduate Studies. COERA encompasses statistical analysis via the SMARTER Consulting team and best practices related to proposal submission, awarding, and account maintenance. It is the connection for coordinating award documentation and administration with UT Austin's Office of Sponsored Projects, Sponsored Projects Award Administration, and Office of the Vice President and Chief Financial Officer. (<https://education.utexas.edu/research/research-support>)

Meadows Center for Preventing Educational Risk (MCPER). Housed at the College of Education, MCPER helps educators, researchers, and families enact evidence-based practices that lead to student success. It has assembled a multidisciplinary group of experts and researchers in mathematics, STEM, reading, writing, cognitive psychology, neuroscience, bilingual education, special education, and early childhood to conduct research, evaluation, and technical assistance. MCPER supports educators with practical knowledge and tools rooted in high-quality research to improve student outcomes, especially for those at risk. (<https://meadowscenter.org/>)

College of Education Office of Marketing and Communications. By providing integrated marketing, media and public relations, online messaging, event support, and multi-

media journalism, the Office is a valued partner in research translation and dissemination. (<https://education.utexas.edu/about/deans-office-units/marketing-communications>)

College of Education Information Technology Office (ITO). With support for technology facilities, data networking services, videoconferencing, and digital media equipment, ITO provides essential computer and technical assistance. (<https://education.utexas.edu/about/deans-office-units/information-technology-office>)

Office of Sponsored Projects (OSP). As the coordinating office for externally funded research and sponsored projects at UT Austin, OSP assists faculty and professional research staff in their efforts to secure and ensure proper stewardship of external funding by providing proposal review, authorization, and submission; award negotiations and acceptance; account management; close-out, reports, audits, collection; professional development and education; export control, and research compliance. (<https://research.utexas.edu/osp/>)

Office of the Vice President for Research, Scholarship, and Creative Endeavors. By fostering expansion of the scale, quality, and impact of scholarly endeavors at UT Austin – one of the leading research institutions in the world – this office builds capacity, promotes interdisciplinary collaboration, and lowers the barriers and burdens involved in scientific and creative inquiry through the development of an investigator-focused infrastructure that supports the needs of UT Austin's diverse research enterprise. In the fiscal year 2021, there was \$779.3 million in research expenditures, 6,821 externally sponsored projects, and more than 5,000 peer-reviewed articles published. In 2020, UT Austin ranked number one among U.S. universities in research funded by the National Science Foundation. (<https://research.utexas.edu/>)

UT Austin Development Office. A dynamic team of more than 400 people across more than 25 colleges, schools and units, Texas Development maximizes philanthropic support for the university, its students, and its faculty in their work at the high-impact research institution — to drive innovation toward a vibrant future. It offers fundraising, prospect research, donor engagement, marketing and communications, talent development, data management, and administration. (<https://giving.utexas.edu/texas-development/>)

UT Austin Marketing and Communications. Pursuing integrated, strategic communications across campus, this team works with communicators, designers, architects, developers, and content generators to create world-class content and experiences that heighten the university's brand and reputation globally, elevate its position as a leading national public research institution, and unlocks potential through education. (<https://ucomm.utexas.edu/>)

D.3.b. Technology Tools and Platforms.

Enterprise Level Data Center and Server Hosting. The University Data Center (UDC) provides a secure, professionally managed data center designed specifically to meet the unique information technology needs of researchers, colleges and schools, and administrative units at The University of Texas at Austin. It has enhanced physical and data security, redundant power and cooling systems, and high-speed networking to ensure the availability of critical research and administrative systems. Professional technical support and management are provided 24 hours daily, every day of the year.

Microsoft Office 365. An ecosystem of productivity applications that Center teams can access securely from anywhere at any time, Office 365 makes it easy to share ideas, collaborate with others, and get things done faster. It includes:

- **Office Online**, the popular and most updated versions of Word, PowerPoint, Excel, and OneNote software programs.

- **Box for Office**, an Office integration that allows users to open, edit, share, and save Office files – seamlessly collaborating internally and externally. Teams can co-edit files in real-time in Office Online, while the files are automatically saved and managed in Box.
- **Teams**, a chat-based workspace that serves as a hub for teamwork and collaboration by connecting team members to applications, people and chats, data, and more.

Zoom. This centrally supported video conferencing solution allows Center staff to meet, teach, and learn from anywhere. People can host and join meetings from their mobile devices, desktops, or the web. It is integrated with Canvas.

Canvas. An open-source learning management system, Canvas connects instructors and students online. It can be used to create a virtual learning environment that enhances the in-class experience. Canvas includes basic functionality for sharing documents, submitting assignments, reviewing grades, and offering personalized features for individual students. Canvas can also be designed to serve externally facing stakeholders for online learning opportunities.

Website Content Management System (WCMS). Once website planning has been completed by the Communications Team and approved by the Leadership Team, a WCMS program will be selected that helps to efficiently and cost-effectively design the website and maintain, control, and update its content. A WCMS that offers newsfeed, email marketing, surveying, and event planning functionality will be prioritized for consideration.

E. Personnel

The Personnel for this Center bring deep expertise and commitment to high quality Center activities. The Letters of Commitment in Appendix C provide further details on their expertise, their experiences with PSWD and postsecondary education, and their contributions to the Center outcomes. The majority either identify as having a disability or have direct experience with the experience of living with a disability. Biosketches for the PI, Co-I, and Faculty Cadre are included with this application.

E.1. Center Leadership

Stephanie W. Cawthon (PI): Executive Director (20.83% FTE). An internationally renowned expert who has received more than \$25 million in grant funding throughout her 28-year career, Dr. Cawthon’s mission is to translate research into practices that help millions of disabled Americans succeed—at schools and colleges, at work or training programs, and most importantly at life. She is a tenured full professor at UT Austin and was the founding director of the National Deaf Center on Postsecondary Outcomes (funded by OSERS).

Andrew Dillon (Co-I): Director of Research Dissemination (8.3% FTE). The V.M Daniel Professor of Information and former dean of the School of Information at UT Austin, Dr. Dillon is an internationally recognized leader in user experience design whose research focuses on the study of our emerging information infrastructure so as to shape new information environments to augment human capabilities and advance social justice.

Shavonne Coleman: Director of Training and Development (10% FTE). Passionate about community building, collective approaches to curriculum development, and the

improvement of the quality of and access to education, Ms. Coleman is assistant director of transformative learning at UT Austin's Center for Teaching and Learning.

Greg Roberts (Co-I): Director of Evaluation (1% FTE). As senior associate director of the Meadows Center for Preventing Educational Risk at UT Austin, Dr. Roberts is a highly experienced co-investigator and respected evaluator, with a special focus on special education, disability, and interventions.

Tracey Bradnan: Director of Communications (100% FTE). With more than 30 years of marketing experience – for the past decade in higher education and research dissemination – Ms. Bradnan advises senior leadership, builds enduring brands, and innovatively engages key constituencies

Ryan Mata: Coordinator of Student Partnerships (50% FTE). A doctoral student and graduate research assistant at UT Austin, Mr. Mata was project coordinator of the Collaborative for Access and Equity and graduate assistant at the UT Austin Dell Medical School.

Soren Aldaco: Outreach and Advocacy (25% FTE). A third-year UT Austin undergraduate student majoring in Humanities, Sociology, and Critical Disability Studies, Mr. Aldaco was on the Student Coach Team of the Collaborative for Access and Equity and is part of the UT Austin Students-As-Partners initiative.

E.2. Faculty Cadre

The Faculty Cadre will play a major role in the design and implementation of the research plan as well as mentoring our student team members. We have an interdisciplinary Cadre that provides the breadth and depth to achieve the Center's research goals.

Maura Borrego (Cockrell School of Engineering). A professor of mechanical engineering and STEM education and the director of the Center for Engineering Education at UT Austin, Dr. Borrego's current research projects focus on disability, LGBTQ+, and Black and Hispanic/Latino undergraduate students in science and engineering. Her methods expertise includes systematic literature review, interviews, survey research, and project evaluation. She previously served as an NSF program officer and has worked extensively in STEM education.

North Cooc (College of Education). An associate professor of Special Education and core faculty member in the Center for Asian American studies at UT Austin, Dr. Cooc's research focus includes examining inequities for intersectionally-identified students with disabilities, with a specific emphasis on services for students with disabilities, college persistence, and employment. Dr. Cooc has extensive expertise using statistical modeling with large data sets.

Denisa Gàndara (College of Education). An assistant professor of Educational Leadership and Policy at Ut Austin, Dr. Gàndara's research focus includes higher education policy (such as community college funding and enrollment) and the effects on those who have been underserved in higher education. Her work has been funded by IES, Ford Foundation, William T. Grant Foundation, Bill & Melinda Gates Foundation, among others. Her methods expertise includes case study and quantitative methods from the econometrics tradition.

Earl Huff, Jr. (School of Information). An assistant professor in the School of Information at UT Austin, Dr. Huff's research examines how human-centered design and inclusive design principles can be applied to make information and communication technology more inclusive, equitable, and accessible. His work is particularly focused on increasing STEM participation through inclusive technologies. His expertise is in mixed methods approaches.

Alison Kafer (College of Liberal Arts). An associate professor of feminist studies at UT Austin's College of Liberal Arts, Dr. Kafer is the author of *Feminist, Queer, Crip* and is a

founding co-chair with Dr. Cawthon of UT Austin's newly established Disabled Faculty Equity Council. Dr. Kafer is a qualitative researcher and scholar in intersectionally-identified disability.

Jennifer (Jen) Moon (College of Natural Sciences). A professor of instruction in molecular biosciences and assistant dean for non-tenure track faculty in the College of Natural Sciences at UT Austin, Dr. Moon is an award-winning teacher with a passion for inclusive learning and skill-building. She recently served as Chair of the Faculty Council and of the Provost's Teaching Fellows. She has a deep interest and experience in faculty development.

Nicole Ofiesh (Consultant). A cognitive behavioral scientist with expertise in learning, attention, and autism spectrum disorders, Dr. Ofiesh is a consultant who is the executive director of the Schwab Learning Center and is founder of the UDL Innovation Studio at Stanford. She has over 30 years of experience designing and conducting research, including experimental and quasi-experimental designs.

E.3. Additional Center Support Staff

This is a partial list. Recruitment during Center launch will include a digital content manager (full time) and website designer (consultant).

Karen French: Instructional Designer (Consultant). An associate director of the Office of Instructional Innovation at UT Austin, Dr. French specializes in instructional technology and design, curriculum development, and online learning with extensive experience in course transformation and innovation in the areas of accessibility.

Emily Egan: Graphic Designer (Consultant). An illustrator and graphic designer, Ms. Egan is a former art director, textile artist, and apparel designer with extensive experience in effective, accessible, and impactful design for research-to-practice projects. She is based in Phoenix, Arizona.