

NCCSD Research Brief

Students with Disabilities and Post-College Employment: How Much Do We Know?

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Abstract

College plays an increasingly critical role in a person's employment and long-term success. However, in seeking employment, college students with disabilities may encounter distinctive employment contexts compared to their peers without disabilities. This research brief provides an overview of the employment landscape for individuals with disabilities and career development considerations for college students with disabilities. Additionally, this brief offers recommendations to institutions regarding personalized career development for targeted student groups and strategies for improved support to students as they plan their career trajectories. These include: 1) developing stronger partnerships between offices of disability resources and career services; 2) implementing universal design for career development; and 3) capitalizing on technology to expand access to disability-focused career services. Finally, the limits to what is currently known about post-college employment for this group of students are discussed. (Contains two tables.)

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Executive Summary

This research brief provides an overview of current evidence about employment and career development for college students with disabilities. It also addresses contextual factors and experiences unique to this student population and offers recommendations to support institutions of higher education in serving the general and personalized career development needs of their students. Current evidence suggests that colleges need to fundamentally reconsider how they prepare their students for the world of work. Tailoring the functions of career services offices to the individual needs of their students, both with and without disabilities, would enable institutions to effectively serve all students and better meet the evolving demands of the employment world. A summary of the main issues and recommendations raised in this brief follows:

Issues:

- **Individuals with disabilities who attain higher levels of education are more likely to experience positive employment outcomes.** Nevertheless, employment outcomes for individuals with disabilities are not commensurate with those of individuals without disabilities who have comparable educational attainment.
- Although college students with disabilities benefit from the same types of career development activities as their peers without disabilities, **many institutions are not doing enough to develop students' knowledge of disability-related employment policies, disclosure, and workplace accommodations**, which may be critical in improving students' career trajectories.
- The United States is increasingly diverse, yet **few studies have focused on the influences of students' intersecting social identities (e.g., gender, race/ethnicity) on the career-related experiences among students with disabilities.**

Recommendations:

- Much of the research on career development among college students with disabilities was conducted decades ago and may no longer reflect contemporary student experiences. **Current research is needed** to better understand how recent advances in technology, shifts in social perceptions, changes to legislation, and economic fluctuations have influenced career development for these students.
- There is a need for more specific data regarding employment trends for individuals with disabilities. Available **data sets limit our ability to understand the complexity of post-college employment for students with disabilities** due to lack of reporting requirements, data that are not disaggregated, and differences in how disability is defined across data sets and institutions.
- **New approaches are needed to support students in planning their career trajectories** that reflect updated priorities and recent developments across the employment landscape. Institutions can foster innovation and collaboration by strengthening connections between career services and offices of disability resources, implementing universal design for career planning, and by integrating technology to expand access to disability-focused career resources.
- **Institutions of higher education should assess programmatic alignment of current student needs within the context of current economic and employment dynamics** to determine how well they are fulfilling their commitments to prepare career-ready students from diverse backgrounds.
- **Career development should be personalized** to address concerns unique to specific student groups and respect students' intersecting identities. There is a need for additional investigations that explore the career development process of students from diverse backgrounds and distinct disability identities.

The findings in this research brief provide a starting point to inform the efforts of institutions and professionals to ensure that diverse students, including those with disabilities, receive optimal support in their pursuit of successful and fulfilling careers.

Introduction

College is playing an increasingly critical role in a person’s employment. In 2016, 19.8 million students were enrolled in degree-granting institutions of higher education across the United States (National Center for Educational Statistics, 2018), in most cases because they see higher education as a stepping stone to employment or careers that are personally and financially rewarding (Eagan et al., 2017). Many (50%) institutions of higher education offer some form of support to help their students make the transition from college to the work world (National Center for Education Statistics, 2017), and all college students can benefit from career development and assistance connecting them with employment opportunities. However, in seeking employment, college students with disabilities may encounter employment environments that differ from those of their peers without disabilities.

Table 1. Federal Definitions of Disability and Considerations for Postsecondary Education

Source	Definition or Conceptualization	Considerations
Americans with Disabilities Act, Section 504 of the Rehabilitation Act	An individual who: 1) has a physical or mental impairment that substantially limits one or more major life activities (e.g., caring for oneself, seeing, hearing, speaking, learning, communicating, working, etc.); 2) has a record of the impairment; and 3) is regarded as having such an impairment.	The impairment must substantially limit a major life activity to be considered a “disability” under this legal definition. This is the definition to which institutions of higher education and employers are held accountable.
Census Bureau’s Current Population Survey (CPS), Bureau of Labor Statistics	A household is considered to include a person with a disability if responding “yes” to any of the following six questions: 1) Is anyone deaf or does anyone have serious difficulty hearing? 2) Is anyone blind or does anyone have serious difficulty seeing even when wearing glasses? 3) Because of a physical, mental, or emotional condition, does anyone have serious difficulty concentrating, remembering, or making decisions? 4) Does anyone have serious difficulty walking or climbing stairs? 5) Does anyone have difficulty dressing or bathing? 6) Because of a physical, mental, or emotional condition, does anyone have difficulty doing errands alone such as visiting a doctor’s office or shopping?	These questions may not capture individuals who identify as having disabilities such as learning disabilities, attention deficit/hyperactivity disorder (ADHD), mental health conditions (e.g., depression or anxiety), and others.
Individuals with Disabilities Education Act (IDEA)	Includes thirteen categories of disability: autism, deaf-blindness, deafness, developmental delay, emotional disturbance, hearing impairment, intellectual disability, multiple disability, orthopedic impairment, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment (including blindness). The disability must adversely affect the child’s educational performance.	Protects the rights of children and youth with disabilities until they exit the K-12 education system. Students who receive services under IDEA are not automatically entitled to protection and/or services in college or employment (under ADA <u>and</u> Section 504).

This research brief discusses the following topics:

1. The employment landscape for individuals with disabilities who have varying levels of educational attainment;
2. Career development on college campuses and specific considerations for college students with disabilities;
3. Opportunities for higher education institutions to personalize career development based on student characteristics or needs;
4. Three strategies to support students with disabilities as they plan their career trajectories.

The brief also discusses limitations in current knowledge about post-college employment for these groups of students.

Definitions of Disability

Disability is defined in many ways, and these definitions have implications for understanding the career development literature related to students with disabilities (see Table 1 for examples of varying federal definitions of disability). In 2012, the Association on Higher Education And Disability (AHEAD) developed a conceptual framework to inform the practices of offices of disability resources (ODRs) within colleges and universities in supporting accommodation requests from students with disabilities (AHEAD, 2012). While these recommendations guide the practices of many institutions of higher education, each institution establishes its own criteria of student eligibility for disability-related services. Because there is no national database that focuses specifically on college students with disabilities, data about this population are included in other higher education datasets that may use differing definitions of disability (see Avellone & Scott, 2017).

Therefore, throughout this research brief, we refer to *individuals* or *students with disabilities* as they are defined in the specific study being cited. For example, if a study looked at “college graduates with disabilities,” we also refer to college graduates with disabilities in discussing that study; if a study included “students with learning disabilities” we use that same term. We do this to give readers information they can use to draw their own conclusions about the findings presented. Although the purpose of this brief is to summarize existing literature and research, we recognize the danger in making broad statements about the experiences of a group of students that encompasses great diversity.

College and Employment for Individuals with Disabilities

In recent decades, the attainment of a college degree has become increasingly influential in determining employment status and income in the general population (Carnevale, Smith, & Strohl, 2013; Gallup-Purdue, 2015; Pew Research Center, 2014). Although common sense would suggest that individuals with disabilities benefit similarly from a college education, current employment outcomes for college graduates with disabilities both converge with and diverge from patterns in the general adult population, which may suggest differences in experiences. Therefore, prior to addressing the career development of college students with disabilities, it is important to understand the overall employment landscape for college graduates. This section reviews current employment statistics for college graduates with disabilities, including labor force participation, unemployment, and income, as well as trends over the past nine years.

Labor Force Participation

Labor force participation is one of several measures used to track employment by the U.S. Department of Labor’s Bureau of Labor Statistics (BLS) (see Table 1 for the BLS definition of disability). Individuals considered to be “participating” in the labor force, as defined by BLS, includes those who are employed and those who are seeking work. Individuals who are not employed but not seeking work (due to medical reasons, childcare, family responsibilities, or other reasons) are not considered to be participating in the labor force. Overall, individuals with disabilities tend to

participate in the labor force at lower rates than those without disabilities. In 2017, among individuals whose highest level of educational attainment was a high school diploma, those with disabilities participated in the labor force at a rate of 16.7%, compared with 65.9% of those without disabilities (U.S. Department of Labor, 2018).

Evidence suggests that college positively influences participation in the labor force. Adults with disabilities who attend some college or earn an associate's degree participate in the labor force at a rate of 24.3%, and those with a bachelor's degree or higher participate at a rate of 29.4%. These rates continue to lag behind similarly educated adults without disabilities, who experience labor force participation rates of 72.3% for those with some college/associate's degree, and 77.3% for those with a bachelor's degree or higher. While this gap is striking, it is likely magnified because a significant percentage (48.3%) of individuals with disabilities included in the BLS data set are over the age of 65 and therefore unlikely to be seeking work. In comparison, 15.5% of adults without disabilities are over the age of 65 in the BLS data set. Using data from the American Community Survey, a study of working-age (age 20 to 65) bachelor's degree graduates found a much higher labor force participation rate of 57.4% among those with disabilities (Hawley et al., 2014). The contrast between these two findings – a participation rate of 29.4% for bachelor's degree holders age 25 and older versus a rate of 57.4% for those between the ages of 20 and 65 – is a notable reminder that thoughtful interpretation of labor force participation requires consideration of the contexts and personal characteristics of surveyed individuals. Additional conclusions regarding labor force participation are further limited due to insufficient information on the nature of reported labor force participation (e.g., full-time, part-time, duration of employment, etc.).

Unemployment

The U.S. Department of Labor considers a person to be unemployed if s/he does not have employment, is available for work, and has made efforts to find a job; individuals who are not employed and not seeking a job are not considered unemployed. The unemployment rate therefore reflects the proportion of individuals participating in the work force who are unemployed and looking for work. Like labor force participation rates, the unemployment rates for individuals with disabilities lag behind those without disabilities. Overall, in 2017, individuals with disabilities experienced an unemployment rate of 9.2% compared with 4.2% of individuals without disabilities (U.S. Department of Labor, 2018). At the same time, people who attain higher levels of education experience unemployment at lower rates; the unemployment rate among adults with disabilities who held a bachelor's degree or higher was 5.9%, compared with a 9.1% unemployment rate among those with a high school diploma or equivalent. Nevertheless, unemployment among college graduates with disabilities is greater than the 2.2% unemployment rate of college graduates without disabilities. Such outcomes suggest that individuals with disabilities experience additional challenges in obtaining employment, even at comparable education levels.

Income

The Current Population Survey's (CPS) Annual Social and Economic Supplement (2017) defines *income* as including earnings (e.g., wages, salaries, and self-employment profits), as well as dividend or interest returns, social security, public assistance, and other sources of revenue. While BLS does not currently report on earnings for individuals with disabilities, data from CPS offer some insight into the personal income of individuals with disabilities. This information is notable because educational attainment is more strongly related to lifetime earnings than are demographic factors such as gender or race/ethnicity (Julian & Kominski, 2011).

Data from the 2017 CPS Supplement suggest that higher levels of educational attainment are associated with higher income levels for working-age adults (age 18-64). Among adults with disabilities who earned a high school diploma or equivalent, 79% had an income of less than \$25,000, and only 3% had an income of \$75,000 or higher. In contrast, adults with disabilities who earned a bachelor's degree or higher showed a more even distribution across income levels, with 22% reporting an income above \$75,000 (see Figure 1). Consistent with these data, O'Neill and colleagues (2015) found that recipients of Vocational Rehabilitation services who participated in college or university education earned an average of \$95.26 more per week than those who did not engage in such experiences.

Additionally, the unemployment rate data reveal interesting patterns in how quickly various groups recovered from the 2007–2009 recession. While evidence suggests that in the general population, individuals with higher levels of educational attainment recovered more quickly in the years following the recession (Carnevale et al., 2016), this pattern appears to diverge for adults with disabilities according to BLS data. In 2011, unemployment rates began to steadily decrease bachelor’s degree holders (or above) *without* disabilities, and also for high school graduates *with* disabilities. Among more educated adults *with* disabilities, unemployment rates began to consistently decline in 2012 for those with some college or an associate degree, but not until 2014 for those with bachelor’s degrees or above. Undoubtedly, these variations in employment trends point to the need to better understand how major economic downturns affect the employment and outcomes of individuals with disabilities compared to individuals without disabilities.

Figure 1. Percentage of Individuals with Disabilities by Income Brackets

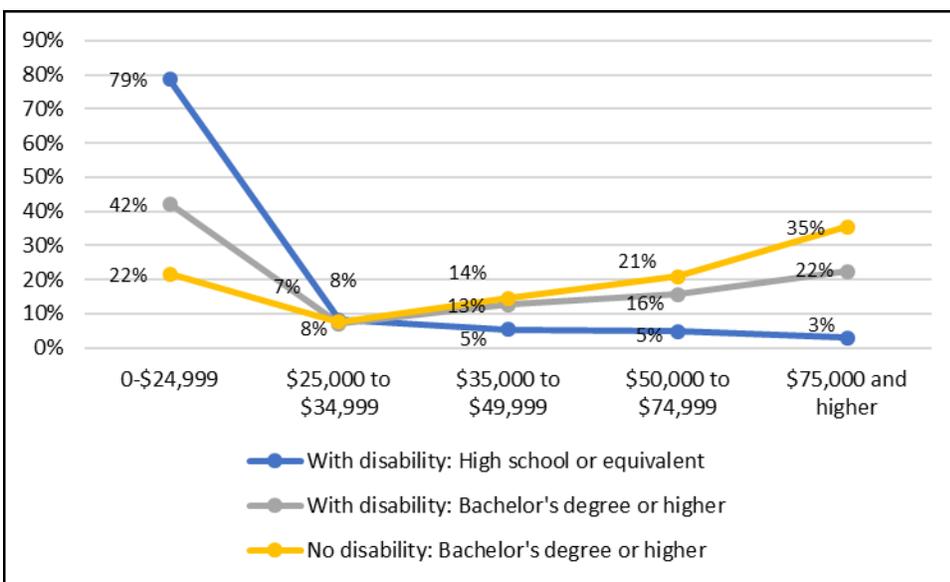


Figure 1. Percentage of individuals with or without disabilities holding a bachelor’s degree or higher and individuals with disabilities holding a high school diploma or equivalent, who report having an income within the identified brackets (age 18-64). Data from the Current Population Survey, Annual Social and Economic Supplement (2017).

There is also an income gap between individuals with and without disabilities who have a bachelor’s degree or higher. The percentage of individuals who reported a minimum annual income of \$75,000 was higher for those without disabilities (35%) than for those with disabilities (22%). While there is clearly a relationship between educational attainment and income for both groups, more information is needed to better understand how to support college graduates with disabilities in gaining access to higher-paying jobs.

Trends

The Bureau of Labor Statistics has released data on the labor force characteristics of individuals with disabilities since 2009. Examining labor force participation and unemployment rates from 2009–2017 reveals some interesting trends (see Figures 2 and 3). First, educational attainment is consistently related to participation in the labor force: those who attain higher levels of education participate at higher rates (Figure 2). However, labor force participation rates appear to have decreased since 2009 across all education levels (high school graduate, some college/associate’s degree, and bachelor’s degree or higher). While individuals with a bachelor’s degree or higher continued to participate in the labor force at the highest rates, bachelor’s degree holders also experienced the largest decrease (4.1%) in

participation from 2009 to 2017. It is not possible to determine from these data what caused the decreases in participation, but the changes may reflect the effect of the economic recession from December 2007 to June 2009 (Carnevale, Jayasundera, & Gulish, 2016), when poor job prospects prompted many individuals to go back to school, retire early, or find other ways to make ends meet outside of the labor force. Although this trend appears to be stabilizing, it is too soon to know if it will reverse course or remain steady.

Figure 2. Labor Force Participation Rates of Adults with Disabilities (2009-2017)

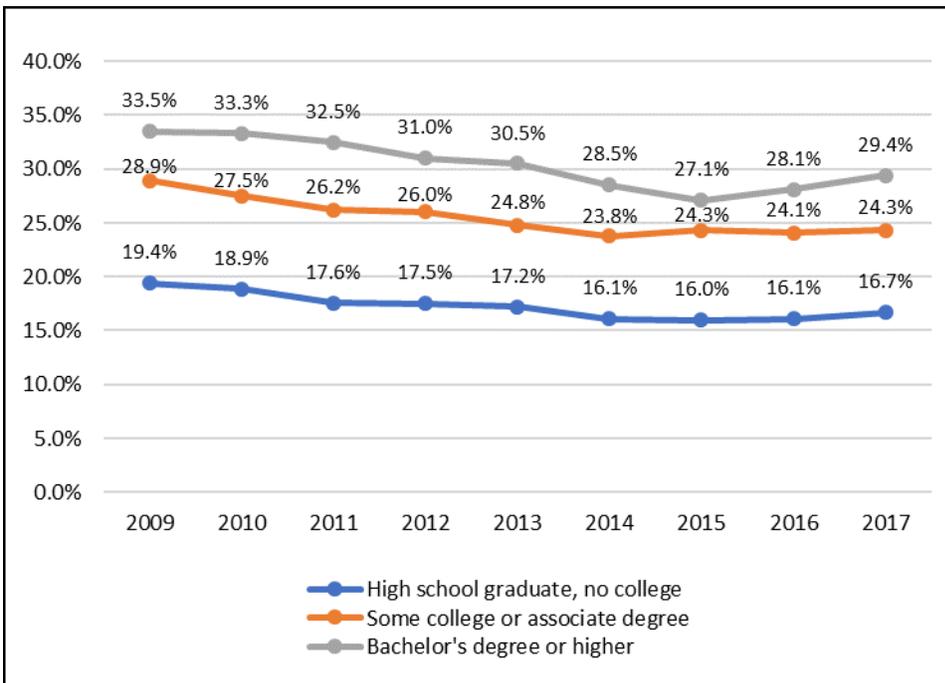


Figure 2. Labor force participation rates (2009–2017) among adults with disabilities, including those with 1) a high school diploma and no college, 2) some college or an associate’s degree, or 3) bachelor’s degree or higher. Data from the U.S. Department of Labor (2010–2018).



How Much Do We Know about College and Employment for Individuals with Disabilities?

Overall, these statistics and trends indicate that adults with disabilities who earn a bachelor’s degree or higher experience greater rates of participation in the labor force, lower unemployment rates, and increased income than individuals with disabilities who have less education. However, additional data are needed to develop a more complete understanding of the employment landscape for individuals with disabilities. Although evidence suggests that adults with invisible disabilities report that their disabilities affect their work (Madaus, 2008), the definition of disability used by the Department of Labor and the Census Bureau (see Table 1) likely underestimates the number of individuals with invisible disabilities, such as learning disabilities, Attention Deficit/Hyperactivity Disorder (ADHD), chronic conditions, or mental health concerns. Therefore, more in-depth data and analysis are needed about the employment landscape for individuals with disabilities who may be excluded from current federal measures. Additionally, current BLS reports lack specificity about the nature of employment (e.g., full-time) and may be skewed by the high percentage of individuals over the age of 65 who are likely no longer participating in the workforce. Providing disaggregated employment statistics on working-age individuals could offer a more accurate understanding of the employment landscape facing students with disabilities as they complete their college degrees.

Finally, these data answer the question “*What* are current employment outcomes and trends for college graduates with disabilities?” but do not address the question “*Why* do college graduates with disabilities experience these employment outcomes and trends?” There is a significant need for more effective data collection to improve understanding of the individual and contextual factors that underlie patterns of income and other trends in labor force participation and unemployment. For example, why do bachelor’s degree holders (or higher) with disabilities report incomes below \$25,000 at nearly twice the rate of those without disabilities? Why do individuals with some college/ associate degrees experience unemployment rates similar to those with a high school education? Why did unemployment rates for bachelor’s degree holders (or higher) with disabilities remain elevated years longer than for other education groups following the recession of 2007–2009? If colleges are going to effectively support positive career and employment trajectories for their students with disabilities, higher education leaders, policymakers, disability advocates, and other stakeholders can benefit from a more comprehensive understanding of the factors contributing to current employment outcomes and trends.

Figure 3. Unemployment Rates by Educational Attainment and Disability Status (2009-2017)

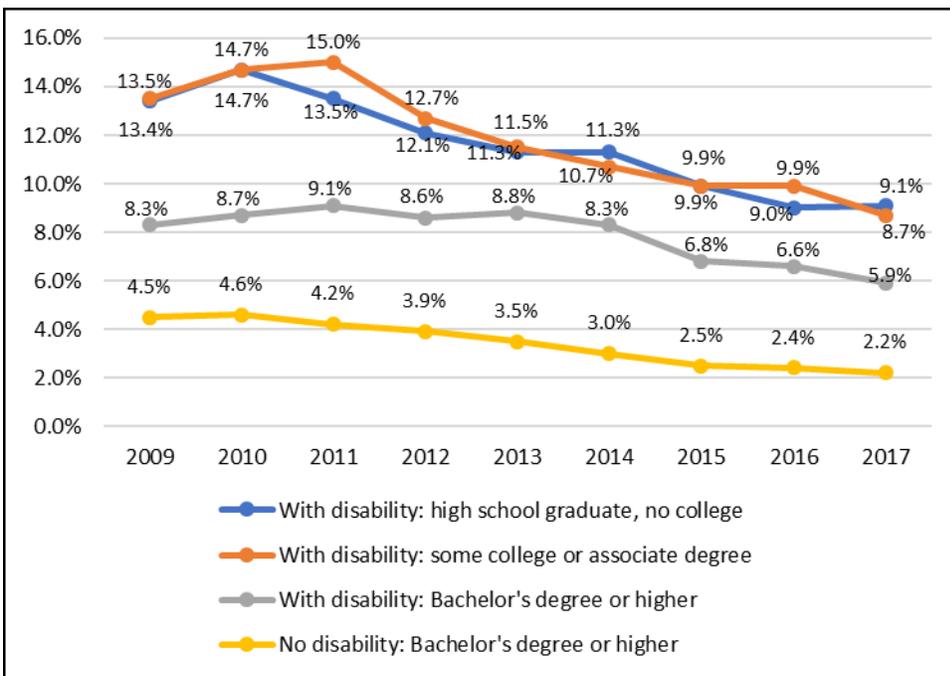


Figure 3. Unemployment rates (2009–2017) among adults with disabilities, including 1) adults with disabilities with a high school diploma and no college, 2) adults with disabilities with some college or an associate degree, 3) adults with disabilities with a bachelor’s degree or higher, or 4) adults with no disability with a bachelor’s degree or higher. Data from the Bureau of Labor Statistics (2010–2018).

Career Development and College for Students with Disabilities

As young adults prepare for high school graduation and plan for college and postsecondary experiences, youth and parents carefully assess the personal fit of the institution and consider many factors, including the institution’s graduation rates and employment outcome data. Reports that families pay attention to value, both personal and economic, align with the growing interest at the federal and state level in using student outcomes as a measure of an institution’s performance. Despite this federal and state interest, findings from the Strada Education Network (2017) suggest “a crisis of confidence” among most students about their readiness to get a job and launch their careers.

Of concern are two related issues: 1) the level of commitment made by a higher education institution to prepare *all* who attend it for the world of work and employment; and 2) the expectation of attending students that higher education institutions connect their programs of study to internships and related career-building experiences. Many institutions address the latter concern through established offices of career services, which must carry out their functions in ways that align with university-wide commitments to diverse populations, fully inclusive of individuals with disabilities. Many colleges and universities have institutionalized their commitment to diverse populations by refining their missions and visions to include statements about equity, diversity, and inclusion. However, commitments that recognize student disability as a category of diversity are still long overdue (Leake & Stodden, 2014), and students with disabilities are often excluded from the explicit conceptualizations of diversity and inclusion represented in campus mission statements (Scheef, Caniglia, & Barrio, 2018). Given the responsibility of higher education institutions to prepare career-ready students and their parallel commitment to serve students from diverse backgrounds, this section explores 1) general approaches and responsibilities of career development services, 2) career development issues that may be relevant to students with disabilities, and 3) considerations for interpreting the existing literature.

Career Development Services

In general, colleges and universities invest in some form of career services support for their students. Although organizational structures vary, the functions of offices of career services appear consistent. They offer support, information, and knowledge about employment opportunities to all enrolled students who seek assistance, and in some settings, provide alumni with continued access to career services after graduation. While roughly half (52%) of students report visiting their career services offices (Gallup-Purdue, 2016), the purposes of their visits may vary, including career counseling, career and placement services, or employment services (Friehe, Aune, & Leuenberger, 1996). Prior research suggests that only one-fourth to one-third of students with disabilities access career services (Aune & Kroeger, 1997; Friehe et al., 1996; Hitchings, Horvath, Luzzo, Ristow, & Retish, 1998), although a more recent study found that about half of students with physical disabilities made use of the career center (Kim & Williams, 2012).

Evidence suggests that students' satisfaction with career services correlates with their sense of preparedness for post-college life; those students who rated career services as "very helpful" were 5.8 times more likely to strongly agree that their institution prepared them for life after graduation (Gallup-Purdue, 2016). Although recent findings indicate that underrepresented population groups, including first generation college students and students from diverse cultural backgrounds, report positive experiences with career services (Strada-Gallup, 2017), few reports of satisfaction about outcomes are available for students with disabilities. One study found that students and graduates with physical disabilities identified faculty members and the director of the campus ODR as more influential than the career center in supporting their post-college plans (Kim & Williams, 2012). Given that very few studies have explored how career services are offered and tailored for individual student interests and needs, researchers have called for thoughtful inquiry into ways to reform and personalize the career services model (Chan, 2016).

Career Development Considerations for Students with Disabilities

While most higher education institutions are committed to offering career services to all of their students, "students with disabilities may have unique circumstances that influence their approach to career development" (Evans, Broido, Brown, & Wilke, 2017, p. 432). Despite institutional assurances that they can serve all admitted students, only 26% of two-year and four-year postsecondary institutions report providing career or placement services that are targeted for students with disabilities (Raue & Lewis, 2011). Although surveys indicate that many students with disabilities (70-80%) are satisfied that their colleges prepare them for employment or assist them in making realistic career choices (Hennessey, Roessler, Cook, Unger, & Rumrill, 2006; Huber, Oswald, Webb, & Avila-John, 2016), college graduates with disabilities in focus groups have said that postsecondary education does not directly prepare them for the world of employment (Dowrick, Anderson, Heyer, & Acosta, 2005). Universities and colleges must consider and address issues that are unique to their college students with disabilities; these include

1) understanding students' beliefs about employment, 2) supporting them in making decisions about whether to disclose their disability, 3) building knowledge of disability policies, and 4) understanding the process of requesting and accessing workplace accommodations. We focus specifically on literature including *college* students or graduates with disabilities and their interactions with their institutions, rather than the broader disability employment literature, because institutions of higher education are uniquely situated to influence the career development trajectories of their students.

Beliefs and attitudes. During the course of students' studies and college experiences, their understanding of future career opportunities develops and deepens. Researchers have identified several factors related to career development in college students, such as career decision-making, self-efficacy, career maturity, and attributional style, as defined in Table 2. Some of the scales identified in Table 2 continue to be used by college career services personnel in their daily work (e.g., Career Development Inventory, Career Maturity Inventory). Although many researchers in the field of higher education and disability have hypothesized that college students with disabilities may be at risk of slower career development than their peers without disabilities, findings have been mixed. Some studies have found that students with disabilities report *less developed* career-related attitudes than their peers without disabilities (Hitchings et al., 1998; Hitchings et al., 2010; Luzzo, Hitchings, Retish, & Shoemaker, 1999), while other findings suggest *more adaptive* views among college students with disabilities compared with a normative sample (Dipeolu, Reardon, Sampson, & Burkhead, 2002). Moreover, other studies have found no significant differences in the career development attitudes of college students with and without disabilities (Heft Sears, Strauser, & Wong, 2014; Ohler, Levinson, & Barker, 1996; Reid Yates, Wong, Strauser, & Heft Sears, 2017). These findings caution us in making assumptions about career development and readiness based solely on disability status.

Disclosure. All students with disabilities face decisions about disclosing their disability to potential employers. Individuals who have disabilities that are visible to others, such as people with visual impairments, some mobility impairments, or who are d/Deaf or hard of hearing, make decisions about whether to disclose their disability during the application process, before the first interview, or when they arrive at the interview. For example, one young adult with a physical disability explained, "I am always sort of not sure how to broach the whole disabled thing, especially when you're applying for a position. I still haven't really figured out how to do that because you don't want to walk in there and be disabled" (Kim & Williams, 2012, p. 845).

Invisible disabilities, by contrast, may not be immediately apparent in an interview or work setting (Prince, 2017). While the question for individuals with visible disabilities is "when" to disclose, the question for many individuals with invisible disabilities is "whether" to disclose. Evidence suggests that many college graduates with disabilities (40% or more) choose not to disclose in the workplace (Friehe et al., 1996; Madaus, Gerber, & Price, 2008). While there are a multitude of reasons why an individual may choose not to inform an employer of a disability, many college graduates with disabilities report that they do not feel the need to disclose, although others express concerns about negative consequences (Madaus, 2008; Vogel & Adelman, 2000).

It is important for career counselors or others working with college students with disabilities to take an individualized approach when assisting students in making decisions about disclosure in the workplace (Enright, Conyers, & Szymanski, 1996). Students must consider the benefits and drawbacks of disclosure, based on their personal circumstances. If or when students choose to disclose, it is important for them to focus on clearly describing their qualifications and ability to meet the expectations for the sought position (Stern, 2002). Some researchers have expressed concern that students may overemphasize their limitations when disclosing their disability (Bublitz, Fitzgerald, Alarcon, D'Onofrio, & Gillespie-Lynch, 2017; Michaels & Barr, 2002). College students with disabilities who choose to disclose should receive guidance that prepares them to 1) educate employers and dispel common myths that may be associated with their disability, 2) clearly describe any disability-related needs they expect to encounter in the workplace and how those needs can be effectively addressed, and 3) emphasize their qualifications and how they will contribute to the goals of the workplace (Bublitz et al., 2017; Stern, 2002).

ADA knowledge. The Americans with Disabilities Act (ADA) of 1990 protects the civil rights of individuals with disabilities in both college and employment settings. However, evidence suggests that a majority of college graduates with disabilities express a poor understanding of the ADA's basic requirements or the rights it affords them (Friehe et

Table 2. Measures of Career Development Attitudes Commonly Used by Career Services Personnel

Attitude	Definition	Scale	Studies^a
Attributional style for career decision-making	How one explains career decisions from perceptions of locus (internal vs. external), stability (stable vs. unstable), and controllability (controllable vs. uncontrollable)	Assessment of Attributions for Career Decision Making (Luzzo & Jenkins-Smith, 1998)	Luzzo, Hitchings, Retish, & Shoemaker (1999); Hitchings et al. (2010)
Career decision-making self-efficacy	Belief in one's ability to engage in career-related decision-making and tasks	Career Decision-Making Self-Efficacy Scale (Betz, Klein, & Taylor, 1996)	Luzzo et al. (1999); Hitchings et al. (2010)
Career development	Readiness to make career decisions, including career exploration, planning, decision-making, and work knowledge	Career Development Inventory (Super, Thompson, Lindeman, Jordaan, & Myers, 1981)	Ohler, Levinson, & Barker (1996)
Career maturity	Readiness to make career choices	Career Maturity Inventory (Crites, 1978) ^b	Hitchings, Horvath, Luzzo, Ristow, & Retish (1998)
Career optimism	Belief that one is well-prepared to secure and maintain employment, be successful, and advance in one's chosen field	Researcher-created scale	Hennessey, Rumrill, Fitzgerald, & Roessler (2008)
Career thoughts	How one thinks about career planning and decisions (i.e., decision-making confusion, commitment anxiety, and external conflict)	Career Thoughts Inventory (Sampson, Peterson, Lenz, Reardon & Saunders, 1996)	Dipeolu, Reardon, Sampson, & Burkhead (2002); Heft Sears, Strauser, & Wong (2014); Reid Yates, Wong, Strauser, & Heft Sears (2017)

Notes. a = Studies that have examined the identified career development attitude in college students with disabilities; b = A revised version of the Career Maturity Inventory was published recently (see Savickas & Portfeli, 2011).

al., 1996; Vogel & Adelman, 2000; Witte, 2001). Knowledge of the ADA may play a role in people's decisions to disclose; one study found that graduates who disclosed their learning disability rated their knowledge of the ADA as higher than those who chose not to disclose (Madaus, 2008). College graduates with disabilities have indicated they were unsatisfied with the level of college support they received in gaining knowledge of the ADA (Hennessey et al., 2006) and have recommended making additional training available in this area (Aune & Kroeger, 1997; Madaus, 2006). While these findings are concerning, it is possible that students' knowledge of the ADA has improved in recent decades; unfortunately, more current research on this topic appears to be limited. In light of the long-term importance of this legislation in the lives of individuals with disabilities, these findings indicate a need for updated information regarding college students' understanding of the ADA, especially as it applies to employment settings. **Accommodations.** Knowledge of the ADA is especially critical for students who are considering requesting accommodations in the workplace. Although some students with disabilities report that their colleges satisfactorily prepare them to identify and evaluate the effectiveness of accommodations (Hennessey et al., 2006), others have identified the understanding of workplace accommodations as an area in need of improvement during the transition from college to career (Madaus, 2006). A relatively small percentage of college students with disabilities (4%–20%) reported formally requesting workplace accommodations from their employers (Friehe et al., 1996; Madaus, 2006; Vogel & Adelman, 2000).

However, accommodations in the workplace do not need to be formal or officially requested. Many graduates with learning disabilities, for example, report making use of informal strategies, such as setting goals and priorities, managing their time, staying late, or arriving early to work (Madaus, 2008). When considering whether or not to request accommodations, students should be guided to first determine the essential tasks required by the position and whether or how they are able to perform those tasks. If accommodations are needed, the student should consider what types of informal or formal accommodations are most appropriate (Enright et al., 1996; Stern, 2002). Because every employment setting is unique, it is important to recognize that accommodations that are supportive in one work environment may not be appropriate or needed in a different environment.



How Much Do We Know about Career Development and College for Students with Disabilities?

While college students with disabilities have access to the same career counseling resources as their peers, these students may encounter unique circumstances that require additional attention in the career development process. Unfortunately, much of the research on career development for college students with disabilities was done nearly two decades ago, raising questions about the continued relevance of these findings. For example, students with disabilities of traditional college-going age today were born nearly a decade after passage of the ADA. Therefore, questions worthy of new investigation are 1) whether students today are differently informed about their rights and protections afforded under the ADA; 2) who is responsible for providing students with disabilities access to this information or support in considering their disability in the employment context; and 3) how recent college graduates experience the transition to current employment contexts. While it is clear that college students with disabilities may face distinct challenges as they enter the work world, institutions of higher education must make greater efforts to ensure students receive the support they need to make thoughtful, well-informed decisions as they begin their careers.

Personalizing Career Development

In general, college students with disabilities benefit from the same types of career development activities as their peers without disabilities (Briel & Getzel, 2001), with additional attention to understanding disability policy and navigating disclosure decisions and accommodation requests. At the same time, students with disabilities are a heterogeneous group of individuals. Students with hidden disabilities, physical or sensory disabilities, and intellectual or developmental disabilities, for example, would benefit from additional personalization of career development services to address their specific experiences. Personalized career development also supports the needs of college



...it is important to recognize that disability is only one of the many identities students may embody; career services personnel must consider how students' intersecting identities, such as racial, ethnic, and gender identities, may further influence the career development process.

students who may choose not to disclose a disability to their institution. Finally, it is important to recognize that disability is only one of the many identities students may embody; career services personnel must consider how students' intersecting identities, such as racial, ethnic and gender identities, may further influence the career development process (Evans et al., 2017).

Students with Invisible Disabilities

As described previously, invisible disabilities are not immediately apparent to an observer in a casual interaction. Invisible disabilities commonly found on college campuses include learning disabilities, ADHD, mental health concerns, and some chronic health conditions (Higher Education Research Institute at UCLA [HERI], 2011; Raue & Lewis, 2011). Students with invisible disabilities face unique challenges. First, these disabilities may not be covered by the Department of Labor definition of disability (see Table 1). Because they are not represented in BLS data sets, students with invisible disabilities may have limited insight into specific employment trends, such as labor force participation or unemployment rates (Evans et al., 2017). Additionally, the definition of learning disability appears to lack consensus across some postsecondary institutions (Weis, Sykes, & Unadkat, 2012). This may contribute to the challenges some students with invisible disabilities experience in specifically describing their disability and in considering its influence on career planning (Hitching et al., 1998; Hitchings, Luzzo, Ristow, Horvath, Retish, & Tanners, 2001; Hitchings et al., 2010).

Finally, Stern (2002) asserts that "deciding whether or not to disclose a learning disability is one of the most daunting issues facing students with hidden disabilities" (p. 8). As already noted, students with an invisible disability may choose not to disclose it. While this allows them to avoid negative social stigma or potential discrimination based on disability, choosing not to disclose can also be a source of stress or act as a barrier to receiving appropriate workplace accommodations (Prince, 2017). Additionally, waiting to disclose after problems arise can result in workplace conflict (Madaus et al., 2008). Significantly more research is needed regarding the experiences of students with invisible disabilities, especially those with mental health or chronic health conditions. Overall, this evidence suggests a need for career development that 1) addresses the ambiguous employment landscape, 2) supports students' ability to describe how their disability may influence their work experiences, and 3) assists students in making personally appropriate decisions about disclosure.

Students with Physical Disabilities or Sensory Impairments

Students with physical disabilities or sensory impairments also experience unique employment challenges, many of which are related to accessibility and discrimination. While in college, students with these types of disabilities may find it difficult to participate in internships or career exploration experiences because of transportation needs, inaccessible internship sites, or questions about who is responsible for providing accommodations (Briel & Getzel, 2001; Kim & Williams, 2012). Once they graduate, these challenges continue; graduates with physical disabilities or sensory impairments may experience geographic limitations during their job search based on available transportation, accessible and affordable housing, and availability of services.

Additionally, evidence suggests that individuals with physical or sensory disabilities experience discrimination at higher rates; individuals with invisible disabilities were 16 times more likely to be employed than those with visible disabilities (Martz, 2003). Graduates with physical disabilities report experiencing more discrimination than graduates without any disabilities in searching for a job in their field, finding full-time (or their desired level of) employment, and finding jobs with sufficient status (Perry, Hendricks, & Broadbent, 2000). Additional research is needed to fully understand the challenges faced by students with physical disabilities or sensory impairments. However, individuals who identify as part of this student group may benefit from career development guidance that supports personally relevant practices, such as 1) identifying and requesting effective workplace accommodations, 2) using knowledge of the ADA to recognize and address discrimination in employment settings, and 3) connecting with community resources to support transportation and other accessibility needs.

Students with Intellectual and Developmental Disabilities

The population of students with intellectual and developmental disabilities on higher education campuses continues to grow with the reauthorizations of the Higher Education Opportunity Act of 2008 and Higher Education Reform and Opportunity Act of 2015 (Kelley & Buchanan, 2017; Papay, Trivedi, Smith, & Grigal, 2017). A survey of postsecondary programs for these students found that most (81%) provide students with employment and career training experiences, such as internships, job placement, or coaching (Grigal, Hart, & Weir, 2012). In fact, while academics may be the main focus of college experiences for the general student population, independent living and employment were identified as the main goals for the majority (66%) of programs serving students with intellectual and developmental disabilities, which suggests a fundamentally different emphasis in college participation for this population of students.

While research in this area is expanding, evidence suggests that individuals with intellectual and developmental disabilities who complete postsecondary programs are more likely to be employed (37–61%) than those who do not participate in postsecondary education (13–32%) (Butler, Sheppard-Jones, Whaley, Harrison, & Osnes, 2016; Migliore, Butterworth, & Hart, 2009; Papay et al., 2017). With the employment focus of many of these programs, it is possible that the career development needs of these students are more likely to be addressed than those of students with other disabilities. At the same time, a large number of programs report having separate registration and course structures for students with intellectual or developmental disabilities, suggesting these students are not accessing the same resources provided to their peers, both with and without disabilities, on college campuses (Grigal et al., 2012).

Students with Undisclosed Disabilities

According to the U.S. Department of Education (2015), students with disabilities make up 11% of the postsecondary education student population. However, evidence suggests that the percentage of college students who identify as having a disability is higher. In 2016, 21.9% of incoming college freshman indicated that they had at least one disability or psychological disorder (Eagan et al., 2017). Among students who received disability-related services in high school (i.e., special education services under the Individuals with Disabilities Education Act) and went on to postsecondary education, only 35% report informing their institution of their disability (Newman & Madaus, 2015).

Many students with mental health conditions also choose not to disclose; one survey found that 50% of students with diagnosed mental health conditions did not inform their college of their condition (Gruttadaro & Crudo, 2012). Given the likely presence of students with undisclosed disabilities on college campuses, it is important for institutions to adopt inclusive practices that can be tailored to meet the individual needs of all students, regardless of a disclosed condition or diagnosis (Yuknis & Bernstein, 2017).

Intersecting Social Identities

Finally, it is essential that institutions of higher education remember that “disability” is only one of many social identities their students may experience. Students’ experiences are also influenced by gender identification, race/ethnicity, sexual orientation, first-generation status, socioeconomic backgrounds, multiple disabilities, and more (Evans et al., 2017). These experiences interact in ways that deepen the complexity of career development within this population. For example, Lindstrom, Harwick, Poppen, and Doren (2012) suggest that women with disabilities may experience a “double jeopardy” due to expected gender roles and disability discrimination during the employment process. Individuals from other marginalized backgrounds may experience similar, layered challenges in their career development (e.g., Burgstahler & Bellman, 2009; Hennessey et al., 2008). While these intersecting identities certainly play a role in students’ experiences on their career pathways, significantly more research is needed to develop a better understanding of how these experiences interact to influence career interests, planning and ultimately, career outcomes.



How Much Do We Know about Personalizing Career Development?

Every student is an individual and may or may not experience the concerns raised in this section, even if they identify as having one of the discussed disabilities. Significantly more work is needed to construct a more nuanced understanding of how heterogeneity among students with disabilities affects career development and their post-college employment experiences. For example, is it possible to identify unique career development profiles for specific student groups? How do we best support this heterogeneous student group with so many different strengths and needs? How do students’ intersecting identities affect the career development process? Investigations into these preliminary questions are likely to begin a cascade of new knowledge and additional inquiries.

Strategies to Support Career Development

What can institutions of higher education do to support career development among students with disabilities? Research suggests three broad strategies with the potential to advance career exploration and development and tailor it to students’ individual needs. These include: 1) developing stronger partnerships between an institution’s ODR and career services, 2) implementing the principles of universal design for career services, and 3) improving use of technology to expand access to disability-focused career development



THREE STRATEGIES

1. Stronger partnerships between offices of disability resources and career services.
2. Universal design for career development.
3. Technology to Expand Access to Disability-Focused Career Development Resources

resources. While research in these and related areas continues to evolve, these strategies represent starting points for institutions seeking to strengthen the career outcomes of their students with disabilities.

1. Stronger partnerships between ODRs and Career Services

Several researchers have emphasized the ambiguity of responsibility within higher education institutions for addressing the career development needs of students with disabilities (Aune, 2000; National Collaborative on Workforce and Disability, 2009; Roessler, Hennessey, & Rumrill, 2007). Career services personnel assist the general student body with career development, but they are often not specifically trained to support disability-related employment issues. ODR personnel provide disability-related services, but they often lack expertise in career development (Roessler et al., 2007). This fragmentation is reflected in the professional standards developed by national organizations for professionals in these fields. The Association on Higher Education And Disability (AHEAD, n.d.), which serves disability resource professionals, has issued standards and performance indicators for programs serving students with disabilities. Although these standards do not explicitly mention career development, ODR programs are tasked with consulting, collaborating, disseminating information, and increasing faculty and staff awareness to facilitate optimal outcomes for students with disabilities in postsecondary education programs; such outreach certainly could and should extend to career services personnel.

Similarly, the National Association of Colleges and Employers (NACE, 2016), which serves college career services professionals, has issued professional standards for this field. These standards require that facilities and resources must be accessible and comply with the ADA and that career services personnel are familiar with, or seek counsel regarding, laws and regulations associated with disability and accessibility. Additionally, “working with people with disabilities” is identified as one of the core competencies for career services personnel (p. 17). These standards open the door for collaboration and partnerships between ODR and career services, while leaving space for colleges and universities to bridge the gap. It is critical that institutions of higher education take on initiatives to develop stronger links between ODR and career services within their own institutional structures and contexts (Aune, 2000; National Collaborative on Workforce and Disability, 2009).

2. Universal Design for Career Development

Principles of universal design have been gaining momentum in higher education in recent years (Roberts, Park, Brown, & Cook, 2011). Under universal design, buildings, instruction, and resources are intentionally crafted to maximize accessibility for diverse users. For example, buildings under construction or renovation are designed to be physically accessible from the beginning of the planning phase, such as including plans for ramps, elevators, and door switches. Significant attention has been given to the development and use of universally designed instructional practices in higher education. This often involves providing students with multiple ways to access, participate in, and demonstrate knowledge of course content (Roberts et al., 2011).

The same principles of universal design that have been applied to facilities and instruction can also be applied to career services and the career development process (Aune, 2000; Burgstahler, 2009; Higbee et al., 2008). However, application of universal design should move beyond ensuring that career services and resources are physically accessible (e.g., by being located in an accessible building and having a website compatible with screen readers) to implementing career development practices that build on a student’s individual interests and strengths. Career development is a continuous process that involves knowledge about oneself and the world of employment, as well as the ability to match one’s strengths and interests to a work environment (Kerka, 2002). Finding the right match may be critical to a person’s career experiences; for example, researchers have hypothesized that some individuals with disabilities choose not to request formal accommodations because they have found a good employment fit (Madaus, 2006).

Several approaches can aid career services or other personnel seeking to promote universally designed career development activities. First, career development assessments should be available in multiple formats (paper/pencil,

computer version with screen reader, etc.). At minimum, students should receive the same accommodations to which they are entitled for any other exam or assessment (Dipeolu, 2011). However, the principles of universal design dictate that any student, regardless of disclosed disability or formal accommodation request, should have access to accommodations that will allow them to accurately respond to the assessment. Additionally, an understanding of the student should emerge through multiple assessments rather than a single assessment (Enright et al., 1996).

Students in the early stages of career development need opportunities to gain understanding through informational interviews and job observations in their field of interest (Hutto & Thompson, 1995; Michaels & Barr, 2002). Such experiences build awareness of how well various occupations match one's own interests and strengths and also forge important connections that may serve students once they are looking for employment. Likewise, internships can support students in developing a better understanding of their potential career path, as well as of informal or formal accommodations that could be beneficial in an employment setting (Michaels & Barr, 2002; Stern, 2002). Like all practices informed by universal design, these career development practices have the potential to benefit *all* students who access career services, not only students with disabilities (e.g., see Bublitz et al., 2017).

3. Technology to Expand Access to Disability-Focused Career Development Resources

The use of technology and access to online information is increasingly ubiquitous in the United States. Nearly all (95%) of young adults (age 18–29) report having access to the internet (Pew Research Center, 2018). These trends are also affecting how people access information regarding employment. In 2015, 79% of job seekers reported accessing online resources to find employment, and 34% felt online sources were the most important resources in finding a job (Pew Research Center, 2015). Institutions of higher education are also seeing an increase in distance education, with 28% of students enrolling in at least one online course (Allen, Seaman, Poulin, & Taylor Straut, 2016).

NACE's (2016) professional standards for career services programs reflect these larger societal shifts; they call for career services programs to "leverage existing and emerging technologies to facilitate the career development process" in the career services mission (p. 5). Online resources should not only include traditional career development resources but also provide links to websites or modules that could support students in areas relevant to disability, including disclosure, rights and responsibilities under the ADA, and reasonable workplace accommodations. For example, the University of Washington's Disabilities, Opportunities, Internetworking, and Technology Center (DO-IT; 2018) represents just one of many federally funded online hubs that provide resources for students, educators, and parents to support individuals in transitioning to postsecondary education, achieving throughout college, and entering the workforce with confidence. Providing such resources online has the additional benefit of providing access to supportive career resources for students who have not disclosed a disability to the university.

Conclusion

Limitations to What We Know

The findings reported in this research brief also reveal numerous limitations to what we know. Employment statistics and trends for individuals with disabilities reveal a need for more *specific data*. Findings regarding career development for college students with disabilities require more *current research*. Finally, the limited exploration of career development for heterogeneous student groups indicates a need for *additional investigations* into how students' unique and intersecting identities influence the career development process.

First, there is a need for more *specific data* regarding employment trends for individuals with disabilities. The available data sets limit our ability to understand the complexity of post-college employment for students with disabilities; the data are insufficient due to a lack of reporting requirements, data that are not disaggregated, and differences in how disability is defined across data sets and institutions. In some cases, a lack of reporting requirements

limits our understanding of outcomes for college students with disabilities; while institutions are required to report completion rates for students by gender and race/ethnicity, there is no such requirement for students with disabilities. The gaps in current data sets significantly limit effective understandings of the postsecondary and employment landscapes for college students with disabilities.

Second, there is a need for *current research regarding career development among college students with disabilities*. Many of the research findings reviewed here were reported decades ago and may no longer reflect contemporary student experiences. Although we confined our search to research that was published following the passage of the ADA in 1990, significant changes have occurred that could affect the employment experiences of individuals with disabilities; these include advances in technology, economic fluctuations, new knowledge that could inform understanding of disability as a form of diversity, and shifts in social perceptions about inclusion and the rights of individuals with disabilities. Therefore, additional research is critical to deepen our current understanding of post-college employment for postsecondary students with disabilities.

Finally, there is a need for *additional investigations that explore the career development process of students from diverse backgrounds and distinct disability identities*. Relatively few studies have focused on the career development of students with disabilities, and even fewer have focused on the influences of students' intersecting social identities. Individuals participating in the studies cited here were predominantly white, raising many questions about the career development paths of students with disabilities from diverse backgrounds. Future research must not only include individuals with varied social identities, but also investigate how the interactions of those identities add complexity to experiences and decision-making during the career development process.

Final Remarks

While many college and university leaders indicate that they believe they are successfully preparing students for the workforce, many business leaders do not believe college graduates possess the skills their businesses require (Sidhu & Calderon, 2014). The disconnect between the skills that business leaders need in their workforce and what higher education institutions think they are producing raises many opportunities for institutional leadership to reconsider how they focus university programs to align with the employment sectors students will enter post-college. As institutions of higher education engage in strategic planning and goal setting, they have a heightened need to gather data and include understandings of disability in action plans to operationalize a culture of integrity and respect. Such an approach would not only address institutions' goals of effectively serving all students, but could also better meet the evolving demands of the employment world.

Unfortunately, our ability to come to strong conclusions about career exploration, decision-making, and post-college employment for students with disabilities is significantly restricted by the limits of the current literature base. There is a critical need for updated research, effective data collection approaches, and representative studies exploring diverse experiences to inform our understanding of the transition to employment for college students with disabilities. Institutions of higher education have committed to nurturing inclusive communities that cultivate integrity and respect; it is essential that this mission extends to the services available to college students with disabilities to ensure optimal opportunities in students' pursuit of successful and fulfilling careers.

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Appendix 1. Text Descriptions of Tables and Figures

Table 1 (Page 5)

The table is titled “Federal Definitions of Disability and Considerations for Postsecondary Education.” The table has three columns: Source, Definition or Conceptualization, and Considerations. The lines on the table are as follows:

- Americans with Disabilities Act, Section 504 of the Rehabilitation Act (Source). Definition or Conceptualization: An individual who: 1) has a physical or mental impairment that substantially limits one or more major life activities (e.g., caring for oneself, seeing, hearing, speaking, learning, communicating, working, etc.); 2) has a record of the impairment; and 3) is regarded as having such an impairment. Considerations: the impairment must substantially limit a major life activity to be considered a “disability” under this legal definition. This is the definition to which institutions of higher education and employers are held accountable.
- Census Bureau’s Current Population Survey (CPS), Bureau of Labor Statistics (Source). Definition or Conceptualization: A household is considered to include a person with a disability if responding “yes” to any of the following six questions: 1) Is anyone deaf or does anyone have serious difficulty hearing? 2) Is anyone blind or does anyone have serious difficulty seeing even when wearing glasses? 3) Because of a physical, mental, or emotional condition, does anyone have serious difficulty concentrating, remembering, or making decisions? 4) Does anyone have serious difficulty walking or climbing stairs? 5) Does anyone have difficulty dressing or bathing? 6) Because of a physical, mental, or emotional condition, does anyone have difficulty doing errands alone such as visiting a doctor’s office or shopping? Considerations: The impairment may not capture individuals who identify as having disabilities such as learning disabilities, attention deficit/hyperactivity disorder (ADHD), mental health conditions (e.g., depression or anxiety), and others.
- Individuals with Disabilities Education Act (IDEA) (Source). Definition or Conceptualization: Includes thirteen categories of disability: autism, deaf-blindness, deafness, developmental delay, emotional disturbance, hearing impairment, intellectual disability, multiple disability, orthopedic impairment, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment (including blindness). The disability must adversely affect the child’s educational performance. Considerations: Protects the rights of children and youth with disabilities until they exit the K-12 education system. Students who receive services under IDEA are not automatically entitled to protection and/or services in college or employment (under ADA and Section 504).

Figure 1 (Page 8)

The figure is titled “Percentage of Individuals with Disabilities by Income Brackets.” The vertical axis is given in percentages from 0% to 90%, in increments of 10%. The horizontal axis is in dollars, in grouped categories of 0-\$24,999, \$25,000 to \$34,999, \$35,000 to \$46,999, \$50,000 to \$74,999, and \$75,000 and higher. There are three lines on the chart. A blue line is for people with disabilities who have a high school degree or equivalent; it starts at 79% and drops sharply to 8% for the next highest income, and then decreases for each increased income group after that (from 8% to 5% to 5% and then 3% for \$75,000 and higher). A gray line shows income for people with disabilities who have a bachelor’s degree or higher; it starts at 42% for the lowest income and then drops less steeply than the blue line to 7%, and then slightly increases as incomes get higher (13%, 16%, and then 22% for incomes of \$75,000 or higher). A third line shows individuals with no disability who have a bachelor’s degree or higher; this starts at 22% for the lowest income, decreases slightly to 8%, and then increases above the blue and gray lines for each increase in income (14%, 21%, and then 35% for incomes of \$75,000 and higher). The overall impression is that people with disabilities earn more income if they have a bachelor’s degree, but there is still a gap between people with and without disabilities, with a smaller percentage of nondisabled people in the lowest income category, and higher percentages of nondisabled people in the three upper income categories. Only in the \$25,000 to \$34,999 category are all groups the same within

one percentage point. The figure has a note at the bottom saying: “Figure 1. Percentage of individuals with or without disabilities holding a bachelor’s degree or higher and individuals with disabilities holding a high school diploma or equivalent, who report having an income within the identified brackets (age 18-64). Data from the Current Population Survey, Annual Social and Economic Supplement (2017).

Figure 2 (Page 9)

The figure is titled “Labor Force Participation Rates of Adults with Disabilities (2009-2017). The vertical axis shows percentages from 0% to 40% in increments of 5%. The horizontal axis is years, from 2009 to 2017, in increments of one year. There are three lines on the chart, running roughly parallel. The top line is gray, and it is for individuals with disabilities who have a bachelor’s degree or higher; in 2009, 33.5% of adults with disabilities who had a bachelor’s degree or higher were participating in the labor force. This decreases slightly by year until 2015 (27.1%), and then rises again slightly to 29.4% in 2017. The middle line is orange and shows adults with disabilities who have some college or an associate’s degree; this shows 28.9% participating in the labor force in 2009, decreasing each year until 2014 (23.8%), and then rising marginally to 24.3% in 2017). The lowest line is blue and represents adults with disabilities who are high school graduates with no college; this starts at 19.4% participating in the labor force in 2009, decreasing very slightly until 2014 (16.1%), and then increasing slightly to 16.7% in 2017. A complete list of all data points for Figure 2 is given below. The overall effect is that adults with disabilities who have any amount of college are participating in the labor force in higher percentages than those with high school diplomas, for all years from 2009 to 2017. The figure has a caption below it saying: “Figure 2. Labor force participation rates (2009-2017) among adults with disabilities, including those with 1) a high school diploma and no college, 2) some college or an associate’s degree, or 3) bachelor’s degree or higher. Data from the U.S. Department of Labor (2010-2018).

Description of all data points:

- Adults with a bachelor’s degree: 2009 (33.5%), 2010 (33.3%), 2011 (32.5%), 2012 (31.0%), 2013 (30.5%), 2014 (28.5%), 2015 (27.1%), 2016 (28.1%), 2017 (29.4%)
- Adults with some college or associate degree: 2009 (28.9%), 2010 (27.5%), 2011 (26.2%), 2012 (26.0%), 2013 (24.8%), 2014 (23.8%), 2015 (24.3%), 2016 (24.1%), 2017 (24.3%)
- Adults who are high school graduate, no college: 2009 (19.4%), 2010 (18.9%), 2011 (17.6%), 2012 (17.5%), 2013 (17.2%), 2014 (16.1%), 2015 (16.0%), 2016 (16.1%), 2017 (16.7%)

Figure 3 (Page 10)

The figure is titled “Unemployment Rates by Educational Attainment and Disability Status (2009-2017). The vertical axis is percentages , from 0% to 16%, in increments of two percent. The horizontal axis is years, from 2009 to 2017, in increments of one year. There are four lines on the chart in red, blue, gray, and yellow. The top line is red, showing those who have a disability, with some college or an associate’s degree. It starts at 2009 (13.5% unemployment), increasing to 2011 (15.0%), and then decreasing each year to 9.1% in 2017. The next highest line is blue, showing people with disabilities who are high school graduates, with no college. It follows the red line closely, starting at 13.5% unemployment in 2009, increasing to 14.7% in Year 2010, decreasing to 11.3% in 2013 and 2014, decreasing again to 9.0% in 2016, and increasing slightly to 9.1% in 2017. The gray line shows people with a disability, who have a Bachelor’s degree or higher. This runs through the middle of the chart, starting at 8.3% unemployment in 2009, remaining relatively flat through 2014 (8.3%), and then decreasing to 5.9% in 2017. The lowest line on the graph is yellow, showing people with no disabilities who have a Bachelor’s degree or higher. It starts at 4.5% unemployment in 2009 (the lowest of any

group), and then slowly decreases to 2.2% in 2017. A footnote for the figure says: “Figure 3. Unemployment rates (2009-2017) among adults with disabilities, including 1) adults with disabilities with a high school diploma and no college; 2) adults with disabilities with some college or an associate degree; 3) adults with disabilities with a bachelor’s degree or higher; or 4) adults with no disability with a bachelor’s degree or higher. Data from the Bureau of Labor Statistics (2010-2018).” Yearly statistics for each group are given below:

- With disability, high school graduate, no college: 2009 (13.5%), 2010 (14.7%), 2011 (15.0%), 2012 (12.7%), 2013 (11.5%), 2014 (11.3%), 2015 (9.9%), 2016 (9.9%), 2017 (9.1%)
- With disability, some college or associate degree: 2009 (13.4%), 2010 (14.7%), 2011 (13.5%), 2012 (12.1%), 2013 (11.3%), 2014 (11.3%), 2015 (9.9%), 2016 (9.0%), 2017 (9.1%)
- With disability, Bachelor’s degree or higher: 2009 (8.3%), 2010 (8.7%), 2011 (9.1%), 2012 (8.6%), 2013 (8.8%), 2014 (8.3%), 2015 (6.8%), 2016 (6.6%), 2017 (5.9%)
- No disability, Bachelor’s degree or higher: 2009 (4.5%), 2010 (5.6%), 2011 (4.2%), 2012 (3.9%), 2013 (3.5%), 2014 (3.0%), 2015 (2.5%), 2016 (2.4%), 2017 (2.2%)

Table 2 (Page 13)

The table is titled “Measures of Career Development Attitudes Commonly Used by Career Services Personnel.” The table has four columns: Attitude, Definition, Scale, and Studies. There is a footnote for the column “Studies” that says: “Notes. Studies that have examined the identified career development attitude in college students with disabilities” The lines of the table are as follows;

- Attributional style for career decision-making (attitude). Definition: how one explains career decisions from perceptions of locus (internal vs. external), stability (stable vs. unstable), and controllability (controllable vs. uncontrollable). Scale: Assessment of Attributions for Career Decision Making (Luzzo & Jenkins-Smith, 1998). Studies: Luzzo, Hitchings, Retish, & Shoemkaer (1999); Hitchings et al. (2010).
- Career decision-making self-efficacy (attitude). Definition: belief in one’s ability to engage in career-related decision-making and tasks. Scale: Career Decision-Making Self-Efficacy Scale (Betz, Klein, & Taylor, 1996). Studies: Luzzo et al. (1999); Hitchings et al. (2010).
- Career development (attitude). Definition: Readiness to make career decisions, including career exploration, planning, decision-making, and work knowledge. Scale: Career Development Inventory (Super, Thompson, Lindeman, Jordan, & Myers, 1981). Studies: Ohler, Levinson, & Barker (1996).
- Career maturity (attitude). Definition: Readiness to make career choices. Scale: Career Maturity Inventory (Crites, 1978). Studies: Hitchings, Horvath, Luzzo, Ristow, & Retish (1998). There is a footnote for the “Scale” column that notes a revised version of the Career Maturity Inventory was published recently (see Savickas & Portfell, 2011).
- Career optimism (attitude). Definition: Belief that one is well-prepared to secure and maintain employment, be successful, and advance in one’s chosen field. Scale: Researcher-created scale. Studies: Hennessey, Rumrill, Fitzgerald, & Roessler (2008).
- Career thoughts (attitude). Definition: How one thinks about career planning and decisions (i.e., decision-making confusion, commitment anxiety, and external conflict). Scale: Career Thoughts Inventory (Sampson, Peterson, Lenz, Reardon & Saunders, 1996). Studies: Dipeolu, Reardon, Sampson, & Brukhead (2002); Heft Sears, Strauser, & Wong (2014), and Reid Yates, Wong, Strauser, & Heft Sears (2017).