Employment Support Services for Students with Intellectual and Developmental Disabilities Attending Postsecondary Education Programs

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Abstract

Our purpose in this study is to offer a more comprehensive understanding of how students with intellectual and developmental disabilities attending postsecondary education programs are prepared for competitive employment. Data collected through a national survey indicate that the vocational-related support services offered frequently by postsecondary education programs are: career or vocational counseling, person-centered planning, career or vocational assessment, career exploration, volunteering, internships or co-ops, natural supports, instruction on transitioning to paid employment and between paid jobs, and self-advocacy. The number of students receiving work-based experiences was larger in programs affiliated with a four-year institution. No differences exist in the provision of work-based experiences, workplace supports, and connections with adult agencies based on location. We discuss implications for practice and future research.

Keywords: Transition, postsecondary education, intellectual and developmental disability, employment

Policy changes and parental advocacy over the last few decades have made postsecondary education (PSE) a more feasible option for students with intellectual and developmental disabilities ([IDD]; Grigal & Hart, 2010; Grigal, Hart, Smith, Domin, & Sulewski, 2013; Kleinert, Jones, Sheppard-Jones, Harp, & Harrison, 2012). Students with IDD who attend PSE are more likely to achieve academic success, to expand their social skills, and to become active and valued members of their community (Griffin, Summer, McMillan, Day, & Hodapp, 2012; Stodden & Mruzek, 2010). Two of the most significant outcomes for students with IDD attending PSE consist of enhanced vocational experiences and increased opportunities for integrated competitive employment leading to better wages, enhanced personal independence, economic self-sufficiency, and self-determination (Migliore, Butterworth, & Hart, 2009; Ross, Marcell, Williams,

& Carlson, 2014; Smith, Grigal, & Sulewski, 2013; Wehman & Scott, 2013).

Many students with IDD consider PSE a critical avenue to pursue in accessing competitive employment and increasing quality of life. Specifically, students with IDD attending PSE programs perceive their college experience as extremely helpful in earning a competitive job, gaining more independence, and improving social skills (Eisenman, Farley-Ripple, Culnane, & Freedman, 2014; Moore & Schelling, 2015). For example, vocational related-support services such as career specific courses, paid on-the-job training in a student's area of interest, vocational training, career preparation (e.g., job interviews, resume building, job applications, work culture and ethics), and assistance from instructors and transition specialists are several of students' self-reported supports needed to achieve a successful post-graduation transition to a competitive

job (Ankeny & Lehmann, 2010; Ross et al., 2014). In addition, the opportunities to participate in a supportive environment and collaborate with peers who have similar interests are two aspects of college experience highly valued by students with IDD attending PSE programs (Kubiak, 2015).

The existing literature on PSE programs for students with IDD has focused on various characteristics of such programs including the model of services (e.g., substantially separate model, mixed program model, and individualized support model; Hart, Grigal, Sax, Martinez, & Will, 2006; McEathron, Beuhring, Maynard, & Mavis, 2013), the affiliation with other academic institutions (e.g., vocational and technical schools, two-year community colleges, or four-year universities; Griffin et al., 2012; Hart & Grigal, 2009; Papay & Bambara, 2011), the program development process (Thoma, 2013), the admission requirements (e.g., certificate of attendance from high school, and level of safety skills; Grigal, Hart, & Weir, 2012), the type of funding (e.g., private payments, Vocational Rehabilitation (VR) offices, and scholarships; Grigal et al., 2012), the accommodations received by students (e.g., academic, enrollment, and assistive technology; Stodden, Whelley, Chang, & Harding, 2001), and the assessment of social networks of students with IDD (Eisenman et al., 2013).

The findings of these studies indicate that a large number of PSE programs for students with IDD focus more on independent living, vocational skill development, and employment and to a lesser extent on academics and social skills development (Grigal et al., 2012; Grigal, Hart, & Weir, 2013; Papay & Bambara, 2011). Regardless of their focus and mission, many PSE programs encounter similar challenges in providing support services to students with IDD. Examples of these challenges include university administration systems, collaborations with community partners, and ongoing program development (Thoma, 2013). The above-mentioned studies made a substantial contribution to our understanding of various characteristics, the organization, and the functioning of existing PSE programs across the nation. However, at least three features warrant further investigation.

One feature refers to the number of students with IDD receiving vocational-related support services when attending PSE programs. Although the findings in published studies provide some insight into vocational-related support services offered to students with disabilities enrolled in PSE programs, one could note the paucity of information related to students with IDD. For example, Stodden et al. (2001) examined several aspects related to the provision of vocational-related

support services offered to students with disabilities in PSE settings. Specifically, the authors examined the nature and range of educational supports available to students including technical and assistive devices. However, they did not report their findings by type of disability, and therefore no information is available on how many students with IDD were included in their sample and how many of them received vocational-related support services.

McEathron et al. (2013) conducted a study to identify key characteristics and supports offered by PSE programs to students with IDD. They examined 21 PSE programs sampling the range of currently existing programs (e.g., two-year community colleges, four-year institutions, dual enrollment programs, and Transition and Postsecondary Programs for Students with Intellectual Disability [TPSID] programs). The authors first conducted interviews with Disability Service providers and program directors, and then administered an online survey based on the taxonomy resulted from interviews to assess each program's domains including organizational, admissions, support, and pedagogical. Their findings indicate that all programs addressed the vocational domain by providing vocational coursework and internships, but the authors did not provide detailed information on the type of vocational-related support services offered to students to achieve their vocational goals. Their results also suggest that only a few programs collaborated with external agencies to provide career development and post-graduation job placement.

A second feature that warrants further investigation is the type of vocational-related support services received by students with IDD attending PSE programs. Researchers examined various vocational-related support services offered to students with IDD such as the type of employment supports, paid and unpaid employment opportunities, and the location of job opportunities (Grigal et al., 2012). For example, in the annual report for the TPSID, Grigal and her colleagues (2013) provide additional information on a larger spectrum of vocational-related services and practices (e.g., workplace support). However, the small size (i.e., 27) and the specific nature of the sample may limit the generalizability of findings to all PSE programs in the U.S. Although the above-mentioned studies and reports provide emerging evidence on several vocational-related practices and supports implemented by PSE programs serving students with IDD, additional information is needed on other aspects that are critical to vocational preparation such as work-based experiences, vocational-related services and training, supports aimed at promoting transition from PSE to competitive employment, student awareness of

different adult agencies and their services, and efforts to connect students with IDD with adult agencies.

Gaining a better understanding of the availability and nature of vocational-related support services available to students with IDD enrolled in PSE might be a crucial step in facilitating the attainment of positive vocational outcomes and the effective transition to competitive employment. Moreover, students with IDD who are connected with adult agencies and have the opportunity to receive a variety of vocational-related support services including work-based experiences, workplace supports, vocational-related services, and post-graduation assistance are better equipped to compete with typical candidates for a specific job when entering the competitive employment market and successfully retain it. For example, research shows that PSE program graduates need various levels of support from job coaches ranging from assistance provided on a daily basis for some graduates to assistance provided weekly or once a month for others (Ross et al., 2014). Thus, it is extremely important to develop collaborations and connect students with adult agencies that would be able to provide post-graduation support and facilitate a successful transition to employment and independent living.

A third feature in need of further investigation refers to differences that may exist in the provision of vocational-related support services as a function of the type of PSE institution, the size of the PSE program offered by that institution, and the number of years the PSE program has been in existence. It is possible that larger PSE institutions located in urban or suburban settings may be able to accommodate a large number of students with IDD and may have access to better resources to provide a wide range of vocational-related services compared to smaller PSE institutions located in rural areas. We were not able to locate any studies that provide empirical support on how vocational-related support services may vary across different PSE programs offered by institutions situated in various locations across the country.

Therefore, we proposed to extend the current literature on vocational-related support services by offering a more comprehensive understanding of how PSE programs prepare students with IDD for competitive employment. First, we examined the demographic characteristics of PSE programs serving students with IDD across the nation. Second, we examined the vocational-related support services including vocational-related training and collaboration with adult agencies implemented by PSE programs to prepare students for competitive employment. Third, we assessed whether the provision of vocational-related support services

differs as a function of type of institution the program was affiliated with, the size of the program, and the length of time the program has been in existence. Finally, we collected information on various challenges encountered by PSE programs in preparing students with IDD for competitive employment.

Method

Participants

The targeted respondents for this survey were the directors and coordinators of PSE programs serving students with IDD. First, we generated a list with contact information for directors and program coordinators of the PSE programs from the database created by the Institute for Community Inclusion (ICI) at the University of Massachusetts-Boston and published on the Think College website (www.thinkcollge.net). This database provides the most recent information on the PSE programs for students with IDD in the U.S. Duplicate programs, those located outside the U.S., and those for which no email address was listed were eliminated from the list. The final sample included 206 programs, each represented by a director or a coordinator.

Instrument and Data Collection

Development. The survey was designed to collect information on services and supports implemented by PSE programs serving students with IDD to prepare them for competitive employment. We created an online survey using Survey Monkey. The questions included in the survey were created based on a review of existing literature on PSE programs and vocational preparation for students with IDD. Two university faculty members with expertise in conducting national surveys of PSE programs for students with IDD reviewed the survey and provided feedback on both the content and the format of the survey in relation to its purpose. We piloted the revised survey with four professionals (i.e., PSE program coordinators and faculty members) who were asked to provide feedback on clarity of the items, wording and relevance of items, comprehensiveness, and completion time; this resulted in minimal revisions. The four professionals were not included in the final sample population of the study. The final version of the survey consisted of 16 items grouped in four sections: eligibility criteria, demographic information, support services, and program effectiveness. The program effectiveness results are not reported in this study. The format of responses to questions included yes and no responses, multiple choices, open-ended responses, and Likert-type responses.

Implementation and response rate. We administered the survey between October 15th and November 27th, 2013. An invitation email was sent to 206 potential participants. The email contained a unique link to the survey, a cover letter that outlined the purpose of the survey, and the first author's contact information. The participants were informed that the survey was confidential and the responses would be reported only in an aggregate form. After the first round of survey dissemination, we eliminated 22 participants from the final list due to an email address error or a message from the participants who reported that they are no longer with the program and did not provide an alternative email. Additionally, we eliminated 18 participants from the final list because they did not meet the selection criteria of the study (the program did not serve students with IDD or did not provide employment-related supports). Thus, the final list included 166 participants. Two follow-up emails were sent to increase the response rate. We received complete surveys from 66 of the 166 participants for a response rate of 40%.

Data Analysis

Frequencies, means, and standard deviations were used to describe demographic variables, support services, collaboration with other agencies, and challenges encountered by these programs in preparing students with IDD for employment. Independent sample t-tests were conducted to determine if the scores on the five variables of interest (i.e., vocational-related services, work-based experiences, workplace-support services, training on employment-related contents, and connection with adult agencies) were different among programs based on the length of time the program has been in existence and the type of institution. We conducted an analysis of variance (ANOVA) to assess the extent to which scores on vocational-related services, work-based experiences, workplace-supports, training on employment-related contents, and linkage with adult agencies were different among institutions based on their location. If ANOVA results indicated a significant mean difference across programs, a Tukey HSD multiple comparisons test was conducted to determine which programs were different. Finally, we used a content analysis to examine responses to the open-ended questions included in the survey. Although 66 participants responded to this survey, not all of the participants responded to each question included in the survey. Considering the small sample size, we reported results for all available respondents for each analysis.

Results

Program Demographic Characteristics

Table 1 displays the demographic characteristics of the PSE programs (*n*=62) that responded to this section of the survey. Most of the programs (32.8%) have been in existence for three years or less. Most of the programs (31.3%) served between 11 and 20 students. The primary type of institution was a four-year college or university (61.2%). The majority of the PSE programs were located in a urban (32.8%) or rural area (31.3%).

Vocational-related Support Services

Table 2 indicates the number of students receiving vocational-related services, work-based experiences, work-place support services, and training on selected vocational-related content. The support services provided most often to PSE students with IDD consist of career or vocational counseling, person-centered planning, career or vocational assessment, career exploration, volunteering, internships or co-ops, natural supports (e.g., coworker, supervisor), instruction on transition skills from training to paid employment and between paid jobs, and self-advocacy. To facilitate the provision of employment-related services to their students, most of the programs collaborated with businesses in their area (75%) and with the state VR agencies (74.5%).

Table 3 presents the adult agencies that students with IDD are linked with throughout their enrollment in the PSE program. Results indicate that the agencies with which most students are connected consist of state VR offices, developmental disability agencies, and local social security agencies. Work incentive program assistants, one-stop career centers, and local community rehabilitation providers received the lowest mean scores indicating that PSE programs connect a very limited number of students with these agencies.

Service Provision by Type of Institution, Size, and Length of Program Existence

The differences in the number of students receiving each service were examined as a function of type of institution (i.e., two-year community college, and four-year university) and length of time the program has been in existence (i.e., 3 years or less, and over 3 years). Work-based experiences ($t(53)=2.81$, $p<.01$) and training on selected vocational-related contents ($t(53)=2.03$, $p<.05$) differed between institution type with four-year universities offering these services to a larger number of students than the two-year community colleges. No differences in work-place support services

Table 1

Demographic Characteristics of the PSE Programs

Program Characteristic	Number (*n*)	Percentage (%) (n=62)
Length of existence of PSE program (in years)		
0-3	22	32.8
4-6	12	17.9
7-9	14	20.9
10-12	3	4.5
12+	11	16.4
Number of students enrolled in the program		
1-10	15	22.4
11-20	21	31.3
21-40	19	28.4
40+	7	10.4
Type of institution offering the program		
2-year college/community college	15	22.4
4-year college/university	41	61.2
Vocational, business, or technical school	2	3
Other	4	6
Location of institution		
Urban	22	32.8
Suburban	17	25.4
Rural or small town	21	31.3
Multiple campuses	2	3

and post-school supports were found between four-year universities and two-year community colleges.

Next, the difference in the number of students receiving vocational-related services, work-based experiences, workplace-support services, training on selected vocational-related contents, and connecting students with adult agencies were examined as a function of the location of institution (i.e., urban, suburban, rural or small town) offering the program. The programs that reported multiple campuses as their location were not included in this analysis because of the limited number (i.e., 2) of such programs. ANOVA results indicated a significant difference on vocational-related services training between urban and suburban programs, $F(2,57)=3.00, p<.05$. To examine the difference between urban and suburban programs in providing collateral employment skills instruction, we conducted a post-hoc analysis using Turkey's HSD. Data revealed that the difference between the two programs was significant suggesting the number of students receiving instruction on training on selected vocational-related services was larger in programs located in an urban setting

compared to programs located in a suburban setting. The ANOVA results indicated non-significant differences for vocational-related services $F(2,57) = 1.94$, $p < 0.15$, work-based experiences $F(2,56) = 0.61$, $p < 0.54$, workplace-support services $F(2,57) = 0.52$, $p < 0.59$, and linkage of students with adult agencies $F(2,54) = 1.87$, $p < 0.16$, suggesting no difference between the number of students receiving such services and supports in urban programs compared to suburban and rural or small town programs.

Challenges in Providing Vocational Support to Students with IDD

A content analysis was used to analyze the responses from the open-ended questions. The response rate for the open-ended questions ranged from 74.6% (*n*=47) for identifying challenges faced by the program in preparing students for competitive employment to 66.6% (*n*=42) for indicating changes necessary to achieve better vocational-related outcomes (see Table 4). The main challenges encountered when preparing students with IDD for competitive employment con-

Table 2

Percentage of PSE Students with IDD Receiving Vocational-related Support Services

	None	Some	Most	All
Vocational-related services				
Career/vocational assessment	6.1	13.6	18.2	62.1
Career/vocational counseling	0.0	10.6	13.6	75.8
Person-centered planning	3.0	10.6	6.1	80.3
Job placement services	15.2	12.1	25.8	47.0
Transportation ON campus	40.9	7.6	7.6	43.9
Transportation OFF campus	36.4	12.1	13.6	37.9
Work-based experiences				
Career exploration	12.1	15.2	13.6	59.1
Job shadowing	21.2	27.3	12.1	39.4
Volunteering	12.1	18.2	16.7	53.0
Service learning	18.2	25.8	16.7	39.4
Internships/Co-ops	12.1	13.6	16.7	57.6
Apprenticeships	43.9	21.2	18.2	16.7
Paid employment ON campus	47.7	38.5	9.2	4.6
Paid employment OFF campus	24.2	42.4	27.3	6.1
Workplace-support services				
Job coach	19.7	27.3	19.7	33.3
Natural supports	1.5	15.2	24.2	59.1
Visual supports	7.6	60.6	19.7	12.1
Assistive technology	30.3	59.1	6.1	4.5
Training on vocational-related services				
Disability benefits	22.7	30.3	24.2	22.7
Work incentives	43.9	25.8	10.6	19.7
Transition from training to paid employment	12.1	16.7	21.2	50.0
Transition between jobs	13.6	30.3	12.1	43.9
Self-advocacy	0.0	6.1	15.2	78.8

Table 3

Percentage of PSE Students Connected with Adult Agencies

	None	Some	Most	All
State Vocational Rehabilitation	6.1	33.3	36.4	24.2
State Developmental Disability	12.5	43.8	28.1	15.6
Local Community Rehabilitation Providers	29.7	46.9	18.8	4.7
Local Social Security	10.8	43.1	33.8	12.3
Work Incentives Program Assistants	45.3	40.6	10.9	3.1
One-Stop Career Center	41.3	38.1	11.1	9.5
Social Services	20.0	47.7	16.9	15.4
Counseling and Mental Health Services	10.6	69.7	15.2	4.5
Community Recreation Programs	12.1	48.5	22.7	16.7

Table 4

Challenges in Preparing Students for Employment as Identified by PSE Programs

	Number (n)	Percentage (%) (n=35)
Resources		
Staff	5	12.2%
Time	4	11.4%
Measurement tools	3	8.5%
Implementation		
Consistency	5	12.2%
Accuracy	4	11.4%
Objectivity	2	5.7%
Expertise	4	11.4%
Student		
Student skill level	1	2.8%
Responding to follow-up surveys	6	17.1%
Other		
Variation in data collection requirements across agencies	1	2.8%

Table 5

The Potential Role of VR Offices in Proving Vocational-Related Support Services to Students with IDD

Type of Service	Provider		
	PSE Program	VR Office	Both
Vocational-related services			
Career assessment			x
Career counseling			x
Person-centered planning	x		
Job placement			x
Transportation ON campus	x		
Transportation OFF campus		x	
Support services			
Job coaching		x	
Visual support			x
Assistive technology			x
Training			
Disability benefits under Social Security			x
Work Incentives			x
Transition from training to paid employment			x
Transition between jobs			x
Self-advocacy			x
Connection and referral to adult agencies			
Follow-up post-graduation			x

Note. PSE=postsecondary education; VR=vocational rehabilitation

sisted of limited financial and human resources, and students and family-related aspects. Respondents also indicated that increasing the number of off-campus paid jobs, developing collaboration with off-campus agencies including state VR offices, providing more support for students in off-campus placements, and identifying a better match between student skills and interests are necessary to improve employment-related outcomes of students with IDD.

Discussion

Our purposes in this study were to: (a) examine the demographic characteristics of PSE programs serving students with IDD across the nation; (b) evaluate vocational-related support services including training and the extent to which students are connected with adult agencies; (c) assess whether the provision of vocational-related support services differs as a function of type of institution the program was affiliated with, the size of the program, and the length of time the program has been in existence; and (d) collect information on various challenges encountered by PSE programs in preparing students with IDD for competitive employment.

Program Demographic Characteristics

The findings of our study indicate that the majority of PSE programs serving students with IDD were in existence for six years or less. One significant finding is the high percentage of programs created in the last several years, which may be an indicator of recent legislative efforts designed to increase PSE opportunities for students with IDD (e.g., HEOA, 2008; [TIPSIDs] Grigal et al., 2015). A large majority of the existing PSE's are located on a four-year university campus as

reported in previous research (Grigal, Hart, & Weir, 2011; Grigal et al., 2012). Most of these institutions are located in urban and rural areas and a smaller number in suburban areas. Although the results document the demographic characteristics of PSE programs included in this study, one has to be aware that new programs continue to appear across the country and therefore the pattern of demographic characteristics may change with every new program. Moreover, additional variables may need to be considered when examining PSE program characteristics. Examples of such variables include the discrepancy between the type of institution (e.g., two- and four-year institutions) housing the PSE program and the duration of the program, the lack of a systematic classification of existing programs, and the wide variety of program goals, admission requirements, and organization (McEathron et al., 2013).

Vocational-related Support Services

The results of the current study suggest that the majority of students with IDD receive career-vocational assessment, career counseling, and person-centered planning services. These findings are not surprising considering that such services constitute the prelude to a better match between students' abilities, interests, work experiences and, at the same time, are recommended evidence-based practices for program development (Grigal & Hart, 2010; McEathron et al., 2013). Embedding the above-mentioned services in program development has the potential to provide relevant and meaningful work experiences to students, and consequently increase the likelihood of success and effective functioning in the workplace.

Evidence-based practices suggest that paid employment is one of the strongest predictors of post-graduation employment (Grigal & Deschamps, 2012; Luecking, 2010; Test et al., 2009) Moreover, students with IDD attending PSE programs consider their participation in paid on-the-job training as one of the most important aspects of vocational training that allows them to be much better prepared for attaining successful post-graduation employment (Moore & Schelling, 2015). The findings of our study indicate, however, that a very limited number of students with IDD receive work-based experiences in the form of on- or off-campus paid employment. Because better employment outcomes represent a critical aspect of vocational preparation for both the PSE program and the students, programs may want to concentrate their efforts in implementing effective strategies that could overcome various challenges associated with providing paid employment experiences to students with IDD (Griffin, Hamis, & Geary, 2007). One such strategy

may consist of developing collaborative partnerships with local businesses or employers that can lead to an expansion of resources or employment opportunities for students (Carter et al, 2009).

Our data also reveal that many PSE programs offer limited supports to students when at the workplace and rely very often on natural supports such as coworkers or supervisors. Although relying on natural supports is usually an effective practice, PSE personnel have to be cautious when developing programs consisting only of natural supports without assistance from specialized personnel such as transition specialists or job coaches. Relying solely on natural supports may impede the development of friendships between students with IDD and their coworkers. Many individuals with IDD report that having the opportunity to interact and develop friendships with coworkers increases their motivation to work and that feeling judged or bullied by coworkers prevent them from going to work and retaining a job (Andrews & Rose, 2010). Therefore, it is important for PSE personnel to implement a balanced program in terms of the amount of assistance received by students with IDD from different stakeholders to support them on the job.

The results further indicate that a limited number of students receive workplace supports in the form of assistive technology despite the fact that empirical evidence indicates a positive correlation between the use of assistive technology and employment outcomes (Wehmeyer et al., 2006). Considering the role and availability of technology, PSE programs should consider expanding its use from academic areas to work settings. One approach in providing assistive technology to students with IDD in the workplace may relate to developing collaborative partnerships between PSE programs and employers prior to placing a student at a specific site. Research suggests that employers are usually open to the use of assistive technology in the workplace and some already have it in place for their employees (Greenan, Wu, & Black, 2002; Luecking & Mooney, 2002). A second approach may relate to increasing employers' awareness of the benefits of using assistive technology and ease their fear of high costs associated with the use of technology (Patterson & Cavanaugh, 2013). A third approach consists of involving students with IDD in this process by developing their self-awareness and self-advocacy skills.

An important finding of this study relates to the fact that a large number of programs seem to offer training on self-advocacy to all students with IDD enrolled in the program. Self-advocacy is a critical skill in college and at the workplace. Students with IDD not only have to understand their rights and responsibilities but also

to use them in various situations such as documenting their disability and requesting accommodations or VR services (Luckner & Becker, 2013). The majority of PSE programs offered instruction both on transitioning from training to paid employment and on transitioning between different jobs. For students with IDD, postsecondary education should be an opportunity to explore and experience different aspects associated not only with getting a new job but also with transitioning from one job to another job, or dealing with losing a job (Grigal & Hart, 2010). Numerous opportunities to practice the self-advocacy and transition skills in natural environments increase the likelihood of skill generalization and maintenance, thus empowering students to successfully manage transitions in the future.

Service Provision by Type of Institution, Size, and Length of Program Existence

Our results indicate that a larger number of students receive work-based experiences and training on selected vocational-related content at four-year universities compared to two-year community colleges. These findings extend to the number of students receiving training on disability benefits and work incentives. For example, data reveal that the number of students receiving training on specific vocational-related services was larger in programs located in an urban setting compared to programs located in a suburban setting. One potential explanation for this finding may be related to the available resources allocated to such training by programs hosted at four-year universities or situated in an urban setting. Specifically, programs offered at four-year universities or located in urban settings may have the opportunity to allocate more human resources by developing partnerships with outside agencies which might have qualified personnel to provide specialized training on the above-mentioned services. For programs located in suburban areas such partnerships may not be readily available. Regardless of the availability or unavailability of qualified personnel to provide training on specific vocational-related services, being equipped with knowledge and skills in the above-mentioned services might be critical in increasing students' effectiveness in accessing Supplemental Security Income (SSI), maintaining housing, managing finances, or dealing with marital issues (Grigal & Hart, 2010).

The results of this study indicate that many students with IDD receive VR services during their enrollment in PSE programs. These findings are encouraging taking into account that students who receive VR services (e.g., assistance with life skills, career assessment, career counseling, job coaching, or job placement post-graduation) are more likely to obtain competitive employment, complete their job responsibilities successfully, and earn higher weekly wages than those who do not receive services (Gilmore, Schuster, Zafft, & Hart, 2001; McEathron et al., 2013; Smith et al., 2013). Although state VR offices play a critical role in providing assistance to students with IDD enrolled in PSE programs, previous studies show that (a) students with IDD who receive VR services are less likely to attend PSE compared to students with other types of disabilities and (b) there is no trend between 2006-2010 at the national level in the number of students with IDD who received both VR services and PSE (Grigal, Migliore, & Hart, 2014). In addition, the number of students with IDD who enrolled in PSE programs and received VR services varies greatly across states with some states reporting increases in the number of students pursuing PSE and other states reporting decreases in PSE outcomes (Grigal et al., 2014).

The lack of research on the role of state VR offices in supporting students with IDD in PSE programs combined with little or no federal and state guidance on provision of VR services to this population facilitates a wide variety and no consensus regarding the type of support services and effective practices that are or should be implemented by VR offices to assist students with IDD interested in pursuing a PSE. For example, Grigal et al. (2014) found that a limited number of states developed written agreements to delineate the type and provision of support services offered by VR offices to students with IDD interested in pursuing PSE whereas in other states supporting students with IDD in PSE is not a priority for VR offices and no clear guidelines exist regarding the provision of support services for this population.

The purpose of our study was not to examine the vocational-related support services offered by VR offices to students with IDD enrolled in PSE programs; however, we would like to provide some suggestions on the potential role of VR offices to promote PSE for students with IDD by providing support services to facilitate students' successful completion of the program and their transition to employment and independent living (see Table 5). Support services provided by VR offices in collaboration with PSE programs to assist students with IDD in pursuing competitive employment are extremely important taking into account that students perceive being supported by college staff, transition specialists, and peers throughout the entire employment process as one of the motivating factors in obtaining and retaining a job (Andrews & Rose, 2010).

An important finding of our study relates to connecting students with IDD with adult agencies. Our

data indicate that although a large number of students receive VR services, only a limited number of students enrolled in PSE programs are connected with adult agencies such as state developmental disability agencies, local community rehabilitation providers, work incentives program assistants, or social services. No statistically significant difference exists between the number of students being connected with adult agencies in urban programs compared to suburban and rural and small town programs. Being connected with adult agencies is an important aspect of transition to employment and independent living after graduation (Noonan, Morningstar, & Gaumer-Erickson, 2008), and thus it is critical that students are aware of these agencies and know how to access different services offered by adult agencies as needed.

Challenges in Providing Vocational Support to Students with IDD

The program directors and coordinators surveyed in this study indicated that some of the challenges encountered in preparing students with IDD for competitive employment refer to lack of paid jobs in their area, a limited number of work hours (i.e., 2-6) per week available to students, and difficulties with transportation to and from work place. Additional challenges indicated by the program directors and coordinators included limited time and staff required to provide quality instruction and support to students at their job placement. Grigal and Hart (2010) argued that these particular challenges, while widely acknowledged as being connected with negative employment outcomes, continue to be areas with no significant push for improvement. The program coordinators also indicated difficulties in establishing relationships with VR offices, community employers and agencies, ensuring adequate preparation of staff and allocating a work load that will expand the time faculty and staff can allocate in developing these relationships may help addressing these particular challenges.

Despite the fact that VR offices play an important role in supporting students with IDD attending PSE programs, many respondents surveyed in our study indicated that sometimes establishing collaborative partnerships with these offices is extremely difficult. Challenges encountered by PSE programs in collaborating with VR offices consist of the amount of time necessary to connect with VR personnel, lack of clear state regulations regarding the provision of services to students with IDD in PSE, an inappropriate referral system used by VR offices, no interest from VR personnel to develop collaborative partnerships with PSE personnel, and technical issues with the VR system regarding payment for services. Several of the challenges identified in our study such as lack of state guidance regarding the provision of VR services to students with IDD in postsecondary education and issues related to payment for services are consistent with findings of previous studies (Grigal et al., 2014; Raue & Lewis, 2011).

Additionally, the results of the content analysis also suggest that respondents indicated student characteristics as obstacles in preparing students for competitive employment. These characteristics consisted of students' skill level, motivation, responsibility and accountability, difficulty in identifying realistic employment goals, problem behavior, and attendance to work. For example, some respondents indicated that it is extremely difficult to "set realistic employment goals for students" and to "increase their motivation to go to work and complete tasks." Respondents noted that family variables such as expectations and the lack of information about the impact of having a paid job on the social security benefits represent a barrier in preparing students for the workforce. Specifically, one respondent stated that "some parents know that their child will never have a paid job and they are ok with that" whereas another respondent reported that "the fear of losing the social security income determines parents to advise their child not to have a paid job." Different state and agency regulations and employers' expectations regarding student performance add an additional challenge to preparing the students with IDD for competitive employment.

Implications for Practice

The findings of our study have several practical implications for practitioners and Disability Service providers working with students with IDD enrolled in PSE programs. First, a large number of students received vocational-related support services (e.g., career counseling, person-centered planning, career or vocational assessment, and career exploration) but fewer students had the opportunity to participate in work-based experiences such as paid or un-paid employment. Although training on vocational skills is extremely important and represents a prerequisite for entering the competitive job market, it is important to note that without the opportunity to practice the newly acquired skills in the natural environment students with IDD may not be able to transfer and maintain these skills, and therefore may not be successful in obtaining a job post-graduation. Thus, PSE personnel should continue to explore potential avenues that would lead to increased opportunities for work-based experiences during students' enrollment in the program.

Second, students who have the opportunity to participate in work-based experiences during enrollment in the PSE program are provided with limited supports at the workplace and rely mostly on coworkers and supervisors to assist them with task completion. It is laudable that coworkers and supervisors are involved in providing supports to students with IDD to perform their job responsibilities, but PSE personnel and Disability Services providers should be aware that some students may need intensive levels of support that require a lot of time, training, and expertise. Emerging data show that even after graduation from PSE programs students with IDD need variable levels of support ranging from a daily basis to weekly or twice a month (Ross et al., 2013). Consequently, it is important for PSE personnel to design programs that use a balanced approach in regard to the amount of assistance provided by different stakeholders involved in the process.

Third, many PSE programs establish collaborative partnerships with external agencies such as VR offices, local businesses, and employers but a limited number of programs collaborate with adult services such as local rehabilitation service providers, work incentive programs, or social services. Developing collaborations with multiple adult services and raising students' awareness of the various services offered by the above-mentioned agencies should be a critical component of PSE programs. Students with IDD are very likely to need post-graduation support in many domains (e.g., independent living, employment) while transitioning to adult life. Adult services represent one of the potential avenues students may want to pursue to obtain the support needed to function as independently and effectively as possible and to be viewed as active and valued members of their community.

Fourth, Disability Service providers who may serve students with IDD enrolled in PSE programs can contribute in several ways to students' success in achieving vocational goals and transitioning effectively to independent living and employment. To begin with, Disability Service providers may assist PSE personnel in providing vocational-related support services both on- and off-campus. The higher education institution might already have these types of supports and qualified personnel in place. Examples of vocational-related services include assistive technology, transportation, career counseling, and support groups to develop students' self-advocacy skills, build confidence, and increase self-esteem. Another way to support students with IDD in PSE programs is to organize career-related events (e.g., Career Fair, Career Awareness) in collaboration with on- and off-campus agencies with the ultimate goal of providing opportunities for social networking both for students and for employers. Expanding the social network of students with IDD is extremely important considering that many students rely heavily on parents and caregivers prior to entering college (Eisenmann et al., 2014; Gotto, Calkins, Jackson, Walker, & Beckman, 2010). Additionally, Disability Service providers might want to consider organizing training sessions for students with IDD, typical college students, and staff members working with students with IDD. For students with IDD, training may consist of providing information on disability benefits and their impact on employment, resources provided by different adults agencies and effective ways to access them, support services provided by Disability Service providers, and self-advocacy skills. For typical college students and staff members working with students with IDD, training may focus on how to best support these students across different settings (e.g., classroom, community, and workplace) to increase the likelihood of successful independent functioning.

Finally, Disability Service providers may want to initiate collaborative partnerships with VR offices to facilitate the delivery of support services to students with IDD. Such services may range from career exploration, career counseling and assessment to referrals, job coaching, assistive technology, and environmental modifications. A significant part of this collaborative partnership would consist of developing clear guidelines or agreements regarding the role and responsibilities of each party in promoting PSE for students with IDD interested in continuing their education. For example, Disability Service providers in collaboration with VR and PSE personnel could develop a handbook accessible to students and parents delineating each service available, the party responsible for providing the service, and the requirements necessary to access a specific service. The availability of such information would reduce confusion, increase awareness of the wide range of available services, and facilitate student accessibility to such services.

Implications for Future Research

This study provided detailed information on vocational-related support services offered to students to IDD attending PSE programs with the purpose of gaining a better understanding of how PSE prepare these students for competitive employment. However, future research is needed to continue and expand this line of research to better address the needs of a growing population of students with IDD attending PSE. First, future studies may conduct a more in-depth analysis of

the characteristics and provision of vocational-related support services by vocational and technical schools. It is possible that support services provided by these schools may be different than the support services provided by four-year universities and two-year community colleges because of the emphasis on vocational content rather than academic content of such schools.

Second, it would be also important to examine the effectiveness of various planning and job development strategies in providing increased opportunities for paid employment to students with IDD and assess whether paid employment is a predictor for successful post-graduation employment for students with IDD who graduate PSE programs taking into account that paid employment is a predictor of post-school graduation for students with disabilities existing high-school. Third, future investigation may explore to what extent the connection and involvement of students with IDD with adult agencies leads to positive employment and personal outcomes after graduation. This has implications for adult agencies such as VR offices and Disability Services providers at the university level that may need to get a more comprehensive understanding of effective strategies to better serve the needs of students with IDD enrolled in PSE programs.

Finally, future studies may explore the perceptions of students with IDD enrolled in PSE programs regarding the quality of vocational-related support services received during enrollment in the program and their contribution to achievement of vocational goals and post-graduation employment.

Limitations

The results of this survey have to be interpreted with caution due to several limitations. First, data provided in this study is representative only of the programs (n=66) that responded to this national survey. Therefore, generalization of the findings to all PSE programs serving students with IDD for competitive employment may be limited. Specific caution should be considered when generalizing the findings to vocational, business, or technical schools given that only two of the programs reported as being affiliated with such institutions. Second, the response rate of this study was not very high. This may be due to a survey fatigue of directors and coordinators of PSE programs. Specifically, the database developed by ICI and made available on the Think College website represents one of the few national resources about PSE programs for students with IDD. Thus, these programs may receive invitations to participate in various surveys disseminated both by ICI and by researchers not affiliated with ICI (M. Grigal, personal communication, November

15, 2013). Third, it is difficult to design a survey that captures the full extent to which students receive each of these services. For example, one student who had one meeting with a state VR office representative and another student who had his or her own VR counselor would be counted the same in this survey, although they may have obtained different outcomes. Despite these limitations, the data provided by this study significantly contributes to the existing literature on vocational-related support services received by students with IDD attending PSE.

Conclusion

In sum, the findings of this study document the type of vocational-related support services received by students with IDD in PSE including vocational-related training and collaboration with adult agencies and the differences in service provision as a function of type of institution, size of the program, and the length of time the program has been in existence. The results suggest that most students with IDD received vocational-related support services including career or vocational counseling, person-centered planning, career or vocational assessment, instruction on transitioning from training to paid employment and between paid jobs, and self-advocacy. Moreover, PSE programs associated with a four-year university offer these services to a larger extent than programs associated with a two-year community college. The number of students receiving training on vocational-related support services was larger in programs located in urban areas compared to programs located in suburban areas. No differences exist in the provision of work-based experiences, workplace supports, and connections with adult agencies based on location. Data also indicate that challenges encountered by PSE programs in providing vocational-related support services to students with IDD consist of limited or no paid jobs in their area, limited number of work hours per week available to students, transportation, and limited time and staff. Thus, this study expands our understanding of the practices and supports implemented by PSE programs to prepare students with IDD for competitive employment. Grigal, Neubert, and Moon (2004) argued that data collection of different aspects of students' activities, including employment, should be part of the regular course operation of PSE programs. As more and more students with IDD attend PSE programs, research also needs to concentrate on examining the assessment procedures implemented by these programs to assess and monitor student progress and program effectiveness.

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