

Discussion

Leveraging the stages of learning to optimize pre-employment transition service delivery

Dawn A. Rowe^{a,*}, Melissa Diehl^b and Catherine H. Fowler^c

^a*Clemmer College of Education and Human Development, East Tennessee State University, Johnson City, TN, USA*

^b*Graduate School of Education and Human Development, George Washington University, Ashburn, VA, USA*

^c*Department of Special Education and Child Development, University of North Carolina Charlotte, Charlotte, NC, USA*

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Abstract. Pre-employment transition services (Pre-ETS) is a specific set of services outlined in Section 113 of the Rehabilitation Act as amended by WIOA, with the purpose of expanding career exploration, postsecondary training options, and the development of career readiness skills for students with disabilities through work-based learning experiences. Pre-ETS aims to facilitate the transition of students with disabilities from school to adulthood by equipping them with the essential skills, knowledge, and experiences needed to thrive in the workforce. However, there is great variability across states on how vocational rehabilitation agencies work with State and local education agencies to coordinate and sequence services to facilitate the development of a more comprehensive career pathway for students with disabilities. This paper provides insights and applicable guidance for practitioners seeking to optimize Pre-ETS by aligning interventions with the phases of learning. Grounded in experiential knowledge and effective practices for secondary transition and Pre-ETS, this paper offers a strategic framework designed to enhance the effectiveness of transition services for diverse individuals preparing to enter the workforce. It aims to equip practitioners with a toolbox of effective strategies and approaches, fostering a more dynamic and personalized delivery of Pre-ETS. By offering practical guidance on navigating the learning phases, this paper seeks to empower practitioners to create more impactful and tailored programs, ultimately enhancing the workforce readiness of individuals with diverse abilities.

Keywords: Pre-ETS, service optimization, transition services, IDEA, WIOA

1. Introduction

One of the most significant changes to the Rehabilitation Act, as amended by the Workforce Innovation and Opportunity Act (WIOA) in 2014, was the

introduction of pre-employment transition services (Pre-ETS). Pre-ETS is a specific set of services outlined in Section 113 of the Rehabilitation Act as amended by WIOA (U.S. Congress, 2014), with the purpose of expanding career exploration, postsecondary training options, and the development of career readiness skills for students with disabilities through work-based learning experiences. Congress highlighted the importance of these services by

*Address for correspondence: Dawn A. Rowe, East Tennessee State University, PO Box 70547, Johnson City, TN 37614, USA.
E-mail: roweda@etsu.edu.

mandating states allocate no less than 15% of their federal vocational rehabilitation (VR) funds specifically for providing Pre-ETS. Pre-ETS aims to facilitate the transition of students with disabilities from school to adulthood by equipping them with the essential skills, knowledge, and experiences needed to thrive in the workforce.

The VR program had not seen changes as extensive as those brought about by WIOA in over a century. For the first time in the program's history, these new and specific Pre-ETS can be offered to students with disabilities without the need to apply, be determined eligible for VR services, or develop an individualized plan for employment (U.S. Congress, 2014). While there was no minimum age requirement outlined in the statute and regulations before WIOA for receiving VR services, the program, during its century-long history, struggled to serve a younger population through its traditional VR system (Rehabilitative Service Administration, n.d.). With the inclusion of Pre-ETS, students with disabilities can access this fundamental set of services more swiftly as potentially eligible students with disabilities.

Pre-ETS comprise five required services that VR must provide to all students meeting the definition of a student with a disability who may need these services (U.S. Congress, 2014). These required services consist of job exploration counseling, work-based learning experiences, counseling on opportunities for enrollment in comprehensive transition or postsecondary educational programs at institutions of higher education, workplace readiness training, and instruction in self-advocacy. Additionally, the VR agency is responsible for carrying out four coordination activities in cooperation with local education agencies. These activities involve attending individualized education program (IEP) meetings when invited, working with local workforce development boards, one-stops, and employers to create work opportunities for students with disabilities, collaborating with schools to coordinate and ensure the provision of Pre-ETS, and participating in person-centered planning meetings when invited for students with disabilities.

Furthermore, the VR agency may offer nine additional authorized activities to enhance the transition of students with disabilities if it can demonstrate sufficient funding availability (U.S. Government, 2023). The nine authorized Pre-ETS activities differ from the five required Pre-ETS that VR must make available to all students with disabilities who need them, and the four coordination activities that VR must carry out.

Before implementing the nine authorized activities, a VR agency must ensure adequate funds are reserved for the required Pre-ETS for all students with disabilities who may need them. Once this is determined, any remaining funds can be allocated to the authorized Pre-ETS. The authorized activities aim to enhance independent living and integration into communities and competitive workplaces. They involve developing strategies for individuals with intellectual and significant disabilities to live independently, engage in postsecondary education experiences, and attain, advance in, and retain competitive integrated employment. The activities also include instructing VR counselors, school transition personnel, and others supporting students with disabilities, disseminating information on effective approaches, coordinating activities with local educational agencies, applying evidence-based findings to enhance policies and practices, and preparation of personnel, creating transition demonstration projects, fostering partnerships across states and regions, and sharing information and strategies to improve the transition for traditionally underserved populations (U.S. Government, 2023).

2. Difference between IDEA (2004) transition services and VR services

The Individuals with Disabilities Education Act (IDEA, 2004) outlines the framework for special education services in the United States, including the provision of transition services. Transition services, under IDEA, are designed to support students with disabilities as they prepare to move from the school environment to postsecondary life. These services encompass a range of activities, such as goal setting, career exploration, and life skills development, with a primary focus on creating an IEP that aids the student in the receipt of a free and appropriate public education and achieving their long-term goals. On the other hand, The Rehabilitation Act, as amended by the WIOA (2014) outlines a set of services (Pre-ETS, VR Transition, transition services to groups) to support transitioning to competitive integrated employment specifically. Pre-ETS are the earliest set of VR services available for students with disabilities, and are designed to help students identify career interests, which may be further explored through additional VR services. Another difference between IDEA Transition Services and VR services is the population who can receive these services. The VR program defines a student with a disability more broadly to include those

students in a recognized education program, within their states age range, who is either eligible for IDEA services, or who meet the definition of an individual with a disability for the purposes of section 504. While both IDEA transition services and Pre-ETS aim to support students with disabilities in their transition to adulthood, Pre-ETS has a more explicit focus on developing the skills necessary for competitive integrated employment. In addition to the transition related services that VR offers, as students' progress through the continuum of services, they can receive the full array of services which may also include skills training, postsecondary education, and employment related services.

Pre-ETS can be provided to potentially eligible students with disabilities as well as those that apply for and are determined eligible for the VR program. The term potentially eligible means an individual who meets the definition of a student with a disability and who has not yet applied for or been determined eligible for the VR program. This distinction is important as potentially eligible students may only receive the five required Pre-ETS they need, along with any auxiliary aid or service to access the required service. However, students who are VR applicants and eligible individuals are able to receive the full array of VR services they need as outlined on their individualized plan for employment. It is crucial students and their families are provided with information and opportunities to apply for VR at various stages. This ensures that, at any given time, potentially eligible students with disabilities can make informed decisions about when to apply for additional VR services. As a VR eligible individual, they can continue to receive Pre-ETS services along with any individualized VR services they may need under an Individualized Plan for Employment (IPE). The VR program is designed to meet individuals with disabilities where they are, to support and facilitate the services they need until they have successfully achieved their career goals in competitive integrated employment. See Fig. 1 for how the services under each of the specific acts compare.

3. Importance of effective service delivery

To effectively deliver services in accordance with the WIOA and the IDEA, it is imperative to align with the specific objectives and requirements of each of these legislations to best cater to the needs of individuals with disabilities. Under WIOA, effective service delivery entails offering comprehensive

workforce development services that assist individuals in securing and maintaining employment. On the other hand, IDEA calls for effective service delivery to encompass the provision of specialized educational services to children and youth with disabilities, catering to their educational and developmental requirements. By aligning with the specific objectives and requirements of IDEA and WIOA, VR professionals, educators, and employers can create a more inclusive and supportive environment for individuals with disabilities, improve service optimization, and facilitate students' educational and vocational success. Continuous communication, collaboration, and a commitment to individualized approaches are key to effectively catering to the diverse needs of this population.

This approach to service delivery fosters inclusivity and equality by dismantling barriers that could otherwise hinder the full participation of individuals with disabilities in society (Hirano et al., 2018). It empowers individuals to lead independent, self-determined lives by equipping them with the tools, skills, and resources needed to achieve their goals and realize their potential. Such effective service delivery significantly influences the overall quality of life for individuals with disabilities, enhancing their physical and mental well-being, strengthening their social connections, and boosting their overall welfare (Butterworth et al., 2018; Koch & Stuart, 2018; Larson et al., 2007). When individuals with disabilities are provided with effective services and opportunities, they can make meaningful contributions to their communities and the economy (Kaye, 2009).

Regarding Pre-ETS and transition services under IDEA, it is important to note they share similarities, and both WIOA (2016) and IDEA (2004) do not explicitly designate which entity is responsible for providing these services. When planning for Pre-ETS, it is crucial for VR and education agencies (i.e., state and local) to coordinate the services required for students with disabilities (Taylor et al., 2022). This coordination should enhance or expand transition services without replacing or diminishing the existing resources or support provided under IDEA (2004). Such coordination is essential to ensure federal grant funds are used to benefit the specified population outlined in the authorizing statute rather than being diverted to cover expenses that another entity should have covered with their funds.

This emphasis on coordination is reflected in both the VR regulations at 361.22(c) and the Education regulations at 34 CFR 300.324(c)(2), which state nei-

Pre-Employment Transition Services 34 CFR §361.5(c)(42)	VR Transition Services 34 CFR §361.5(c)(55)	Individuals With Disabilities Education Act, 20 U.S.C. § 300.43 (2004)
DEFINITION	DEFINITION	DEFINITION
<p>Pre-employment transition services are the earliest set of services for students with disabilities who are eligible or potentially eligible for Vocational Rehabilitation (VR) services.</p> <p>These services are designed to be:</p> <ul style="list-style-type: none"> • short-term in nature • based on the student's needs, and • help students identify their career interests 	<p>Transition services are outcome-oriented services for students or youth with disabilities who have been determined eligible for VR services, and facilitate the movement from the receipt of services from schools to the receipt of services from VR agencies, and/or as appropriate, other State agencies.</p> <p>These services are designed:</p> <ul style="list-style-type: none"> • Within an outcome-oriented process that promotes movement from school to post-school activities, including postsecondary education, vocational training, competitive integrated employment, supported employment, continuing and adult education, adult services, independent living, or community participation • Based upon the individual student's or youth's needs, taking into account the student's or youth's preferences and interests, 	<p>Part B of the Individuals with Disabilities Education Act (IDEA) §300.43(a)(1) defines transition services as a coordinated set of activities focused on improving the academic and functional achievement of students. This set of activities are designed within a results-oriented process that promotes movement from school to post-school activities including:</p> <ul style="list-style-type: none"> • postsecondary education, • vocational education, • competitive integrated employment, • supported employment, • continuing and adult education, • adult services, • independent living, and • community participation. <p>§300.43(a)(1)</p> <p>The coordinated set of activities described above is centered on the student, taking into account their strengths, interests, and preferences.</p>

Note: Used with permission from the National Technical Assistance Center on Transition Collaborative (NTACT:C)

Fig. 1. Comparison of the various transition services under IDEA (2004) and WIOA (2016).

ther the VR agency or the local education agency may shift the responsibility for providing services to the other entity. For example, VR funds allocated for Pre-ETS should either complement or enhance the services a student is already receiving under IDEA or introduce a new service not presently included in their IEP. However, the aim of non-duplication of services extends beyond just proper funding usage. Students should receive more services, more frequently, and at an earlier age to improve outcomes.

The National Technical Assistance Center: The Collaborative (NTACT:C) provides information, professional development, evaluation, and strategic planning guidance to equip state and local education and VR agencies supporting secondary students and out-of-school youth with disabilities through the transition to adulthood. In addition to education and VR agency personnel, NTACT:C's assistance intends to build the knowledge and capacity of other interested parties (e.g., service providers, families, students or young adults, agency partners) around effective services and instruction critical to postsecondary success for students and youth. Success may be indicated through increased graduation from high school, credential attainment, postsecondary education enrollment, competitive integrated employment, and participation and engagement in the community.

Key objectives include building the capacity of state agencies to engage in data-driven decision-making, collaborate across agencies to ease access to high quality transition services, deliver high-quality professional development, and implement a technical assistance system for local districts and offices with consistency.

The core of NTACT:C's technical assistance at all levels is bridging the "Know-Do" gap by integrating current research findings, translating them for practical implementation, and engaging interested parties in the process. Synthesizing the research that currently exists and informing that through the analysis of data collected on WIOA implementation and project activity evaluation data enhances NTACT:C's ability to inform effective Pre-ETS practices.

Previous research conducted to understand the implementation of Pre-ETS indicates, state plans focus on building partnerships and designating responsibilities (Taylor et al., 2022); however, it does not describe how the respective agencies can work together to optimize service delivery. Therefore, the purpose of this paper is to outline a comprehensive approach to delivering Pre-ETS by considering the stages of learning, addressing the who, what, when, and where aspects of service delivery. The aim is to empower educators, counselors, and com-

munity rehabilitation providers (and/or others) to optimize Pre-ETS programs and improve employment prospects for students with disabilities.

4. The role of the stages of learning in service optimization

Congress emphasized the essential need for coordinated services by incorporating explicit language in section 113(b), mandating that VR collaborates with local educational agencies (LEAs) to provide the five required Pre-ETS to students with disabilities in need of these services. By effectively coordinating and sequencing services, students can access a broader range of services at an earlier stage, facilitating the development of a more comprehensive career pathway (Luecking & Luecking, 2015; Taylor et al., 2022).

Service optimization refers to the process of enhancing the efficiency, effectiveness, and quality of services to achieve better outcomes while minimizing resource utilization and cost. It involves streamlining operational processes, improving service delivery methods, and maximizing the use of available resources to meet the needs and expectations of service recipients (Voss & Husan, 2009). The phases of learning, comprising acquisition, fluency, maintenance, and generalization, are instrumental in optimizing service delivery for individuals with disabilities (Haring et al., 1978). During the acquisition phase, service providers introduce new skills and knowledge tailored to individual needs (Collins 2012, 2022; Cooper et al., 2019). This foundational phase ensures participants develop a strong basis for further learning. In the fluency phase, there is a focus on practice and reinforcement of acquired skills to increase proficiency (Binder, 1996; Collins 2012, 2022). This fluency not only enhances skill mastery but also promotes confidence and independence. Maintenance is a critical phase aimed at preventing skill regression and ensuring ongoing benefits (Collins 2012; 2022; Houlihan & O'Reilly, 1995). Finally, the generalization phase extends the application of acquired skills beyond the learning environment (Collins, 2012, 2022; Cooper et al., 2019), promoting their use in various contexts and enhancing the overall quality of life for individuals with disabilities. By integrating these phases, service delivery becomes a comprehensive, evidence-based approach to skill development, empowering individuals and facilitating greater inclusivity. Using the

stages of learning to design, coordinate, and implement Pre-ETS establishes a framework that elevates the expectations for students with disabilities. This approach ensures students have access to the necessary resources, supports, and skills, equipping them for success in postsecondary education or their chosen careers.

5. Tailoring Pre-ETS services to individual needs

Understanding the phases of learning for students with disabilities is crucial for designing and delivering effective Pre-ETS that extend transition services delivered via IDEA (2004). Optimizing services through the stages of learning can be achieved through intentional and individualized service planning. We can illustrate the stages of learning as services progress with the student's development using work-based learning as an example. In the earliest phase, they may need to first explore their interests through workplace tours or job shadowing activities. Next, they might participate in mock interviews, which may lead to volunteer or unpaid work experiences. Next, they may engage in paid work experiences or internships. With each phase, the student is learning more about themselves and their career interests allowing them to make a more informed decision as to further education, training, or employment.

Special education teachers, transition specialists, and those providing Pre-ETS services are paramount to this process. It is important to note there are a plethora of providers delivering Pre-ETS including school personnel. How collaboration occurs across entities to tailor Pre-ETS services depends on a number of factors including the models of service delivery and how roles and responsibilities are delineated at the state and local levels. With regard to models of service delivery, Pre-ETS can be delivered individually or in a group setting. Pre-ETS can be provided directly by VR staff, or arranged for through providers, including education agencies. For example, in some areas, VR provides funds to a school to employ a Transition School-to-Work Coordinator (or similar title) who is responsible for designing and implementing Pre-ETS that are authorized by the VR agency. Other models include Community Rehabilitation Providers approved and funded through VR coming to schools at specific times (before, during, or after school hours) to provide services to students.

No matter the method of delivery, Pre-ETS must be provided in collaboration with education agencies (i.e., local, state) to maximize the opportunities for students with disabilities. This collaboration begins with coordination of roles and responsibilities for all services that students with disabilities may need, including Pre-ETS and VR transition services, as well as transition services under IDEA.

5.1. *Customizing transition services*

Customizing transition services, including Pre-ETS, based on the identified phase of learning for students with disabilities involves a thoughtful and individualized approach. The process begins by assessing the student's phase of learning for a specific skill. Regardless of the service delivery model employed, generally, the IEP team administers transition assessments to gauge the student's vocational skills, interests, and preferences as part of the overall IEP process under IDEA. Also, as part of this process, IEP teams seek to identify and understand the learning stages applicable to the transition process - acquisition (gaining new transition skills), fluency (mastering acquired transition skills), maintenance (sustaining mastered transition skills), and generalization (applying transition skills in diverse contexts). This systematic approach ensures educators can tailor instruction and support to meet the unique learning needs of each student, but is also helpful in understanding how to design and deliver Pre-ETS. For example, at this earliest phase of learning, the VR agency could provide job exploration counseling such as additional interest inventories and opportunities to learn more about different career pathways to supplement the transition assessments that are provided through the school under IDEA.

Next, IEP teams including VR should examine the student's IEP to understand their specific goals and objectives and align these goals with the identified phase of learning to ensure a cohesive and targeted approach. Jimenez et al (2021) provides sample questions to ask to determine which phase of learning a student is in for a specific skill (e.g., does the student need help to complete the skill accurately? [acquisition], is the student's completion of the skill inconsistent? [fluency]). The IEP should provide a baseline assessment which is foundational to customizing transition services. This assessment helps determine the student's initial proficiency in the skill, providing a starting point for subsequent measurements. These assessments also inform VR as to the

student's career and employment related needs.

As the student progresses through the phases of learning, the acquisition phase involves assessing their understanding of fundamental skill elements, often employing instructional methods such as direct instruction, modeling, and guided practice. At this stage, additional Pre-ETS services such as workplace readiness training and instruction in self advocacy could be deployed in concert with the transition services on the student's IEP. Subsequently, the fluency phase evaluates the student's ability to perform the skill accurately and efficiently, measuring both speed and accuracy of performance. During this phase, work-based learning experiences provided as a Pre-ETS can further enhance a student's ability to practice and improve their skills. The maintenance phase assesses the student's capability to sustain the skill over time, often through periodic assessments to ensure retention after the initial learning phase. Furthermore, the generalization phase focuses on determining whether the student can apply the acquired skill across different settings, tasks, or materials, providing insight into real-world application. Counseling on enrollment in postsecondary education at institutions of higher education Pre-ETS can be provided to students along their stages of learning in order for the student to be fully informed and prepared for determining their postsecondary goals. Systematic data collection during each phase, encompassing both quantitative measures (e.g., accuracy rates, completion times) and qualitative observations (e.g., problem-solving approaches, self-correction strategies), further contributes to a holistic evaluation of the student's progress and can inform the design and delivery of transition services including Pre-ETS.

Once the skill under consideration is clearly defined, consider what phase of learning the student is in. If the student is in the acquisition phase, focus on providing intensive and explicit instruction of the targeted skill. Design Pre-ETS that support the student to understand why it is important to develop the specific skill. As the student moves across the phases of learning, use Pre-ETS to provide deliberate practice (Campitelli & Gobet, 2011) and further enhance a student's learning in relevant employment skills to prepare them for competitive integrated employment.

Let's take, for example, a specific skill and transition service of communication (this may fall under multiple Pre-ETS depending upon the activity). The specific objective for a student might be to improve receptive communication skills by actively listening and following verbal instructions including (a)

accurately responding to questions, (b) summarizing information, and (c) demonstrating understanding through appropriate nonverbal cues. See Table 1 for an example of how to leverage IDEA transition services and Pre-ETS to address receptive communication skills across the phases of learning.

5.2. Content and service design

Developing a flexible service delivery model for Pre-ETS is essential for supporting diverse learners at various stages of their educational and vocational journey. Recognition of the distinct needs of individuals receiving these services is the first step. Consider the diverse preferences, interests, abilities, and needs of each individual to tailor services accordingly. Simultaneously, identify and understand the learning stages applicable to the transition process.

IEP teams, which include VR, should collaboratively define specific and measurable objectives for each learning stage within the context of Pre-ETS and IDEA Transition Services. These objectives will serve as guiding principles for the development of content, activities, and assessments. Activities should be meticulously designed to align with the objectives of each stage, incorporating practical exercises, real-world applications, and collaborative projects to enhance engagement and understanding.

To promote continuous improvement, practitioners should integrate feedback loops (i.e., systematic

process of obtaining information about a system's performance and using that information to make adjustments and improvements) at strategic points in the service delivery. Encourage input from individuals with disabilities, educators, Pre-ETS service providers, and other interested parties, such as families and employers. NTACTION's Youth Engagement Transition Initiative (YETI) stands as a noteworthy illustration of a feedback loop and more, inspiring replication in diverse forms nationwide. As a national youth engagement and leadership advisory and work group, YETI was recruited and formed by NTACTION to ensure youth engagement and perspectives constitute the bedrock of NTACTION's initiatives. YETI has actively collaborated in the co-creation of resources and training materials, playing a pivotal role in shaping NTACTION's technical assistance.

Surveys (e.g., VR program's consumer satisfaction surveys), assessments, and qualitative feedback can all be used as part of the continuous improvement process to gather valuable insights. Since the implementation of Pre-ETS is almost a decade old, State VR agencies are now looking at their organizational structure and how it supports students with disabilities. Other VR agencies are analyzing their data along with their state and local education agency data to identify trends, gaps, needs, and areas of excellence (NTACTION, 2023). Teams are using the data collected to inform adjustments, iterating the service delivery model based on the analysis of feedback,

Table 1

Customizing transition services based on phases of learning to improve receptive communication skills by actively listening and following verbal instructions including (a) accurately responding to questions, (b) summarizing information, and (c) demonstrating understanding through appropriate nonverbal cues

Phase of learning	IDEA transition service	Pre-ETS service
Acquisition	Specially designed instruction in receptive communication using Most-to-Least Prompting	<ul style="list-style-type: none"> • Explore the need for receptive communication during advising sessions [<i>Workplace Readiness Training</i>] • Set communication goals [<i>Instruction in Self-advocacy</i>]
Fluency	Specially designed instruction in receptive communication using System of Least Prompts	<ul style="list-style-type: none"> • Participate in mock interview with local employer [<i>work-based learning</i>] • Develop one-page profile to support sharing information with employers [<i>Instruction in Self-advocacy</i>] • Provide opportunities for deliberate practice of receptive communication during advising sessions [<i>Workplace Readiness Training</i>]
Maintenance	Implement Reinforcement Schedule during class to promote maintenance of receptive communication (starting with fixed interval moving to variable interval)	<ul style="list-style-type: none"> • Provide opportunities to practice receptive communication during internship [<i>work-based learning</i>] • Implement Reinforcement Schedule during advising sessions [<i>Workplace Readiness Training</i>]
Generalization	Provide opportunities to practice in different classes with different instructors.	<ul style="list-style-type: none"> • Provide opportunities to practice via job interviews with different employers and/or on-boarding activities during internship or paid employment [<i>work-based learning</i>] • Provide opportunities to practice with disability supports at local college or university [<i>Postsecondary Counseling</i>]

regularly updating content, activities, and assessments to address identified needs and improve overall effectiveness. See Table 2 for the general steps of the continuous improvement process many state and local VR agencies have adopted.

Offering personalized support based on the unique needs of each participant is crucial. Practitioners should provide additional resources, one-on-one sessions, or supplementary materials to support those who may require extra assistance at any stage. This

may include auxiliary aids and services a student may need regardless of whether they are receiving Pre-ETS as a potentially eligible or as a VR applicant and eligible individual, or it could include rehabilitation technology for the eligible student to participate most effectively in Pre-ETS or other transition services.

It is recommended a supportive community environment be created by facilitating communication and collaboration among individuals with disabilities, their families, educators, Pre-ETS providers, and

Table 2
Data-based decision-making process

Process	Sample questions
Step 1: Gather data	<ul style="list-style-type: none"> • What trends do we find in the last three years of your IDEA student outcome data (i.e., Indicator 1, 2, & 14)? • What data can we gather from other sources regarding student/ district performance (e.g., vocational rehabilitation successful case closures, postsecondary education enrollment data, students enrolled in career technical education programs in the state)?
Step 2: Analyze data	<ul style="list-style-type: none"> • What trends, strengths and/or areas of concerns do we find in the last three years of our student outcome and compliance data? • What percentage of students with disabilities is meeting state standards? Has this changed? How? • Do gaps exist among subgroups (e.g., disability, gender, ethnicity, exit type) and your state benchmark or target?
Step 3: Prioritize needs	<ul style="list-style-type: none"> • What areas should be celebrated and what initiatives contributed to the performance? • Which areas have the greatest potential for growth? • Which areas are of most urgent need? • What curriculum, instruction, or transition service (including Pre-ETS) may be contributing to the data results? • What practices (e.g., EBPs, predictors) influence the data results? • What is the root cause of the data results?
Step 4: Establish SMART goals	<ul style="list-style-type: none"> • What needs to be accomplished? Why is it important? Who is involved? Where will it take place? • How will we track progress? What are the indicators of success? How much or how many? • Is the goal reasonable? Can it be accomplished given the resources and constraints? Do we have the necessary skills and abilities? • Does this goal matter? Is it consistent with our other goals and objectives? Does it contribute to the bigger picture? • When will we achieve this goal? What is the deadline? Are there milestones along the way?
Step 5: Select specific strategies	<ul style="list-style-type: none"> • For each goal, what are the strategies that could be implemented to increase the likelihood of achieving that goal? • Is this strategy measurable? • Are the strategies action oriented? Are the strategies focused on what SEAs, LEAs, administrators, teachers, VR Professionals are going to do to improve results? • Do the strategies include implementation of evidence-based practices and predictors in secondary transition? • Do our strategies prioritize curriculum, resources, professional development opportunities, program changes? • Have we identified practices and activities that should be discontinued to increase the focus necessary to implement the most effective strategies?
Step 7: Monitor and evaluate results	<ul style="list-style-type: none"> • Have we developed a monitoring plan? • How will we monitor progress on activities developed? • When will we examine data to determine if activities had an impact (e.g., quarterly, bi-annually, annually)? • When and how will we review the data collected from both the measures used to evaluate goals and activities, as well as, student outcome data, and other relevant data from step one? • How will we adjust goals and activities to assure fidelity of implementation?

other interested parties. It is important to implement tracking mechanisms to monitor participant progress at each learning stage, utilizing data analytics to identify trends, successes, and areas requiring additional attention or modification. Conducting regular evaluations of the overall effectiveness of the service delivery model, assessing the achievement of learning objectives is also recommended making adjustments as needed to ensure continuous improvement. In developing a flexible service delivery model for Pre-ETS that accommodates different learning stages and integrates feedback loops, a more inclusive, adaptive, and effective educational and vocational support system can be created. This approach ensures continuous improvement, enhances participant engagement, and maximizes the positive impact on their transition journey.

5.3. *Coordination of services*

Recognizing the optimal timing for delivering Pre-ETS necessitates a nuanced understanding of individual learning trajectories of students as well as the systems which serve them (IDEA transition services, VR services). Essential to this process is the seamless coordination of these services with an individual's transition journey. As highlighted earlier, the IEP team, including the VR agency, should employ assessments to pinpoint areas of focus for Pre-ETS as well as other needed transition services. Aligning service delivery with crucial decision points, such as the transition to high school or graduation, ensures timely and crucial support during pivotal moments in the transition process.

Community resource mapping and the development of a sequence of services represent a highly effective strategy for facilitating a seamless transition for students and youth with disabilities (Crane et al., 2018; Luecking & Leucking, 2015; Peterson et al., 2101). Community resource mapping refers to the systematic process of identifying and cataloging the various assets and resources within a community (e.g., social services, cultural amenities, educational institutions, healthcare facilities). The goal is to create a comprehensive map or inventory that helps community members, organizations, and planners better understand and utilize the available resources to address community needs (Flanagan & Bumble, 2022). The primary objective of community resource mapping is to ensure every student and young person gains access to a broader, more comprehensive, and integrated service system cru-

cial for realizing both educational and post-school aspirations.

The essence of resource mapping lies in leveraging the strengths inherent in the community, enhancing the frequency, duration, intensity, and quality of services and supports available. By capitalizing on these strengths, the community can effectively enhance its capacity to provide well-rounded services. This collaborative pooling of resources for students and youth with disabilities results in a synergistic effect, generating services that surpass the scope of any single system's mobilization capabilities (Crane and Mooney, 2005). Consequently, families, students, and youth with disabilities benefit from increased flexibility and choice when navigating the system.

In essence, community resource mapping transforms information organization into a powerful tool for community empowerment. By strategically aligning resources, this approach ensures a more inclusive, comprehensive, and supportive system, thereby empowering families, students, and youth with disabilities to navigate and access a range of services effectively. By aligning and streamlining resources while identifying service gaps across education, Pre-ETS, and VR transition services, educators and service providers can achieve several critical objectives. They can gain a comprehensive understanding of the complete spectrum of services accessible to students and youth across education and VR. Additionally, they can discern the sequence of services received by students and youth as they progress through the transition process. This process allows for the clear definition of roles and responsibilities, ensuring that specific supports needed by each student and youth are provided across the phases of learning. See Fig. 2 for a sample, abbreviated sequence of services.

To remain responsive to the evolving needs of individuals, it is imperative to adjust the timing and intensity of services based on their progress. This flexibility allows interventions to be finely tuned according to the unique pace and readiness of each individual for specific interventions. Establishing seamless communication channels is paramount to avoiding duplication of efforts and creating a coordinated support system that enables the development of new, targeted services and supports to address existing gaps (Mazzotti & Rowe, 2015).

Acknowledging that individuals progress through learning trajectories at varying rates, it becomes essential to offer adaptable service delivery models. These models should be amenable to adjustment

based on the individual’s pace, ensuring interventions are not only timely but also tailored to a student’s specific readiness for different aspects of the transition process (Fuchs et al., 2017). Empowering individuals with the requisite information and skills to make informed decisions about their transition goals is a cornerstone of effective support. This involves fostering self-advocacy and self-determination, encouraging active participation in the coordination of their transition services (Rowe et al.,

2017). By adhering to these principles, the timing, coordination, and flexibility of Pre-ETS can be optimized, contributing to a more seamless and effective transition experience for individuals.

5.4. Where to deliver Pre-ETS

Ensuring effective support and positive outcomes in the delivery of Pre-ETS hinges on selecting an appropriate learning environment. It is imperative to

	Elementary (Pre-K-5)	Middle School (6-8)	High School (9-12+)
Sample Student Outcomes	Gaining awareness of self and career options Initial Acquisition of skills (e.g., social, communication, goal setting, choice-making)	Exploring additional career options Initial acquisition of skills (e.g., advocacy, decision-making, self-management) Building Fluency in skills (e.g., social, communication, goal setting, choice-making)	Preparing for Careers Building Fluency in skills (e.g., advocacy, decision-making, self-management) Maintenance & Generalization (e.g., social, communication, goal setting, choice-making)
Sample Connection with Agencies (Referral/ Eligibility)	Connect with local disability service organizations or advocacy groups to gather information about available resources and support networks	Refer to Benefits Counselor Refer to Vocational Rehabilitation for Pre-ETS Refer to Managed Care Organization	Refer to Vocational Rehabilitation Refer to Community Rehab Provider for Job Coach Supports (if applicable)
Sample Roles and Responsibilities			
Education	<ul style="list-style-type: none"> Expose students to different careers (e.g., policeman, doctor, fireman, mailman, etc.) and the responsibilities included in various careers Support development of a work personality including a work ethic and understanding of own strengths, interests, and limitations Implement effective practices to teach students interpersonal relationship skills and problem-solving skills 	<ul style="list-style-type: none"> Develop on-campus jobs or a school-based enterprise to support in the development of physical and manual skills needed to do various jobs Conduct age-appropriate transition assessments to support a student’s investigation of personal interests as they relate to a future career Provide opportunities for students to participate in civic or volunteer work 	<ul style="list-style-type: none"> Ensure student’s course of study aligns with postsecondary goals Implement effective practices to teach job-seeking skills (e.g., applications, interviews, etc.). Implement effective practices to teach self-advocacy skills. Support individuals in acquiring the necessary qualifications for their desired occupation (e.g., diploma, industry credentials)
Vocational Rehabilitation	<ul style="list-style-type: none"> Share information about VR services with schools so information can be disseminated to students and families Provide information to schools or individuals and their families about different occupations and industries 	<ul style="list-style-type: none"> Inform schools and individuals with disabilities and their families about the purpose of Pre-ETS and the process for applying. Conduct additional assessments to explore potential career options based on the individual’s strengths (for students age 14) Provide instruction on personal and daily living skills that are relevant to the workplace (for students age 14) 	<ul style="list-style-type: none"> Deliver Pre-ETS aligned with student interests and needs (e.g., conduct Job development activities to support matching student to; paid employment, opportunities to practice job seeking and self-advocacy skills) Offer ongoing support, such as job coaching, to help individuals maintain employment Arrange for job-related training or education for students to enhance skills Identify and implement reasonable accommodations to address workplace barriers Identify and provide assistive technology tools to support individuals in the workplace Conduct regular check-ins to monitor the individual’s progress in the workplace

Fig. 2. Sample sequence of services.

choose flexible and inclusive spaces that can adapt to various activities and learning modalities, addressing a broad spectrum of needs. Accessibility for individuals with disabilities should be a top priority in the physical environment.

To enhance the learning experience, leverage technology through virtual platforms, assistive technologies, and online resources (Rowe et al., 2020). The seamless integration of technology should be a fundamental aspect of the chosen environment to cater to diverse learning needs. Integration with the local community is equally crucial; learning environments that establish connections with community resources, employers, and mentors contribute to a holistic and supportive transition experience, aligning with the goals of Pre-ETS and promoting vocational readiness.

Implementing an ongoing monitoring and evaluation system for the learning environment is also essential. Regular assessments should gauge its effectiveness in achieving the goals of Pre-ETS across the stages of learning. Be prepared to make adjustments based on feedback and evolving needs to ensure continual improvement. Moreover, adherence to legal requirements and standards for accessibility, inclusion, and accommodation is paramount. This is especially critical to guarantee equal access to learning opportunities for individuals with disabilities. By thoughtfully considering these factors, those providing Pre-ETS can select a learning environment that optimally supports the delivery of Pre-ETS. This careful consideration contributes to fostering a successful transition for individuals with diverse needs.

5.5. *Ensuring equitable access to Pre-ETS*

To overcome barriers to participation in Pre-ETS, a well-structured framework is essential across various learning stages. In the initial assessment and individualized planning stage, a comprehensive evaluation is conducted to identify individual strengths, preferences, and obstacles. Likewise, VR services including Pre-ETS, must be provided with consideration to the students informed choice (strengths, resources, priorities, concerns, abilities, and interests). As mentioned previously, this entails the development of an IEP with clearly defined transition goals, actively engaging the student and their support network in the planning process. Moving into the fluency stage, the focus shifts to skill development and practical experiences aligned with vocational interests. This involves the implementation of Pre-ETS

to enhance foundational skills, with collaboration among relevant providers, educators, and VR counselors. Concerning skill development and support, the acquisition stage emphasizes targeted instruction and interventions to establish foundational skills. This includes hands-on activities and the creation of a supportive learning environment. In the fluency stage, specialized Pre-ETS concentrate on specific skill areas, supplemented by mentorship or peer support and the incorporation of assistive technology as needed (Rowe et al., 2015).

Transition Service Coordination is pivotal in fostering collaboration between schools and VR agencies during the acquisition stage. Clear communication channels are established for sharing progress and updates (Mazzotti & Rowe, 2015). In the fluency stage, there is a continuous review and update of transition plans, with a focus on encouraging student involvement in decision-making processes. As the process progresses into the maintenance stage, ongoing support services are implemented to ensure the retention of acquired skills, providing opportunities for practice and reinforcement in various settings. In the generalization stage, the emphasis shifts to applying skills across different environments, with collaboration with VR to facilitate a seamless transition from school to employment.

In terms of family and community involvement, during the acquisition and fluency stages, families actively participate in transition planning, receiving resources for continued support at home. Community partnerships are cultivated to create inclusive opportunities for skill application. In the maintenance and generalization stages, efforts extend to educating the community about the capabilities of individuals with disabilities and facilitating connections with community organizations and employers.

Continuous monitoring and evaluation remain critical across all stages, involving regular progress assessments and adjustments to strategies as needed. As part of Pre-ETS service delivery, students are encouraged to engage in self-reflection and goal setting. Advocacy and empowerment are integral throughout all stages, focusing on equipping students with self-advocacy skills to express their needs and preferences and fostering a culture of empowerment and independence (i.e., Pre-ETS service Instruction in Self-Advocacy including peer mentoring).

Finally, professional development is underscored across all stages, encompassing training for educators, Pre-ETS providers, and VR counselors on effective transition practices. Emphasis is placed on

staying informed about evolving best practices (Rowe et al., 2021), with a commitment to maintaining flexibility and tailoring interventions to the unique needs of each student.

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Conflict of interest

The authors declare that they have no conflicts of interest related to this manuscript. The authors confirm that the manuscript is the original work of the authors listed and has not been submitted for publication elsewhere. Any conflicts of interest that might be perceived as influencing the content of the manuscript have been disclosed.

Ethics statement

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References

- Binder, C. (1996). Behavioral fluency: Evolution of a new paradigm. *The Behavior Analyst, 19*(2), 163-197.
- Butterworth, J., Farrow, T., & Edwards, T. (2018). Quality of life and adults with learning disabilities: A career perspective. *Journal of Intellectual Disabilities, 22*(3), 273-288.
- Campitelli, G., & Gobet, F. (2011). Deliberate Practice: Necessary but Not Sufficient. *Current Directions in Psychological Science, 20*, 280-285. <http://dx.doi.org/10.1177/0963721411421922>
- Collins, B. C. (2012). Systematic instruction for students with moderate and severe disabilities. Brookes Publishing Co.
- Collins, B. C. (2022). Systematic instruction for students with moderate and severe disabilities. 2nd Edition. Baltimore, MD: Paul H. Brookes Publishing Co.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2019). Applied Behavior Analysis (3rd Edition). Hoboken, NJ: Pearson Education.
- Crane, K., Allison R., & MaGee, C. (2018). Resource mapping and flow of services. Retrieved from: https://transitionta.org/wp-content/uploads/docs/toolkit_ResourceMapping_2018.pdf
- Flanagan, M. F., & Bumble, J. L. (2022). Mapping Assets for Postschool Success (MAPS): Using Digital Resource Mapping to Enhance the Transition Process. *TEACHING Exceptional Children, 0*(0). <https://doi.org/10.1177/00400599211068143>
- Fuchs, L. S., Fuchs, D., & Malone A. S. (2017). The taxonomy of intervention intensity. *Teaching Exceptional Children, 50*(1), 35-43.
- Haring, N.G., Lovitt, T.C., Eaton, M.D., & Hansen, C.L. (1978). The fourth R: Research in the classroom. Columbus, OH: Charles E. Merrill Publishing Co.
- Hirano, K. A., Rowe, D. A., Lindstrom, L., & Chan, P. (2018). Identifying parent needs in transition: A systematic review of the qualitative literature. *Journal of Child and Family Studies, 27*, 3440-3456. doi:10.1007/s10826-018-1189-y
- Houlihan, D., & O'Reilly, M. F. (1995). Maintaining the performance of a multicomponent treatment package: An analysis of procedural integrity. *Journal of Applied Behavior Analysis, 28*(4), 435-450.
- Kaye, H.S. (2009). The Impact of the ADA on the employment of people with disabilities. *Journal of Vocational Rehabilitation, 31*(3), 205-213.
- Koch, L. C., & Stuart, A. (2018). Pre-employment transition services for youth with disabilities: A systematic literature review. *Rehabilitation Research, Policy, and Education, 32*(1), 31-46.
- Larson, S. A., Lakin, K. C., Hill, A. M., Bruininks, R., & Davey, A. (2007). Services and supports for individuals with developmental disabilities. *Intellectual and Developmental Disabilities, 45*(3), 135-145.
- Luecking, D. M., & Luecking, R. G. (2015). Translating Research into a Seamless Transition Model. *Career Development and Transition for Exceptional Individuals, 38*(1), 4-13. <https://doi.org/10.1177/2165143413508978>
- Mazzotti, V. L., & Rowe, D. A. (2015). On my side: Building an alliance for transitioning youth through collaboration. Washington, D. C.: Council for Exceptional Children.
- NTACT:C (2023) Annual Performance Report for the Office of Special Education Programs: Section A.
- Peterson, L. Y., Van Dycke, J. L., Roberson, R. L., & Sedaghat, J. M. (2013). Promoting Student Transition from Entitlement Services to Eligibility Resources.

- Intervention in School and Clinic*, 49(2), 99-107. <https://doi.org/10.1177/1053451213493173>
- Rehabilitative Service Administration (n.d.). VR program reference guide. Retrieved from: <https://rsa.ed.gov/about/programs/vocational-rehabilitation-state-grants/vr-program-reference-guide>
- Rowe, D. A., Alverson, C. Y., Unruh, D., Fowler, C., Kellems, R., & Test, D. W. (2015). A delphi study to operationalize evidence-based predictors in secondary transition. *Career Development and Transition for Exceptional Individuals*, 38, 113-126. doi: 10.1177/2165143414526429.
- Rowe, D. A., Carter, E. W., Gajjar, S., Maves, E. A., & Wall, J.C. (2020). Supporting strong transitions remotely: Considerations and complexities for rural communities. *Rural Special Education Quarterly*, 39(4), 220-232. <https://doi.org/10.1177/8756870520958199>
- Rowe, D. A., Mazzotti, V.L., Fowler, C.H., Test, D. W., Mitchell, V. J. Clark, K. A., Holzberg, D. Owens, T. L. Rusher, D., Seaman-Tullis, R. L., Gushanas, C. M., Castle, H. Chang, W., Voggt, A., Kwiatek, S., & Dean, J.C. (2021). Updating the Secondary Transition Research Base: Evidence- and Research-Based Practices in Functional Skills. *Career Development and Transition for Exceptional Individuals*, 44(1), 28-46. <https://doi.org/10.1177/2165143420958674>
- Rowe, D. A., McNaught, J., Yoho, L. M., Davis, M., & Mazzotti, V.L., (2018). Helping Students Make Informed Decisions about Transition via Web-based Resources. *Career Development and Transition for Exceptional Children*, 41(4), 252-259. <https://doi.org/10.1177/2165143417736266>
- Taylor, J. P., Whittenburg, H. N., Rooney-Kron, M., Gokita, T., Lau, S. J., Thoma, C. A., & Scott, L. A. (2022). Implementation of Pre-Employment Transition Services: A Content Analysis of Workforce Innovation and Opportunity Act State Plans. *Career Development and Transition for Exceptional Individuals*, 45(2), 60-70. <https://doi.org/10.1177/2165143421993027>
- U.S. Congress. (2014). Rehabilitation Act of 1973, 29 U.S.C. §113 (2014).
- U.S. Government. (2023). Scope of vocational rehabilitation services for individuals with disabilities. 34 CFR §361.48. <https://www.ecfr.gov/current/title-34/section-361.48>
- Voss, C. A., & Hsuan, J. (2009). Service transition strategies: A practitioner's guide. *International Journal of Operations & Production Management*, 29(10), 1021-1040.