Transition self-assessment tool: The development and field testing of a statewide assessment of pre-employment transition services

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Abstract.

BACKGROUND: Under the Workforce Innovation and Opportunity Act of 2014 (WIOA), vocational rehabilitation (VR) agencies are required to evaluate their students' need for pre-employment transition services and use this information to inform their goals, priorities and strategies.

OBJECTIVE: This manuscript presents the development and field testing of the Transition Self-Assessment Tool (TSAT), a web-based instrument designed to support VR agencies' evaluation and strategic planning initiatives by measuring the availability, accessibility, and coordination of school-based transition services.

METHOD: Our methods describe the TSAT development procedures and the methods of conducting a TSAT field test.

RESULTS: Findings suggest high schools offer a broad array of career-related services for their students. However, not all potentially eligible students with disabilities have access to those services and when these services are provided, they are frequently delivered without coordination with VR. Additionally, data show more services are available, accessed, and coordinated in high schools participating in a statewide transition program.

CONCLUSION: Results from the TSAT field test suggest it is feasible to conduct a statewide needs assessment of school-based transition services using this instrument. Furthermore, the findings from the TSAT align with prior knowledge about school-based transition services, and can be used to inform a state's goals, priorities and strategies.

Keywords: Transition, youth with disabilities, vocational rehabilitation, workforce innovation and opportunity act, pre-employment transition services

1. Introduction

The coordination of school-based transition services with vocational rehabilitation (VR) has been a longstanding factor in supporting post-school

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employment outcomes for young adults with disabilities (e.g., Benz et al., 1999; Poppen et al., 2017). VR agencies are well-positioned to bring their expertise to the transition process for young adults with disabilities, and form effective working relationships with local education agencies (LEAs) while these young adults are still in high school. Furthermore, while federal legislation has required VR agencies to coordinate with schools since the Rehabilitation Act of 1973, the importance of this partnership was emphasized during the authorization of the Workforce Innovation and Opportunity Act (WIOA) in 2014. WIOA authorization included regulations that require VR agencies to ensure the coordination and delivery of pre-employment transition services (Pre-ETS) to all potentially eligible students with a disability who need them (Scope of VR Services, 2014). In 2022, this represented about 15% of all transition-age students throughout the United States and Territories, or 7.3 million students (National Center for Education Statistics, 2023).

Since WIOA was signed into law in 2014, VR agencies have been addressing barriers to effective and equitable transition services such as creating shared understanding of these services, building local partnerships, partnering with families, and addressing disparate transition outcomes based on race, sex, and disability category (e.g., Awsumb et al., 2020; Frentzel et al., 2021; Poppen et al., 2021; Wilt & Morningstar, 2019). Yet, these barriers persist and are compounded by imperfect communication between VR and state education agencies (SEAs) and LEAs, and limited time and resources (e.g., Carter et al., 2021; Lambert et al., 2023; Zhang et al., 2023). Furthermore, VR agencies have continued to struggle with translating policy into practice to meet WIOA requirements (e.g., GAO, 2018; Taylor et al., 2022; Whittenburg et al., 2023).

As we approach the ten-year anniversary of WIOA (2014) authorization, there is a clear need to support VR agencies in evaluating the extent to which they meet WIOA (2014) requirements for coordination of Pre-ETS with SEAs and LEAs and using these data to inform strategic planning and resource allocation. The Transition Self-Assessment Tool (TSAT) is an instrument designed to help meet this need. The TSAT is a web-based, school-level, self-assessment designed to measure the availability, accessibility, and coordination of school-based transition services that align with the five categories of Pre-ETS. This instrument was developed with financial support from the National Institute on Disability, Independently Living, and Rehabilitation Research (NIDILRR), and field tested in collaboration with a state VR agency.

2. Methods

2.1. TSAT development

The TSAT was developed following Radhakrishna's (2007) instrument development guidelines, which include: (a) establishing a clear purpose and goals, (b) identifying an appropriate audience and sample, (c) generating assessment constructs and content, (d) developing the scales and the format for the instrument, and (e) establishing validity through utilization of panels of experts and pilot testing. Each of these steps are described below.

2.1.1. Purpose and goals
The purpose and goals of the TSAT were guided by the rules and regulations of WIOA (2014), which require VR agencies to provide evidence of the extent to which the required Pre-ETS have been made available to *all* potentially eligible students with disabilities and to use this information to inform their goals, priorities, and strategies (Comprehensive Statewide Needs Assessment [CSNA], 2023). Specifically, included in their CSNA, each state:

> . . . must also identify, report and address the VR service needs of youth with disabilities and students with disabilities with respect to: (a) their need for pre-employment transition services or other transition services; and, (b) an assessment of the needs for transition services and pre-employment transition services and the extent to which such services are coordinated with transition services provided under the [Individuals with Disabilities Education Act of 2004] (Rehabilitation Services Administration, 2023, para. 1).

The TSAT aimed to create an estimate of the extent to which school-based transition services that align with the five categories of Pre-ETS are: (a) made *available* to potentially eligible students with disabilities, (b) *accessed* by these students, and (c) delivered in *coordination* with VR.

2.1.2. Appropriate audience and sample
The primary audience for the TSAT was determined to include state, regional, and local VR administrators evaluating the extent to which they

meet WIOA (2014) requirements in regard to coordination of Pre-ETS. The primary audience would use the results from the TSAT to meet the reporting requirements of the CSNA and also to inform data-based decision-making practices that address identified gaps in the statewide availability, accessibility, and coordination of Pre-ETS. Secondary audiences included students, families, educators, and community members who will be affected by the decisions that will be made by the primary audience of VR administrators.

Additionally, we identified school staff (i.e., target sample) who could most accurately assess and report on the availability, accessibility, and coordination of school-based transition services. The target sample was determined to consist of *transition experts* from schools that provide services to potentially eligible students with disabilities. *Transition experts* were school staff who held the following roles: (a) special education teacher, (b) transition coordinator, or (c) other LEA staff who was knowledgeable about their school's transition services for potentially eligible students with disabilities.

2.1.3. Generating constructs and content

The next step in the TSAT development process was the conceptualization and generation of constructs and content assessing the availability, accessibility, and coordination of Pre-ETS on the school-level. Conceptually, the TSAT was divided into three sections: (a) respondent demographic characteristics, (b) high school and transition program characteristics, and (c) availability, accessibility, and coordination of school-based transition services that align with each of the five Pre-ETS categories. We provide a description of each of these sections below.

2.1.3.1. Respondent demographic characteristics The following demographic characteristics were included in the TSAT: (a) respondent's job title; (b) respondent's role in their school; and (c) confirmation they have adequate knowledge to answer the questions. Other demographic characteristics (e.g., race/ethnicity, years of experiences) were considered, but determined as non-essential and removed to decrease instrument length.

2.1.3.2. High school characteristics The school and program characteristics collected in the TSAT included: (a) geographic region of the school, and (b) whether the school participated in a specialized statewide transition program that supported partnership between LEAs and local VR offices. Other programmatic characteristics were considered but were determined non-essential.

2.1.3.3. Availability, accessibility, and coordination of pre-employment transition services Availability, accessibility, and coordination of school-based transition services were divided into five categories consistent with Pre-ETS categories. A menu of potential services and activities that aligned with these categories was developed using: (a) guidelines to identify and describe Pre-ETS (Workforce Innovation Technical Assistance Center; WINTAC, 2017) and (b) predictors of post-school success (Mazzotti et al., 2016). During the content and construct generation process, 101 unique services/items emerged. A description Pre-ETS categories, definitions, and a complete list of items are included in Supplementary Tables 1 and 2.

2.1.4. Developing the scales, and question and reporting formats

2.1.4.1. Developing the scales Three measurement scales were developed for each of the 101 items. *Availability* was operationalized as an indication of whether a particular service or activity was available within a school (0 = "no", 1 = "yes"; –99 = "do not know"). The *accessibility* of each service was operationalized as a broad estimate of the percentage of potentially eligible students with disabilities within a LEA who have accessed a particular school-based transition service or activity during the year of the assessment. It was measured on a scale from 0 to 4 (0 = "None", 1 = "1–25%", 2 = "26–50%", 3 = "51–75%", 4 = "76–100%", and –99 = "do not know"). The *coordination* of each service was operationalized as a broad estimate of the percentage of time that a school-based transition service or activity was delivered in coordination with VR. It was measured on the same scale as *accessibility*. Additionally, for each of the three scales and 15 sub-scales, combined indicators were calculated using mean scores.

2.1.4.2. Developing the question format The TSAT was intended to be administered online for ease of distribution, data collection, and analysis. A custom web-based platform was developed using Drupal 7.0 and hosted on a secure server within a large university that was sponsoring the project. The web-based platform allowed users to visit a home page where they could start, complete, and submit the TSAT in

a single session. Users could also create an account and save a draft of the TSAT for completion and submission at a later date. This format allowed users with an active account to have long-term access to their data and summary reports. The question types for demographic and school information were standard dropdown menu responses and included a text box entry option when a user was unable to find a response option that aligned with their preference. The question types for school-based transition services' *availability*, *accessibility*, and *coordination* were customized to align with the scales of measurement for each item (i.e., indicators of the degree of availability, accessibility, and coordination). Users were presented with a series of screens, each screen with a list of school-based transition services correlating to a Pre-ETS category. On each screen the users were asked to rate whether each service was available in their school, and the extent to which this service was accessed by students with disabilities and coordinated with VR. To increase usability, the TSAT was divided into six modules. The first module focused on collecting demographic information and the remaining modules collected data on availability, accessibility, and coordination of school-based transition services for each of the five Pre-ETS cate-

gories. Once TSAT users completed the instrument, they could review and submit their responses. Upon submission, users who elected to create an account were redirected to a dashboard where they could review their data and start a new assessment. A figure showing the assessment layout as it appeared for respondents is included as Supplementary Figure 1.

2.1.4.3. Developing the reporting format A multi-page reporting layout was developed and focused on: (a) an overview of school-based transition service *availability*, *accessibility*, and *coordination*; (b) a detailed summary of school-based transition *service availability*; (c) a detailed summary of school-based transition *service accessibility*; and (d) a detailed summary of school-based transition *service coordination*. Figure 1 shows the layout of the TSAT summary report, and a full report of field-testing data is included as Supplementary Figure 2.

2.1.5. Establishing validity through expert review and pilot testing

During the design and development phase of the TSAT, we utilized a panel of experts to provide feedback on the instrument and subsequently conducted pilot testing of the TSAT to provide evidence of con-
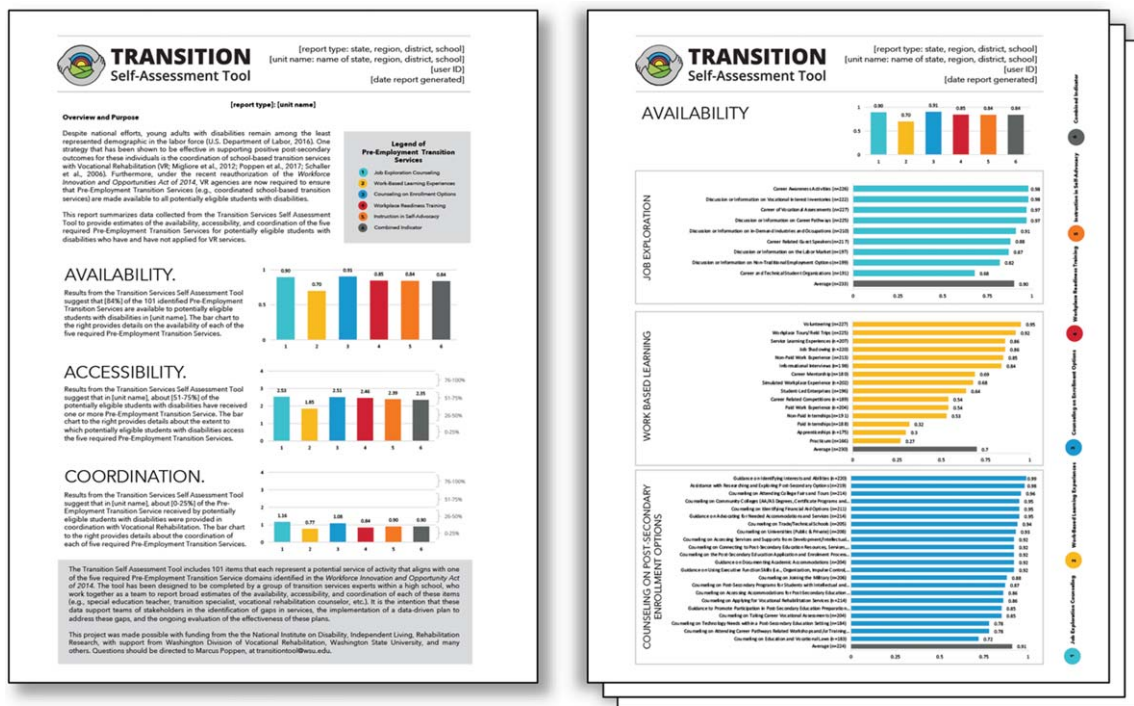

Fig. 1. TSAT report layout.

tent, criterion, and face validity. First, a panel of six experts in secondary special education, transition, VR and evaluation methodologies were identified and asked to review and provide feedback on the TSAT. Proposed revisions included: (a) a reduction of items collecting demographic data and high school and transition program characteristics, (b) clarification of written TSAT instructions, (c) the addition of a legend to guide respondents through the meaning of symbols included as response options for each item, and (d) wording changes to several of the TSAT items to increase comprehension. After incorporating this feedback, the principal investigator sought and received approval from the Institutional Review Board (IRB) to begin pilot testing with a convenience sample of five special education teachers. Each of the pilot testers were asked to complete the TSAT and provide feedback. Pilot testing showed that the TSAT was completed in 20–40 minutes. Participants' feedback included minor vocabulary changes and additional clarification in the TSAT instructions.

2.2. Field testing

Field testing began after pilot testing ended. The field-testing processes included instrument administration, data analyses, and reporting.

2.2.1. Administration

The TSAT was administered during Spring 2017 to a statewide sample of special education teachers, transition coordinators, and other school staff. Respondents included high school staff with the most comprehensive knowledge of their school's transition services for potentially eligible students with disabilities. The TSAT was field tested in a state that included 314 public schools that served potentially eligible students with disabilities. The principal investigator coordinated TSAT field testing with the state VR office and worked with a team of regional coordinators partially funded by the state VR agency who provided statewide transition-related technical assistance to partners across the state. These regional coordinators sent TSAT recruitment materials to their contacts in each of the LEAs in the state (e.g., school administrators such as principals, assistant principals, and special education directors) who were asked to forward the recruitment materials to special education teachers, transition coordinators, and school staff with the most knowledge about their school's transition services. Throughout the eight-

week data collection period, the principal investigator provided a weekly update to each regional coordinator about which schools had completed the TSAT. The coordinators used that list to send out reminders to their school contacts. To increase participation rates, respondents who completed the instrument were entered into a random drawing for one of nine incentives (eight $20.00 Amazon gift cards, and one iPad Mini).

2.2.2. Respondents

A total of 237 assessments were completed. Four entries were removed because the respondents did not answer any of the assessment questions. The remaining 233 assessments were imported into IBM SPSS Statistics (Versions 24.0 and 29.0) for screening, cleaning, and analyses. The average completion rate was 93.4%, with 15 respondents' completing fewer than 70% of the items. To minimize the loss that occurs in listwise deletion, a decision was made to retain and report data from all 233 remaining assessments. The number of missing respondents per item ranged from 0 to 25 and is reported in Supplementary Table 2.

The final sample included 233 respondents from 205 of 314 (65%) of the state's public schools serving secondary-aged students with disabilities. These schools included neighborhood, alternative, and charter schools, and youth correction facilities. Using the known population of 314 public schools in the state, it is estimated that the responses collected from the 205 schools provide a sampling error of $\pm 4\%$, at the 95% confidence level. Of the 233 respondents, the majority were Special Education Teachers (48.5%; $n = 113$), followed by Transition Specialists (35.2%; $n = 113$), and School Administrators (9.4%; $n = 22$). The remaining respondents ($n = 16$; 6.9%) were Special Education Directors, Career Coordinators, Learning Specialists, Instructional Assistants, Speech Language Pathologists, General Education Teachers, or Diagnosticians. Responses collected from the four most populated regions in the state (with 203 of 314 state's public schools [64.4%]) represented 69.2% of the final sample, suggesting that the most populated regions in the state were overrepresented by about 4.6%. Furthermore, 51.9% of the assessments collected ($n = 121$) were from schools participating in a statewide transition program designed to facilitate coordinated service delivery between LEAs and local VR agencies. See Table 1 for respondent demographic characteristics.

Table 1
TSAT respondent demographic and school characteristics
($n = 233$)

Variable	n	%
Position		
Special Education Teacher	113	48.5
Transition Specialist	84	34.6
School Administrator	22	9.4
Other*	18	7.4
Geographic Region		
Region 1	63	25.9
Region 2	19	7.8
Region 3	50	20.6
Region 4	19	7.8
Region 5	20	8.2
Region 6	16	6.6
Region 7	18	7.4
Region 8	36	14.8
No regional affiliation	2	0.8
Participation in Statewide Transition Program		
Yes	121	51.9
No	112	48.1

Note. *Other positions include Special Education Directors, Career Coordinators, Learning Specialists, Instructional Assistants, Speech Language Pathologists, General Education Teachers, or Diagnosticians.

2.2.3. Internal reliability

Cronbach's alpha was used to determine the internal consistency reliability of the constructs measured by the TSAT (*availability*, *accessibility*, and *coordination*) and each of their 15 subscales (Pre-ETS categories). A value of 0.70 or higher is generally considered acceptable for Cronbach's alpha (George & Mallery, 2019). The Cronbach's alpha for each of the TSAT's constructs met criteria, at $\alpha = 0.98$ for *Availability*, $\alpha = 0.99$ for *Accessibility*, $\alpha = 0.99$ for *Coordination*. Additionally, each of the 15 subscales on the TSAT had acceptable levels of Cronbach's alpha ($\alpha \geq 0.70$). These statistics suggest the TSAT had an acceptable level of internal consistency reliability and that it is appropriate to interpret the composite scores.

3. Results

3.1. Availability of school-based transition services

Results from field testing suggest that on average 84% of the 101 school-based transition services listed in the TSAT were available in respondents' schools ($M = 0.84$; $SD = 0.20$). Counseling on Postsecondary Enrollment Options and Job Exploration Counseling were categories with the most services (91%) available ($M = 0.91$; $SD = 0.14$; and $M = 0.91$; $SD = 0.18$). The Work-Based Learning Experiences domain had the least number of services available (70%; $M = 0.70$; $SD = 0.26$). Among the 101 individual items, guidance on identifying interests and abilities ($M = 0.99$; $SD = 0.11$), discussion or information on vocational interest inventories ($M = 0.98$; $SD = 0.15$), career awareness activities ($M = 0.98$; $SD = 0.13$), and assistance with researching and exploring post-secondary options ($M = 0.97$; $SD = 0.13$) were most often available. Practicums ($M = 0.27$; $SD = 0.45$), apprenticeships ($M = 0.30$; $SD = 0.46$), and paid internships ($M = 0.32$; $SD = 0.47$) were least often available.

3.2. Accessibility of school-based transition services

Responses to the TSAT suggest that on average between 51–75% potentially eligible students with disabilities were participating in school-based transition services that aligned with one or more of the five Pre-ETS categories ($M = 2.35$; $SD = 0.98$). Job Exploration Counseling and Counseling on Postsecondary Enrollment Options were accessed the most often ($M = 2.53$; $SD = 0.96$; and $M = 2.51$; $SD = 1.01$) and Work-Based Learning Experiences were accessed least often ($M = 1.85$; $SD = 1.02$). The individual services that were reported to be accessed by the highest percentage of students included guidance on identifying interests and abilities ($M = 3.24$; $SD = 1.00$), career awareness activities ($M = 3.06$; $SD = 1.06$), and career or vocational assessments ($M = 3.04$; $SD = 1.13$). Conversely, the services accessed by the lowest percentages of students were work-based learning experiences, including apprenticeships ($M = 0.57$; $SD = 1.12$), practicums ($M = 0.63$; $SD = 1.22$), paid internships ($M = 0.70$; $SD = 1.06$), career related competitions ($M = 1.21$; $SD = 1.15$), and paid work experiences ($M = 1.28$; $SD = 1.53$).
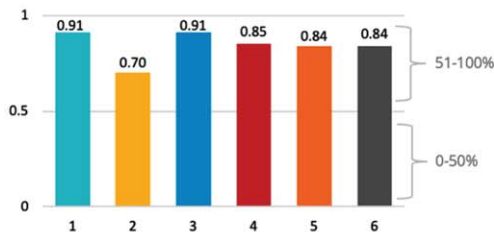
3.3. Coordination of school-based transition services

Results suggest that on average between 0–25% of the time school-based transition services were delivered in coordination with VR ($M = 0.90$; $SD = 1.08$). Job Exploration Services and Counseling on Postsecondary Enrollment Options were the categories of services coordinated most often ($M = 1.16$; $SD = 1.19$; and $M = 1.08$; $SD = 1.19$). The service that was
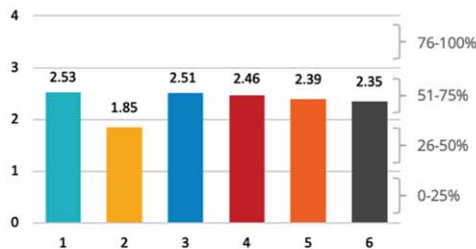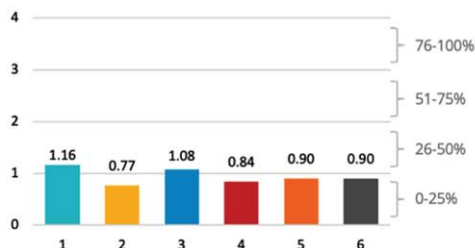
Fig. 2. Summary of TSAT results from field testing.

Table 2
Means, standard deviations, and one-way analyses of variance in a school's participation in a statewide transition program

Measure	Yes		No		F (1,230)	η^2
	M	SD	M	SD		
Availability	0.91	0.14	0.77	0.23	33.14*	0.13
Accessibility	2.61	0.89	2.08	1.01	17.84*	0.07
Coordination	1.31	1.19	0.47	0.74	40.59*	0.15

*$p < 0.001$.

delivered in coordination with VR most often was counseling on applying for VR services, which was coordinated 50% of the time ($M = 1.99$; $SD = 1.65$).

Figure 2 provides a summary of the combined indicators of school-based transition services. A complete list of TSAT items, item scores, and missing data can be found in Supplementary Table 2.

3.4. Comparisons by participation in statewide transition program

One of the school characteristics collected was whether a school was participating in a statewide transition program that formalized the relationship between LEAs and local VR agencies and provided opportunities for transition-related technical assistance and professional development. Of the 233 responses, 121 (51.9%) were from schools participating in this program. Analyses of variance suggest that school participation in the statewide transition program had a moderate to large effect on the availability of school-based transition services (0.91 compared to 0.77; F(1, 230) = 33.140, $p < 0.001$, $\eta^2 = 0.13$), the estimated percentage of potentially eligible students with disabilities who accessed these services (2.61 compared to 2.08; F(1, 230) = 17.844, $p < 0.001$, $\eta^2 = 0.07$), and the percentage of time that these services were coordinated with VR (1.31 compared to 0.47; F(1, 228) = 40.594, $p < 0.001$, $\eta^2 = 0.15$). See Table 2.

4. Discussion

The TSAT was designed to support VR agencies' evaluation and strategic planning initiatives by measuring the availability, accessibility, and coordination of school-based transition services. TSAT's field testing shows the feasibility of using this approach to evaluate the coordination and delivery of Pre-ETS and provides emerging evidence of TSAT validity and reliability. Below, we summarize five key findings

from the TSAT field test and describe how they might be used to inform VR agencies' goals, priorities and strategies.

First, our results show that schools are offering a wide array of career-related transition services to students with disabilities. On average, nearly 84% of the 101 school-based transition services listed on the assessment are available to students enrolled in surveyed LEAs. This suggests that decades of educational policy focused on career-related transition services for all students (e.g., Poppen & Alverson, 2018) may be increasing the availability of these services throughout secondary education systems and should continue to be a priority. Second, results show gaps between the school-based transition services that are available to all secondary school-aged students, and the extent to which these services are being accessed by potentially eligible students with disabilities. These gaps exist across all Pre-ETS categories and suggest future goals, priorities and strategies should focus on: (a) better understanding which potentially eligible students with disabilities are not accessing these services and (b) supporting the coordination and delivery of these services for students who need them. Third, the results show that school-based transition services are delivered in coordinated with VR less than 25% of the time. While these services are not expected to be delivered in coordination with VR all of the time, these data suggest future goals and priorities should focus on additional coordination. This may also help address some of the gaps that are seen between the availability and accessibility of services. Fourth, the results suggest Work-Based Learning Experiences are *offered* the least, *accessed* the least, and *coordinated* the least. Diving deeper into the results of Work-Based Learning Experiences, TSAT data show that paid work experiences are among the least frequently accessed services out of the 101 TSAT items. While this finding is not entirely surprising giving the recent scholarship on Pre-ETS (e.g., Bromley et al., 2022; Lambert et al., 2023), it is still perplexing given the long-standing evidence that paid work experiences have a significant impact on students' with disabilities post-school employment outcomes (e.g., Carter et al., 2012; Mazzotti et al., 2021). We recommend that VR agencies use this information to intensify their focus on Work-Based Learning Experiences. Lastly, findings from the TSAT show schools who were a part of a statewide transition program designed to facilitate school and VR partnerships have significantly higher levels of services that were accessed by more

students with disabilities and delivered in coordination more frequently. This is consistent with prior research that suggests students who participated in a program like this were more likely to exit VR with an employment outcome (Poppen et al., 2017) and provides further evidence that a state's goals and priories should include structured school and VR programs.

It is also important to contextualize our findings within the socio-historical context of ableism, racism, and sexism. Numerous studies documented disparate competitive employment outcomes for youth of color with disabilities receiving VR services and their white peers; a disparity that is compounded by other intersecting identities such as gender, socioeconomic status, and disability category (e.g., Eilenberg et al., 2019; Kaya, 2018). The results of the current study also demonstrate a gap in the availability of school-based transition services and the extent to which these services are accessed by students. While currently the TSAT does not provide student-level data, we encourage school and VR administrators to review the TSAT data in combination with other school-wide and district-wide data to critically examine who is and is not benefitting from the current transition service delivery models. This recommendation aligns with the urgent call to embed equity into transition practice by engaging in equity-focused data-based decision-making (e.g., Sinclair et al., 2023).

4.1. Limitations

There are several limitations to this study. First, the TSAT is based on the self-reported perceptions of one or more people within schools in a single state who have been identified as having the most knowledge about their school's transition services for students with disabilities. Second, these data are not based upon individual case records and may not actually reflect the true experiences and needs of students. These limitations may lead to inaccuracies in our data, and findings should be interpreted with caution.

5. Conclusion

As we enter the second decade of WIOA interpretation and implementation, we are optimistic about state VR agencies' capacity to address known barriers to delivering Pre-ETS (e.g., Awsumb et al., 2020; Carter et al., 2021; Poppen et al., 2021; Taylor et al., 2022; Whittenburg et al., 2023). The findings we have presented lead to a set of recommendations that

VR agencies can work to further address. We believe that addressing these recommendations will continue to increase the availability, accessibility, and coordination of these services and support equitable and inclusive employment for all.

Acknowledgments

Conflict of interest

The authors declare that they have no conflict of interest.

Ethics statement

The project was approved by the Washington State University Institutional Review Board (IRB application number: 16038-001) and further characterized as a project that does not meet the formal definition of research.

Funding

Informed consent

Participants were fully informed and provided electronic consent to participate before completing the assessment.

Supplementary materials

The supplementary files are available from https://dx.doi.org/10.3233/JVR-240004.

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