A comparison of the college experience for students with and without disabilities

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Abstract
Students with intellectual and developmental disabilities (IDD) have joined the ranks of college students in pursuit of personal independence, community integration, and employment. To achieve these aims, there is a need for a strong understanding of the college experience for students with IDD, including identification of the academic, social, and personal challenges they face as well as the supports that are available to address those challenges. This research provides preliminary insights into the college experience for students with IDD by comparing the perceptions, attitudes, and activities of students with IDD to those of students without disabilities and students with mild learning disabilities (MLD). Our data suggest a number of similarities in the college experience for students with and without disabilities such as similar influences from family and teachers with respect to attending college. In addition, some surprising advantages expressed by students with IDD were found, such as reporting greater ease in developing close friendships than students with MLD. Considerations and discussion on the ways in which students with IDD benefit from the additional supports and services provided to them are also discussed.

Postsecondary education (PSE) has long been recognized as a critical gateway to personal independence, self-determination, job acquisition, higher earnings, community integration, and quality of life (e.g. Baum et al., 2010; Carnevale et al., 2011; Leonhardt, 2011; Schultz and Higbee, 2007),

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and recent data demonstrate that the benefits of PSE are evidenced for students with and without disabilities alike. Students with disabilities who have PSE experience are more likely to be employed, earn higher wages, and are more engaged in their communities than those who do not (Butler et al., 2016; Eisenman et al., 2009; Migliore et al., 2009; O'Neill et al., 2015; Zafft et al., 2004). Now more than ever, PSE is a prerequisite for employment opportunities. Indeed, it is projected that by 2018, 63% of jobs in the United States will require some college education (Carnevale et al., 2010; Reinschmiedt et al., 2013), and greater access to education is recognized as a key step to employment worldwide (Psacharopoulos, 1994; Schultz, 2002; Smith et al., 2012; World Bank, 2004). As a result, more students with disabilities than ever are choosing to attend college (Conner, 2012; Schneider et al., 2014).

Although the inclusion of students with a disability (e.g. mild learning disabilities (MLD), physical disabilities, and mental health disabilities) on college campuses is not a novel concept, the inclusion of students with intellectual and developmental disabilities (IDD) in PSE is a relatively new phenomenon (Plotner and Marshall, 2014). Parents, advocates, and scholars have spearheaded the push for more opportunities on college campuses for individuals with IDD (Plotner and Marshall, 2014). In addition, there is growing international recognition of the social and economic benefits of higher education for people with IDD (O'Connor et al., 2012), and consequently access to PSE for people with IDD is expanding (Grigal and Hart, 2010). Today, there are over 250 programs across the United States (ThinkCollege.net, 2017). In fact, in October 2015, the US Office of Postsecondary Education awarded a second round of funding (approximately US$10 million) to support the development of new programs and the expansion of existing programs. Colleges in the European Union, Canada, Australia, and Iceland also offer programs for students with IDD (Stefansdottir and Bjornsdottir, 2012; Strnadova et al., 2015; Uditsky and Hughson, 2012), and legislation such as the Disability Standards for Education 2005 in Australia and the Equality Act 2010 in the United Kingdom is facilitating access to college for increasing numbers of students.

Recent studies suggest that attitudes about the inclusion of students with IDD in college are fairly positive among college professors, administrators, and traditional college students (e.g. Griffin et al., 2012; O'Connor et al., 2012). Research also demonstrates that the inclusion of students with IDD in PSE can promote social development for traditional students who serve as peer mentors (e.g. May 2012), as well as pedagogical innovation for faculty who teach inclusive courses (O'Connor et al., 2012). However, despite the evidence that inclusion of students with IDD in PSE results in positive outcomes for many stakeholders, relatively little is known about the experiences of students with IDD in a college setting. Preliminary work with a very small sample suggests important gains in personal growth and self-determination for students with IDD who attend PSE (Folk et al., 2012), but no study has systematically compared the experiences of students without disabilities or the experiences of students with MLD. The aim of the present research was to gain a broader understanding of the college experience for students with IDD, including their motivations for enrolling; their perceptions of academic, social, and residential life; their on- and-off campus supports; and their sense of belonging on campus.

Potential barriers to success in PSE for students with IDD

Research with students with MLD, mental health disabilities, and physical disabilities suggests that PSE may pose some unique challenges for students with IDD, as national PSE statistics illustrate numerous gaps for students with disabilities compared to their peers without disabilities (Wolanin

and Steele, 2004). A preliminary hurdle for students with IDD is preparing for and matriculating to college. Students with IDD have the fewest PSE goals reflected in their transition plans, and have the least access to inclusive academic experiences (Grigal et al., 2011; Newman et al., 2009, 2010, 2011). These limitations in preparing for college may prevent access to PSE altogether. Indeed, less than one-quarter of students with IDD attend a 2-year or 4-year college (Griffin et al., 2010; Grigal et al., 2011, 2014; Wagner et al., 2005).

Those students with IDD who do successfully matriculate to college are at risk for more academic challenges (Adelman, 2004; Conley, 2010; Grabau, 2011; Mamiseishvili and Koch, 2011), as they may have weaker study skills and test-taking skills (Holzer et al., 2009), less experience with rigorous academic coursework (Hitchings et al., 2005), and greater difficulty seeking support because of reluctance to reveal their disability (Camara, 2011). Furthermore, college students are expected to take a much more active role in processing the information in their courses (Wintre et al., 2011). Many students with IDD live in a highly structured environment while in high school and at home. Thus, skills such as time management (Wintre et al., 2011), self-advocacy (Adams and Proctor, 2010), and study skills (Holzer et al., 2009) are critical to be successful. These fundamental changes in the way coursework is approached can dramatically affect academic achievement, and may negatively impact students with IDD. Thus, many college programs for students with IDD include support services aimed at mitigating these new challenges, including person-centered planning sessions, academic tutoring, support with time management, and study skill development (Grigal et al., 2011). In many cases, the support offered for students with IDD is far more extensive than that available to students with MLD (e.g. tutoring, study skill development, and note-taking), and, in addition, assignments and assessments may be differentiated for students with IDD so that they are appropriately challenging for the individual students. These supports may serve to alleviate some of the common challenges that have hindered the success of students with MLD (Adams and Proctor, 2010; Adreon and Durocher, 2007; Hitchings et al., 2005; Holzer et al., 2009). Little is known, however, about the way these support services affect the perceptions and academic experiences of students with IDD.

Beyond academics, students with disabilities may also struggle with social, transitional, and adaptation skills (e.g. Adams and Proctor, 2010; Adreon and Durocher, 2007; Belch, 2011). The transition to a new and unfamiliar social environment is a challenge for all students; however, like many transitions, it can be especially difficult for students with disabilities (Adams and Proctor, 2010). Gaps in social and adaptation skills may lead to challenges in forming friendships, navigating social arenas, transitioning to residential college living, and capitalizing on the various cultural, athletic, and professional development opportunities offered at the postsecondary level. College is the first opportunity that most students have to live away from home, and students are exposed far more to the influence of their peers than the influence of their families (Eccles et al., 1993; Larose and Boivin, 1998). The ability to successfully navigate the changing nature of the relationship between college students and their parents is an important part of a successful transition to college and also is likely to impact students with IDD. To facilitate the transition to college, students with IDD often receive social support (e.g. peer mentors, social skill development) that is not available to students with MLD, including support navigating personal and family relations. It is not clear, though, whether that supports translate into perceived success for students with IDD.

Another important factor that contributes to student success is campus climate. Campus climate is a construct that influences the success of college students and has received much attention. Students who feel more comfortable, accepted, and supported on their college campuses are more

likely to persist and succeed (Edman and Brazil, 2009). The importance of ensuring that students feel safe and supported on campus is supported in the literature for many subgroups (e.g. African Americans, Latios; Edman and Brazil; Mock and Love, 2012). Students' comfort level with the college faculty and administrative environment can also contribute to their perception of campus climate. For example, students are less likely to report a negative campus climate when faculty treat them with respect, provide honest feedback about their abilities, and offer emotional support (Cress, 2008). Furthermore, the presence of strong student–faculty interpersonal relationships positively impacts students' grade point averages and self-confidence regarding their academic abilities (Cress, 2008).

In summary, students with IDD face a number of potential barriers to their success in PSE. Related research on students with other disabilities suggests that students with IDD may face academic challenges, social and transitional issues, and cultural barriers as they join the ranks of college students.

Aims of the present investigation

The overall purpose of the present study was to examine the similarities and differences in the college experience for students with IDD, students with MLD, and students without disabilities. We hoped to gain a broader understanding of students' motivations for enrolling in college; perceptions of academic, social, and residential life; on-and-off campus supports; and sense of belonging on campus. Our study focused on students enrolled at two universities in the South-eastern United States, both of which offered programs designed specifically for students with IDD. These programs offer integrated coursework in regular college courses, residential living on campus, inclusion in social activities, and significant academic and social supports for students with IDD. The goals of these programs include academic enrichment, career development, campus and community integration, and self-determination (Plotner and Dymond, 2017).

Because students with IDD are still significantly less likely to attend college relative to students without disabilities or even students with MLD , an important starting point for this research was an examination of students' motivations for attending college. By understanding students' impetus for enrolling in college, we hoped to gain insight into the reduced matriculation rates for students with IDD. We asked students to reflect on their decision to go to college, and to indicate the importance of several factors, including pursuit of better employment and higher wages, knowledge advancement, training for a specific career, the desire to meet new people, preparation for graduate school, the desire for personal independence, and encouragement from friends, family, and teachers.

We also compared the academic experiences of students with IDD, students with MLD, and students without disabilities. The colleges we examined offer programs for students with IDD that provide significant supports (e.g. accommodations and modifications, tutors, person-centered planning, study skill development) to facility academic success. To understand the impact of these supports on the academic experience for students with IDD, we examined student perceptions about study skills, difficulty of coursework, support from faculty and teaching assistants, accommodations from disability services, and ability to adjust to academic demands.

Beyond academics, we assessed students' transition to PSE and integration into the college community. Students with IDD in this study received social and transitional supports to improve their success in college. These supports included social skill development, peer mentor support, assistance with time management, classes on health, hygiene, and sexuality, and integration in

Table 1. Demographic information for students without disabilities, with IDD and with MLD.

	No disability (N = 148)	IDD (N = 28)	MLD (N = 21)
% Female	86	43	68
% First or second year	74	86	74
% Caucasian	85	78	93

IDD: intellectual or developmental disabilities; MLD: mild learning disabilities.

campus clubs and organizations. Although such supports should, in theory, facilitate the transition to college and enhance students' integration into the campus community, little is known about whether such supports actually translate into perceived success for students with IDD. This study thus assessed students' perceptions about their friendships and family relations during college. We sought to understand the reliance on friends (both on-and-off campus), support from family, ease of make social connections, and satisfaction with social life for students with and without disabilities. We also examined students' reported involvement in campus life, including sporting events, student government, fraternities and sororities, intramural sports, study abroad, student clubs, and religious organizations.

A final factor that was examined in this study was the comfort level on campus expressed by students with and without disabilities. Here, we assessed both overall comfort (e.g. satisfaction with choice of college, sense of belonging, and sense of acceptance) and comfort-related specifically to disability. We investigated students' perceptions of the supports and accommodations provided by faculty and by the disability service office, their willingness to disclose and discuss their disability with others, and their perceptions of any stigmas attached to disability on their campus.

Method

Participants

Participants (N = 197) were college students enrolled at one of two postsecondary institutions in the Southeastern United States. The 197 participants included 148 students without disabilities, 21 students with MLD (e.g. attention-deficit/hyperactivity disorder, dyslexia), and 28 students with an intellectual disability. Demographic information for each of these groups is reported in Table 1. For all student groups, the majority of the participants were Caucasian and were enrolled in their first or second year of college. For students without disabilities and with MLD, the majority of students were female. However, the majority of students with IDD were male.

The programs that supported students with IDD at both institutions included an emphasis on academic enhancement, self-determination, independent living skill development, and employment. Students with IDD enrolled in a combination of inclusive college courses from the regular catalog and specialized courses designed specifically for students with IDD. Within the inclusive college courses, the assignments and assessments were differentiated for students with IDD so that they were appropriately challenging for each individual student. All students with IDD had the option of living on campus, and had access to the regular college support systems and facilities (e.g. health services, disability services, fitness center, social clubs, and sporting events). In addition, all students with IDD participated in regular person-centered planning sessions and had

access to academic (e.g. tutoring, study skills, note-taking) and social (e.g. time management, social mentors, and fitness mentors) support as needed on an individualized basis.

All students were recruited through e-mails and advertisements placed around campus, as well as recruiting participants through large undergraduate courses that require involvement in various research studies across campus. Students either received US$10 compensation for their participation, or completed the study as one way of fulfilling a course requirement. All participation was voluntary. Study procedures complied with professional research standards and the Universities Review Board guidelines. Participants with IDD offered support by their academic coach for participation (e.g. accessing the survey; reading of the survey questions) as needed on an individualized basis. We opted to offer support from academic coaches because students with IDD knew the coaches well and were comfortable with them. In addition, the academic coaches had training in supporting students with IDD; specifically, they were trained to help students with IDD understand the survey questions, without influencing students' responses to those questions. Despite offering the support of these academic coaches, no participant requested support in completing the survey.

Materials

Materials for the study included 66 selected questions from the College Students with Disabilities Campus Climate (CSDCC) survey (Lombardi et al., 2011), from Your First College Year (YFCY) survey (Higher Education Research Institute, 2010), and a demographic questionnaire. The CSDCC survey measures individual actions and perceptions of supports from colleges and peers. For the CSDCC survey, participants read statements such as, "Generally I feel instructors are supportive of me at this university," and rated their agreement with each statement on a 6-point Likert-type scale ranging from *never* (1) to *always true* (6). The content of the CSDCC is based on extensive research regarding postsecondary and social supports that enhance college experiences for students with disabilities (e.g. Barnett et al., 2004; Dowrick et al., 2005; Morningstar et al., 2010), and it is intended to measure nine general constructs related to college life: peer support, self-advocacy, family support, campus climate, faculty teaching practices, disability services, utilizing accommodations, faculty attempts to minimize barriers, and stigma associated with disability. Each of the constructs includes items that are phrased positively and negatively to help eliminate potential response bias. Negatively phrased items are reversed scored for the data analysis. The CSDCC has strong overall reliability and content validity, and functions similarly across gender and disability type (Lombardi et al., 2011).

Thirty-four questions from the CSDCC survey were used to assess nine different constructs related to campus life. Of these constructs, 4 were disability specific (disability services, utilizing accommodations, faculty attempts to minimize barriers, and stigma associated with disability), and the 15 questions used to assess these constructs were completed only by students reporting a disability in the demographic questionnaire. The remaining 5 constructs (peer support, self-advocacy, family support, campus climate, and faculty teaching practices) were assessed with 19 questions that were answered by all participants.[1]

Thirteen questions were drawn from the YFCY (Higher Education Research Institute, 2010) to assess student involvement in campus life as well as self-perception of academic success and social integration. The YFCY was the first national survey designed to evaluate student development in the first year of PSE, and in 2012 was administered to nearly 15,000 students at 61 institutions nationwide. Eight of the questions asked students to report their frequency of engaging in specific

activities such as interacting with faculty outside class or engaging with friends within and outside the college. The remaining five questions asked students to report how easy or difficult it was meet academic expectations, develop study skills, adjust to the demands of college, manage time, and develop close friendships.

The demographic questionnaire included questions about gender, year in school, race, disability, and college activities. In addition, participants were asked to report the extent to which different factors influenced their decision to attend college. Participants viewed a list of 14 different factors that could serve as motivations for college (e.g. to get a better job, to meet new people and make friends, my parents wanted me to) and for each factor, rated on a scale of 1 (*very*) to 4 (*not at all*) how important it was in their decision to attend college.

Procedure

Prior to initiation of the study, all materials and procedures were reviewed the Institutional Review Boards at both the College of Charleston and the University of South Carolina. All procedures met or exceeded the ethical standards of the American Psychological Association. Participants were recruited through e-mails, college courses, and advertisements placed around campus. All participants were informed that the study involved a survey about their experiences in college. Individuals who participated did so through an online platform (SurveyMonkey.com). Participants first read and signed an online consent form, and then completed the 66-item survey. Participants were allowed to complete the survey at any computer with Internet access, and were offered support in accessing, reading, and responding to the survey as needed. Participants were given as much time as needed to complete the survey, though no participant took more than an hour to complete it. Responses were collected over the course of 18 months.

Results

Our analyses were aimed at understanding the similarities and differences in the college experience for students with and without disabilities. Within this wide scope, we focused on several general aspects of college life, including (1) the motivations for going to college, (2) students' academic experiences, (3) friendships, family, and social activity, and (4) college life with a disability. Each of these four general aspects was assessed with specific questions from the CSDCC (Lombardi et al., 2011), the YFCY (Higher Education Research Institute, 2010), and our demographic questionnaire. The specific items used to evaluate each aspect are delineated below. A series of one-way analysis of variances (ANOVAs) was used to assess group differences in our various measures, including the motivation for college, academic experiences, social life and friendships, and college life with a disability. Where appropriate, *t*-tests were used to compare means across two students groups. The α level was set at 0.05 for all analyses.

Motivations for attending college

We first examined students' motivation for attending college. Mean rankings (and standard deviations) for each motivation are displayed in Table 2. A series of one-way ANOVAs was conducted to assess group differences for motivating factors for college attendance. Students without disabilities, students with IDD, and students with MLD reported many of the same motivations for attending college. All student groups placed fairly high priority on getting a better job, making more money, learning about the world, gaining a general education, or learning about

Table 2. Mean rankings (and standard deviations) for factors motivating the decision to go to college for students without disabilities, students with IDD, and students with MLD.

	No disability	IDD	MLD
Get a better job	1.1	1.2	1.1
	(0.4)	(0.4)	(0.3)
Gain a general education	1.3	1.4	1.4
	(0.6)	(0.6)	(0.7)
Learn more about the world	1.5	1.6	1.6
	(0.7)	(0.9)	(0.7)
Make more money	1.4	1.3	1.2
	(0.7)	(0.5)	(0.7)
Learn about things that interest me	1.2	1.3	1.2
	(0.5)	(0.5)	(0.4)
Training for specific career	1.3	1.7*	1.3**
	(0.6)	(1.0)	(0.5)
Preparation for graduate school	1.5	2.0*	1.6
	(0.8)	(1.1)	(1.0)
Move away and live on my own	1.9	1.4*	1.9**
	(0.9)	(0.7)	(0.9)
Meet new people and friends	1.6	1.2*	1.5**
	(0.7)	(0.5)	(0.8)
My parents wanted me to	2.2	2.1	1.9
	(1.2)	(1.1)	
Teacher/counselor said I should	2.5	2.4	2.0
	(1.1)	(1.3)	(1.3)
Sibling are going/went to college	2.7	2.0*	2.1
	(1.3)	(1.3)	(1.1)
Friends are going/went to college	2.2	1.8	1.8
	(1.2)	(1.2)	(1.0)
I am not sure	2.5	2.4	2.0***
	(0.7)	(1.2)	(1.0)

Items were rated on a scale of 1 (*very important*) to 4 (*not at all important*), and thus lower scores indicate a higher priority.
IDD: intellectual and developmental disabilities; MLD: mild learning disabilities.
*A reliable difference between students without disabilities and students with IDD.
**A reliable difference between students with IDD and students with MLD.
***A reliable difference between students without disabilities and students with MLD.

things of personal interest, and there were no group differences in the rankings for these motivations ($Fs < 1$). Students with and without disabilities also reported similar rankings with respect to the influence of their parents, $F < 1$, and their teachers/counselors, $F(2, 196) = 1.4, p = 0.23$, on their decision to attend college.

There were, however, some differences in the factors that motivated students with and without disabilities to go to college. There were main effects of group on ratings for "training for a specific career," $F(2, 196) = 3.9, p = 0.021, \eta^2 = 0.04$, and for "prepare for graduate school," $F(2, 196) = 3.89, p = 0.025, \eta^2 = 0.04$. Further analyses indicated that relative to students without disabilities, students with IDD were significantly *less* motivated to go to college to get training for a specific career, $t(173) = 2.6, p < 0.01$, or to prepare themselves for graduate school, $t(173) = 2.7, p < 0.01$.

Students with MLD did not differ from students without disabilities on these measures, Fs < 1, and they were more motivated to receive training for a specific career than students with IDD, though this effect was marginal, $t(47) = 1.86$, $p < 0.07$.

There were also main effects of group on ratings for "meet new people and friends," $F(2, 193) = 4.0$, $p = 0.019$, $\eta^2 = 0.04$, and marginal effects for "move away and live on my own," $F(2, 196) = 2.8$, $p = 0.063$, $\eta^2 = 0.03$. Further analyses indicated that students with IDD were significantly *more* motivated than either students without disabilities or students with MLD to meet new people and make new friends, $t(173) = 2.7$, $p = 0.007$ and $t(47) = 2.7$, $p = 0.01$, respectively. Students with IDD were also significantly *more* motivated than either students without disabilities or students with MLD to move away from parents and live on their own relative to students without disabilities, $t(173) = 2.3$, $p = 0.023$ and $t(47) = 2.11$, $p = 0.04$, respectively.

The student groups were also differentially influenced by siblings, $F(2, 195) = 3.9$, $p = 0.021$, $\eta^2 = 0.04$. Further analyses indicated that students with IDD reported a greater influence of siblings than students without disabilities, $t(172) = 2.4$, $p = 0.017$, but they did not differ on this measure from students MLD.

Finally, a significant main effect of group was found for the item, "I don't know," $F(2, 190) = 5.2$, $p = 0.006$. Further analyses indicated that students with MLD were more likely to indicate that they did not know their precise motivation for attending college relative to students without disabilities, $t(168) = 2.9$, $p = 0.005$. There was no significant difference in the reports for students with IDD relative to students without disabilities on this item, $t < 1$.

Academic experiences

We next examined the academic experiences for students without disabilities, with MLD, and with IDD. Mean performance on these different measures of academic success is displayed in Table 3. A series of one-way ANOVAs was conducted to assess group differences for academic experiences.

In many respects, students without disabilities, students with MLD, and students with IDD reported very similar academic experiences in college. For example, there was no main effect of group on students' reported ability to keep up with the readings in their classes, $F < 1$, nor was there a difference in students' self-reported ability to perform as well as other students in academic courses, $F < 1$. Similarly, students without disabilities, students with MLD, and students with IDD were equally likely to report that faculty provided grading rubrics to clarify course expectations, $F < 1$, and there were no group differences in the likelihood that students interacted with faculty either during office hours or outside class/office hours, Fs < 1. Finally, the student groups did not differ in their responses to the item, "I feel good about myself and my abilities," $F(2, 196) = 2.1$, $p = 0.12$.

As with the motivations for attending college, however, there were some significant differences in the academic experiences of students without disabilities, students with MLD, and students with IDD. For example, there were main effects of group on the level of perceived support from faculty, $F(2, 196) = 5.2$, $p = 0.006$, $\eta^2 = .053$, in understanding what professors expected academically, $F(2, 196) = 3.1$, $p = 0.048$, $\eta^2 = 0.032$, and in the reported ease of developing effective study skills, $F(2, 196) = 7.7$, $p < 0.001$, $\eta^2 = 0.08$. There was also a significant difference in students' agreement with the statement that, "the overall teaching style of my instructors at this university permits all students to learn the course material regardless of their individual needs," $F(2, 196) = 5.4$, $p = 0.005$, $\eta^2 = 0.054$. There was a main effect of group on the likelihood of meeting with an

Table 3. Mean scores (and standard deviations) for perceptions about the academic experience for students without disabilities, students with IDD, and students with MLD.

	No disability	IDD	MLD
Items from CSDCC (*higher score = greater agreement*)			
I keep up with the readings in most of my classes	4.2	4.2	4.1
	(1.3)	(1.7)	(1.2)
I perform as well as other students in my course(s)	4.7	4.6	4.4
	(1.0)	(1.4)	(1.3)
My instructors provide grading rubrics in order to clarify the expectations of	4.8	4.7	4.8
major assignments prior to deadlines	(1.0)	(1.4)	(1.1)
Generally, I feel good about myself and my abilities at this university	4.9	5.1	4.4
	(1.0)	(1.3)	(1.3)
Generally I feel instructors are supportive at this university	4.6	5.3*	4.5**
	(0.9)	(1.2)	(1.1)
The overall teaching style of my instructors at this university permits all	4.2	5.0*	4.2**
students to learn the course material regardless of their individual needs	(1.1)	(1.3)	(1.3)
Items from YFCY			
Frequency of interacting with faculty	4.1	3.8	4.1
during office hours (*lower score = greater frequency*)	(1.3)	(1.8)	(1.0)
Frequency of interacting with faculty outside class or office hours (*lower score =*	4.5	3.9	4.4
greater frequency)	(1.4)	(1.7)	(1.5)
Difficulty understanding what professor expect of you academically meet new	1.7	1.4*	1.7**
people and friends (*lower score = greater ease*)	(0.7)	(0.6)	(0.5)
Difficulty in developing study skills (*lower score = greater ease*)	2.1	1.7*	2.6**
	(0.9)	(0.6)	(0.7)
Frequency of meeting with academic advisor (*lower score = greater frequency*)	4.7	2.8*	4.5**
	(0.9)	(1.7)	(0.9)
Frequency of meeting with teaching assistants or graduate students(*lower*	4.5	2.6*	4.4**
score = greater frequency)	(1.5)	(1.9)	(1.6)
Difficulty adjusting to academic demands of college (*lower score = greater ease*)	1.9	1.4*	2.0**
	(0.8)	(0.7)	(0.7)

IDD: intellectual and developmental disabilities; MLD: mild learning disabilities; CSDCC: College Students with Disabilities Campus Climate.
*A reliable difference between students without disabilities and students with IDD.
**A reliable difference between students with IDD and students with MLD.
***A reliable difference between students without disabilities and students with MLD.

academic advisor, $F(2, 196) = 45.6$, $p < 0.001$, $\eta^2 = 0.32$, as well as the likelihood of meeting with teaching assistants, $F(2, 196) = 18.8$, $p < 0.001$, $\eta^2 = 0.17$. Finally, there was a main effect of group on students' perceived ability to adjust to the academic demands of college life, $F(2, 196) = 4.1$, $p = 0.018$, $\eta^2 = 0.041$

In each instance in which there was a main effect of group, students with IDD reported *better* academic experiences than students without disabilities or students with MLD. Students with IDD, for example, were significantly more likely to agree with the statement, "I feel the instructors are supportive of me at this university," than students without disabilities or students with MLD, $t(173) = 3.4$ $p = 0.001$ and $t(47) = 2.2$, $p = 0.034$, respectively. Similarly, students with IDD were

reliably more likely to report that they understood what professors expected of them academically than students without disabilities, $t(173) = 2.2, p = 0.029$, or students with MLD, $t(47) = 2.1, p = 0.039$. Students with IDD reported greater ease of developing effective study skills than students with disabilities, $t(172) = 2.3, p = 0.023$, or students with MLD, $t(46) = 4.6, p < 0.001$. Relative to students without disabilities or students with MLD, students with IDD were reliably more likely to agree that the overall teaching style of instructors facilitated learning for all students, $t(173) = 3.4, p = 0.001$ and $t(47) = 2.1, p = 0.046$, respectively.

Students with IDD also met more frequently with an academic advisor and with teaching assistants than did students without disabilities, $t(172) = 8.7, p < 0.001$ and $t(173) = 6.1, p < 0.001$, or students with MLD, $t(47) = 4.2, p < 0.001$ and $t(47) = 3.5, p = 0.001$. Finally, students with IDD reported greater ease in adjusting to the academic demands of college life than students without disabilities, $t(171) = 2.1, p = 0.035$, or students with MLD, $t(46) = 3.1, p = 0.003$. In fact, 85% of students with IDD said it was very or somewhat easy to adjust to the academic demands of college, whereas only 68% of students without disabilities and 63% of students with MLD said the same. There were no differences in the scores of students without disabilities and students with MLD on any of these measures.

Friends, family, and social activity

Beyond academic experiences, we examined students' perceptions about friendships, family support, social activities, time management, and campus culture. Mean performance on these different measures of social life, support, and campus culture is displayed in Table 4. A series of one-way ANOVAs was conducted to assess group differences for social life, support, and campus culture.

With respect to friendships, there were some important group differences in the social life of students without disabilities, with MLD, and with IDD. There was a reliable main effect of group on ease of making friends at college, $F(2, 196) = 3.95, p = 0.021, \eta^2 = 0.04$, and on the ability to develop close friendships with other students, $F(2, 196) = 3.5, p = 0.032, \eta^2 = 0.036$. There was also a marginally reliable effect of group on students' agreement with the statement, "I have strong and rewarding friendships with other students at this university," $F(2, 196) = 2.6, p = 0.08, \eta^2 = 0.03$. Relative to students without disabilities, students with IDD reported *greater ease* in making friends, $t(173) = 2.9, p = 0.004$, and in developing close friendships with other students enrolled in college, $t(173) = 2.6, p = 0.009$. Students with IDD also reported greater ease in developing close friendships than students with MLD, $t(47) = 2.1, p = 0.038$. Finally, students with IDD were also more likely to report that they had strong and rewarding friendships with other students on campus than students without disabilities, $t(173) = 2.2, p = 0.026$. There were no differences in the scores for students without disabilities or students with MLD on these measures.

In addition to these group differences in the ease of making friends and the strength of those friendships, we examined time spent with friends from within college and friends outside college. Although there was no effect of group on the reported time spent with friends *inside* the institution, $F < 1$, there was a significant main effect of group on time spent with friends outside the institution, $F(2, 196) = 4.5, p = 0.012, \eta^2 = 0.046$, and in particular with friends from high school, $F(2, 196) = 4.6, p = 0.012, \eta^2 = 0.05$. Students with IDD were significantly *less likely* to spend time with friends *outside* the institution, and in particular with friends from high school, relative to students without disabilities, $t(173) = 3.1, p = 0.002$ and $t(173) = 2.9$,

Table 4. Mean rankings (and standard deviations) for factors related to friends, family, and social activities for students without disabilities, students with IDD, and students with MLD.

	No disability	IDD	MLD
Items from (*higher score = greater agreement*) CSDCC			
I make friends easily at this university	4.3	5.0*	4.5
	(1.1)	(1.5)	(1.5)
I have strong and rewarding friendships with other students at this university	4.7	5.3*	4.9
	(1.3)	(1.3)	(1.3)
I rely on family when I face challenges at this university	4.2	4.7	4.1
	(1.5)	(1.5)	(1.6)
My family members have helped me in college by providing me with emotional support	5.1	5.1	5.2
	(1.1)	(1.4)	(1.0)
My family members have helped me seek out or find support services in college	3.2	4.6*	3.8
	(1.6)	(1.5)	(1.6)
I feel the overall campus environment is supportive of students with disabilities	4.7	5.0	4.7
	(1.0)	(1.5)	(1.1)
I do not feel comfortable on this campus	1.8	1.5	1.8
	(0.9)	(1.3)	(0.9)
I wish I attended a different university	2.3	2.0	2.6
	(1.4)	(1.5)	(1.5)
I know my rights and responsibilities as a student	4.8	5.2*	4.2**
	(1.1)	(1.2)	(1.2)
I feel comfortable on this campus	4.9	5.4*	5.0**
	(1.1)	(1.0)	(1.1)
I feel comfortable advocating for myself and my needs at this university	4.5***	4.8*	3.8**
	(1.1)	(1.6)	(1.6)
Items from YFCY			
Ease of "developing close friendships with other students" (*lower score = greater ease*)	1.9	1.4*	2.0**
	(0.8)	(0.8)	(0.9)
Frequency of interacting with friends inside the institution (*lower score = greater frequency*)	1.6	1.6	1.5
	(1.2)	(1.2)	(0.9)
Frequency of interacting with friends outside the institution (*lower score = greater frequency*)	2.5	3.5*	2.6
	(1.5)	(1.6)	(1.9)
Frequency of interacting with close friends from high school (*lower score = greater frequency*)	3.1	4.1*	3.0
	(1.7)	(1.9)	(2.0)
Frequency of interacting with family (*lower score = greater frequency*)	2.0	2.8*	2.0**
	(1.3)	(1.5)	(1.4)
Demographic questionnaire—percentage of student participating in campus activities			
Student government	2	0	4
Study abroad	7	4	14
Residence life advisor	2	4	0
Collegiate sports	10	0	11
Student clubs	53***	32*	21
Intramural sports	21 ***	7*	0
Religious organizations	24	57*	29**
Fraternities and sororities	29	11*	29

IDD: intellectual and developmental disabilities; MLD: mild learning disabilities; CSDCC: College Students with Disabilities Campus Climate; YFCY: Your First College Year.
*A reliable difference between students without disabilities and students with IDD.
**A reliable difference between students with IDD and students with MLD.
***A reliable difference between students without disabilities and students with MLD.

$p = 0.004$, respectively, and were marginally less likely than students with MLD, $t(47) = 1.7$, $p = 0.09$ and $t(47) = 1.9$, $p = 0.065$, respectively. Students without disabilities and students with MLD did not differ on these measures.

We also examined the social support provided by families for students with and without disabilities. There were no group differences in students' reliance on family when facing challenges in college, $F(2, 196) = 1.3$, $p = 0.28$, or in the reported emotional support provided by family members, $F < 1$. However, there was an effect of group on the support provided to students in seeking out campus services, $F(2, 196) = 8.1$, $p < 0.001$, $\eta^2 = 0.078$. Students with IDD were significantly more likely to receive support from family members in securing campus services than students without disabilities, $t(173) = 4.0$, $p < 0.001$, and were marginally more likely to do so than students with MLD, $t(47) = 1.8$, $p = 0.07$. There was no difference between students without disabilities and students with MLD on this measure. Although students with IDD received more support in this way from family, they did not interact with family members more than students without disabilities or students with MLD. In fact, there was a reliable group effect on interactions with family, $F(2, 196) = 3.7$, $p < 0.025$, $\eta^2 = 0.038$, but students with IDD reported interacting with family members significantly *less* than students without disabilities, $t(173) = 2.7$, $p = 0.007$, and marginally less than students with MLD, $t(47) = 1.7$, $p < 0.09$. Students without disabilities and those with MLD did not differ on this measure.

With respect to social activities, students without disabilities, with MLD, and with IDD had similar scores on a number of measures. There was no main effect of group on likelihood of participating in student government, $F < 1$, study abroad, $F(2, 196) = 1.1$, $p = 0.372$, residence life advisor, $F < 1$, or collegiate sports, $F(2, 196) = 1.8$, $p = 0.17$ (note, however, that there were generally very low participation rates for all these measures).

There were group differences, however, in the likelihood of participating in collegiate sports, $F(2, 196) = 4.6$, $p < 0.01$, $\eta^2 = 0.045$, student clubs, $F(2, 196) = 4.6$, $p < 0.01$, $\eta^2 = 0.045$, intramural sports, $F(2, 196) = 4.01$, $p < 0.02$, $\eta^2 = 0.04$, and religious organizations, $F(2, 196) = 7.1$, $p < 0.001$, $\eta^2 = 0.068$. There was also a marginally significant effect of group on participation in fraternities and sororities, $F(2, 196) = 2.3$, $p = 0.108$, $\eta^2 = 0.023$. Relative to students without disabilities, students with IDD were *less* likely to participate in student clubs, $t(173) = 2.0$, $p = 0.046$, intramural sports, $t(173) = 1.7$, $p = 0.09$, and fraternities and sororities, $t(173) = 2.0$, $p = 0.043$, and were *more* likely to participate in religious organizations, $t(173) = 3.6$, $p < 0.001$. Students with MLD and IDD looked similar on all these measures except participation in religious organizations, where students with IDD reported a higher rate of participation, $t(47) = 2.9$, $p < 0.01$. Students without disabilities and students with MLD had similar scores on measures of collegiate sports, fraternities and sororities, and religious organizations, but students without disabilities were significantly more likely to play intramural sports, $t(167) = 2.3$, $p = 0.02$, and to join student clubs, $t(167) = 2.5$, $p = 0.01$.

Finally, we examined students' sense of comfort on campus. There were a number of similarities in students' comfort level on campus, as there were no reliable differences in responses to the following items: "I feel the overall campus is supportive of students with disabilities," $F(2, 196) = 1.0$, $p < 0.84$, "I do not feel comfortable on this campus," $F < 1$, and "I wish I attended a different university," $F(2, 196) = 1.1$, $p < 0.32$.

There were reliable group differences, however, on other measures of campus comfort, including, "I know my rights and responsibilities as a student," $F(2, 196) = 4.4$, $p < 0.01$, $\eta^2 = 0.043$, "I feel comfortable on this campus," $F(2, 196) = 2.8$, $p < 0.06$, $\eta^2 = 0.029$, and "I feel comfortable advocating for myself and my needs at this university," $F(2, 196) = 3.8$, $p < 0.025$, $\eta^2 = 0.038$. Students with IDD

Table 5. Mean rankings (and standard deviations) for factors related to disability for students with IDD and students with MLD.

	IDD	MLD
Items from CSDCC (*higher score = greater agreement*)		
I am reluctant to disclose my disability to instructors	2.8	3.3
	(1.9)	(1.8)
My instructors make a statement in class inviting students with disabilities to discuss their needs	2.9	3.2
	(1.7)	(1.8)
I request faculty notification letters from disability services	2.1	1.8
	(1.5)	(1.6)
If I do not disclose my disability early in the term, my instructors are reluctant to provide accommodations	2.2	2.7
	(1.3)	(1.5)
I feel my instructors doubt my ability to succeed even when accommodations are provided	1.9	2.0
	(1.4)	(1.1)
I feel satisfied with the support I received from disability services	4.0	3.4
	(1.8)	(1.6)
I feel comfortable discussing challenges related to my disability with people who work in disability services	3.6	3.4
	(1.9)	(1.6)
My instructors have general knowledge about accommodations (e.g. extra testing time or a quiet room to take tests)	4.6	3.1*
	(1.3)	(1.8)
My instructors are willing to provide the accommodations outlined in my notification letter	4.4	3.5*
	(1.8)	(1.7)
My instructors provide more than the minimum modifications needed to accommodate my disability	4.1	3.0*
	(1.3)	(1.3)
I utilize disability services to assist with my accommodations (e.g. extra time on tests or a quiet testing room) as needed	3.6	2.4*
	(2.2)	(1.7)
I don't utilize accommodations (e.g. extra time on tests or a quiet testing room) unless absolutely necessary	3.2	4.4*
	(2.0)	(2.1)
Disability services effectively responds to specific incidents of insensitivity	4.2	3.0*
	(1.4)	(1.3)

IDD: intellectual and developmental disabilities; MLD: mild learning disabilities; CSDCC: College Students with Disabilities Campus Climate.
*A reliable difference between students with IDD and students with MLD.

reported greater comfort than students without disabilities on all three of these measures. Students with IDD also reported greater comfort than students with MLD on these measures. Students with MLD also reported lower scores than students without disabilities on these measures.

College life with a disability

The last component of college life that we assessed focused on students' access to and comfort with supports and services related specifically to disability. Mean scores on these different disability-related measures are displayed in Table 5. A series of independent sample *t*-tests was conducted to assess group differences for each measure.

In a number of ways, students with IDD and students with MLD reported similar experiences with respect to disability-related services and support. Students with IDD were no more or less

likely than students with MLD to disclose their disability to their instructors, $t(45) = 1.0$, $p = 0.31$. Similarly, there was no difference across groups in the frequency with which instructors invited students with disabilities to discuss their needs, $t < 1$, or in the likelihood that students requested faculty notification letters from disability services, $t < 1$. Students with IDD and students with MLD were equally likely to report that failure to disclose their disability early in the term could result in a lack of accommodations and that instructors doubted their ability to succeed when accommodations were provided, $t < 1$. Students with IDD and students with MLD reported similar levels of comfort in discussing the challenges associated with their disabilities with people in disability services, $t < 1$, and there were no differences across groups in the level of satisfaction with disability services, $t(45) = 1.2$, $p = 0.22$.

Scores for students with IDD did differ from those of students with MLD in some ways, though, particularly with respect to perceptions of faculty knowledge about accommodations. For example, students with IDD were more likely than students with MLD to indicate that their instructors had knowledge about accommodations, $t(45) = 3.2$, $p = 0.003$. Students with IDD were also marginally more likely to report that their instructors were willing to provide the accommodations outlined in their notification letter, $t(45) = 1.7$, $p = 0.10$, and were significantly more likely to indicate that professors would go beyond the minimum accommodations, $t(45) = 2.9$, $p = 0.006$. Students with IDD were more likely than students with MLD to utilize disability services to assist with accommodations, $t(45) = 2.1$, $p = 0.046$, and to report that disability services responds effectively to specific incidents of insensitivity, $t(45) = 3.0$, $p = 0.005$.

Discussion

The purpose of this study was to gain an understanding of the college experience for students without disabilities, students with MLD, and students with IDD. We were particularly interested in understanding how the experiences of students with IDD compare to other students, and in identifying the challenges to success and the avenues through which students might find appropriate support. Students with IDD have had minimal access to PSE until the last decade, and although postsecondary opportunities for students with IDD have expanded greatly in recent years, little is known about how their academic, social, and residential experiences compare with those of other students. The present data not only confirm some expected barriers for students with IDD but also highlight some surprising and encouraging data about the way that support systems can positively impact the college experience for students with IDD.

We began by seeking to understand students' motivations for attending college. Our findings suggest that students with and without disabilities choose to pursue PSE for a number of common reasons, including enhancing their education, learning about the world, improving their overall job prospects, making more money, and learning more about personal interests. All students expressed a similar influence from family and teachers with respect to their decision to attend college. However, students without disabilities were more likely than students with IDD to attend college to receive training for a specific career, and to prepare for graduate work. They also reported a larger influence of their siblings on their decision to go to college than students with MLD or students with IDD. These findings may stem from differences in expectations and high school experiences for students with IDD, as many students with IDD currently enrolled in college are the very first of their cohort to do so, and few schools or families may have perceived the need to prepare them for PSE. In considering students' motivations for attending college, however, it is important to note that our sample did not include students with IDD who elected not to attend college, and thus the

present study cannot speak directly to their choice not to attend. Future research should be aimed at understanding the motivations, barriers, and decision processes for students with IDD who opt not to attend PSE.

By contrast, students with IDD were more likely to indicate a desire to make new friends and to move away and live on their own than students with MLD or students without disabilities. These differences may reflect diminished opportunities for self-advocacy and self-determination among students with IDD prior to college, as well as segregation from typically developing peers in high school classes, which may have limited the opportunity for social interaction. Finally, it is noteworthy that students with MLD were significantly more likely than students without disabilities to indicate (I don't know) as the reason for attending college, suggesting the need for enhanced transition and advising services for these students as they consider their post–high school alternatives.

We next examined students' academic experiences, including their perceived success in the classroom, their understanding of academic expectations and perceived ability to meet those expectations, and support from faculty. There were many similarities across academic experiences for each of the three groups. Interestingly, there were no reported differences in students' ability to keep up with their readings and perform as well as other students in academic courses. The fact there was no reported difference with these two questions could be explained by the fact that students with IDD are in a specialized program with their college, and receive significant additional supports. Programs used in the current study and the majority of programs for students with IDD and across the country are nondegree programs (usually certificate programs). Despite the fact these programs are developed and delivered so students with IDD have access to every opportunity and are often totally inclusive, programs have made efforts to establish relationships with faculty and academic departments in order to modify curricula to maximize program benefit. These modifications are made possible due to the nondegree nature/audit nature of these programs. Thus, these are not fair comparisons. However, the literature supports this finding by reporting that faculty typically have positive experiences working with students with IDD due to beliefs regarding inclusive practices and social justice as well as the impact of students with IDDs participation on other students (O'Connor et al., 2012).

There were some key differences in the academic experiences between each of the three groups, including perceived support from faculty, understanding what professors expected academically, and the ease of developing effective study skills, as well as a likelihood of meeting with advisor and teaching assistants. Interestingly, students with IDD were more likely to report higher perceptions of faculty teaching practices (e.g. instructor teaching style facilitated learning for all students). As mentioned earlier, the nuances of postsecondary programs for students with IDD have likely contributed to these responses. In addition to any modifications to course material, students with IDD utilize other academic supports, such as academic coaches. For example, one program for students with IDD used in this study provides at least 3 h/wk to support students in their courses. Additionally, program personnel have ongoing and regular communication with some faculty to ensure that the course is tailored to individual needs. Although, both programs used in the study provide some type of faculty training component, all professors do not access these so it is impossible to connect these variables in the current study. Further, formal partnerships with faculty that may include faculty training can also contribute to student perceptions. It would be interesting to determine how feasible and beneficial if supports used for students with IDD for degree-seeking students. These findings echo much of the literature and suggest that students with IDD can be successful with appropriate supports (Westling et al., 2013). It is important to

understand the individualized nature of the programs allow programs to make adjustments on the level of rigor to maximize student growth. In our experience, we have witnessed students with IDD achieve success in college courses with no modifications to assignments; however, since PSE programs are nondegree programs due to the nature of college admission (Plotner and Marshall, 2014), the potential discussions regarding PSE certification programs acting as a formal transition or bridge program to credit bearing degree programs has been neutralized. Future research should examine these ideas further.

Another focus of the current study was areas related to family support, friendships, and social activity and support. Our findings indicate that students with IDD reported greater ease in developing close friendships than students with MLD. Data also showed that students with IDD were significantly less likely to spend time with friends outside the institution, and in particular with friends from high school relative to students without disabilities. These findings could be attributed to such factors. For example, PSE programs have strong emphases on mentorship programs, which facilitate peer mentor and social activities. Thus, the sometimes-challenging process of meeting new people can be assisted through PSE mentorship structures (formal or informal). It should be noted that PSE mentorship programs have great variability. Many mentorship programs have specific requirements regarding roles and hours. The two programs used in the current study approach mentorship in a more organic way. For example, peer mentors might lack the power dynamic and fulfill the role of solely connecting students with people who share similar interests.

Another interesting finding gleaned from these data was that there were only a few differences reported between students with IDD and students with MLD regarding disability services and faculty support. Students with IDD reported a significantly higher score across 4 items of the CSDCC (see Table 5). This finding is interesting and should be explored further. We could speculate that students with IDD are more satisfied with instructor knowledge and support due to students with IDD having program support, specifically support in their interactions with instructors. Further, the utility of academic coaching set up by the programs for students with IDD could also alleviate certain frustrations that students with MLD have, given the fact that they currently have no program beyond the office of disability like those with IDD have. Further research is needed to explore the types and levels of collaboration and support offered by programs who serve students with IDD and faculty instructors.

This study has a number of limitations that should be considered in interpreting results. First, these data reflect self-reported perceptions of students rather than objective measures of success on a college campus. Thus, although students may perceive themselves as academically successful, socially integrated, and culturally embraced, future research should investigate whether these perceptions align with other external measures. Second, these data may not be replicable to settings where students do not receive these types of supports. Students with IDD who participate in other PSE models may be less satisfied with their college experience. Third, students with MLD who receive students from their respective office of disability services are likely getting only academic supports, whereas students with IDD in programs are also getting facilitation with social connections which could also lead to higher social satisfaction and connectivity. Finally, the total number of students with IDD and students with MLD was small relative to the number of students without disabilities, and thus future research should expand the sample size to confirm and extend these findings.

Institutions of higher education must remain acutely aware of the evolving needs of the student population, specifically those with disabilities. The data here suggest that intensive support,

beyond what is typically offered by a Disability Services Office and that includes both academic and social support, can have a positive impact on the perceptions that students with disabilities have about their college experience. Although these supports are offered in some of the programs designed to support students with IDD, they are not available in all programs serving students with IDD, and generally are not offered to most students with MLD. Involving faculty/staff and students with disabilities in every stage of the accommodation process is one way to address this often-overlooked need (Mole, 2012/2013). Students have cited that institutional emphasis on alleviating the architectural and physical barriers to disabilities at the expense of "service-oriented" obstacles impedes their academic success (Wilson et al., 2000). In a study of several higher education institutions, Wilson et al. (2000: 46) also found student dissatisfaction with the level of coordination between service providers on and off campus as well as the level of administrative cooperation when implementing prescribed modifications and accommodations for their academic needs, resulting in higher levels of student anxiety due to the time-consuming and strenuous nature of the process. If the level of student satisfaction and confidence in their choice of university is a primary predictor of retention, much work remains to be done to ensure that needs of students with disabilities are effectively and efficiently met (Davidson et al., 2009: 374–375). For students with disabilities to succeed and persist, institutions of higher education must support them in both their personal and academic endeavors. Furthermore, these institutions must actively seek to better their practices through consultation with this specific population.

PSE programs will benefit by having a deeper understanding of student motivations across each domain area (e.g. social, academic, vocational) to assist in tailoring experiences. It may benefit programs to ask students questions early on in their program about high school self-determination opportunities and social engagement. Future research should examine how the level of friendships in high school and the type of PSE mentorship program influence social networks in college.

Declaration of Conflicting Interests

Funding

Note

1. We did not include all of the questions for either the College Students with Disabilities Campus Climate (CSDCC) or the Your First College Year (YFCY) scales because doing so would have made the assessment prohibitively long. The CSDCC includes 43 items, and the YFCY includes 327 items. Here, we used 34 items from the CSDCC and 13 from the YFCY, along with 14 questions about demographics. Our goal was to include measures that have been developed for students with disabilities (CSDCC) and students without disabilities (YFCY), and to the greatest extent possible include items from each measure that are germane to both populations. Our full assessment included 66 critical items, and all participants were able to complete it within an hour.

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