Disabling Assessment Plans: Considering Disability Constructs and Implications in Learning Outcomes Assessment

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Abstract

Disability-as-diagnosis, disability-as-identity, and disability-as-experience as pressing measurement issues in learning outcomes assessment are described in this paper. Disability represents a critically important latent variable in many learning outcomes assessment plans unless it is a formalized part of analytic plans. Noting the potential for disability to function as a confounding variable, we describe its potential inclusion as a control variable in all studies as well as specific scenarios in which it may make sense to treat disability as a mediating or moderating variable. We demonstrate that utilizing accessible instruments and thinking systematically about disability as part of assessment plans will produce more accurate results

Keywords: assessment, evaluation, learning outcome, measure, disability

In their meta-analysis of research on student affairs competencies, Herdlein et al. (2013) concluded that "as institutions of higher education have become more diverse, complex, technologically sophisticated, and financially challenged, there has been a shift in focus from a counseling and interpersonal orientation to an administrative and managerial approach" (p. 266). They noted the profession's long-running emphasis on diversity and linked the professionalization of student affairs administration to a growing emphasis on assessment as a necessary skill for practice. However, despite the profession's commitment to both diversity and assessment, disability is rarely addressed as part of research or assessment design within student affairs (Ali, 2018; Vaccaro et al., 2015). Instead, support for students with disabilities is most often understood as the responsibility of a distinct disability services office, and assessment therein, limited primarily to measures of service delivery. This limited, perspectival attention is a particularly glaring issue, as postsecondary students with disabilities now represent one of the largest minoritized populations on many campuses, making up nearly 20% of the overall undergraduate population (U.S. Department of Education, 2018)—making disability particularly salient on identity on most college campuses.

As Peña and colleagues (2018) note, this gap in effective assessment practices stems from broader inattention to disability among higher education researchers and limited "discussions about the opportunities and challenges in disability research—including ableism…definitions of disability, representation of voice, the researcher's agenda, participant access, and inclusion" (p. 2). They explain that this results in a lack of methodological guidance and models of inclusive designs for student affairs practitioners, which in turn can compromise both student learning outcomes assessment and reflexivity in student affairs practice (c.f., Liu, 2017; Ryder & Kimball, 2015). To create high quality learning outcomes assessment in student affairs and enhance reflexive practice, assessment instruments and plans must be accessible to students with disabilities, and disability must be considered as a variable affecting assessment results.

Since students with disabilities are part of the student population, inaccessible institutional research cannot be internally valid; without inclusive research designs, study results may fail to reflect the overall

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population whether or not the study has a disability focus (Peña et al., 2018). The scarcity of research and assessment that represents the learning experiences of students with disabilities may reflect and cause the reality that few higher education administrators have in-depth knowledge of the postsecondary experiences of students with disabilities (Kimball et al., 2016; Peña et al., 2018). Higher education professionals' commitment to equity, diversity, and inclusion necessitates confronting this knowledge gap, which in turn demands intentionality in assessment practice so that the required evidence can be generated to redirect current outcomes (Friedensen et al., 2017). The omission of students with disabilities from assessment and evaluation considerations necessarily creates circumstances—namely, a lack of valid data—under which the needs of students with disabilities are invisible during decision-making about policies and practices (Vaccaro et al., 2015). Without a sound research base representing the experiences of students with disabilities, the development of effective student affairs practices and interventions is less likely to occur.

Depiction of the Assessment Problem

Consideration of disability in learning outcomes assessment is lacking both because higher education institutions fail to recognize its relevance and because both disability and disabled experiences are distinctly difficult to measure. Among the challenges to representing students with disabilities in learning outcomes assessment is the fact that disability does not have a clear operational definition (see Vaccaro, et al., 2015). Disability as a variable can refer to disability-as-diagnosis, disability-as-identity, or disability-as-experience. For example, "a student with a disability" can mean a student who has been given a medical or educational diagnosis (see Friedensen & Kimball, 2017) and can provide the documentation that verifies that diagnosis. This is typically required for a student to be registered with a disability services office, a common proxy for disability status in higher education research. "A student with a disability" can also mean a student who self-identifies as having a disability, whether or not they wish to or can produce corresponding documentation. In this case, a student who never registered with disability services may check "Yes" when asked in the demographic portion of a measure, "Do you have a disability." Finally, "a student with a disability" can mean a student experiencing a disabling condition created by a particular feature of the educational environment, such as an inaccessible building or instructional practice (e.g., group discussion for a student with social anxiety), when that student would not otherwise be distinct from students not regarded as having a disability.

Without the intentional operationalization of disability within a study predicated on a carefully-constructed definition, analyses run a high risk of producing misleading results, jeopardizing the capability of student affairs professionals to deliver programs that liberate rather than oppress this excluded population (Vaccaro et al., 2015). In this paper, we present a framework for understanding what roles disability and disability-related variables can play in analytic plans for learning outcomes assessment. Although we present primarily quantitative examples, the design thinking we present is broadly transferable to a range of methodological scenarios. We also note how intentional, proactive design decisions can ensure that researchers are able to operationalize the potentially divergent experience of a student with a disability. By emphasizing the interdependent nature of considerations of variable role, disability definition, and sources of data regarding students with disabilities, we create a transferable framework that can be broadly applied in learning outcomes assessments of varying degrees of formality.

Depiction of the Practices and Solutions Related to the Assessment Problems

In this section, we describe a framework for thinking about disability as an intentional feature of assessment and research design. First, we describe the need to think inclusively about measurement. Second, we describe the need for clarity about the operational definition of disability. Finally, we present scenarios in which disability may function as a confound, control, moderator, or mediator within an assessment plan.

Inclusive Measurement

From a methodological perspective, assessment instruments should "be administered under uniform conditions and time constraints, but fairness dictates that test scores should not be affected by any limitations of the test-taker which are not relevant to the skills being assessed" (Zwick, 2018, p. 284). For a test to be fair, each student taking the test must have an equal opportunity to demonstrate their learning in the intended domains; without these conditions, inferences about the students and their learning are compromised (Dolan & Burling, 2018). When an assessment measures skills or knowledge other than the intended content, such as skills required to access or deliver a response to test items, this is referred to as construct irrelevant variance, which presents partic-

ular challenges for students with disabilities (Dolan et al., 2005). As Dolan and colleagues (2013) have noted, "For too many students academic achievement as measured by assessments is confounded with their ability to use the medium of assessment" (p. 6). When construct-irrelevant features of an assessment, such as the visibility of content on a page or the conditions for data collection, interact with student characteristics related to a disability, this can result in decreased demonstration of construct-relevant skills, affecting the validity of the assessment results (Almond et al., 2010). Many assessment plans fail to function inclusively at this level of research design by not systematically addressing variations in how students experience and respond to the world and to test stimuli. However, absent assessment data about the experiences of students with disabilities, those designing educational experiences may revert to problematic beliefs and assumptions about how best to address disability in a college learning environment.

Operationalizing Disability Constructs

Even inclusively designed assessment instruments do not necessarily guarantee an inclusive assessment plan. As noted above, a key tenet of meaningful assessment is that it must measure only that which it sets out to measure. However, disability is a contested term (Friedensen & Kimball, 2017). It means different things to different people and can vary in meaning across contexts. As a result, assessment plans can also fail in their obligation to function inclusively by neglecting to specify precisely how they operationalize disability—thereby undermining construct validity (Shadish et al., 2002). Within assessment and research focused on the experiences of students with disabilities, there are at least three separate ways that disability is routinely operationalized: Disability as a variable can refer to disability-as-diagnosis, disability-as-identity, or disability-as-experience.

Disability-as-Diagnosis. When thinking about disability-as-diagnosis, researchers often concern themselves with whether a student meets the formalized criteria necessary to receive a specific medical diagnosis or can provide documentation necessary to access disability accommodations in postsecondary learning environments (see Freidensen & Kimball, 2017 for discussion). Disability-as-diagnosis is an important way to organize thinking about resource allocation and can also provide a preliminary indication of the incidence of disability on a campus. It is the way that national incidence of disability is typically reported (U.S. Department of Education, 2018). However, it does not necessarily reflect how students with disabilities think about themselves (Vaccaro et al., 2018).

Disability-as-identity. Within the framework of disability-as-identity, researchers begin to address these questions of meaning-making and might distinguish between people who have been diagnosed with a condition medically-labelled as a disability and people who identify as such with or without a formal diagnosis or documentation (Vaccaro et al., 2018). They might also note variations in why people may adopt or reject a disability label—finding, for example, that some students with disabilities eschew the label because they consider it to be an undesirable identity while others reject it because they find cultural and political meaning in identifying as d/Deaf or neurodiverse (c.f., Kimball et al., 2016; Newman et al., 2019). This framework can allow for broader inclusion of students with disabilities than relying solely on disability-as-diagnosis and allow for assessment of how different kinds of disability identities affect students' learning outcomes.

Disability-as-experience. In addressing disability-as-experience, researchers recognize the considerable variability in how two people with the same disability diagnosis might experience the world as well as how those experiences might vary based upon context (Jones, 1996). These approaches also typically reflect one of the primary technical definitions of disability, which focuses on how functional limitations, participation restrictions, and activity limitations shape a person's experience of the world (Shakespeare, 2012). Under this framing, it becomes clear that some people without disability diagnoses may be situationally disabled—for example, a person without a formal diagnosis of an anxiety disorder who experiences stress in a testing environment—while some people with formal diagnoses might not feel disabled at all in certain contexts—for example, a person with a mobility restriction who can participate fully in an adaptive aquatics environment (e.g., Bettencourt et al., 2018; Vaccaro & Kimball, 2019; Vaccaro et al., 2019). Assessments which utilize this operationalization may be useful for elucidating the nuanced ways in which students' environments can be shifted to affect their learning outcomes.

Disability Variables in Assessment Plans

Even when disability is otherwise addressed clearly in an assessment plan via carefully designed instruments and well-reasoned operational definitions, the way that researchers deploy disability-related variables in their analysis has a profound impact on resulting understandings. Although it is likely impossible to describe the full range of ways that disability might function in analytic plans, examples based on common types of analytic variables—con-

founds, controls, moderators, or mediators—will help to show why disability must be systematically addressed in assessment plans.

At the simplest level, since we know that nearly 20% of students in the undergraduate population have a disability (U.S. Department of Education, 2018), any assessment plan that proceeds with less than full inclusion for students with disabilities must also inherently regard disability as a potential confound on any findings. Methodologically, a confounding variable acts on both the dependent and independent variable such that it describes part or all of an observed association—even when not included in an analytic plan. In effect, it confounds, or mixes up the nature of the interaction between the variables in which one is interested. To understand why the idea of a confound is critical to understanding the experiences of students with disabilities, an example will prove helpful. Imagine a student with a disability that affects executive processing completing the Collegiate Learning Assessment (CLA), which requires that students both synthesize visual information and make a written argument. Ostensibly, this assessment measures a student's critical thinking skills. However, it may also inadvertently measure their comfort in a testing environment or their level of interest in completing an artificial exercise—both of which may be confounded by a student's disability. As a result, an assessment plan that seeks to understand student learning outcomes on the basis of CLA results but which does so without also including key measures that acknowledge the influence of a student's disability status risk producing radically misleading results.

We strongly encourage that all researchers include disability as a control variable in all their assessment plans. Higher education researchers have long recognized that a student's demographic characteristics and prior experiences shape within-college outcomes. For example, existing studies of student engagement and retention will typically explore variations in student experience using variables measuring things such as race, class, gender, sexual orientation, country of origin, socioeconomic status, and academic major. Disability is sometimes included among these control variables, but even when it is included, it may not be operationalized in a manner sufficient to allow inter- and intra-categorical analysis. For example, in many major national studies (e.g., Educational Longitudinal Study of 2002, Beginning Postsecondary Students dataset), only students with learning disabilities represent a large enough sample pool to analyze in intersection with other control variables and key student outcomes. However, prior research has well established not only that disability shapes student outcomes but that intersectional systems of oppression produce distinctly racialized, classed, and gendered experiences of disability (Annamma et al., 2013).

Finally, consideration of disability as moderating and mediating variables help bring disability to the center of analytic plans. The difference between these two types of variable can be a source of confusion for those investigating issues in the social sciences (Baron & Kenny, 1986), but it is important to clarify how disability works in each role. As either a moderating or mediating variable, disability acts as a third variable which sheds light on potential relationships between two other related variables. Within the context of moderation, disability *affects* the relationship between independent variable X and dependent variable Y; in mediation, disability *explains* the relationship (or lack thereof) between independent variable X and dependent variable Y (see Baron & Kenny, 1986 for further explanation). To some extent, this distinction depends on whether disability is framed in terms of disability-as-diagnosis or disability-as-experience, but examples may clarify how these differences play out in assessment.

Consider, for example, the argument made by universal design advocates that high-quality captioning benefits all students but would help students who are d/Deaf or hearing impaired most of all. An important distinction is that captioning does not affect the student's core impairment; the student will be d/Deaf or hearing impaired regardless of the use of captions. However, the extent to which the student's d/Deafness or hearing impairment is disabling in this context may vary depending on the use of captions. Returning to our discussion of operationalizations of disability, this relies heavily on the conceptualization disability-as-diagnosis (i.e., d/Deafness or hearing impairments). Consequently, a reasonable moderation analysis might seek to explore whether a student's disability status influences how the presence or absence of high-quality captioning shapes academic performance.

To explain disability as a mediator, we reference the example provided earlier of a student with a disability affecting executive processing. In this scenario we might posit that the testing environment increases feelings of stress or cognitive load, which in turn impinges on executive function and thereby suppresses performance. In other words, the testing environment exacerbates the extent to which the student's disability impedes their performance on an exam. In a proper mediation analysis, each aspect at play in this setting—the impact of the stressful testing environment on a student's disability, the impact of the stressful testing environment on the student's

performance, and the impact of the student's disability on performance—may be independently measured and then a series of analyses can measure their individual effects on a student's performance. Within an intervention context, one may consider the individual effect of a student's impairment, as made disabling by the testing environment—a form of disability-as-experience— and how that might be mitigated by an appropriate accommodation (e.g., alternative testing space).

Collecting Data about Disability

The way in which disability is operationalized as a construct and constructed as a variable within assessment will also affect and be affected by the way in which data about students with disabilities is collected. For many, the obvious option may be to merge assessment data associated with student learning outcomes with data collected from disability services. This approach, while useful, can fail to consider how students think about their disability status and how that conception affects their learning outcomes. Furthermore, this approach may fall short of accurately reflecting an institution's situation regarding students with disabilities, as those who are not registered with their institution's disability service office will be excluded. Such an assessment plan overlooks students with disabilities who are unaware of their disability, those who cannot afford or lack knowledge of how to obtain a diagnosis, and those who have documentation of their diagnosis but choose not to register. Therefore, researchers who utilize registration with disability services as the inclusion criterion in learning outcomes assessment of students with disabilities need to contextualize their findings as limited insofar as all students with disabilities at their institution are concerned.

Alternatively, individuals who aim to assess learning outcomes for all students with disabilities at their institution may choose to develop a localized instrument or use an alternative instrument that is not limited to students who choose to register with their disability services office. Those who take this route would be well-advised to consider earlier comments regarding the accessibility of instruments for measurement, to ensure that students are assessed for their learning and not for their ability to meet a predetermined form of presenting their knowledge. In crafting such an instrument then, assessors should consider, alongside accessibility, ways to measure for disability-as-identity and disability-as-experience. To this end, it is important to make questions that account for the variability in how students understand their own disability status and the way their environment disables them—questions that may be crafted more effectively with input from students with disabilities. Such an approach is similar to those undertaken recently to craft instruments that measure microaggressions experienced by individuals with disabilities (Conover et al., 2017; Kattari, 2019).

Whether designing a single instrument or incorporating relevant questions into multiple instruments, it can be helpful to think of the ways in which different understandings of disability status relate to types of assessment that are frequently carried out in higher education. A climate survey, for example, lends itself to measuring disability-as-experience, and is strengthened by efforts to include questions that capture the physical, social, and academic aspects of the environment students experience as disabling, regardless of their disability-as-diagnosis status. Assessment of services and programs, on the other hand, invites both a disability-as-identity and a disability-as-diagnosis conceptualization. Ultimately, though, the challenge for truly inclusive assessments is to incorporate all three ways of operationalizing disability.

This is challenging in learning outcomes assessment within disability services, as the office is unlikely to have opportunities to influence learning outcomes for students who are not registered. Collaboration becomes paramount. For an illustration of this point, consider Portland Community College: Disability Services updated their intake process to include measures of self-advocacy skills and understanding of the accommodation process (Portland Community College, 2015). Learning outcomes in these areas could then be assessed by comparing scores at intake to scores after students received interventions. Self-advocacy and understanding of the accommodations process are also crucial areas for students not registered with disability services but experiencing disabling conditions or carrying a disability identity. Increased learning in these areas could even lead students toward registration with disability services. If the disability services office is able to coordinate with other offices, these same measures could be administered to all students, and used to assess the effectiveness of information dissemination efforts and educational messaging regarding support options. For example, just as syllabi include accommodation statements, learning outcomes measures at the course or department level could include items asking students to rate their understanding of the accommodation process and their self-advocacy skills.

Implications and Portability for Higher Education Practice

At the most basic level, our paper makes a lengthy argument for the importance of understanding disability as both a student- and environment-level influence on learning outcomes. Simply put, the way that a student responds to their disability status via both thought and action powerfully influences their experiences during college. Just as higher education and student affairs professionals would seek to understand the nuanced experiences of other minoritized populations in colleges and universities, it is important to do so with students with disabilities. Doing so is particularly important given the abundant empirical and theoretical literature (summarized in Friedensen & Kimball, 2017) that shows that systems of ableism and disableism are experienced intersectionally with other systems of oppression (e.g., racism, shadism, classism, gender essentialism, gender binarism). In other words, higher education institutions compromise their capacity to understand the influence of both disability and other minoritized identities by failing to systematically address disability.

As with the experience of students with all minoritized identities, while higher education institutions can learn a great deal by examining student-level experiences, they can learn even more by examining their learning environments. Students with disabilities do not experience their disability status in vacuums: they experience them on college and university campuses that are overwhelmingly normed to the experiences of the ablebodied and ableminded (Dolmage, 2017). Addressing disability intentionally within learning outcomes assessment can be a vital start toward the recognition that the existence of inequitable, exclusionary learning environments helps explain discrepancies in observed learning outcomes.

Although the strategies we presented in this paper were anchored by examples drawn from quantitative research, the design thinking that we explicated is broadly transferable. To do so, we suggest that higher education and student affairs practitioners engage three questions about all learning outcomes assessments: (a) To what data about disability do we or will we have access? (b) To what data about disability would we want to have access in an ideal world? And (c) What are the consequences of the inaccessible data? Thinking systematically about disability as part of assessment plans means asking these questions in the planning stages, and revisiting them as assessments are implemented and when data are analyzed. By asking these questions and confronting the answers in an honest way, higher education and student affairs professionals can reach greater clarity about what their learning assessment data actually means and what it does not. In turn, that honest confrontation with the extent to which assessment and research is able-normed can then be the catalyst for ongoing improvement.

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