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Job Interview and Vocational Outcomes Among Transition-Age Youth Receiving Special Education Pre-Employment Transition Services

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Abstract

Vocational outcomes among transition-age youth receiving special education services are critically poor and have only incrementally improved since the implementation of the Workforce Innovation Opportunity Act. Few studies highlight whether interviewing may be critical to obtaining vocational outcomes such as competitive employment or internships. This study evaluated vocational interviewing and outcomes among N=656 transition-age youth receiving special education pre-employment transition services from N=44 schools. Results suggest 20.8% of these youth were currently employed, and 88.8% of these employed youth interviewed prior to obtaining their job which is higher than anecdotal evidence suggests and speaks to the importance of job interview skill as an intervention target for special education pre-employment transition services. We discuss the implications and directions for further study.

Introduction

Transition-age youth (TAY) receiving special education services are typically youth between 16 and 22 years of age who have a qualifying disability (e.g., specific learning disability, autism, intellectual disability)[1] as defined by the Individuals with Disabilities Education Act (IDEA; Individuals with Disabilities Education Act, 2004) and receive school-delivered services to help prepare them to transition from school to adult-based activities after they complete high school. According to the U.S. Bureau of Labor Statistics, approximately 18.4% of youth with a disability who are 16 to 19 years old are employed, while approximately 40.2% of people with a disability who are 20 to 24 years old are employed. In contrast, their peers without a disability are employed at 31.4% and 68.5%, respectively (Bureau of Labor Statistics, 2020). Based on these low employment rates, one of the core transition services highlighted by the Workforce Innovation and Opportunity Act focuses on pre-employment transition services so TAY receiving special education services (hereafter referred to as TAY) are better prepared to enter the work force (Workforce Innovation and Opportunity Act, 2014). Along these lines, job interview preparation has long been targeted by pre-employment transition services (Carter, Trainor, et al., 2010; Wilczynski et al., 2013) and is highlighted as a transition activity by the United States Department of Education, Office of Special Education and Rehabilitation Services (United States Department of Education, 2017).

Job interviewing is essential to obtaining competitive jobs in the community among the general population (Macan, 2009; Posthuma et al., 2002; Wilk & Cappelli, 2003). Moreover, community employers report job interview performance as one of the most significant predictors of job offers

[1] A note on language: throughout this manuscript, we use both identity-first and person-first language. Specifically, we use identity-first language when referring to autistic TAY because this best aligns with the preferences of autistic people (Kenny et al., 2016); we use person-first language when referring to TAY with disabilities more broadly because this aligns with current best practices surrounding language use in the field.

(Saks & Ashforth, 2000; Tews et al., 2018). Along these lines, job interviewees are typically judged based on both the content of their responses and their performance at providing the responses (Huffcutt, 2011). Furthermore, job seekers in the general population as well as individuals with a disability report anxiety to be among the top challenges when job interviewing (McCarthy & Goffin, 2004; Sarrett, 2017). Perhaps aware of these difficulties, employers often have an immediate negative reaction to individuals with a disability during job interviews, resulting in poorer employment outcomes (Henry et al., 2014).

The social challenges TAY face within the job interview has led to the United States Department of Education identifying job interview skill as a target for transition services (United States Department of Education, 2017). However, there is limited evidence-based practice with respect to job interview training. For example, one of the most commonly used national databases supporting the dissemination of evidence-based practices for transition services (e.g., National Technical Assistance Center on Transition (NTACT, 2020)) only identify a single pilot study suggesting video-modeling may be efficacious at enhancing job interview skills (Hayes et al., 2015). To address this gap in services, several research groups have developed or begun evaluating the efficacy and effectiveness of virtual reality, computerized simulated methodologies, or other strategies to enhance job interview skills (Burke et al., 2018; Kumazaki et al., 2017; Morgan et al., 2014; Smith et al., 2014; Smith et al., in press; Strickland et al., 2013; Ward & Esposito, 2018). In addition to an emerging literature focused on job interview training for youth with a range of disabilities, there is a literature that highlights that youth with disabilities have impairments in the social skills needed to do well on job interviews (Bellini, 2004; Crites & Dunn, 2004; Kavale & Forness, 1996; Rahill & Teglasi, 2003) and employed individuals with a disability emphasize the need to practice interview skills (Jans et al., 2012). Despite the emergence of this research, there

is a paucity of research reporting on whether TAY are actually attending job interviews prior to securing employment or other vocationally-related outcomes (e.g., internships).

That said, we know that TAY have successfully secured employment through job placement via Supported Employment (Burke-Miller et al., 2012; Wehman et al., 2014) or after completing a series of placed internships and job matching efforts through a pre-employment training program called Project SEARCH (Persch et al., 2015; Rutkowski et al., 2006; Wehman et al., 2019). Meanwhile, youth without access to these more intensive services are assumed to obtain competitive employment and internships through school-, family-, or program-based networking where TAY may come to know their potential employer prior to being hired. However, research has not yet evaluated whether successfully completing job interviews were a pre-requisite to these vocational outcomes. Thus, although job interview training (both in-person and technology-based) is increasingly used as a transition service, it is currently unknown how frequently TAY are actually required to interview for positions in order to obtain them. Along these lines, the frequency that TAY are attending interviews may also influence the scale at which to evaluate the effectiveness and implementation of the aforementioned job interview training programs using rigorous research methods.

In this study, we aim to fill key gaps in the literature on job interviewing in TAY receiving special education services by describing the following characteristics across a range of TAY (using IDEA-defined disability groups) receiving pre-employment transition services at schools in urban, suburban, and rural locales. First, we report on whether TAY have ever had a competitive job during their lifetime and if they recently interviewed for a job. Second, we will report on whether these TAY currently have a competitive job, the mean hours worked, wages earned, and the type

of job. Lastly, we report on the frequency the TAY participated in and interviewed for unpaid or paid internships, and their hours worked and wage earned (if applicable) in these positions.

Methods

Our team recruited n=44 schools (or school-based programs such as county-level educational cooperatives and school-based adult transition programs for eligible youth) to participate in an open trial to evaluate the effectiveness and implementation of two technology-based job interview training tools. The current study is an evaluation of vocational interview history and outcomes among TAY prior to their school-level implementation of either Virtual Reality Job Interview Training (VR-JIT) or Virtual Interview Training for Transition Age Youth (VIT-TAY). Both VR-JIT and VIT-TAY are computerized job interview simulations delivered via the internet that facilitate repeatedly practicing job interviews with a virtual hiring manager while receiving automated feedback via a real-time job coach, transcript review, and performance review on a series of job interview skills (Blinded Publications). The study was designated as exempt by the [Blinded] University's Institutional Review Board. This decision was based on the school partners providing de-identified background and vocational data for the TAY.

Recruitment

We approached schools in Illinois, Michigan, and Florida by networking with the Illinois Division of Rehabilitation Services (I-DRS), Michigan Rehabilitation Services (MRS), and Project SEARCH. Project SEARCH is an evidence-informed, pre-employment training program disseminated at more than 400 sites nationally and hosts annual conferences for each state implementing their program. First, I-DRS referred us to a network of approximately 700 schools in Illinois that serve approximately 10,000 TAY. Second, MRS referred us to a single post-

secondary transition program serving approximately 1,000 TAY, ages 18 to 26. Lastly, Project SEARCH supported us to connect with schools via presentations at their annual conferences in Michigan and Florida.

After the initial referrals, the research team introduced VR-JIT or VIT-TAY to n=187 schools (or programs) and offered them an opportunity to participate in the open trial to implement and evaluate the tool. In total, n=85 schools (or programs) agreed to participate after the presentation. However, n=41 schools/programs dropped out for various reasons (e.g., understaffed, shift in priorities) prior to beginning the study and n=44 schools across Illinois, Michigan, and Florida completed the open trial and their pre-trial data is being reported in this study. At the school-level, although all teachers providing transition services were invited to participate, some teachers declined. We do not have a count on the number of teachers each school approached who declined participation. In total, school staff (n=29 teachers, n=35 administrators) from participating schools used administrative data (e.g., educational records) to complete background and employment history surveys for the TAY (n=748). School partners report this same administrative data to their respective state divisions of vocational rehabilitation services. TAY in the parent study met the following inclusion criteria: 1) 16 to 26 years old; 2) met special education eligibility criteria; 3) enrolled in transition services; and 4) had at least a 3rd grade reading level. TAY were excluded from the parent study if they had an uncorrected visual impairment that prevented them from using VR-JIT or VIT-TAY. In addition, TAY were allowed to enroll in the technology-based interview trial regardless of their current employment status (employed or not), job seeking status (yes or no), or whether they were concurrently interning and working. To emphasize the generalizability of the results to TAY supported by IDEA (i.e., through age 22), we removed participating students who were 23 to 26 years old (n=19) from the analyses.

Also, n=66 TAY in this sample were enrolled in Project SEARCH, which places them in an internship as part of their program. Thus, these TAY were removed from the present analysis to minimize bias with respect to paid and unpaid internship rates and interviewing for internship rates. Overall, the sample includes data on n=656 TAY after removing the aforementioned two sets of youth from our analyses. The removal of these TAY from this particular analysis enhances the generalizability of the sample to youth typically engaged in special education pre-employment transition services in urban, suburban, and rural communities within the Midwestern and Southeastern United States.

Study Measures

All school partners received funding from I-DRS, MRS, or the Florida Division of Vocational Rehabilitation. As part of their state-level funding to support vocational rehabilitation, each school or program partner already had a process by which teachers monitor and report vocational outcomes for the TAY directly to their state or district. Upon request, each school partner identified that teachers or administrators reporting the vocational rehabilitation to the state or district would be responsible for completing the research surveys. Thus, all teachers or administrators were instructed to complete the research surveys using the same vocational rehabilitation outcome data reported to the state or district.

Specifically, teachers or administrators completed two surveys for each youth. The first survey focused on the youth's demographic (i.e., age, biological sex, race, and ethnicity) and educational background (i.e., grade level, reading level, disability category [primary, secondary, tertiary]). We used the 13 disability categories according to IDEA (2004): autism; deaf-blindness; deafness; emotional disturbance; hearing impairment; intellectual disability; multiple disabilities; orthopedic impairment; other health impairment; specific learning disability; speech or language impairment;

traumatic brain injury; and visual impairment (Individuals with Disabilities Education Act, 2004). As some states refer to "intellectual disability" as "cognitive impairment", we decided to use the federal identification of "intellectual disability" for consistency. With respect to potential co-occurring conditions, there were n=187 (28.5%) TAY with a secondary disability category and n=27 (4.1%) TAY with a tertiary disability category.

We coded the presence of the diagnosis as 1 = 'yes' and 0 = 'no.' Given that we collected data on primary, secondary, and tertiary disability categories, if a TAY had a primary disability category of autism and a secondary disability category of intellectual disability then they would be coded as '1' or 'yes' for each variable "autism" and "intellectual disability." In addition, n=4 TAYs had a single category of traumatic brain injury, n=4 TAYs had a single category of multiple disabilities (with no additional information), n=2 TAYs had a single category of visual impairment, n=2 TAYs were in the hearing impairment category, and n=2 TAYs were in the orthopedic impairment category (a total of n=14 youths). These TAYs were recoded to be in the "Other Health Impairment" category so that cell sizes were large enough to evaluate their data. Reporting on such small groups could potentially de-identify the TAY.

The second survey (using skip patterns) evaluated the TAYs' employment histories with regard to their current and lifetime employment at competitive and integrated jobs (currently; ever employed; yes=1, no=0) and whether the TAYs interviewed for their current job (yes=1, no=0) or interviewed for a job in the past 3 months (yes=1, no=0). Additionally, this survey evaluated, for a current job, monthly hours worked, hourly wage earned, and job type. We categorized currently held competitive and integrated job types using the 23 major groups of the 2018 Standard Occupational Classification system from the United States Department of Labor, Bureau of Labor Statistics (United States Department of Labor, 2018). This survey also evaluated the TAYs'

internship histories with regard to whether they were currently in an unpaid or paid internship (both yes=1, no=0), whether they completed an interview to obtain the unpaid or paid internship (both yes=1, no=0), monthly hours worked, and hourly wage earned (where appropriate).

We used the National Center for Education Statistics (NCES) locale framework to categorize schools into different types of locales based on population size and the urban and rural definitions developed by the United States Census Bureau (Geverdt, 2015). We verified the school name and address and then we entered the school addresses into the NCES Search for Public Schools database to determine the locale subtype for each school using 2016-2018 school year data. The NCES locale subtypes include: City – Large; City – Midsize; City – Small; Suburban – Large; Suburban – Midsize; Suburban – Small; Town – Fringe; Town – Distant; Town – Remote; Rural – Fringe; Rural – Distant; and Rural – Remote.

Data Analysis

We used SPSS 26.0 to conduct two sets of analyses. First, we conducted descriptive analyses to generate unadjusted frequencies for nominal and categorical variables, and means and standard deviations for scaled variables. Second, we conducted inferential analyses using logistic regression models, controlling for age, to evaluate the odds associated with between-group differences (e.g., comparing autism to other disabilities, specific learning disability to other disabilities) for nominal variables and analysis of variance to evaluate between-group differences for scaled variables.

Results

Characteristics of Transition-Age Youth Receiving Special Education Services

We present the demographics for the entire sample in Table 1, where we observed that the entire sample of TAY had a mean age of 18.1 (SD=1.9) and were 65.2% male, 63.0% Caucasian, 20.6% Black/African-American, 16.4% other race and 19.3% identified having a Latinx ethnicity;

45.5% seniors in high school, and 56.3% read at a 6th grade level (or higher). In addition, we present the disability categories of the youths (per their individualized education program): 38.9% (n=255) TAY with a specific learning disability; 26.5% (n=174) TAY with other health impairment; 21.0% (n=138) autistic TAY; 18.3% (n=120) TAY with an intellectual disability; 17.4% (n=114) TAY with emotional disturbance; and 6.4% (n=42) of TAY with a speech or language impairment. Lastly, n=10 schools were from large suburbs; n=7 schools were from large cities; n=4 schools were from small cities; n=4 schools were from fringe towns; n=2 schools were from small suburbs; n=1 school was from a remote town; and n=1 school was rural (fringe). In addition, Table 1 displays the demographic characteristics for each of the disability categories. In particular, we observed that TAY with a specific learning disability and TAY with emotional disturbance were significantly younger than TAY with other disabilities (all $p<0.05$). Meanwhile, we observed that autistic TAY or TAY with intellectual disability were significantly older than TAY with other disabilities (all $p<0.05$). Thus, we evaluated age as a covariate in our interviewing and outcome analyses.

Employment-related Outcomes

In this study, we aimed to characterize the vocational interviewing and outcomes experienced across the entire sample and within each disability category (Table 2). Across the sample of TAY, we observed that 40.1% had a competitive job during their lifetime; 23.4% interviewed for a job in the past 3 months; and 20.8% were currently employed. We observed that 88.8% of TAY were currently employed interviewed for their job. In addition, TAY were making a mean wage of M=9.23 (SD=1.63) dollars per hour and were working M=59.65 (SD=34.17) hours per month.

We observed several differences in employment outcomes and interviewing experience when comparing each disability category to their peers with other disabilities (Table 2), and after

controlling for age (Table 3). Specifically, we observed that TAY with a specific learning disability had a greater odds ratio of ever having been employed as compared to TAY with other disabilities (Model Fit: X^2=15.6, p<0.001; OR=1.57, 95% CI=1.12, 2.20; p=0.009) where age was a significant covariate (OR=1.17, 95% CI=1.07, 1.27; p<0.001). TAY with a specific learning disability, as compared to TAY with other disabilities, had a greater odds ratio of current employment (Model Fit: X^2=9.4, p=0.009; OR=1.82, 95% CI=1.22, 2.71; p=0.003; age was non-significant, p>0.10) and earned a significantly higher wage (M=9.52 [SE=0.20] vs. M=8.93 [SE=0.20], $F_{1,129}$=4.24, p=0.04). We also observed that autistic TAY, as compared to TAY with other disabilities, had a lower odds ratio of ever having been employed (Model Fit: X^2=21.9, p<0.001; OR=0.47, 95% CI=0.31, 0.72; p<0.001) where age was a significant covariate (OR=1.16, 95% CI=1.07, 1.26; p<0.001). Autistic TAY, as compared to TAY with other disabilities, also worked significantly fewer hours per month (M=45.43 [SE=6.50] vs. M=62.88 [SE=3.08], $F_{1,127}$=5.86, p=0.02).

TAY with an intellectual disability, as compared to TAY with other disabilities, had a lower odds ratio of current employment (Model Fit: X^2=17.5, p<0.001; OR=0.29, 95% CI=0.15, 0.57; p<0.001; age was non-significant, p=0.06); lower odds ratio of interviewing for a job in the past 3 months (Model Fit: X^2=7.6, p=0.023; OR=0.47, 95% CI=0.26, 0.84; p=0.011; age was non-significant, p>0.10), and worked fewer hours per month (M=37.88 [SE=9.90] vs. M=61.67 [SE=2.92], $F_{1,127}$=5.25, p=0.024).

TAY with emotional disturbance, as compared to TAY with other disabilities, had a greater odds ratio of ever having been employed (Model Fit: X^2=13.6, p<0.001; OR=1.59, 95% CI=1.05, 2.42; p=0.028) where age was a significant covariate (OR=1.15, 95% CI=1.05, 1.24; p=0.001). Also, TAY with emotional disturbance, as compared to TAY with other disabilities, had a lower

hourly wage at their job (M=8.44 [SE=0.30] vs. M=9.45 [SE=0.16], $F_{1,129}$=8.38, p=0.004). No other disability-specific, employment-related differences were statistically significant (all p>0.10; Table 3). Age was a significant covariate in every 'hours worked per month' analysis (all p<0.05) except for TAY with a speech and language impairment (p>0.10). Age was a non-significant covariate in all wage analyses (all p>0.10).

In addition, Table 4 shows that TAY most frequently obtained jobs in the areas of: 1) food preparation and serving (36.0%); 2) transportation and material moving (16.9%); 3) building, grounds, cleaning, and maintenance (9.6%); 4) office and administrative support (9.6%); 5) sales and related occupations (8.8%); 6) personal care and service (4.4%); and 7) other jobs (8.1%; e.g., healthcare support; education, agricultural). In addition, 6.6% of jobs were not labeled due to missing data. The types of jobs obtained did not significantly differ between disability categories. Due to the low employment numbers across job types, we did not covary for age.

Internship-related Outcomes

As shown in Table 5, we observed that 21.7% of TAY were currently in an unpaid internship and 8.3% were currently in paid internships. In addition, 29.1% of unpaid interns interviewed for their position and unpaid interns worked M=21.8 (SD=23.7) hours per month. Meanwhile, we observed that paid interns worked M=20.9 (SD=14.5) hours per month, received a mean wage of M=5.95 (SD=2.1) per hour, and 33.3% of paid interns interviewed for their position.

We observed several differences in internship outcomes when comparing each disability category to TAY with other disabilities (Table 5), and after covarying for age (Table 6). Specifically, we observed that TAY with a specific learning disability, as compared to TAY with other disabilities, had a lower odds ratio of having a current unpaid internship (Model Fit: X^2=85.41, p<0.001; OR=0.61, 95% CI=0.39, 0.97; p=0.036). TAY with a specific learning

disability worked more hours per month at the unpaid internship compared to TAY with other disabilities (M=33.17 [SE=4.20] vs. M=17.95 [SE=1.93], $F_{1,169}$=9.60, p=0.002) with age as a significant covariate ($F_{1,169}$=6.95, p=0.009).

TAY with other health impairments, as compared to TAY with other disabilities, had a lower odds ratio for a current paid internship (Model Fit: X^2=8.39, p=0.015; OR=0.45, 95% CI=0.21, 0.97; p=0.041). Additionally, autistic TAY, as compared to TAY with other disabilities, worked fewer hours at their paid internship (M=11.66 [SE=3.92] vs. M=24.50 [SE=2.40], $F_{1,43}$=7.46, p=0.009). Also, TAY with an intellectual disability, as compared to TAY with other disabilities, had a greater odds ratio of being in an unpaid internship (Model Fit: X^2=85.90, p<0.001; OR=1.72, 95% CI=1.08, 2.74; p=0.023) and a paid internship (Model Fit: X^2=24.06, p<0.001; OR=4.74, 95% CI=2.47, 9.10; p<0.001) where age was a significant covariate (OR=0.77, 95% CI=0.66, 0.91; p=0.002).

TAY with emotional disturbance, as compared to TAY with other disabilities, had a lower odds ratio of a paid internship (Model Fit: X^2=19.82, p<0.001; OR=0.07, 95% CI=0.01, 0.53; p=0.010) where age was a significant covariate (OR=0.84, 95% CI=0.73, 0.97; p=0.021). TAY with emotional disturbance also worked more hours per month at a paid internship compared to TAY with other disabilities (M=57.24 [SE=13.63] vs. M=20.06 [SE=2.03], $F_{1,43}$=7.27, p=0.010). Lastly, TAY with a speech and language impairment, as compared to TAY with other disabilities, worked fewer hours per month at their unpaid internship (M=2.12 [SE=7.29] vs. M=23.48 [SE=2.12], $F_{1,123}$=7.90, p=0.006) with age as a significant covariate ($F_{1,123}$=4.20, p=0.042). Age was a significant covariate in every 'current unpaid internship' analysis (all p<0.05) except for TAY with a speech and language impairment (p>0.10). No other disability-specific, internship-related differences were statistically significant (all p>0.10).

Discussion

To the best of our knowledge, this is the first study to report on the rates for TAY to complete job interviews prior to obtaining employment. Specifically, we observed that 88.8% of TAY with disabilities in this study who were currently employed had interviewed for the job prior to getting hired. Moreover, this rate was consistent across all TAY after covarying for age. That said, this finding speaks to the importance that training in job interview skills is a critical target for pre-employment transition services, and supports the justification for developing and evaluating whether job interview training tools can effectively enhance interview skills and access to jobs for youth and young adults with disabilities, particularly when delivered in pre-employment transition services that are part of special education services provided to TAY.

Moreover, the high rate of employed TAY who interviewed for their job in this study is consistent with stakeholders speaking to the importance of helping youth and young adults improve their job interview skills (Autism Speaks, 2012; Hillier et al., 2007; Jans et al., 2012). That said, we recognize that these data are based on TAY who interviewed and successfully obtained a job as we were unable to obtain data on TAY who completed interviews but were not offered the job. Thus, we cannot draw conclusions regarding a potential lifetime rate of interviewing for a job to better understand how often TAY are failing to obtain a job after interviewing. In addition, we were not able to obtain specific details regarding the interview format, types of questions asked, where the interview was held, or the level of formality of the interview (e.g., interviews may have been informal via family networking) as these details may also speak to the importance of the job interview. Thus, this is critical data that future studies can evaluate in this context.

In addition, our results suggest that TAY receiving pre-employment transition services had a current employment rate of 20.8%. This result is consistent with nationally representative data suggesting 18.4% and 40.2%, respectively, of 16 to 19 year old and 20 to 24 year old TAY are typically employed (Bureau of Labor Statistics, 2020). However, the 20.8% current employment rate is still lower compared to non-disabled youth who are employed at 31.4% (16 to 19 years) and 67% (20 to 24 years), respectively (Bureau of Labor Statistics, 2020). Moreover, the observed hours worked per month and hourly wage did not generally differ across IDEA categories, which is consistent with prior research (Carter, Ditchman, et al., 2010; Carter & Wehby, 2003).

Our results were also consistent with findings in the general literature on employment rates among individuals with a disability (Carter, Ditchman, et al., 2010; Newman et al., 2011; Shattuck et al., 2012). Specifically, we observed that TAY with a specific learning disability or emotional disturbance had significantly higher lifetime employment rates when compared to TAY with other disabilities. Also, we observed that TAY with an intellectual disability had lower rates of current employment compared to TAY with other disabilities, and autistic TAY had lower rates of lifetime employment compared to TAY with other disabilities. Additionally, we observed that autistic TAY and TAY with an intellectual disability worked significantly fewer hours than their peers with other disabilities. The findings suggest autistic TAY and TAY with intellectual disability may need more intensive and individualized interventions within pre-employment transition services that can help reduce these disparities in employment rates and hours worked. Our findings also suggest that interventions that specifically target job interviewing skills may be particularly salient for autistic TAY and TAY with intellectual disability. Adding job interviewing skill interventions to current pre-employment transition services in schools has the potential to provide additional benefit to youth who are at greatest risk of unemployment or underemployment. Meanwhile, future

research is needed to better understand why these TAY with lower employment rates are also working fewer hours per month when compared to their peers from other IDEA categories.

Additional novel findings in this study include our observation that 21.4% of TAY had an unpaid internship and 8.2% had a paid internship. That said, we observed some nuances related to internship outcomes among the subgroups of TAY. Specifically, TAY with a specific learning disability had lower odds of unpaid internships compared to TAY with other disabilities. However, this group had greater odds of competitive employment compared to TAY with other disabilities. Thus, the low unpaid internship rates could reflect the aforementioned elevated rates of employment we observed in TAY with a specific learning disability. Also, TAY with an intellectual disability had greater odds of unpaid or paid internships than TAY with other disabilities, which could be related to this group having lower competitive employment rates than TAY with other disabilities. Perhaps the observed differences in internship rates can be explained by TAY with an intellectual disability engaging in more internship-based training prior to seeking competitive employment (Wehman et al., 2018). Although the National Longitudinal Transition Study-2 observed that internships were not commonly integrated within pre-employment transition services from 2000 to 2010 (Park & Bouck, 2018), the emergence of the Workforce Innovation and Opportunity Act of 2014 triggered the emergence of a school-to-work transition model where internships have become more common within individualized education programs (Workforce Innovation and Opportunity Act, 2014). Nonetheless, future research is needed to evaluate this potential explanation more fully.

We also observed that approximately 30% of unpaid and paid internships were obtained after completing an interview, which did not differ across the diagnostic subgroups. Although this rate is much lower than the observed rate for job interviews, this result suggests that many TAY will

require interview skill development to help them successfully navigate an interview prior to obtaining an internship. With respect to internship performance, we observed that TAY with a specific learning disability worked significantly more hours during unpaid internships as compared to TAY with other disabilities, which is consistent with data from the National Longitudinal Transition Study (Newman et al., 2011).

In addition to our primary vocationally-focused outcomes, we noted several demographic differences when comparing each diagnostic group to the rest of the sample. Among them, we observed a number of racial disparities among the disability categories. Specifically, we observed Caucasian and non-Latinx TAY had elevated rates of having an 'other health impairment,' while Black/African-American and Latinx TAY had lower rates of having an 'other health impairment.' We also observed that Black/African-American TAY had higher rates of having an 'intellectual disability,' while Caucasian TAY had lower rates of having an 'intellectual disability.' These observed disparities are consistent with recent studies highlighting that racial disparities observed in special education may be over- or under-represented (Losen et al., 2014; Morgan et al., 2017). Given the primary focus of this particular study is on interviewing and vocational outcomes at the disability category level, future studies can more deeply evaluate these demographic disparities within the context of interviewing and vocational outcomes (Sullivan & Artiles, 2011).

Limitations

The present findings should be reviewed within the context of its limitations. First, we acknowledge that the current study did not sample a nationally representative group of school partners. However, the sample does represent TAY receiving special education services (above a 3rd grade reading level) across suburban, rural, and urban locales in the Midwestern (Illinois, Michigan) and Southeastern (Florida) United States who are receiving standardized pre-

employment transition services that are supported by state-level vocational rehabilitation services. Second, the results of this study do not generalize to all TAY engaged in special education transition services as school partners included TAY engaged in rigorous pre-employment services. Third, the generalizability of our findings may be limited as participating schools were receptive to piloting the implementation of a technology-based job interview tool (VR-JIT or VIT-TAY) within their setting, and as such, the characteristics of these partners at the school-level (and indirectly, the student-level) may be fundamentally different from schools who were non-responsive or declined the opportunity to pilot the implementation of the job interview tools. For example, our results may not generalize to students from schools with fewer resources (both labor related and non-labor related). Fourth, it is possible that there was selection bias associated with schools that agreed to participate, as they may have been more likely to prepare TAY for interviews. Lastly, we collected data on n=14 TAY with an 'other' disability whom we grouped together with the 'other health impairment' category. The pattern of results did not change with or without the inclusion of these additional TAY.

Conclusions

This study provided an opportunity to characterize the history of employment (including job type, hours worked, and wages earned), participating in a job interview prior to employment, and participating in paid and unpaid internships across several IDEA categories of TAY. The identified current rates of employment in TAY were consistent with large-scale national studies. Further, this particular study provides novel evidence that 88.8% of employed TAY with a disability completed job interviews prior to obtaining their job. The rate of job interviewing currently employed TAY with a disability appears to be much higher than anecdotal evidence would suggest and speaks to

the importance of implementing evidence-based job interviewing skills training within pre-employment transition services.

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Table 1. Background Characteristics for Transition-Age Youth with Disabilities							
	Total Sample n=656	Specific Learning Disability (n=255)	Other Health Impairment (n=174)	Autism (n=138)	Intellectual Disability (n=120)	Emotional Disturbance (n=114)	Speech and Language Impairment (n=42)
Age	18.1 (1.9)	17.4 (1.8)	18.1 (2.1)	18.8 (1.6)	19.2 (1.7)	17.5 (1.9)	19.1 (1.7)
Biological Sex (male)	65.2%	57.6%	71.8%	81.2%	63.3%	66.7%	64.3%
Race							
Caucasian	63.0%	63.9%	71.3%	63.8%	45.8%	68.4%	71.4%
Black/African-American	20.6%	19.2%	14.9%	18.8%	29.2%	21.9%	23.8%
Other	16.4%	16.9%	13.8%	17.4%	25.0%	9.6%	4.8%
Ethnicity							
Latinx	19.3%	22.1%	11.2%	14.5%	31.2%	9.7%	18.4%
Grade							
Freshmen	6.1%	8.2%	9.2%	2.9%	0.0%	8.8%	0.0%
Sophomore	8.6%	12.2%	5.7%	3.6%	2.5%	15.8%	7.1%
Junior	12.5%	14.5%	15.5%	5.1%	12.6%	15.8%	7.1%
Senior	45.5%	47.1%	44.3%	49.6%	47.9%	40.4%	28.6%
Adult Transition	26.3%	18.0%	25.3%	38.7%	37.0%	19.3%	57.1%
Reading Level							
5th grade or lower	43.7%	38.0%	33.3%	41.3%	88.3%	22.8%	42.9%
6th grade or higher	56.3%	62.0%	66.7%	58.7%	11.7%	77.2%	57.1%

Note. N=102 participants were missing data on ethnicity.

Table 2. Unadjusted Interviewing and Employment Outcomes for Transition-Age Youth with Disabilities							
	Total Sample n=656	Specific Learning Disability (n=255)	Other Health Impairment (n=174)	Autism (n=138)	Intellectual Disability (n=120)	Emotional Disturbance (n=114)	Speech and Language Impairment (n=42)
Youth has ever had a job	40.1%[a] (n=263)	44.4% (n=112)[g]	42.8%[m] (n=74)	29.2%[p] (n=40)	38.3% (n=46)	47.8%[l] (n=54)	42.9% (n=18)
Youth interviewed for a job (past 3 months)	23.4%[b] (n=146)	26.1% (n=63)[h]	26.7%[n] (n=44)	21.3%[q] (n=27)	14.0%[s] (n=16)	23.1%[v] (n=25)	31.6%[y] (n=12)
Currently Employed	20.8%[c] (n=136)	26.0% (n=66)[i]	21.3% (n=37)	17.5%[r] (n=24)	9.2% (n=11)	27.2% (n=31)	22.0%[z] (n=9)
% interviewed for that position	88.8%[d] (n=119)	87.5% (n=56)[j]	89.2% (n=33)	91.7% (n=22)	72.7% (n=8)	87.1% (n=27)	100% (n=9)
hours worked per month, mean (SD)	59.65[e] (34.17)	59.4 (33.7)[k]	67.4 (32.4)[o]	48.5 (30.9)	49.7 (34.8)	59.1[w] (35.4)	82.9 (29.5)
hourly wage ($), mean (SD)	9.23[f] (1.63)	9.52[l] (2.0)	8.92 (1.1)	9.12 (0.9)	8.83[t] (1.7)	8.51[x] (1.1)	9.42 (1.5)

[a]missing data on n=4; [b]missing data on n=33; [c]missing data on n=2; [d]missing data on n=1; [e]missing data on n=6; [f]missing data on n=4; [g]missing data on n=2; [h]missing data on n=13; [i]missing data on n=1; [j]missing data on n=2; [k]missing data on n=2; [l]missing data on n=1; [m]missing data on n=1; [n]missing data on n=9; [o]missing data on n=2; [p]missing data on n=1; [q]missing data on n=11; [r]missing data on n=1; [s]missing data on n=6; [t]missing data on n=1; [u]missing data on n=1; [v]missing data on n=6; [w]missing data on n=3; [x]missing data on n=2; [y]missing data on n=4; [z]missing data on n=1.

Table 3. Interviewing and Employment Outcomes for Transition-Age Youth with Disabilities After Covarying for Age												
	Specific Learning Disability Vs. Other Disabilities		Other Health Impairment Vs. Other Disabilities		Autism Vs. Other Disabilities		Intellectual Disability Vs. Other Disabilities		Emotional Disturbance Vs. Other Disabilities		Speech and Language Impairment Vs. Other Disabilities	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Youth has ever had a job	1.57	1.12, 2.20**[a]	1.15	0.81, 1.64[a]	0.47	0.31, 0.72***[a]	0.75	1.05, 1.24 [a]	1.59	1.05, 2.42*[a]	0.94	0.51, 1.85
Youth interviewed for a job (past 3 months)	1.26	0.85, 1.86	1.27	0.84, 1.91	0.87	0.54, 1.41	0.47	0.26, 0.84*	0.96	0.58, 1.58	1.62	0.79, 3.33
Currently Employed	1.82	1.22, 2.71**	1.04	0.68, 1.59	0.74	0.45, 1.21	0.29	0.15, 0.57***	1.61	1.01, 2.58	1.03	0.47, 2.22
% interviewed for that position	0.91	0.30, 2.75	0.95	0.28, 3.26	1.32	0.27, 6.38	0.16	0.03, 0.85	0.99	0.28, 3.51	--	--[c]
	LD	OD	OHI	OD	Autism	OD	ID	OD	ED	OD	SPL	OD
hours worked per month, mean (SE)	62.75 (4.14)	56.75 (4.01)[b]	64.79 (5.49)	57.76 (3.32)[b]	45.43 (6.50)	62.88 (3.08)*[b]	37.88 (9.90)	61.67 (2.92)*[b]	65.59 (6.28)	58.02 (3.22)[b]	73.26 (11.0)	58.64 (2.93)
hourly wage ($), mean (SE)	9.52 (0.20)	8.93 (0.20)*	8.92 (0.27)	9.35 (0.17)	9.13 (0.34)	9.25 (0.16)	8.82 (0.53)	9.26 (0.15)	8.44 (0.30)	9.45 (0.16)**	9.45 (0.56)	9.21 (0.15)

Abbreviations. Specific Learning Disability (LD), Other Disabilities (OD), Other Health Impairment (OHI), Intellectual Disability (ID), Emotional Disturbance (ED), and Speech and Language Impairment (SPL).

[a]Age was a significant covariate; OR>1.10; $p<0.05$

[b]Age was a significant covariate; $p<0.05$

[c]No participants interviewed for the position

Table 4. Job Categories For Currently Employed Transition-Age Youth with Disabilities							
	Total Sample n=136	Specific Learning Disability (n=66)	Other Health Impairment (n=37)	Autism (n=25)	Intellectual Disability (n=11)	Emotional Disturbance (n=31)	Speech and Language Impairment (n=9)
Food Preparation and Serving Occupations	36.0% (n=49)	40.9% (n=27)	29.7% (n=11)	20.8% (n=5)	36.4% (n=4)	51.6% (n=16)	33.3% (n=3)
Transportation and Material Moving Occupations	16.9% (n=23)	19.7% (n=13)	13.5% (n=5)	12.5% (n=3)	9.1% (n=1)	16.1% (n=5)	22.2% (n=2)
Building, Grounds, Cleaning, and Maintenance Occupations	9.6% (n=13)	6.1% (n=4)	2.7% (n=1)	16.7% (n=4)	27.3% (n=3)	9.7% (n=3)	0.0% (n=0)
Office and Administrative Support Occupations	9.6% (n=13)	9.1% (n=6)	13.5% (n=5)	12.5% (n=3)	18.2% (n=2)	6.5% (n=2)	0.0% (n=0)
Sales and Related Occupations	8.8% (n=12)	10.6% (n=7)	10.8% (n=4)	8.3% (n=2)	0.0% (n=0)	6.5% (n=2)	22.2% (n=2)
Personal Care and Service Occupations	4.4% (n=6)	6.1% (n=4)	5.4% (n=2)	4.2% (n=1)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)
Other	8.1% (n=11)	4.5% (n=3)	13.5% (n=5)	8.3% (n=2)	9.1% (n=1)	6.5% (n=2)	11.1% (n=1)
Unknown	6.6% (n=9)	3.0% (n=2)	10.8% (n=4)	16.7% (n=4)	0.0% (n=0)	3.2% (n=1)	11.1% (n=1)

Table 5. Unadjusted Internship Outcomes for Transition-Age Youth with Disabilities							
	Total Sample n=656	Specific Learning Disability (n=255)	Other Health Impairment (n=174)	Autism (n=138)	Intellectual Disability (n=120)	Emotional Disturbance (n=114)	Speech and Language Impairment (n=42)
Currently in unpaid internship	21.7%[a] (n=141)	13.0%[f] (n=33)	19.7% (n=34)	25.7%[j] (n=35)	37.8% (n=45)	12.5%[q] (n=14)	25.0%[s] (n=10)
Obtained via interview	29.1% (n=41)	36.4% (n=12)	41.2% (n=14)	22.9% (n=8)	24.4% (n=11)	21.4% (n=3)	40.0% (n=4)
hours worked per month, mean (SD)	21.8[b] (23.7)	30.0[g] (23.0)	27.3[i] (30.6)	15.4[k] (20.2)	21.6[n] (23.0)	19.0[r] (17.4)	4.0 (6.5)
Currently in paid internship	8.3%[c] (n=54)	7.5%[h] (n=19)	4.6% (n=8)	10.3% (n=14)	17.6% (n=21)	0.9% (n=1)	2.5%[t] (n=1)
Obtained via interview	33.3% (n=18)	36.8% (n=7)	0.0% (n=0)	35.7% (n=5)	28.6% (n=6)	0.0% (n=0)	100% (n=1)
hours worked per month, mean (SD)	20.9[d] (14.5)	25.6 (15.6)	22.8 (12.5)	11.6[l] (6.0)	15.4[o] (10.3)	56.0	16.0
hourly wage ($), mean (SD)	5.95[e] (2.1)	6.49 (2.7)	4.89 (0.6)	4.92[m] (0.9)	6.15[p] (1.5)	8.25	4.00

[a]missing data on n=7; [b]missing data on n=15; [c]missing data on n=7; [d]missing data on n=8; [e]missing data on n=8; [f]missing data on n=2; [g]missing data on n=1; [h]missing data on n=2; [i]missing data on n=5; [j]missing data on n=2; [k]missing data on n=5; [l]missing data on n=1; [m]missing data on n=1; [n]missing data on n=4; [o]missing data on n=7; [p]missing data on n=7; [q]missing data on n=2; [r]missing data on n=2; [s]missing data on n=2; [t]missing data on n=2.

Table 6. Group Specific Internship Outcomes After Covarying for Age												
	Specific Learning Disability Vs. Other Disabilities		Other Health Impairment Vs. Other Disabilities		Autism Vs. Other Disabilities		Intellectual Disability Vs. Other Disabilities		Emotional Disturbance Vs. Other Disabilities		Speech and Language Impairment Vs. Other Disabilities	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Currently in unpaid internship	0.61	0.39, 0.97*[a]	0.79	0.50, 1.26[a]	1.00	0.63, 1.59[a]	1.72	1.08, 2.74*[a]	0.58	0.31, 1.08[a]	0.51	0.35, 1.68
Obtained via interview	1.70	0.71, 4.09	2.07	0.92, 4.68	0.66	0.27, 1.60	0.68	0.30, 1.56	0.64	0.17, 2.44	1.68	0.44, 6.35
Currently in paid internship	0.27	0.39, 1.30	0.45	0.21, 0.97*	1.57	0.81, 3.03	4.74	2.47, 9.10***[d]	0.07	0.01, 0.53**[d]	0.31	0.04, 2.32
Obtained via interview	2.42	0.60, 9.72[b]	--	--[c]	0.81	0.20, 3.34[b]	0.51	0.14, 1.89[a]	--	--[c]	--	--[c]
	LD	OD	OHI	OD	Autism	OD	ID	OD	ED	OD	SPL	OD
Unpaid Hours worked per month, mean (SE)	30.06 (3.03)	17.95 (1.93)***[b]	26.79 (4.37)	20.29 (2.38)	15.26 (4.25)	23.83 (2.38)	20.08 (3.78)	22.61 (2.59)	19.00 (6.82)	22.00 (2.21)	2.12 (7.29)	23.48 (2.12)**[b]
Paid hourly wage ($), mean (SE)	6.44 (0.48)	5.61 (0.40)	6.18 (0.33)	4.86 (0.73)	5.06 (0.59)	6.30 (0.36)	6.06 (0.57)	5.90 (0.38)	8.50 (2.09)	5.90 (0.31)	4.74 (2.20)	5.98 (0.32)
Paid hours worked per month, mean (SE)	25.66 (3.26)	17.66 (2.73)	22.60 (5.19)	20.51 (2.38)	11.66 (3.92)	24.50 (2.40)	14.82 (3.80)	23.52 (2.50)	57.24 (13.63)	20.06 (2.03)**	19.62 (15.31)	20.90 (2.19)

Abbreviations. Specific Learning Disability (LD), Other Disabilities (OD), Other Health Impairment (OHI), Intellectual Disability (ID), Emotional Disturbance (ED), and Speech and Language Impairment (SPL).

[a]Age was a significant covariate; OR>1.10; $p<0.05$

[b]Age was a significant covariate; $p<0.05$

[c]No participants interviewed for the position

[d]Age was a significant covariate; OR<1.00; $p<0.05$