

THE PATHWAY TO INDEPENDENCE INVENTORY: A VALIDITY STUDY OF A
TRANSITION ASSESSMENT TOOL FOR POSTSECONDARY
STUDENTS WITH DISABILITIES

by

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DISSERTATION ABSTRACT

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Title: The Pathway to Independence Inventory: A Validity Study of a Transition Assessment Tool for Postsecondary Students with Disabilities

This study investigated the psychometric properties of the Pathway to Independence Inventory (PII), a new transition assessment tool designed to meet the needs of college-bound students with disabilities who have identified gaps in the areas of adaptive skills, executive functions, and social skills. Analyses examined the factor structure, internal consistency, concurrent validity, and interrater reliability of the instrument as well as differences based on gender identity, disability status, and instrument version (i.e., student report and informant report). The study used an extant dataset of 155 students currently or previously enrolled in a postsecondary support program for students with disabilities.

The results of the construct validity analysis indicated tentative evidence of a seven-factor structure of the instrument using subscales as manifest variables and also indicated that the factor structure and loadings hold across the two versions. The results of the reliability and validity analysis indicated acceptable internal consistency, limited evidence of concurrent validity, and no evidence of interrater reliability between students and their informants. Finally, group difference analyses indicated significant differences between instrument version across all scales and indicated significant differences on academic skills based on gender identity and on interpersonal skills based on disability

status. Implications for both research and practice are discussed including the need for further replication research on this instrument to confirm these findings and generate additional evidence of its efficacy with college-bound students with disabilities.

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CHAPTER I

INTRODUCTION

The transition from high school to adulthood is a critical time for all individuals and research suggests that students with disabilities face increased challenges with this transition (Dell’Armo & Tassé, 2019). While the achievement of successful adult outcomes including employment, postsecondary education, and independent living is the presumed goal of almost every secondary student (Test, Fowler, et al., 2009; Test, Mazzotti, et al., 2009; Williams-Diehm & Benz, 2008), students with disabilities often struggle to achieve success with these postschool outcomes at the same rates as their peers without disabilities (Bouck & Chamberlain, 2017; Stewart et al., 2010). Despite decades of federal and state initiatives to improve postschool outcomes for students with disabilities, these outcomes continue to reflect the widest gap between students with disabilities and their peers without disabilities (Blanck, 2000; Kochhar-Bryant & Izzo, 2006). While aggregated data from the National Longitudinal Transition Study–2 (NLTS2) suggests that students with disabilities are experiencing improvements in postschool outcomes since the original NLTS in 1996, these rates are still not comparable with their peers without disabilities (Blackorby & Wagner, 1996; Newman & Madaus, 2015; Newman et al., 2011).

Statement of the Problem

To improve postschool outcomes for students with disabilities, it is imperative to identify both areas of strength and areas for improvement in order to ensure that instructional supports are appropriate and will contribute to targeted skill development. To do this, the U.S. Department of Education has provided a Blueprint for Reform

outlining a plan for improved outcome assessments for all students, including students with disabilities, and requires these assessments be aligned with college and career success (Bragg & Taylor, 2014; Camara, 2013; Fowler et al., 2014; Rowe, Mazzotti, et al., 2015; U.S. Department of Education, 2010). The framework for College and Career Readiness (CCR) indicates the skills necessary for positive post-school outcomes include academic engagement, mindsets, learning processes, critical thinking, interpersonal engagement, and transition competencies (Morningstar, Lombardi, et al., 2017). Transition assessment, therefore, should generate a comprehensive appraisal of a student's goals, skills, aptitudes, and needs in accordance with this framework. This appraisal will then serve as a guide for instructional activities in the areas of academic achievement, self-determination, employment interest and exploration, and adaptive behavior and independent living (Carter et al., 2017; Carter et al., 2014; Edgerton & Desimone, 2018; Hewitt, 2015; Hume et al., 2018; Mazzotti et al., 2009; Neubert & Leconte, 2013).

While there are numerous examples of both formative and summative transition assessments for students with disabilities, few have reliability and validity evidence for use with specific populations. Those assessments that do meet reliability and validity thresholds, however, are often lengthy, inefficient, and difficult to interpret (National Secondary Transition Technical Assistance Center, 2007). Furthermore, there are currently no validated transition assessments designed specifically to meet the needs of college-bound students with disabilities who face challenges in the areas of adaptive skills, executive functions, and social skills. While triangulation of multiple assessments may provide this information, having one tool that provides stakeholders with a quick,

comprehension snapshot of this valuable information would contribute to efficiency and ease of use for this population. An assessment tool designed specifically with this population in mind, and one that is designed to generate both individual goal-setting and programmatic decision-making would potentially improve targeted systems of support resulting in increased positive postschool outcomes for these students.

Rationale for this Study

The goal of this study is to examine the psychometric properties of The Pathway to Independence Inventory (PII), a transition assessment instrument designed specifically for students with disabilities who have challenges with adaptive skills, executive functions, and social skills to provide a comprehensive understanding of these students' current levels of functioning and future support needs. The PII is a promising measurement instrument that provides valuable information across a variety of transition-related constructs and can provide students, families, and educational teams with critical information about areas of need to drive programmatic decision making. Information generated from this assessment can inform postsecondary goals and transition planning efforts to help close the outcome-gap between students with and without disabilities in their transition to adulthood. In addition, because the instrument was designed to have both a student report as well as an informant report, analysis of the assessment results can be used to better understand the differences in perspectives of students and their families, teachers, or support providers, further contributing to goal setting and decision making.

Despite the promise of this assessment tool, to date there does not exist reliability or validity evidence for its use with college-bound diverse learners. Generating this reliability and validity evidence may lead to the tool's increased use in transition and

postsecondary settings for students with disabilities and may improve goal setting, instructional changes, and program-level decision making, eventually contributing to improved student outcomes. In addition, better understanding of the factor structure of the instrument will inform future revisions and iterations to make the instrument increasingly efficient and well organized, which will also contribute to its ease and efficiency of use.

The specific purposes of this study are to (a) confirm the PII's seven factor structure, (b) provide reliability and validity evidence for the PII, and (c) better understand the differences in factor structure of the student report and the informant report and based on student gender identity and disability status. The next chapter will present relevant research literature for the need for this assessment tool, as well as a review of related transition assessments and a description of how the PII fits among this spectrum. Following this will be a discussion of the importance of generating reliability and validity evidence for measurement tools. A detailed description of the methodology for accomplishing these study purposes will be presented followed by a presentation and discussion of the results of the study.

CHAPTER II

LITERATURE REVIEW

Understanding individual strengths and areas of need is of vital importance for preparing students with disabilities to lead full and productive adult lives. Throughout this chapter, in discussing the transition assessment needs of students with disabilities, specific attention will be paid to the population of interest for this study, college-bound diverse learners. This is defined as students with disabilities who plan to engage in postsecondary education and have documented skill development gaps in the areas of adaptive skills, executive functions, and social skills.

There are many organizing frameworks and taxonomies in the literature that provide structure and guidance for transition assessment and transition skill instruction for students with disabilities (Dukes et al., 2017; Kohler, 1996; Kohler et al., 2016; Morningstar, Lombardi, et al., 2017; Test, Mazzotti, et al., 2009). However, when interested in targeting a specific subset of the population of students with disabilities, there is not a single assessment tool that adequately measures each of the constructs of interest to this specific student population and leads to salient postsecondary goals. This section includes the conceptual framework designed to support students with executive function and adaptive skill deficits and then discusses current transition assessments that attempt to target this population yet have gaps in constructs aligned with the conceptual framework for improved outcomes for college-bound diverse learners. Following this is a detailed overview of the PII, a previously unevaluated transition assessment tool, and the constructs it is designed to measure, followed by a discussion of the need for presenting reliability and validity evidence of new assessment tools.

Conceptual Framework

Students with disabilities with support needs in the areas of adaptive skills, executive functions, and social skills (e.g., consistent with diagnoses of Autism Spectrum Disorder [ASD], Non-Verbal Learning Disability [NVLD], Attention-Deficit Hyperactivity Disorder [ADHD], Specific Learning Disability [SLD], and others), or college-bound diverse learners, face particular challenges when embarking on a postsecondary education experience. While there are identified supports and strategies that can benefit all students with disabilities, it is important to recognize that certain constellations of ability present unique challenges in identifying specific areas of support that will increase the likelihood of postsecondary success. In particular, college-bound diverse learners benefit from a targeted approach that focuses on the development of specific skills in order to achieve postsecondary success.

The current literature in the field of secondary transition for students with disabilities includes several different frameworks, taxonomies, and predictors of successful postschool outcomes for students with disabilities. A review of these organizing frameworks demonstrates commonalities relevant to the skills and supports necessary for college-bound diverse learners to be successful in postsecondary education. Drawing on these commonalities allows for the emergence of seven salient skill development constructs that outline the support needs of these students: (a) academic skills, (b) emotional regulation, (c) health and wellness, (d) daily living skills, (e) interpersonal skills, (f) technology literacy, and (g) employment skills. This section introduces several of the organizing frameworks for transition planning including the College and Career Readiness Framework, the Taxonomy for Transition Planning 2.0, the

PASS Taxonomy, and the Predictors of Postschool Success, presenting the primary tenets and emphasizing the elements most salient to college-bound diverse learners.

Morningstar, Lombardi, Fowler, and Test (2017) developed an organizing framework for College and Career Readiness (CCR) that emphasizes both academic and nonacademic skills that promote success for students with disabilities. The framework is comprised of the six domains of (a) academic engagement, (b) mindsets, (c) learning processes, (d) critical thinking, (e) interpersonal engagement, and (f) transition competencies. Each of these domains are further divided among elements and features that provide an organizing framework for understanding the skills necessary for students with disabilities to develop during the transition process in order to achieve successful postschool outcomes (Mazzotti et al., 2018; Morningstar, Lombardi, et al., 2017; Morningstar et al., 2018; Morningstar, Zagona, et al., 2017).

The CCR framework demonstrates significant alignment with the skill development constructs identified for college-bound diverse learners. Specifically, the academic skills construct is reflected in the academic engagement and learning processes domains of the CCR framework and the emotional regulation skill construct is reflected in the mindsets and learning processes domains, emphasizing coping skills and metacognition. The health and wellness skill construct is referred to under the adult roles and responsibilities element of the transition competencies domain as an important feature of transition programs, and the interpersonal skill construct is reflected in the CCR domain of interpersonal engagement which includes elements related to self-reflection, engaging with others, and understanding others. This construct is also reflected in the domains of academic engagement, mindsets, learning processes, and critical

thinking. Finally, the technology literacy construct is included in the learning processes domain and the employment skills construct falls under the transition competencies section of the CCR framework in the “career culture” element.

Another organizing framework for secondary transition that demonstrates alignment with the skill development constructs for college-bound diverse learners is the Taxonomy for Transition Programming 2.0, an adaptation of the *Taxonomy for Transition Planning* (Kohler, 1996; Kohler et al., 2016, Xu et al., 2016). The focus of the taxonomy is on providing a structure in which transition-focused education and transition planning can be developed in order to meet the needs of students with disabilities while also making use of the resources that the full transition planning team can provide to the process. The taxonomy is organized into the five primary categories of (a) student-focused planning, (b) student development, (c) interagency collaboration, (d) family engagement, (e) and program structure. While the seven skill development constructs are reflected throughout multiple categories in the taxonomy, the category most representative of these constructs is student development. This category focuses on the areas of assessment; academic skills; life, social, and emotional skills; employment and occupational skills; student supports; and instructional context. The academic skill construct is reflected in the academic skills element, and the emotional regulation and interpersonal skills constructs are reflected in the life, social, and emotional skills element. In addition, the employment skills construct connects directly to the employment and occupational skills element of this category of the taxonomy.

The Postsecondary Access and Student Success (PASS) taxonomy was originally developed as a way to conceptualize the current literature on postsecondary education for

students with disabilities (Dukes et al., 2017). The PASS taxonomy is divided among the four domains of student-focused support, program and institutional-focused support, faculty and staff-focused support, and concept and systems development. The skill development constructs for college-bound diverse learners fit within the context of the student-focused support domain of the PASS taxonomy, which is designed to address the experiences and perceptions at the student-level during higher education. It is divided among the subdomains of access (e.g., physical, cognitive, and attitudinal); assistive technology use; career development; experiences, perceptions, knowledge, attitudes, or beliefs of students with disabilities; learning/using study skills and learning strategies; mainstream technology use; meeting institutional requirements; post-undergraduate program experiences and/or outcomes; profiles of students; requesting or using accommodations; self-determination skills; and statistics on students with disabilities.

Each of the seven skill development constructs align closely with the features of this domain of the PASS taxonomy. The academic skills construct and its requisite competencies are captured in the PASS subdomains of learning/using study skills and learning strategies, meeting institutional requirements, and self-determination skills, and the emotional regulation construct is represented by the subdomain of experiences, perceptions, knowledge, attitudes, or beliefs of students with disabilities. The interpersonal skills construct is represented by the subdomain of meeting institutional requirements and self-determination, the technology literacy construct is represented by the assistive technology use and mainstream technology use subdomains, and the employment skills construct is represented by the subdomains of career development and post-undergraduate program experiences and/or outcomes.

Lastly, the seven skill development constructs demonstrate alignment with the predictors of postschool success for students with disabilities (Mazzotti et al., 2014; Rowe, Alverson, et al., 2015; Test, Mazzotti, et al., 2009). These predictors, established by reviewing the correlational research in the field of transition to establish the predictor variables that are most correlated with positive postschool outcomes for students with disabilities, are: career awareness; occupational courses; paid employment/work experience; vocational education; work study; community experiences; exit exam requirements/high school diploma status; inclusion in general education; program of study; self-determination/self-advocacy; self-care/independent living skills; social skills; interagency collaboration; parental involvement; student support; and transition program.

While the predictors of postschool success are designed to provide students, families, and educators with the strategies and experiences most linked to positive outcomes and not designed to measure skill development, many of the skill development constructs for college-bound diverse learners are reflected through the postschool predictors. The academic skills construct is reflected in the exit exam requirements/high school diploma status and self-determination/self-advocacy predictors. Both the health and wellness and daily living skills constructs are reflected in the self-care/independent living skills predictor while the interpersonal skills construct is reflected by the predictors of community experiences and social skills. The construct most widely reflected in the predictors of postschool success is employment skills, which connects to the predictors of career awareness, occupational courses, paid employment/work experience, vocational education, and work study. The emotional regulation and technology literacy constructs

are not directly reflected by one of the predictors, but essential program characteristics and strategies throughout the predictor list reflect elements of both of these constructs.

While each of these frameworks were designed with specific students, outcomes, or support structures in mind, taken together in an attempt to understand the needs of college-bound diverse learners demonstrates their overlapping features and results in a proposed model of support. Figure 1 outlines a conceptual framework specifically designed to identify the support needs of these students. As depicted in this figure, a model of support for these students is one that includes targeted skill development in each of the seven areas of (a) academic skills, (b) emotional regulation, (c) health and wellness, (d) daily living skills, (e) interpersonal skills, (f) technology literacy, and (g) employment skills. This framework suggests that a focus on these skill development constructs will lead to improved postschool outcomes in the areas of postsecondary education, employment, and independent living.

The Individuals with Disabilities Education Act (IDEA, 2004) defines transition services as fitting into the three broad outcome areas of postsecondary education and training, employment, and independent living. As such, postschool and annual IEP goals are written with these broad targets in mind (Lombardi et al., 2017; Monahan et al., 2018; Morningstar, Lombardi, & Test, 2018; Test et al., 2009). The Every Student Succeeds Act (ESSA, 2015), while designed to target all students and not just students with disabilities, also places a strong emphasis on college and career readiness. While some legislation related to these outcomes, most notably ESSA, place more emphasis on postsecondary education and employment, independent living is also an important outcome for all students with disabilities and is of particular importance for college-

Student Support Needs

Adaptive Skills

Executive Functions

Social Skills

Skill Development Constructs

Academic Skills

Emotional Regulation

Health and Wellness

Daily Living Skills

Interpersonal Skills

Technology Literacy

Employment Skills

Outcome Domains

Postsecondary Education and Training

Independent Living

Employment



Figure 1. Conceptual Framework.

bound diverse learners (Carter, Brock, & Trainor, 2014). In order to be able to have a successful and independent postsecondary experience that leads to competitive employment, these students must also concurrently develop the requisite skills to be able to live independently. Therefore, an adequate transition assessment for college-bound diverse learners must assess each of the seven skill development constructs described above in order to align instructional supports, goal setting, and decision making with the important life outcome domains of postsecondary education and training, employment, and independent living.

Current Transition Assessments

There are currently a wide-ranging number of transition assessment instruments, both formative and summative, designed to provide students, families, and educators with information regarding the strengths and needs of individuals transitioning into adulthood. However, there are few, if any, currently validated assessments that measure all of the domains described in the previous section aligned with the conceptual framework for college-bound diverse learners. Table 1 provides a comparison of several industry-standard validated and widely adopted transition assessments and the skill development constructs that they measure followed by a brief description of each of these assessments and their primary uses.

The purpose of this assessment review is to provide evidence for the assertion that there are no currently validated and comprehensive assessments designed specifically for the diverse learners described in this study. While educators and providers may be able to use a number of different assessments and triangulate the results in order to measure each of the important constructs, this is a cumbersome and inefficient process. There is not a

Table 1

Transition Assessment Alignment with Conceptual Framework

Assessment	Skill Development Construct						
	Academic Skills	Emotional regulation	Health and wellness	Daily living Skills	Interpersonal Skills	Technology Literacy	Employment Skills
Adaptive Behavior Assessment System Third Edition (ABAS-3)	X		X	X	X		X
American Institutes for Research (AIR) Self-Determination Scale		X		X			X
Arc’s Self-Determination Scale (SDS)		X		X	X		X
Brigance Transition Skills Inventory	X		X	X	X	X	X
Scales of Independent Behavior – Revised (SIB-R)		X		X	X		
Self-Determination Inventory System		X		X	X		X
Transition Assessment and Goal Generator		X			X		X
Vineland Adaptive Behavior Scales Third Edition (Vineland-3)		X		X	X		

currently validated comprehensive and efficient tool specifically for these purposes that would inform quick instructional and programmatic decision-making as well as individual-level goal setting. Transition assessments are presented and discussed in alphabetical order.

Adaptive Behavior Assessment System Third Edition (ABAS-3)

The Adaptive Behavior Assessment System Third Edition (ABAS-3) is an adaptive skills measurement tool that is designed to give a full and complete picture of adaptive skill functioning across the lifespan. It is primarily used for evaluating individuals with developmental delays, ASD, intellectual disability, learning disabilities, neuropsychological disorders, and sensory or physical impairments. While it is a validated questionnaire for assessing adaptive skills from early infancy through adulthood, it is often used in the transition assessment process for individuals who fit one of the disability categories listed above. The assessment is divided among eleven skill areas that are organized within three major adaptive domains: conceptual (e.g., communication, functional academics, health and safety, and self-direction), social (e.g., social skills and leisure), and practical (e.g., community use, home living, motor skills, self-care, and work) (Harrison & Oakland, 2003, 2015).

Despite this relatively comprehensive inclusion of adaptive skill functioning across the lifespan, the ABAS-3 does not include all of the skill domains in the conceptual framework presented here and thus is not fully representative of college-bound diverse learners. Table 1 reflects that while the ABAS-3 can adequately measure functioning in the areas of academic skills, health and wellness, daily living skills, interpersonal skills, and employment skills, it does not measure development in

emotional regulation or technology literacy. Therefore, this tool lacks two key skill development domains required for measuring comprehensive support of college-bound diverse learners and would need to be coupled with another assessment to drive decision-making around instructional support needs.

American Institutes for Research (AIR) Self-Determination Scale

One of the most widely used measures of self-determination in the area of transition assessment is the AIR Self-Determination Scale (Wolman et al., 1994). The AIR is designed to measure both capacities and opportunities for self-determination and has both student and informant (e.g., student form, parent form, and educator form) versions of the assessment. The five-point Likert-type 24-item assessment is divided among two scales: capacity (12 items) and opportunity (12 items). The capacity scale, which refers to the knowledge, abilities, and perceptions that enable students to become self-determined, contains questions about things students do related to self-determination and how they feel about performing these self-determined behaviors (Chou et al., 2017; Lee et al., 2012; Wolman et al., 1994). The opportunity scale, in contrast, refers to the chances provided to students to apply their knowledge and abilities related to self-determination and contains questions about students' perceptions of their opportunities to perform self-determined behaviors at home and at school (Chou et al., 2017; Lee et al., 2012; Wolman et al., 1994).

The AIR focuses primarily on self-determination and does not measure all of the skill development constructs in the conceptual framework and would need to be coupled with additional assessments for instructional decision-making. Table 1 shows that the only skill constructs overtly referenced by the AIR are emotional regulation, daily living

skills, and employment skills. While certain items on the AIR make reference to other skill development constructs, those references are not explicit and are designed to measure self-determination capacity and opportunities. Therefore, the AIR does not adequately capture academic skills, health and wellness, interpersonal skills, or technology literacy.

Arc's Self Determination Scale (SDS)

Another common and widely adapted measure of self-determination skills is the Self-Determination Scale (SDS) developed by Wehmeyer and colleagues (Wehmeyer, 1996; Wehmeyer & Kelchner, 1995; Wehmeyer et al., 1996). This measure is a 72-item student self-report assessment designed to measure global self-determination capacity through the assessment of four essential characteristics of self-determined behavior. These four characteristics, operationalized by the functional theory of self-determination (Wehmeyer et al., 2006; Wehmeyer et al., 1996), are autonomy (32 items), self-regulation (9 items), psychological empowerment (16 items), and self-realization (15 items) (Wehmeyer & Kelchner, 1995). Autonomy refers to a person's level of independence and ability to act based on their beliefs, values, interests, and capacities; self-regulation refers to problem solving, goal setting, and task performance; psychological empowerment refers to a person's perceptions of control, efficacy, and outcome expectations; and self-realization refers to self-awareness and self-knowledge (Chou et al., 2017; Lee et al., 2012; Wehmeyer & Kelchner, 1995).

While the SDS is more explicitly connected to the proposed conceptual framework than the AIR, it has similar measurement gaps and does not capture all of the necessary skill development constructs. As Table 1 outlines, while the SDS connects to

the constructs of emotional regulation, daily living skills, interpersonal skills, and employment skills, it does not adequately capture academic skills, health and wellness, or technology literacy. Therefore, like the AIR, the SDS not a comprehensive measure of the skill constructs contained in the proposed conceptual framework.

Brigance Transition Skills Inventory

The Brigance Transition Skills Inventory (TSI), combines features of the Brigance Life Skills Inventory (LSI) and the Brigance Employability Skills Inventory (ESI) with additional assessments and inventories to inform transition planning (Brigance, 1976, 1981, 1994, 2010). Rather than a standalone transition assessment, the TSI is a collection of hundreds of transition-focused assessments for use by students, families, and educators in the contexts of employment, postsecondary education, and community participation. Skills covered by TSI assessments include pre-employment/functional writing, career awareness, job-seeking, postsecondary opportunities, functional reading, speaking and listening, math, money and finance, technology, housing, food and clothing, health, travel and transportation, and community resources.

While the TSI is criterion-referenced, it is not norm-referenced and therefore lacks the level of validity and reliability evidence of several other Brigance assessment tools. A review of Table 1 demonstrates that the TSI aligns with almost all of the skill development constructs in the conceptual framework except for emotional regulation. Despite being mostly aligned with the framework, these skills are assessed through a range of over 100 assessments. This is an inefficient process and it would be difficult for educators and service providers to select from this exhaustive list the appropriate

assessments to measure the relevant skill development constructs. As the goal is a comprehensive yet quick and efficient tool, the TSI does not meet these criteria.

Scales of Independent Behavior – Revised (SIB-R)

The Scales of Independent Behavior was originally developed in 1984 to measure both adaptive and maladaptive behaviors of students with disabilities (Bruininks et al., 1984; Bruininks et al., 1985) and was revised in 1996 resulting in the SIB-R (Bruininks et al., 1996). The SIB-R is both comprehensive and norm-referenced and has a full-scale version with 283 items, a short form designed for screening purposes, and an early development form designed to be used with young children. The full-scale version has 14 subscales grouped into the four clusters of motor skills, social interaction and communication skills, personal independence skills, and community independence skills. The SIB-R is used to establish the type and amount of support required by students with disabilities from ages 3-80. The eight maladaptive behaviors measured by the SIB-R are hurtful to self, unusual or repetitive habits, hurtful to others, socially offensive behavior, destructive to property, withdrawal or inattentive behavior, disruptive behavior, and uncooperative behavior.

There are several deficits of this assessment scale relative to the conceptual framework for college-bound diverse learners. First, the target audience is too broad. The SIB-R is designed to measure adaptive and maladaptive behaviors of individuals between the ages of 3 and 80 which may inadequately inform transition goal setting and planning specifically for college-bound diverse learners. In addition, the conceptual framework focuses on positive inputs and outcomes and the SIB-R is grounded in a deficit model of disability and includes assessment of maladaptive behaviors that are neither relevant nor

of interest to college-bound diverse learners. Table 1 demonstrates that while the SIB-R measures the emotional regulation, interpersonal skills, and daily living skills constructs, it does not capture development in the constructs of academic skills, health and wellness, technology literacy, or employment skills. In addition, the SIB-R captures more than is relevant for this population and is not a singular transition assessment tool for college-bound diverse learners.

Self-Determination Inventory System (SDIS)

The Self-Determination Inventory System is a newly developed measure of self-determination aligned with Causal Agency Theory, a multi-disciplinary theoretical framework conceptualizing the development of self-determination in adolescence (Shogren et al., 2015). While the AIR and the SDS were designed based on theoretical conceptualizations and used primarily with students with disabilities, the SDIS is designed to assess self-determination in all students, not just those with disabilities (Shogren et al., 2018). While data are still being collected to validate different versions, the assessment is currently in use in a variety of settings (Shogren et al., 2017; Shogren et al., 2018). The SDIS measures the three essential characteristics of self-determination according to Causal Agency Theory (i.e., volitional action, agentic action, and action-control beliefs) and divides into a seven-factor model of autonomy, self-initiation, pathways thinking, self-direction, control-expectancy, psychological empowerment, and self-realization. The majority of the questions on the assessment ask respondents to rate their level of agreement with a statement on a continuous scale (Shogren et al., 2014; Shogren et al., 2017; Shogren et al., 2018).

As with the previously discussed measures of self-determination, the SDIS is a comprehensive measure of self-determination consistent with the most current literature on self-determination but does not measure all of the constructs of interest to this conceptual framework. For instance, while offering an adequate assessment of emotional regulation, daily living skills, interpersonal skills, and employment skills, the assessment does not directly measure the constructs of academic skills, health and wellness, or technology literacy and as such is not adequate in assessing transition competency for college-bound diverse learners. This assessment would need to be used with additional assessments to capture information on the missing constructs.

Transition Assessment and Goal Generator (TAGG)

The Transition Assessment and Goal Generator (TAGG) is a transition assessment tool designed to measure nonacademic student behaviors predictive of postschool outcomes including postsecondary education and employment (Martin et al., 2015; McConnell et al., 2013; McConnell et al., 2015). The TAGG has multiple versions for various respondents (i.e., student, family, and professional), is designed for use by transition-aged youth with disabilities, their parents, and special educators, and is completed online. The TAGG is divided among eight constructs for the family and professional versions and seven constructs for the student version. The eight constructs include strengths and limitations, disability awareness, persistence, interacting with others, goal setting and attainment, employment, student involvement with the IEP, and support community. The student version collapses strengths and limitations and support community into one construct (Hennessey et al., 2018; McConnell et al., 2015).

A recent addition to the transition assessment literature, the TAGG can be used for supporting students, families, and special educators to make informed decisions about transition needs (Burnes et al., 2018; Hennessey et al., 2018). However, because the TAGG is designed to assess nonacademic behaviors and not does contain items relative to academic success, it does not adequately measure all of the constructs of interest to the conceptual framework and therefore could not be used as a stand-alone assessment for college-bound diverse learners. As Table 1 indicates, the TAGG represents an adequate assessment of interpersonal skills, emotional regulation, and employment skills but does not provide information relative to academic skills, health and wellness, daily living skills, or technology literacy and thus is not a comprehensive measure of the transition needs of college-bound diverse learners.

Vineland Adaptive Behavior Scales Third Edition (Vineland-3)

The Vineland-3 is a validated and norm-referenced measure of adaptive behavior that is most commonly used in the assessment of individuals with intellectual and developmental disabilities. While primarily used as a diagnostic tool by trained professionals, results of the assessment are often used to inform transition planning. The assessment is divided among five domains that include additional subscales: communication (e.g., receptive, expressive, and written); daily living skills (e.g., personal, domestic, numeric, community, and school community); socialization (e.g., interpersonal relationships, play and leisure, and coping skills); motor skills (e.g., gross motor and fine motor); and maladaptive behavior (e.g., internalizing, externalizing, and critical items.) Each of the items describes a specific adaptive behavior that is rated based

on the frequency of performance (Sparrow et al., 1984a; Sparrow et al., 1984b; Sparrow et al., 1984c; Sparrow et al., 1985; Sparrow et al., 2005; Sparrow et al., 2016).

This assessment is suitable for a wide range of applications and its domains provide an extensive view of the different areas of adaptive functioning (Pepperdine & McCrimmon, 2018). However, as can be seen from a review of Table 1, the assessment does not fully capture all of the skill domains included in the conceptual framework. While capturing functioning in the areas of emotional regulation, daily living skills, and interpersonal skills, the tool also focuses on areas such as maladaptive behavior and motor skills that are less relevant for college-bound diverse learners. It is not designed explicitly for transition assessment and informing postschool goals making it unsuitable for use within the conceptual framework described in this study.

As the descriptions of these transition assessments indicate, while there are numerous formative and summative assessment tools available, few have demonstrated reliability and validity evidence, and none adequately capture all of the skill development constructs necessary for college-bound diverse learners to be successful. It follows, then, that a comprehensive yet efficient tool designed specifically for these students would provide valuable information for students, families, educators, transition providers, and institutions of higher education.

Pathway to Independence Inventory (PII)

This section describes the PII assessment instrument (LaRoque, 2013), the focus of this study. The PII is a transition assessment tool developed specifically to provide a comprehensive understanding of students' current levels of adaptive functioning in alignment with the conceptual framework for college-bound diverse learners. The

development of this assessment tool was informed by a systematic review of the current research literature on adaptive skills and college and career readiness. Several of the transition assessments reviewed in the previous section including the ABAS-3, the SIB-R, and Vineland-3 were used in the development of the tool, while adjustments were made to ensure the assessment adequately represented all items relevant to the seven skill constructs and focused specifically on college-bound diverse learners (S. LaRoque, personal communication, September 2019).

The original version of the instrument was a 117-item scale with items divided among four outcome domains (e.g., postsecondary education and training, employment, independent living, and social skills). Pilot testing and further refinement of the instrument resulted in a 124-item four-point scale divided among the seven skill constructs of academic skills, emotional regulation, health and wellness, daily living skills, interpersonal skills, technology literacy, and employment skills (i.e., aligned with the conceptual framework presented in this chapter). Each of the items presents a skill statement and asks the respondent to rate whether the student completes the skill “almost always or always when needed” (4), “often when needed” (3), “sometimes when needed” (2), “seldom or never when needed” (1), or “not applicable/no opportunity” (NA). Each of the seven constructs are further divided among subscales, described in Table 2, and the measure exists in both a student report (PII-SR) and an informant report (PII-IR) format. Table 3 provides a comprehensive list of each of the scales, subscales, and items. This next section provides a description of each of the seven scales with sample items representative of the scale.

Table 2

PII Theorized Factor Structure

Scales	Subscales
Academic Skills	Coursework Organization Initiation Self-Advocacy Study Skills Time Management
Emotional Regulation	Coping Skills Emotional Control
Health and Wellness	Diet/Nutrition Self-Care Potential Risky Behaviors Sleep
Daily Living Skills	Hygiene Meal Prep Navigation of Community Financial Management
Interpersonal Skills	Avoiding Victimization Communication Skills Relationships Theory of Mind Social Rules
Technology Literacy	Technology Skills Technology Behaviors
Employment Skills	On the Job Skills Job Search Skills

Table 3

PII Scales, Subscales, and Items

Scales	Subscales	Items
Academic Skills	Coursework Organization	1. Brings all of the necessary materials for each class.
		2. Uses an organizational system for each class (binders, notebook, etc.).
		3. Understands what is needed to achieve a passing grade in each class.
		4. Tracks progress in each course.
	Initiation	5. Begins necessary steps to start schoolwork.
		6. Gets started on schoolwork tasks easily.
		7. Puts ideas for writing assignments on paper.
	Self-Advocacy	8. Asks teacher when they have a question or need clarification.
		9. Seeks out professor/teacher/tutor outside of class for assistance when needed.
		10. Is aware of when there is a need for academic support.
	Study Skills	11. Works on academic tasks for at least 30 minutes without taking a break.
		12. Completes difficult assignments even when they are frustrating at times.
		13. Chooses locations free of distractions to complete schoolwork.
		14. Removes distractions that prevent focus on schoolwork.
		15. Pays attention during class.
		16. Maintains focus while studying.

Table 3, continued

Scales	Subscales	Items
		17. Is aware of when a break is necessary.
		18. Completes required course reading assignments.
		19. Completes required written course assignments.
		20. Studies for exams.
		21. Knows what is necessary to prepare for an exam.
		22. Consults available resources understand directions for completing coursework.
	Time Management	23. Makes a plan for completing coursework.
		24. Puts due dates and exam dates on a calendar.
		25. Arrives for class on time.
		26. Completes assignments on time.
		27. Keeps a calendar of all class times.
		28. Keeps a calendar of all due dates, exams, and assigned course work.
		29. Breaks down large assignments into manageable tasks.
		30. Plans an adequate amount of time to complete assignments and study for exams.
Emotional Regulation	Coping Skills	31. Successfully manages stress.
		32. Flexible when plans change at the last minute.
		33. Remains calm in the face of change or uncertainty.

Table 3, continued

Scales	Subscales	Items
		<p>34. Maintains a support system of people who help manage stress.</p> <p>35. Aware when stress begins to negatively impact functioning.</p> <p>36. Speaks openly about feelings when experiencing stress.</p> <p>37. Stops worrying about problems when relaxing.</p> <p>38. Engages in activities to minimize boredom.</p>
	Emotional Control	<p>39. Keep control of their emotions despite frustrations.</p> <p>40. Gets over problems easily.</p> <p>41. Thinks before acting.</p>
Health and Wellness	Diet/Nutrition	<p>42. Maintains a healthy diet.</p> <p>43. Cooks healthy meals.</p> <p>44. Reviews ingredients / nutritional information on food labels.</p>
	Self-Care	<p>45. Exercises at least three to five times a week.</p> <p>46. Seeks medical assistance when ill or injured.</p> <p>47. Recognizes when ill or injured.</p> <p>48. Follows directions on label when taking OTC medication (e.g., aspirin, Tylenol, etc.).</p> <p>49. Takes medications as prescribed.</p> <p>50. Refills prescriptions before they run out.</p>
	Potential Risky Behaviors	<p>51. Engages in safe sexual health practices.</p>

Table 3, continued

Scales	Subscales	Items
		52. Makes healthy decisions re: illegal drug use. 53. Makes healthy decisions re: tobacco use. 54. Makes healthy decisions re: alcohol use.
	Sleep	55. Sleeps at least 7 hours a night. 56. Goes to sleep at night when tired. 57. Wakes up feeling refreshed. 58. Wakes up in time to meet daily commitments.
Daily Living Skills	Hygiene	59. Takes showers. 60. Uses soap and shampoo when showering. 61. Wears deodorant. 62. Brushes teeth. 63. Knows what products are needed to maintain personal hygiene. 64. Keeps a clean and tidy living space. 65. Does laundry. 66. Clips nails when needed. 67. Changes clothes when they are dirty.
	Meal Prep	68. Creates a shopping list of needed items before going to the store. 69. Discards food that is unsuitable for eating. 70. Follows recipes accurately.
	Navigation of Community	71. Able to access transportation to get where needed.

Table 3, continued

Scales	Subscales	Items
		<p>72. Accesses directions when travelling to an unfamiliar location.</p> <p>73. Asks for help with directions when needed.</p> <p>74. Maintains and carries valid identification.</p>
	Financial Management	<p>75. Creates a weekly budget.</p> <p>76. Follows a budget.</p> <p>77. Manages personal bank account.</p> <p>78. Saves money when planning for a future expense.</p> <p>79. Ensures correct changes when paying with cash.</p>
Interpersonal Skills	Avoiding Victimization	<p>80. Avoids unsafe situations.</p> <p>81. Recognizes when being taken advantage of.</p> <p>82. Recognizes when people are lying.</p> <p>83. Avoids interactions with people who hurt feelings intentionally.</p>
	Communication Skills	<p>84. Communicates clearly in written correspondence.</p> <p>85. Engages in back and forth conversations with others.</p> <p>86. Uses a conversation style appropriate for the situation.</p> <p>87. Uses non-verbal cues to communicate.</p> <p>88. Reacts appropriately to non-verbal cues.</p> <p>89. Initiates and ends conversations appropriately.</p>

Table 3, continued

Scales	Subscales	Items
		90. Controls emotions when debating issues.
	Relationships	91. Resolves conflict with peers. 92. Makes new friends. 93. Maintains relationships with friends. 94. Initiates social plans with friends. 95. Responds to friends when they reach out. 96. Stays connected with peers through social media. 97. Understands the difference between a friendship and romantic relationship.
	Theory of Mind	98. Tolerates different points of view. 99. Compromises on issues of disagreement. 100. Is aware of different points of view. 101. Understands other people's perspectives.
	Social Rules	102. Chooses appropriate clothes in a variety of contexts (e.g., work, school, etc.). 103. Uses appropriate table manners.
Technology Literacy	Technology Skills	104. Uses personal device to organize schedule. 105. Uses technology that is required for coursework. 106. Uses technology to conduct research for schoolwork. 107. Quickly learns how to use new technology. 108. Uses technology regularly to make daily tasks easier.

Table 3, continued

Scales	Subscales	Items
		109. Uses search engines to gather information.
	Technology Behavior	110. Uses social media appropriately. 111. Identifies false or misleading information on the internet or in emails. 112. Refrains from using technology during times when other responsibilities should be prioritized.
Employment Skills	On the Job Skills	113. Collaborates with others to solve problems. 114. Uses creative approaches to solve problems or engage in projects. 115. Accepts constructive criticism and feedback from others. 116. Takes directions from people in positions of authority. 117. Participates effectively on a team. 118. Arrives to work on time and ready to work. 119. Exhibits professional behavior at work. 120. Keeps a calendar of work obligations.
	Job Search Skills	121. Maintains a current professional resume. 122. Completes job applications. 123. Researches and explores potential jobs. 124. Interviews for jobs effectively.

Academic Skills

The academic skills scale is the largest scale of the PII and includes 30 items that focus on academic skills and behaviors including study skills and organization, self-advocacy, and time management. Sample items in this scale include “the individual understands what is needed to achieve a passing grade in each class”, “when the individual has ideas for a writing assignment, they can put them on paper”, “the individual seeks out their professor/teacher/tutor outside of class for assistance when needed”, “the individual completes required reading assignments for their courses”, and “the individual breaks down large assignments into manageable tasks”. The scale is further divided among the five subscales of coursework organization, initiation, self-advocacy, study skills, and time management.

Emotional Regulation

The emotional regulation scale of the PII includes 11 items that focus on skills relative to control and coping. Sample items in this scale include “the individual is flexible when plans change at the last minute”, “the individual speaks openly about their feelings when they are experiencing stress”, and “when little things bother the individual, they keep control of their emotions”. This scale is divided among the two subscales of coping skills and emotional control.

Health and Wellness

The health and wellness scale of the PII includes 17 items that focus on skills and behaviors relative to self-care, nutrition, risk, and resiliency. Sample items in this scale include “the individual maintains a healthy diet”, “the individual seeks medical assistance when they are ill or injured”, “the individual makes healthy decisions about illegal drug

use”, and “the individual wakes up in time to meet their daily commitments”. The health and wellness scale is further divided among the subscales of diet/nutrition, self-care, potential risky behaviors, and sleep.

Daily Living Skills

The daily living skills scale of the PII includes 21 items that focus on personal hygiene, personal finance, and transportation. Sample items included in this scale are “the individual knows what products they need to maintain their personal hygiene”, “the individual creates a shopping list of needed items before they go to the store”, “the individual is able to access transportation to get where they need to go”, and “the individual saves money when planning for a future expense”. This scale includes the four subscales of hygiene, meal preparation, navigation of community, and financial management.

Interpersonal Skills

The interpersonal scale is the second-largest scale of the PII and includes 24 items related to skill development in social engagement, communication, and relationship building. Sample items in this scale include “the individual recognizes when people try to take advantage of them”, “the individual initiates and ends conversations appropriately”, “the individual understands the difference between a friendship and romantic relationship”, “the individual understands other people's perspectives”, and “the individual chooses appropriate clothes in a variety of contexts (e.g., work, school, etc.)”. The interpersonal skills scale includes the five subscales of avoiding victimization, communication skills, relationships, theory of mind, and social rules.

Technology Literacy

The technology literacy scale is the shortest scale of the PII and includes 9 items that focus on both skills and behaviors relative to technology use. Sample items on this scale include “the individual uses technology that is required for their courses/coursework”, “the individual uses technology regularly to make daily tasks easier”, “the individual uses social media appropriately”, and “the individual refrains from using technology during times when they should be focusing on other responsibilities”. The technology literacy scale includes the subscales of technology skills and technology behaviors.

Employment Skills

The employment skills scale, which is the final scale on the PII, includes 12 items that focus on skills relative to finding and maintaining employment. Sample items from this scale include “the individual uses creative approaches to solve problems or engage in projects”, “the individual takes directions from people in positions of authority”, and “the individual maintains a current professional resume”. This scale includes the two subscales of on the job skills and job search skills.

Reliability and Validity Evidence

An important step in the development of an efficient, comprehensive, and informative assessment instrument is establishing reliability and validity evidence. Reliability, or the delivery of consistent and dependable results, refers to whether or not an assessment instrument produces consistent results when it is used in the same setting and with the same participant demographic (APA et al., 1974; AERA et al., 1999; Sullivan, 2011). Assessment validity evidence refers to building the case that the assessment measures what it is purported to measure and that it does this effectively

(Kane, 1992; Kane, 2002; Sullivan, 2011). While there are multiple types of both reliability and validity evidence, this study was designed to measure construct validity, internal consistency, concurrent validity, and interrater reliability. What follows is a description of the important components of each of these forms of evidence to demonstrate the rationale for these analyses to ensure that the PII meets the requisite thresholds to be a useful transition assessment instrument for college-bound diverse learners.

Construct Validity

Construct validity refers to the degree to which an assessment instrument appropriately measures the construct or constructs of interest (Haynes et al., 1995). The term construct refers to a synthesized or theoretical variable and typically results from an exhaustive review of relevant literature. Recommendations for procedures to follow in order to establish construct validity of an assessment instrument were provided by Clark and Watson (1995) and include (a) identifying a theoretical model, (b) building substantive validity evidence by developing an initial item pool, and (c) building structural validity through psychometric evaluation. A complete validity study of a transition assessment instrument for diverse learners would include the development of an item pool, item selection, and psychometric evaluation. As the first two steps of this process have been completed previously, this study will focus on the evaluation of structural validity of both the PII-SR and PII-IR versions of the assessment instrument.

Content validity. Content validity, an important component of construct validity, focuses on determining the degree to which the elements of an assessment instrument are relevant to and representative of the targeted construct (Anastasi, 1988; Haynes et al.,

1995; Messick, 1980, 1993, 1995; Nunnally & Bernstein, 1994; Smith & McCarthy, 1995; Suen, 1990; Walsh, 1995). Content validity centers on developing and refining the constructs of the assessment instrument in order to provide evidence based on test content as well as contribute to the improved clarity of the measure (AERA et al., 1999; Haynes et al., 1995).

Factor analysis. Factor analysis techniques to establish construct validity including exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) are often employed in order to establish content and structural validity of surveys and assessment instruments (Clark & Watson, 1995). These methods will either confirm or disconfirm the theorized constructs, inform a potential revision process, and also allow for the removal or refinement of items that the factor analysis process determines do not align with the constructs of interest, adding further evidence of construct validity (Kane, 2002; Messick, 1980).

The EFA process is designed to determine if the assessment can be represented by groups of items called factors (i.e., constructs), and also helps to explain the variation and covariation in a set of measured variables by revealing the sources of common variation underlying the measured variables within the data (Preacher & MacCullum, 2003). A CFA is primarily used to confirm the results of an EFA using a different set of data but can also be used when there is a strong rationale or hypothesis based on theory as to why the items are grouped the way that they are. Once a factor structure has been determined through EFA or underlying theory, CFA models are estimated using structural equation modeling (SEM) techniques (Suhr, 2006). Because the PII was developed according to a strong conceptual framework and is divided among seven scales according to this theory,

an EFA would not be instructive. Thus, this study will use CFA to confirm the theoretical assumption underlying the structure of the PII.

Internal Consistency

In order to assess internal consistency, or whether or not items created to measure the same concept are in fact related, the difference between the answers on those items is calculated, which is a way of measuring the correlation among those answers (Sullivan, 2011). The most reliable way of assessing this is by calculating Cronbach's alpha, which is a test of internal consistency and is the standard calculation used to calculate the correlations among assessment items (Bland & Altman, 1997; Cronbach, 1951). A highly reliable estimate, or as close to one as possible, demonstrates strong internal consistency. High internal consistency is expected both among individual factors of an assessment instrument in addition to the overall instrument itself.

Concurrent Validity

Concurrent validity refers to whether or not scores on a certain construct are related to another measure designed to measure the same construct (Salkind, 2010). In this case, it would be important to investigate the relationship between scores on the PII with scores on a different assessment that measures the same or related skill development variables. While this chapter has established that there isn't another instrument that measures all constructs of interest, there are assessments that measure some of the skill constructs in the conceptual framework, and thus concurrent validity can be examined using these scores. Measures used to establish concurrent validity in this study are the Behavior Rating Inventory of Executive Function-Adult Version (BRIEF-A) and the Outcomes Questionnaire (OQ-45.2).

Interrater Reliability

Because the PII has two versions, the PII-SR and PII-IR, an assessment of interrater reliability can be used to determine whether or not responses from multiple raters (i.e., the student and their parent or family member) are in agreement. Interrater agreement would suggest that the versions may be able to be used independent of one another, while a lack of agreement would suggest that the best practice would be for the versions to be analyzed in tandem with one another to provide the best picture of capacity and to understand discrepancies between reporters.

Research Questions

As this literature review has determined, there is a need for a comprehensive and efficient transition assessment instrument designed to meet the needs of college-bound diverse learners. While there are a number of transition assessments available, Table 1 demonstrates that none of these assessments adequately capture all of the skill constructs detailed in the conceptual framework. The most common skill constructs covered are emotional regulation (six assessments), daily living skills (seven assessments), interpersonal skills (seven assessments), and employment skills (six assessments). The academic skills and health and wellness constructs are covered by only two of the assessments reviewed, and the technology literacy construct is only addressed by one assessment. This suggests that current transition assessments lack focus on academic skills and behaviors and technology literacy, and while many assessments address activities of daily living, they do not focus enough on health and wellness constructs.

The PII was designed to be informative, comprehensive, and efficient. It contains 124 items and has a predicted completion time of approximately thirty minutes. Despite

this short time commitment, the PII's comprehensive nature enables it to be a robust assessment of all the skill development constructs necessary for diverse learners to be successful in postsecondary settings. This instrument has the potential to provide powerful and valuable information to students, families, special educators, and transition service providers to guide instruction and goal-setting processes.

While informed by the existing literature and the conceptual framework described in this section, the PII lacks rigorous research demonstrating the factor structure and psychometric properties which would contribute to its use in a variety of transition settings. The purpose of this study, therefore, was to determine the psychometric properties of the PII and to specifically answer the following research questions:

Research Question 1: Does the PII assessment instrument demonstrate construct validity through good model fit for use with college-bound diverse learners in informing goal setting and program development?

Research Question 2: What do model fit differences between these models suggest for the PII's construct validity and use with college-bound diverse learners?

Research Question 3: Does the PII demonstrate reliability and validity evidence as assessed by internal consistency, concurrent validity, and interrater reliability for use with college-bound diverse learners?

Research Question 4: Do group difference between instrument version, gender identity, and ASD status suggest different uses of the instrument for different groups?

CHAPTER III

METHODOLOGY

This study was designed to examine the reliability and validity evidence of the PII transition assessment instrument, including both the student report (PII-SR) and informant report (PII-IR) versions, to determine its utility as a transition assessment for college-bound diverse learners launching into adult life. In addition to the evaluation of psychometric properties, group differences were also examined according to assessment version, gender identity, and disability status. For the purposes of this study, disability status comparisons were made between students with and without a formal diagnosis of ASD. This study used an extant dataset of the PII with approval from the University of Oregon's Institutional Review Board. What follows is a description of the specific sample, measures, and analytic procedures used in the study.

Sample

As described in previous chapters, the target population for this study was college-bound diverse learners. This is defined as students with disabilities enrolling in postsecondary education who have demonstrated skill development gaps in the areas of adaptive skills, executive functions, and social skills. The specific sample used for the analyses were students who fit this profile and were currently or previously enrolled in a comprehensive residential postsecondary support program. Students in this program have diagnostic profiles consistent with diagnoses of ASD, NVLD, ADHD, SLD, and others. Students are supported to successfully earn a college degree, develop independent living skills, and begin a productive career and independent life. This program provides a comprehensive residential college experience with supports in the areas of adaptive life

skills, executive functions, and social skills and scaffold supports in order to move students toward a more independent college experience when they have demonstrated that capacity and readiness. Students included in this sample are either current or former students from this program and have attended one of two program locations either in the Northeastern region or in the Midwest region of the United States.

The sample included 155 students who have completed the most recent PII-SR and for whom a PII-IR version has also been completed by a parent or family member. This data was collected over a period of time from January 2017 to January 2020 using the most recent iteration of the PII instrument. Inclusion criteria for the sample included cases with both a PII-SR and PII-IR, a student report and informant report of the Behavior Rating Inventory of Executive Function-Adult Version (BRIEF-A), and a student version of the Outcomes Questionnaire (OQ-45.2).

Demographic data is presented in Table 4. The sample included 114 students identifying as male, 37 students identifying as female, and 4 students identifying as other (i.e., including but not limited to non-binary, third gender, transgender, or prefer not to answer). There were 101 students with a primary diagnosis on the autism spectrum (i.e., Autism Spectrum Disorder, Asperger's Syndrome, or Pervasive Developmental Disorder-Not Otherwise Specified) and 54 without this diagnosis. The majority of students in the sample were between the ages of 17 through 21 upon program enrollment while eight students in the sample were between the ages of 22 and 24. Each of the students in this sample have both a completed PII-SR and PII-IR and therefore a total sample size of 310 cases was used for the measurement-level analyses, and a sample size of 155 cases was

used for student-level group difference analyses. Additional demographic data including race and ethnicity were not available in the dataset.

Table 4

Demographic Data for Gender Identity, Disability Status, Age, and Version

Variable	<i>n</i>	Percentage
Gender Identity		
Male	114	73.55%
Female	37	23.87%
Other	4	2.58%
ASD Status		
ASD	101	65.16%
No ASD	54	34.84%
Age		
17	14	9.03%
18	69	44.52%
19	31	20.00%
20	22	14.19%
21	11	7.10%
22	7	4.52%
23	0	0.00%
24	1	0.65%
Version (<i>n</i> = 310)		
Informant Report	155	50.00%
Student Report	155	50.00%

Measures

Pathway to Independence Inventory (PII)

This assessment is described in detail in Chapter II. Data was used from both the PII-SR and PII-IR versions of the measure. The full PII assessment is available in Appendix B, with items appearing with the exact choices and in the exact order in which they appear during the secure electronic administration of the instrument. Both the PII-IR and PII-SR include exactly the same items, written in language specifically for the audience of each version (e.g., “I...” vs. “the individual...”). All items are forced choice, meaning that respondents must select a response for each of the items on the assessment.

Behavior Rating Inventory of Executive Function-Adult (BRIEF-A)

The BRIEF-A is a 75-item scale designed to measure different aspects of executive functions with both a parent/teacher version and a student version (Roth et al., 2005). The adult version, designed for individuals between the ages of 18 and 90, was adapted based on the original version designed for youth between the ages of 5 and 18 (Gioia et al., 2000; Gioia et al., 2015). The measure includes nine overlapping scales (i.e., inhibit, self-monitor, plan/organize, shift, initiate, task monitor, emotional control, working memory, and organization of materials) that were derived both theoretically and empirically. The assessment results include behavioral regulation metacognition index scores, an overall summary score (i.e., Global Executive Composite), and three validity scales (i.e., negativity, inconsistency, and infrequency) in order to establish a robust understanding of an individual’s executive function capacity. This is a normed measure, generating normative data from ratings from 1,136 adults from a range of diverse demographic backgrounds. The BRIEF-A demonstrated evidence of reliability, validity,

and clinical utility as an ecologically sensitive measure of executive functioning in individuals across a wide range of backgrounds, ages, and conditions. The Global Executive Composite (GEC) scores from both the student and informant reports were used for this study in order to assess the concurrent validity of the PII.

Outcomes Questionnaire (OQ-45)

Like the PII, the OQ-45 is a measurement instrument designed to be sensitive to change over time. Change for the OQ-45.2 includes mental health outcomes as a result of a clinical relationship (Lambert et al., 2001). The OQ-45 contains three subscales: symptom distress (e.g., depression and anxiety), interpersonal relations (e.g., loneliness and conflict with others), and social roles (e.g., difficulties in the workplace, school, or home duties). The program used for this study collects data using this instrument for several reasons. The instrument is primarily used as a screening tool, to ensure that students served by the program do not have mental health challenges that rise beyond the scope of the program's support capacities. However, because of the high rates of mental health diagnoses of college students with disabilities, the OQ-45 can also provide valuable information about an individual's social capacity, interpersonal connections, and emotional regulation. For this reason, there are theoretical relationships between scales of the OQ-45 and scales of the PII, and this information can be useful in understanding the concurrent validity of the PII. The OQ-45.2 full scale score, interpersonal relationships subscale score, and social roles subscale score were used to assess the concurrent validity of the PII.

Procedures

All students and informants (i.e., parent or family member) are required to complete the PII and BRIEF-A upon program enrollment, and students are also required to complete the OQ-45. There is no informant report for the OQ-45.2. All assessments are administered electronically through a secure data repository. Students and informants are also required to complete the PII and BRIEF-A assessments annually, though analyzing gains over times, assessing program impact, or making comparisons across time points goes beyond the scope of this study. All data used in this study was collected upon program enrollment.

Data Analyses

Data were cleaned and screened upon receipt in order to ensure that the dataset was organized and managed in such a way that would allow for the necessary analyses. Instances of missing data were treated with full information maximum likelihood estimation (FIML) (Shafer & Olsen, 1998; Ullman, 2006). All statistical analyses were conducted using R (Version 3.6.1; R Core Team, 2019) and the R-packages *broom* (Robinson & Hayes, 2019), *caret* (Version 6.0-86; Kuhn, 2020), *corr* (Version 0.4.1; Kuhn et al., 2020), *devtools* (Version 2.2.1; Wickham et al., 2019b), *dplyr* (Version 0.8.3; Wickham et al., 2019a), *haven* (Version 2.2.0; Wickham & Miller, 2019), *heplots* (Version 1.3-5; Fox et al., 2018), *here* (Version 0.1; Müller, 2017), *itemanalysis* (Version 1.0; Zopluoglu, 2018), *irr* (Version 0.84.1; Gamer et al., 2019), *janitor* (Version 1.2.0; Firke, 2019), *lavaan* (Rosseel, 2012), *matrixStats* (Version 0.56.0; Bengtsson, 2020), *MVN* (Korkmaz et al., 2014), *mvnrmtest* (Version 0.1-9; Jarek, 2012), *rio* (Version 0.5.16; Chan et al., 2018), *paste* (Version 1.3.21; Grosjean & Ibanez, 2018), *psych* (Version 1.8.12; Revelle, 2018), *semPlot* (Version 1.1.2; Epskamp, 2019), *semTools*

(Version 0.5-2; Jorgensen et al., 2019), *sjstats* (Version 0.17.9; Ludecke, 2020), *svMisc* (Grosjean, 2019), *tidyr* (Version 1.0.0; Wickham & Henry, 2019), *tibble* (Müller & Wickham, 2019), and *tidyverse* (Version 1.2.1; Wickham, 2017). The complete script for data cleaning, screening, transformation, and analysis is publicly available at: www.github.com/kylereardonVT/dissertation

Factor Structure

In order to answer research question one, a series of Confirmatory Factor Analyses (CFA) were conducted. CFA is a more robust form of validity assessment than other statistical methods because it allows for the determination of estimation of goodness of model fit. Theoretical constructs represented by groups of items are measured to determine whether or not they represent the constructs of interest or if items from the group need to be removed. CFA models use the term “factor” to represent the constructs in the assessment of interest. This technique is more robust in measurement studies than traditional statistical methods such as ANOVA or MANOVA due to the presence of an a priori hypothesis that differentiates between observed and latent variables (Kline, 2005, 2010, 2016). Because hypotheses have been made based on theoretical support, it is appropriate in this case to use the SEM technique of CFA.

The PII was developed and pilot tested based on theoretical item groupings (i.e., the seven skill development constructs in the conceptual framework presented in Chapter II) and thus was not first tested using an EFA. Instead, the theorized seven-factor structure (i.e., academic skills, emotional regulation, health and wellness, daily living skills, interpersonal skills, technology literacy, and employment skills) and an alternative three-factor structure (i.e., academic and career development, emotional regulation and

interpersonal engagement, and health and daily living) were tested using CFA. The three-factor structure is theorized based on the combination of the academic skills, technology literacy, and employment skills constructs into a single construct (i.e., academic and career development); a combination of the emotional regulation and interpersonal skills constructs into a single construct (i.e., emotional regulation and interpersonal engagement), and a combination of the health and wellness and daily living skills constructs into a single construct (i.e., health and daily living). While the PII was initially driven by a seven-factor model, many of these scales are theoretically linked with one another and therefore it is possible that this three-factor structure fits the data better and thus is a better representation of the PII.

CFA models were run using maximum likelihood (ML) estimation, with full information maximum likelihood (FIML) for missing data. ML is considered a sophisticated and efficient approach for handling missing data and produces less biased parameter estimates as compared to multiple imputation (Yuan et al., 2012). For the purposes of the analyses, PII responses of “not applicable/no opportunity” were treated as missing. Latent factors were standardized, allowing free estimation of all factor loadings as opposed to using the marker variable strategy. This provides a more accurate assessment of individual manifest variable factor loadings (Rosseel, 2015). After examining fit statistics, the empirically best fitting models were re-specified according to factor loadings to investigate model fit improvement. Manifest variables with factor loadings less than .3 were removed from the model in order to test improvement in model fit (Floyd & Widaman, 1995).

CFA models were first conducted with seven latent factors and then with three latent factors using each of the 124 items of the PII as manifest variables. Following this analysis, CFA models were conducted with seven latent factors and then with three latent factors using the 24 subscales of the PII as manifest variables. While using the subscales as manifest variables does not provide a full representation of the measure, sample size constraints led to the inclusion of this analysis as an alternative model to understanding the factor structure of the full measure. Internal consistency of each of the subscales was first analyzed in order to determine acceptable reliability for use as manifest variables.

Model Fit

In order to answer research question two, model fit indices were examined for each CFA model to test the overall fit of each model to the data (Kline, 2005, 2010, 2016). Fit statistics used to determine each model's fit included chi-square goodness-of-fit χ^2 test, the Root Mean Squared Error of Approximation (RMSEA), the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI), and the Standardized Root Mean Square Residual (SRMR). Chi-square values of $p > .05$ (statistically insignificant), RMSEA and SRMR values $< .05$, and CFI and TLI values $> .95$ demonstrate good model fit (Hu & Bentler, 1999). RMSEA and SRMR values $< .08$ and CFI and TLI values closer to .90 may demonstrate acceptable model fit. These cutoff values were used to determine the strength of each model's fit to the data, and the model that had the best fitting statistics, in concert with a sound theoretical justification, was used for the remainder of the reliability, validity, and group difference analyses.

In addition to an examination of fit statistics to determine the best-fitting model, an empirical test was used according to Burnham and Anderson (2004) using Akaike's

Information Criteria (AIC). Lower AIC values generally indicate greater model parsimony and fit to the data and examining the difference in AIC values (Δ AIC) between models can provide an empirical test of model fit. Δ AIC values greater than or equal to 2.0 are interpreted as similar competing models, Δ AIC values within the range of 4.0 and 7.0 indicate models with considerably less support for similar model approximation, and Δ AIC values greater than 10.0 indicate that the model in question has essentially no support relative to the best fitting model. Each of the CFA models conducted were compared to the overall best fitting model in order to assess the Δ AIC and determine whether any of the other models hold the same degree of approximating power as the best-fitting model. In addition to the reporting of fit statistics, factor loadings and Pearson's correlation coefficients for the best fitting model as determined by this analysis are reported (Chen & Krauss, 2004). Correlations were conducted in order to determine the inter-factor correlations among the scales to examine whether or not the scales are indeed measuring unique constructs.

Using the best-fitting model, factor invariance across versions was tested in order to determine if there are significant variances between items across versions (Rosseel, 2015; Ullman, 2006) in order to answer research question two, regarding factor structure differences between the PII-SR and PII-IR. Factor invariance testing provides four model comparisons in order to determine if factor structure can be assumed equal across versions (i.e., configural model), factor loadings can be assumed equal across versions (i.e., metric model), intercepts can be assumed equal across versions (i.e., scalar model), and item means can be assumed equal across versions (i.e., residual model). Significant chi-square goodness of fit values for each model indicate that the null hypothesis of

equality across versions cannot be accepted. Insignificant chi-square values ($p > .05$) for the configural and metric models would allow for the best-fitting model to be used to approximate the structure of both the PII-SR and PII-IR.

Reliability and Validity

The best-fitting model as determined by the answer to research question two was used to evaluate the reliability and validity evidence of the PII and answer research question three. Internal consistency, concurrent validity, and interrater reliability were assessed to answer this research question.

Internal consistency. The full PII instrument and each of the scales as determined by the best-fitting model were assessed for reliability evidence. Internal consistency of the 24 subscales were first calculated using Cronbach's alpha to determine their utility in answering research question one. Following the analyses in research questions one and two, Cronbach's alphas were calculated on latent variables using data from both the PII-IR and PII-SR. According to Thorndike and Thorndike-Christ (2013), acceptable reliability values depend on the purposes of the assessment. While assessments that inform decisions that are difficult to change require a higher threshold of reliability, assessments informing short-range decisions can satisfactorily accept a lower level of reliability. As the PII is intended for these latter purposes and to inform individual goal-setting processes that can be easily adjusted, a lower reliability threshold can be accepted. Therefore, for the purposes of these analyses, Cronbach's alphas of $\alpha \geq .80$ are considered good, values of $.70 \leq \alpha \leq .79$ are considered acceptable, values of $.60 \leq \alpha \leq .69$ are considered questionable, values of $.50 \leq \alpha \leq .59$ are considered poor, and values of $\alpha \leq .49$ are considered unacceptable (Nunally, 1975).

Concurrent validity. In order to assess the concurrent validity of the measure, correlations were examined with scales of the PII as determined in the best fitting model from research question two to determine whether or not they correlate with measures of similar constructs. The BRIEF-A and the OQ-45.2 assessments were used for this analysis. Pearson's correlations and two-tailed significance testing was used to evaluate these relationships (Frey, 2018). Because higher scores on both the BRIEF-A and OQ-45.2 reflect greater levels of need and the inverse is true for the PII, negative correlations would demonstrate a relationship between the measures and were hypothesized to be true in this instance.

The General Executive Composite (GEC) from the BRIEF-A was used as an assessment of overall executive function capacity and was compared to the full measure of the PII as well as each of the latent constructs. Separate analyses were conducted for both the PII-SR and PII-IR as the dataset includes BRIEF-A assessments from both students and informants. Correlations were also examined between the PII full measure and latent constructs and the OQ-45.2 full measure as well as the subscales of social roles and interpersonal relationships. Subscale relationships were examined because the OQ-45.2 also includes a third subscale, symptom distress, that is not theoretically related to the PII. Because the OQ-45.2 is a student report measure only, data from only the PII-SR was used for this part of the analysis.

Interrater reliability. The last measure of reliability and validity evidence examined in this study was interrater reliability. Intraclass Correlation Coefficients (ICC) were used to examine the relationships between individual items as well as between subscale responses. ICCs were used in this analysis as opposed to a coefficient alpha or

Pearson's correlation coefficient because there was more than one rater across items, namely each informant report was completed by a different rater for each student. ICC is a more accurate reflection of interrater reliability in this case because it is more flexible (Koo & Li, 2016). Other measures of interrater reliability would suffice only if each student's informant report was completed by the same rater. This study used two-way mixed effects ICCs with absolute agreement.

Group Differences

The final analysis conducted in this study sought to answer research question four to determine whether or not there are group differences on each PII scale based on PII version, gender identity, and disability status. Multivariate Analysis of Variance (MANOVA) and follow-up Discriminant Function Analysis (DFA) were used for each of these analyses. While MANOVA and DFA are inferior to group difference assessments using the CFA models in SEM, the sample size of this study did not allow for these more sophisticated analyses to be conducted.

A total of three MANOVAs and DFAs were conducted. The first analysis examined group differences based on version and included data from both the PII-IR and the PII-SR. The second analysis examined group differences between gender identity and disability status on the PII-IR, and the final analysis examined group differences between gender identity and disability status on the PII-SR. The decision was made to conduct separate analyses on each version of the PII because the independent variables of interest were student specific (i.e., gender identity and disability status), and therefore combining both versions for these analyses would violate the assumption of independence of observations.

As Table 4 reports, gender identity had three levels: male, female, and other (e.g., including but not limited to non-binary, third gender, transgender, or prefer not to answer). MANOVA requires at least as many participants per cell as there are dependent variables (Tabachnick & Fidell, 2001). There were seven dependent variables in this analysis (i.e., representing each of the seven scales of the best fitting PII model) and “other” had only four responses, so these data were eliminated from the MANOVAs and DFAs. Disability status in this study was defined as whether or not the student carried a formal primary diagnosis on the autism spectrum (ASD), or not (No ASD). Version (i.e., PII-SR and PII-IR) and disability status (i.e., ASD and No-ASD) were treated as dichotomous variables in the analyses.

All variables were assessed for assumptions of MANOVA prior to conducting each of the analyses. In examining the results, Wilk’s test of multivariate significance was used to understand statistically significant relationships. Univariate tests for significant relationships were examined as well as associated standardized discriminant function coefficients (SDFC) from the DFA to determine the variables most important in forming the function that discriminated the IV groups.

CHAPTER IV

RESULTS

The purpose of this study was to test the factor structure, the initial reliability and validity evidence, and group differences of the PII, a transition assessment instrument for college-bound diverse learners. The measure is a 124-item assessment theoretically grouped into seven unique scales. The study was designed specifically to answer the following research questions:

Research Question 1: Does the PII assessment instrument demonstrate construct validity through good model fit for use with college-bound diverse learners in informing goal setting and program development?

Research Question 2: What do model fit differences between these models suggest for the PII's construct validity and use with college-bound diverse learners?

Research Question 3: Does the PII demonstrate reliability and validity evidence as assessed by internal consistency, concurrent validity, and interrater reliability for use with college-bound diverse learners?

Research Question 4: Do group difference between instrument version, gender identity, and ASD status suggest different uses of the instrument for different groups?

Appendix A presents item-level descriptive statistics including the mean, standard deviation, and percentage of missing data for the full measure, the PII-SR, and the PII-IR as well as an ICC value for the correlation of item responses between students and their informants. Item text is trimmed due to space constraints, but full text for each item is available in Appendix B. Table 4 presents *n* values for the sample used in this analysis. There was a total of 155 students included in the analysis, each with a student report and

informant report, for a total of 310 cases in the dataset. What follows is a presentation of results of the analysis organized by research question.

Research Question 1: Does the PII assessment instrument demonstrate construct validity through good model fit for use with college-bound diverse learners in informing goal setting and program development?

To answer research question one, a series of confirmatory factor analyses were conducted to test multiple theorized factor structures of the PII. Data from both the informant report ($n = 155$) and student report ($n = 155$) were used in all of the analyses ($n = 310$). Models tested included a seven-factor model with items as manifest variables, a three-factor model with items as manifest variables, a seven-factor model with subscales as manifest variables, and a three-factor model with subscales as manifest variables. Examination of factor loadings of the best fitting models led to model refinement. All variables were treated as continuous in the analysis and all models were fit using lavaan version 0.5-23 (Rosseel, 2012) in R using FIML estimation for the treatment of missing data. Latent factors were standardized to allow for free estimation of all factor loadings in all models. Data were first examined to confirm that there were no serious deviations from normality that would impact model estimation. Table 5 presents fit statistics for all models conducted.

The first model tested the theory that all 124 items of the PII can be meaningfully represented by seven unique factors: academic skills (items 1 through 30), emotional regulation (items 31 through 41), health and wellness (items 42 through 58), daily living skills (items 59 through 79), interpersonal skills (items 80 through 103), technology literacy (items 104 through 112), and employment skills (items 113 through 124). The

model did not fit the data, with a χ^2 of 19,894.74 ($p < .001$), a CFI of .519, a TLI of .509, RMSEA of .073 and SRMR of .085.

The second model tested the theory that all 124 items of the PII are instead meaningfully represented by three unique factors: academic and career development (items 1 through 30 [i.e., academic skills scale] and 104 through 124 [i.e., technology literacy scale and employment skills scale]), emotional regulation and interpersonal engagement (items 31 through 41 [i.e., emotional regulation scale] and 80 through 103 [i.e., interpersonal skills scale]), and health and daily living (items 42 through 79 [i.e., health and wellness scale and daily living skills scale]). This model also did not fit the data, with a χ^2 of 21,101.42 ($p < .001$), a CFI of .473, a TLI of .464, RMSEA of .076 and SRMR of .090.

The third and fourth models involved using the subscales of the PII as manifest variables as opposed to the individual items. The third model tested that the theory that the 24 subscales load onto seven latent factors, and the fourth model tested the theory that the subscales load onto three latent factors, using the same structure tested in the first two models. This analysis is predicated on the assumption that each of the subscales demonstrates acceptable internal consistency (see Table 9). Nineteen of the subscales demonstrated good ($\leq .80$) or acceptable ($\leq .70$) internal consistency with the remaining five subscales demonstrating questionable internal consistency ($\leq .60$). All 24 subscales were used in the analysis.

The third model tested the theory that all 24 subscales of the PII can be meaningfully represented by seven unique factors: academic skills (coursework organization, initiation, self-advocacy, study skills, and time management), emotional

regulation (coping skills and emotional control), health and wellness (diet/nutrition, self-care, potential risky behaviors, and sleep), daily living skills (hygiene, meal preparation, navigation of community, and financial management), interpersonal skills (avoiding victimization, communication skills, relationships, theory of mind, and social rules), technology literacy (technology skills and technology behaviors), and employment skills (on the job skills and job search skills). This model had acceptable fit with a χ^2 of 595.10 ($p < .001$), a CFI of .913, a TLI of .897, RMSEA of .071 and SRMR of .050.

The fourth model tested the theory that all 24 subscales of the PII can be meaningfully represented by three unique factors: academic and career development (coursework organization, initiation, self-advocacy, study skills, time management, technology skills, technology behavior, on the job skills, and job search skills), emotional regulation and interpersonal engagement (coping skills, emotional control, avoiding victimization, communication skills, relationships, theory of mind, and social rules), and health and daily living (diet/nutrition, self-care, potential risky behaviors, sleep, hygiene, meal preparation, navigation of community, and financial management). This model had questionable fit with a χ^2 of 909.58 ($p < .001$), a CFI of .843, a TLI of .826, RMSEA of .093 and SRMR of .067.

Upon examination of the factor loadings of models three and four, it was found that the potential risky behaviors subscale did not load cleanly in either model (.115 on model three and .125 on model four). Upon review of item missingness (Table 4), items in this subscale had the highest instances of missingness of all of the subscales, suggesting that these items may have issues of face validity for college-bound diverse learners. Therefore, due to the poor factor loading and the questionable face validity, this

Table 5

PII Model Fit Indices and Selection Criteria

Model	Indicator of model fit							Model selection criteria	
	χ^2	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA	SRMR	AIC	Δ AIC
7-factor item level	19,894.74	7,481	<.001***	.519	.509	.073	.085	81,372.98	69,898.20
3-factor item level	21,101.42	7,499	<.001***	.473	.464	.076	.090	82,543.66	71,068.88
7-factor subscale	595.10	231	<.001***	.913	.897	.071	.050	11,927.98	453.20
3-factor subscale	909.58	249	<.001***	.843	.826	.093	.067	12,206.45	731.67
Adj. 7-factor subscale	557.25	209	<.001***	.917	.899	.073	.049	11,474.78	0.00
Adj. 3-factor subscale	872.88	227	<.001***	.846	.828	.096	.067	11,754.43	279.65

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

subscale was eliminated from the analysis and models three and four were re-estimated with the adjusted statistics provided in Table 5.

The adjusted model three included the following seven scales with corresponding subscales: academic skills (coursework organization, initiation, self-advocacy, study skills, and time management), emotional regulation (coping skills and emotional control), health and wellness (diet/nutrition, self-care, potential risky behaviors, and sleep), daily living skills (hygiene, meal preparation, navigation of community, and financial management), interpersonal skills (avoiding victimization, communication skills, relationships, theory of mind, and social rules), technology literacy (technology skills and technology behaviors), and employment skills (on the job skills and job search skills). Fit indices suggest that this model fit better than the original model three, with a χ^2 of 557.25 ($p < .001$), a CFI of .917, a TLI of .899, RMSEA of .073 and SRMR of .049, though descriptively comparing fit indices does not confirm empirical differences.

The adjusted model four included the following three scales with corresponding subscales: academic and career development (coursework organization, initiation, self-advocacy, study skills, time management, technology skills, technology behavior, on the job skills, and job search skills), emotional regulation and interpersonal engagement (coping skills, emotional control, avoiding victimization, communication skills, relationships, theory of mind, and social rules), and health and daily living (diet/nutrition, self-care, sleep, hygiene, meal preparation, navigation of community, and financial management). Fit indices suggest that this model fit better than the original model four, with a χ^2 of 872.88 ($p < .001$), a CFI of .846, a TLI of .828, RMSEA of .096 and SRMR of

.067, though an empirical test is needed to determine whether the models are indeed empirically different from one another.

Research Question 2: What do model fit differences between these models suggest for the PII's construct validity and use with college-bound diverse learners?

The first part of research question two involves determining which model best fits the data. Reviewing the fit statistics in Table 5 descriptively reveals that adjusted model three has the best fitting statistics. In order to determine this empirically, Akaike's Information Criteria (AIC) values were examined, specifically the difference scores (Δ AIC) between models. Δ AIC values reported in Table 5 indicate that adjusted model three is the best fitting model and that none of the other models have any approximating value relative to this model. Therefore, the seven-factor subscale model with the potential risky behaviors subscale eliminated was used for the remaining analyses.

Table 6 presents the factor loadings (B), standard errors (SE), z-values, standardized coefficients (Beta), and *p* values for the adjusted seven factor subscale model and figure 2 demonstrates a path diagram for the model, including factor loadings, inter-factor correlations, and manifest item (subscale) residuals. Table 7 presents the inter-factor correlations between latent factors in the best fitting model, with all factors being moderately ($.50 < r < .70$), highly ($.70 < r < .90$), or very highly ($r > .90$) correlated with one another. The lowest correlation was between academic skills and interpersonal skills (.639) and the highest correlation was between health and wellness and daily living skills (.953).

The second part of research question two involves the empirical test of factor invariance between the PII-SR and PII-IR versions of the instrument. The results of this

Table 6

*Factor Loadings of Subscales on Latent Factors for Adjusted Seven Factor Subscale**Model*

Latent Factor	Indicator	B	SE	Z	Beta	sig.
Academic Skills	Coursework	0.597	0.036	16.397	0.793	<.001***
Academic Skills	Initiation	0.632	0.039	16.155	0.783	<.001***
Academic Skills	Self-Advocacy	0.563	0.042	13.551	0.690	<.001***
Academic Skills	Study Skills	0.635	0.030	21.417	0.934	<.001***
Academic Skills	Time Mgmt.	0.654	0.036	18.418	0.853	<.001***
Emotional Reg.	Coping Skills	0.473	0.032	14.695	0.784	<.001***
Emotional Reg.	Emotional Con.	0.513	0.037	13.689	0.736	<.001***
Health and Wellness	Diet/Nutrition	0.470	0.050	9.341	0.541	<.001***
Health and Wellness	Self-Care	0.369	0.032	11.464	0.649	<.001***
Health and Wellness	Sleep	0.441	0.039	11.270	0.622	<.001***
Daily Living Skills	Hygiene	0.395	0.031	12.685	0.671	<.001***
Daily Living Skills	Meal Prep	0.517	0.045	11.585	0.638	<.001***
Daily Living Skills	Nav. Community	0.456	0.035	12.979	0.683	<.001***
Daily Living Skills	Financial Mgmt.	0.606	0.050	12.193	0.664	<.001***
Interpersonal Skills	Avoid Vic.	0.472	0.038	12.457	0.652	<.001***
Interpersonal Skills	Comm. Skills	0.562	0.032	17.594	0.837	<.001***
Interpersonal Skills	Relationships	0.497	0.036	13.807	0.707	<.001***
Interpersonal Skills	Theory of Mind	0.585	0.039	15.185	0.756	<.001***
Interpersonal Skills	Social Rules	0.506	0.037	13.694	0.701	<.001***
Technology Skills	Tech. Skills	0.393	0.028	13.900	0.716	<.001***
Technology Skills	Tech. Behaviors	0.590	0.035	16.933	0.837	<.001***
Employment Skills	On the Job Skills	0.500	0.032	15.742	0.849	<.001***
Employment Skills	Job Search Skills	0.599	0.061	9.791	0.617	<.001***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. B = unstandardized factor loading, SE = Standard Error, Z = z-value, Beta = standardized factor loading.

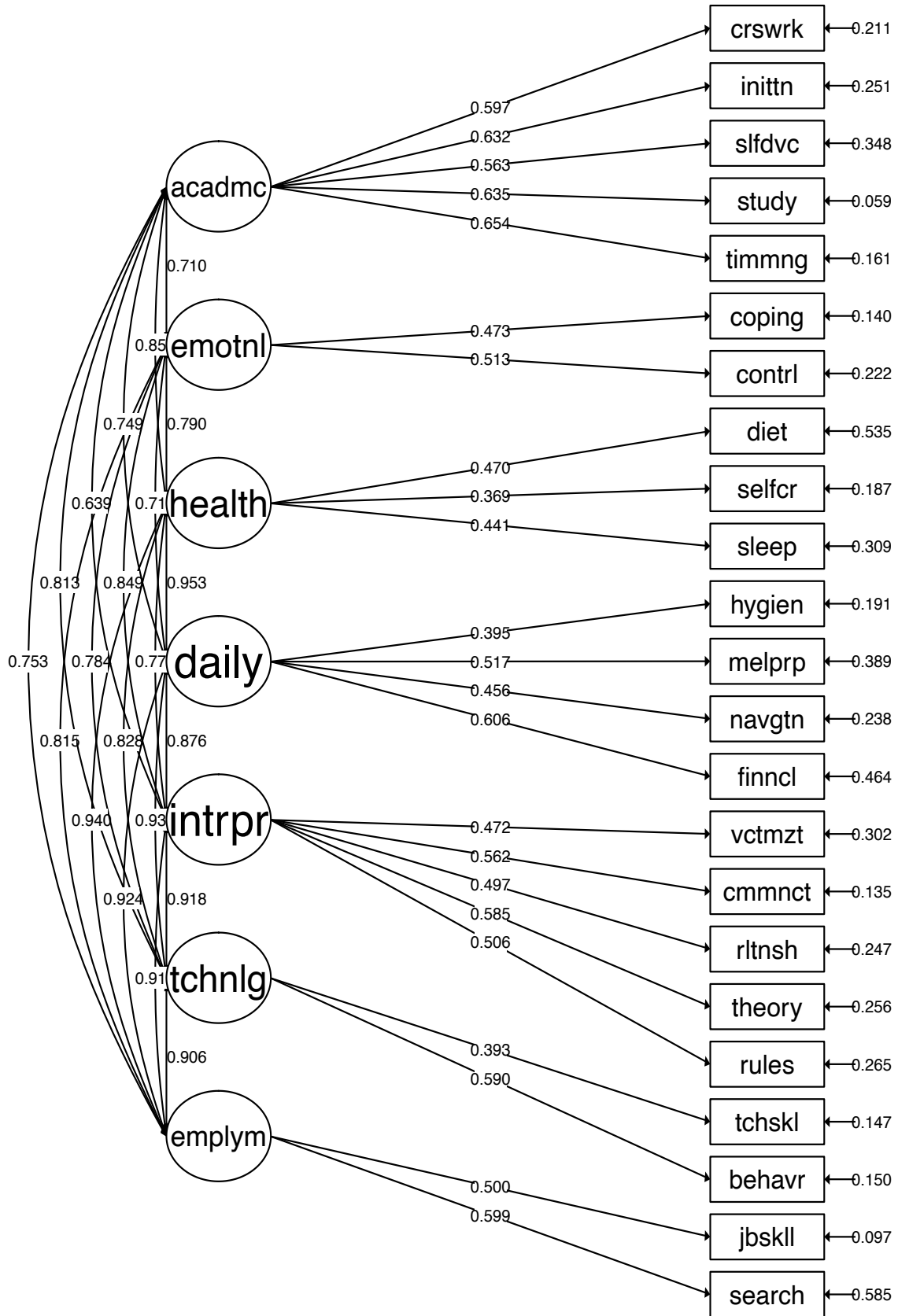


Figure 2. CFA Path Diagram of PII using Seven Factor Subscale Model.

Table 7

Inter-factor Correlations Between Latent Factors on the PII CFA Adjusted Seven Factor Subscale Model

Measure	1	2	3	4	5	6	7
1. Academic Skills	1.000						
2. Emotional Regulation	.710	1.000					
3. Health and Wellness	.853	.790	1.000				
4. Daily Living Skills	.749	.713	.953	1.000			
5. Interpersonal Skills	.639	.849	.772	.876	1.000		
6. Technology Literacy	.813	.784	.828	.939	.918	1.000	
7. Employment Skills	.753	.815	.940	.924	.914	.906	1.000

Table 8

Factor Invariance by Version on PII CFA Adjusted Seven Factor Subscale Model

Model	χ^2 (df)	CFI	RMSEA	$\Delta \chi^2$ (df)	Δ CFI	Δ RMSEA	sig.	Decision
M1: Configural	790.68 (418)	.866	.089	--	--	--	--	--
M2: Metric	805.57 (434)	.866	.087	14.887	.000	.002	.533	Accept
M3: Scalar	891.18 (450)	.841	.093	85.615	.025	.006	<.001***	Reject
M\$: Residual	961.49 (457)	.819	.099	70.308	.023	.006	<.001***	Reject

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. χ^2 = chi-square goodness of fit, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation.

analysis are presented in Table 8. M1 tests configural invariance, or whether the overall factor structure applies to both groups. M2 tests metric invariance, or whether the factor loadings can be assumed to be equivalent across groups. M3 tests scalar invariance, or whether the item intercepts are equivalent and finally, M4 tests residual invariance, or whether the item means can be assumed equal across groups. The significant results of scalar and residual invariance indicate that item intercepts and means cannot be assumed to be equal across groups, but the null results from the configural and metric invariance models indicate that factor structure and loadings can be assumed equal between both versions of the PII. Therefore, the best-fitting model will be used with the full set of data (i.e., PII-IR and PII-SR) for the remaining analyses.

Research Question 3: Does the PII demonstrate reliability and validity evidence as assessed by internal consistency, concurrent validity, and interrater reliability for use with college-bound diverse learners?

Research question three involves determining reliability and validity evidence for the selected model. Adjusted model three (i.e., 7-factor model with 23 subscales) was used for these analyses. Table 9 reports descriptive statistics for the PII scales (factors), including Cronbach's alpha (α) which was used to determine internal consistency. The full measure demonstrated high internal consistency with an α value of .94. Academic skills and interpersonal skills demonstrated good internal consistency (i.e., α greater than or equal to .80), emotional regulation, daily living skills, and technology literacy demonstrated acceptable internal consistency (i.e., α greater than or equal to .70), and health and wellness demonstrated questionable internal consistency (i.e., α greater than or equal to .60). There were no scales with poor internal consistency (i.e., α less than .60).

Table 9

*Descriptive Statistics and Reliability of PII Scales using Adjusted Seven Factor Subscale**Model*

Measure	Subscale <i>n</i>	α	Average Score	
			Mean	SD
PII (full measure)	23	0.94	2.85	0.48
Academic Skills	5	0.90	2.66	0.65
Emotional Regulation	2	0.73	2.60	0.57
Health and Wellness	3	0.61	2.89	0.49
Daily Living Skills	4	0.74	3.07	0.54
Interpersonal Skills	5	0.85	2.92	0.57
Technology Literacy	2	0.73	3.19	0.54
Employment Skills	2	0.60	2.82	0.61

Note. α = Cronbach's alpha.

Table 10 reports descriptive statistics for the PII subscales, including Cronbach's alpha which was again used to determine internal consistency for the subscales. Thirteen of the subscales demonstrated good internal consistency, or an α value greater than or equal to .80 (e.g., coursework organization, self-advocacy, study skills, time management, coping skills, diet/nutrition, hygiene, financial management, avoiding victimization, communication skills, relationships, theory of mind, and job search skills). Five of the subscales demonstrated acceptable internal consistency, or an α value greater than or equal to .70 (e.g., initiation, emotional control, sleep, technology skills, and on the job skills), and five of the subscales demonstrated questionable internal consistency, or an α value of .60 or greater (e.g., self-care, meal prep, navigation of community, social

rules, and technology behaviors). There were no subscales that demonstrated poor internal consistency (i.e., less than .60).

In order to assess concurrent validity, Pearson's correlation coefficients were examined between the PII-IR and the BRIEF-A Informant Report, and between the PII-SR and the BRIEF-A Student Report and the OQ-45.2, which is a student-only measure. The PII-IR results are presented in Table 11 and the PII-SR results are presented in Table 12. The BRIEF-A scores represent a raw Global Executive Composite (GEC) from the full instrument. OQ-45.2 correlations are presented for the full instrument as well as for the subscales of Interpersonal Relations and Social Roles. Lower scores on both the BRIEF-A and OQ-45.2 items indicate areas of strength, while higher scores on the PII reflect areas of strength. Therefore, negative correlations indicate concurrent validity between these measures.

All correlations between the BRIEF-A Informant Report and PII-IR full measure and scales reflect weak negative correlations (i.e., $.10 < r < .39$). Correlations between the BRIEF-A Student Report and PII-SR full measure, academic skills, emotional regulation, health and wellness, and interpersonal skills scales reflect moderate negative correlations (i.e., $.40 < r < .69$) while correlations between the BRIEF-A Student Report and the PII-SR daily living skills, technology literacy, and employment skills scales reflect weak negative correlations.

Correlations between the OQ-45.2 full measure and PII full measure, academic skills, emotional regulation, and health and wellness scales reflect moderate negative correlations, while correlations between the OQ-45.2 full measure and daily living skills, interpersonal skills, technology literacy, and employment skills reflect weak correlations.

Table 10

*Descriptives Statistics, Reliability, and ICCs of PII Subscales using Adjusted Seven**Factor Subscale Model*

Subscale	Item <i>n</i>	α	ICC	Average Score	
				Mean	SD
Coursework Organization	4	0.80	.400	2.89	0.76
Initiation	3	0.78	.526	2.51	0.81
Self-Advocacy	3	0.80	.316	2.57	0.82
Study Skills	12	0.91	.411	2.71	0.68
Time Management	8	0.89	.360	2.57	0.77
Coping Skills	8	0.80	.207	2.55	0.60
Emotional Control	3	0.71	.249	2.72	0.70
Diet/Nutrition	3	0.82	.327	2.16	0.87
Self-Care	6	0.65	.220	3.00	0.57
Sleep	4	0.79	.436	2.89	0.71
Hygiene	9	0.86	.419	3.20	0.59
Meal Prep	3	0.67	.162	3.01	0.81
Navigation of Community	4	0.67	.255	3.32	0.67
Financial Management	5	0.85	.255	2.58	0.90
Avoiding Victimization	4	0.82	.100	3.01	0.73
Communication Skills	7	0.86	.177	2.89	0.67
Relationships	7	0.84	.236	2.77	0.70
Theory of Mind	4	0.89	.084	2.99	0.77
Social Rules	2	0.67	.279	3.25	0.72
Technology Skills	6	0.75	.345	3.31	0.55
Technology Behaviors	3	0.63	.194	2.93	0.71
On the Job Skills	8	0.78	.183	2.85	0.59
Job Search Skills	4	0.86	.365	2.70	0.96

Note. α = Cronbach's alpha, ICC = Intraclass Correlation Coefficient.

Correlations between the interpersonal relations subscale and the PII full measure, academic skills, emotional regulation, health and wellness, and interpersonal skills reflect moderate correlations while correlations with daily living skills, technology literacy, and employment skills reflect weak correlations. Correlations between the social role subscale and the PII full measure, academic skills, and emotional regulation reflect moderate correlations while all other scales reflect weak correlations. There were no correlations that were negligible or in the opposite direction than that which was predicted. Conversely, there were no correlations that were strong or very strong.

In addition to internal consistency and concurrent validity, interrater reliability was examined between the PII-SR and PII-IR versions of the instrument. ICCs were used to examine these relationships as it is a more flexible estimation than a coefficient alpha or Pearson's correlation coefficient. ICC values are reported in Table 4 for item-level reliability and in Table 11 for subscale-level reliability. Only items 6 (e.g., "It is easy for me [the individual] to get started on schoolwork tasks") and 53 (e.g., "I [the individual] make[s] healthy decisions about tobacco use") demonstrated moderate reliability with values between .50 and .75 (.518 and .674 respectively), with all other items demonstrating poor interrater reliability. Initiation was the only subscale that demonstrated moderate reliability (.526), with all other subscales demonstrating poor interrater reliability.

Table 11

Concurrent Validity Between PII-IR and BRIEF-A Informant Report using Adjusted Seven Factor Subscale Model

Measure	Pearson's Correlation Coefficient
	BRIEF-A (General Executive Composite)
PII Full	-.322
Academic Skills	-.244
Emotional Regulation	-.205
Health and Wellness	-.256
Daily Living Skills	-.297
Interpersonal Skills	-.255
Technology Literacy	-.321
Employment Skills	-.298

Note. $n = 155$.

Table 12

Concurrent Validity Between PII-SR, BRIEF-A Student Report, and OQ-45.2 using Adjusted Seven Factor Subscale Model

Measure	Pearson's Correlation Coefficient			
	BRIEF-A	OQ-45.2 Full	OQ-45.2 IR	OQ-45.2 SR
PII Full	-.572	-.515	-.481	-.453
Academic Skills	-.495	-.474	-.407	-.466
Emotional Regulation	-.553	-.510	-.417	-.527
Health and Wellness	-.509	-.453	-.417	-.338
Daily Living Skills	-.397	-.332	-.320	-.290
Interpersonal Skills	-.411	-.386	-.404	-.300
Technology Literacy	-.387	-.386	-.395	-.353
Employment Skills	-.386	-.362	-.376	-.271

Note. $n = 155$.

Research Question 4: Do group difference between instrument version, gender identity, and ASD status suggest different uses of the instrument for different groups?

In order to answer research question four regarding group differences between PII version, gender identity, and ASD status, several MANOVAs and follow-up DFAs were conducted. While inferior to SEM analyses, these analyses were selected due to sample size constraints and a lack of convergence in CFA models that included a group difference test. The first MANOVA was conducted with PII version as the independent variable and each of the seven PII scales (i.e., academic skills, emotional regulation, health and wellness, daily living skills, interpersonal skills, technology literacy, and employment skills) as the dependent variables.

Boxplots and histograms were examined for univariate and multivariate normality, and no scales had significant deviations from normality. No outliers were present, and the assumption of independence of observations was met. Box's Test of Equality of Covariance Matrices shows that there was heterogeneity of variance, indicating that the observed covariance matrices of the dependent variables differ to a statistically significant degree across versions, $F(28, 326, 281.53) = 2.96, p < .001$. Additionally, Levene's Test of Equality of Error Variances based on the trimmed mean revealed a statistically significant violation for academic skills, $F(1, 306) = 9.56, p = .002$., daily living skills, $F(1, 306) = 14.50, p < .001$., interpersonal skills, $F(1, 306) = 13.36, p < .001$., technology literacy, $F(1, 306) = 20.50, p < .001$., and employment skills, $F(1, 306) = 4.60, p = .033$. A more conservative p value of .025 was used in interpreting this MANOVA in order to account for these assumption violations.

Using Wilk’s test of multivariate significance, PII version was statistically related to the weighted multivariate combination of DV measures, $\Lambda = 0.742$, $F(7, 300) = 14.94$, $p < .001$, $\eta^2 = .077$. These results are presented in Table 13. The first root of the multivariate solution was statistically significant, and examination of associated standardized discriminant function coefficients (SDFC) used to weight the multivariate composite revealed that interpersonal skills ($SDFC = 2.454$) was most important in forming the function that discriminated the seven IV groups. Group means and SDFC values for this analysis are presented in Table 14. Univariate ANOVAs on each of the seven scales comprising the multivariate composite revealed statistically significant mean differences between PII versions on all seven scales, with an adjusted alpha of .004 (i.e., $.025/7$) in order to maintain the probability of type I error at .05. Results from the univariate tests are presented in Table 15.

The next set of analyses examined scale score differences by gender identity and ASD status on the PII-SR and PII-IR separately. The MANOVA between gender identity and ASD status for the scales of the PII-IR were conducted first with results presented in Table 16. Box’s M for equality of covariance matrices was not significant, and Levene’s Test of equality of error variances was not significant for any of the scales based on

Table 13

MANOVA Results of PII Version on Latent Factor Mean Scores

Effect	Λ	F	df_1	df_2	p	$\eta^2_{partial}$
Intercept	0.021	1999.77	7	300	<.001***	
Version	0.742	14.94	7	300	<.001**	.077

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Λ = Wilk’s Lambda, $\eta^2_{partial}$ = partial eta squared. $n = 155$.

Table 14

Group Means and SDFCs for PII Latent Factors by Version

Measure	Group Means		SDFC
	PII-IR	PII-SR	
Academic Skills	2.47	2.83	0.293
Emotional Regulation	2.44	2.82	-0.019
Health and Wellness	2.52	2.84	0.224
Daily Living Skills	2.83	3.22	0.235
Interpersonal Skills	2.71	3.26	2.454
Technology Literacy	2.96	3.28	-0.889
Employment Skills	2.61	2.97	-0.405

Note. $n = 155$.

Table 15

Univariate Results of PII Version on Latent Factor Mean Scores

Measure	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Academic Skills	1	10.02	10.02	25.47	<.001***
Emotional Regulation	1	11.07	11.07	36.74	<.001***
Health and Wellness	1	8.25	8.25	30.25	<.001***
Daily Living Skills	1	11.77	11.77	40.71	<.001***
Interpersonal Skills	1	23.08	23.08	93.38	<.001***
Technology Literacy	1	7.87	7.87	26.88	<.001***
Employment Skills	1	10.01	10.01	23.69	<.001***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. *SS* = Sum of Squares, *MS* = Mean Square. $n = 155$.

trimmed mean, indicating that all assumptions of MANOVA were met. Using Wilk's test of multivariate significance, gender identity was statistically related to the weighted multivariate combination of DV measures, $\Lambda = 0.859$, $F(7, 140) = 3.28$, $p = .003$, $\eta^2 = .088$, ASD status was statistically related to the weighted multivariate combination of DV measures, $\Lambda = 0.903$, $F(7, 140) = 2.14$, $p = .043$, $\eta^2 = .006$, but the interaction between gender identity and ASD status was not significant, $\Lambda = 0.935$, $F(7, 140) = 1.40$, $p = .211$, $\eta^2 = .007$.

The first root of the multivariate solution for gender identity was statistically significant, and examination of associated SDFCs used to weight the multivariate composite revealed that academic skills ($SDFC = 1.884$) and interpersonal skills ($SDFC = -1.437$) were most important in forming the function that discriminated the seven IV groups by gender identity. Group means and SDFC values for this analysis by gender identity are presented in Table 17. The first root of the multivariate solution for ASD status was also statistically significant, and examination of associated standardized discriminant function coefficients (SDFC) used to weight the multivariate composite

Table 16

MANOVA Results of Gender and Disability Status on PII-IR Latent Factor Mean Scores

Effect	Λ	F	df_1	df_2	p	$\eta^2_{partial}$
Intercept	0.028	705.38	7	140	<.001***	
Gender	0.859	3.28	7	140	.003**	.088
ASD	0.903	2.14	7	140	.043*	.006
Gender*ASD	0.935	1.40	7	140	.211	.007

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Λ = Wilk's Lambda, $\eta^2_{partial}$ = partial eta squared. $n = 151$.

revealed that interpersonal skills ($SDFC = -1.970$) and daily living skills ($SDFC = 1.300$) were most important in forming the function that discriminated the seven IV groups by ASD status. Group means and SDFC values for this analysis by ASD status are presented in Table 18.

Univariate ANOVAs on each of the seven scales comprising the multivariate composite revealed statistically significant mean differences between gender identity on academic skills only, $p < .001$, with an adjusted alpha of .007 (.05/7) in order to maintain the probability of type I error at .05. Results from the univariate tests of gender identity are presented in Table 19. Additionally, univariate ANOVAs on each of the seven scales comprising the multivariate composite revealed statistically significant mean differences between ASD status on interpersonal skills, $p = .003$ and employment skills, $p = .007$ with an adjusted alpha of .007 (.05/7) in order to maintain the probability of type I error at .05. Results from the univariate tests of ASD status are presented in Table 20.

Table 17

Group Means and SDFCs for the PII-IR Latent Factors by Gender Identity

Measure	Group Means		SDFC
	M	F	
Academic Skills	2.37	2.84	-1.884
Emotional Regulation	2.43	2.51	0.668
Health and Wellness	2.49	2.63	0.171
Daily Living Skills	2.82	2.88	0.807
Interpersonal Skills	2.66	2.87	-1.437
Technology Literacy	2.91	3.12	0.325
Employment Skills	2.59	2.70	0.592

Note. $n = 151$.

Table 18

Group Means and SDFCs for the PII-IR Latent Factors by Disability Status

Measure	Group Means		SDFC
	ASD	No ASD	
Academic Skills	2.41	2.60	-0.080
Emotional Regulation	2.39	2.55	0.332
Health and Wellness	2.46	2.63	-0.387
Daily Living Skills	2.80	2.89	1.300
Interpersonal Skills	2.61	2.90	-1.970
Technology Literacy	2.90	3.07	0.444
Employment Skills	2.49	2.83	-0.933

Note. $n = 151$.

Table 19

Univariate Results of Gender Identity on PII-IR Latent Factor Mean Scores

Measure	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Academic Skills	1	6.32	6.32	14.09	<.001***
Emotional Regulation	1	0.19	0.19	0.65	.422
Health and Wellness	1	0.52	0.52	1.66	.200
Daily Living Skills	1	0.11	0.11	0.29	.589
Interpersonal Skills	1	1.16	1.16	3.90	.050
Technology Literacy	1	1.20	1.20	3.14	.078
Employment Skills	1	0.35	0.35	0.77	.383

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. *SS* = Sum of Squares, *MS* = Mean Square. $n = 151$.

Table 20

Univariate Results of Disability Status on PII-IR Latent Factor Mean Scores

Measure	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Academic Skills	1	0.43	0.43	0.95	.332
Emotional Regulation	1	1.03	1.03	3.46	.065
Health and Wellness	1	0.77	0.77	2.42	.122
Daily Living Skills	1	0.25	0.25	0.65	.422
Interpersonal Skills	1	2.58	2.58	8.68	.004**
Technology Literacy	1	0.80	0.80	2.09	.150
Employment Skills	1	3.38	3.38	7.38	.007**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. *SS* = Sum of Squares, *MS* = Mean Square. $n = 151$.

The final analysis was a MANOVA between gender identity and ASD status for the scales of the PII-SR. Box's M for equality of covariance matrices was not significant, and Levene's Test of equality of error variances was not significant for any of the scales based on the trimmed mean, indicating that all assumptions of MANOVA were met. Using Wilk's test of multivariate significance, gender identity was statistically related to the weighted multivariate combination of DV measures, $\Lambda = 0.885$, $F(7, 140) = 2.60$, $p = .015$, $\eta^2 = .025$, ASD status was statistically related to the weighted multivariate combination of DV measures, $\Lambda = 0.877$, $F(7, 140) = 2.79$, $p = .009$, $\eta^2 = .004$, but the interaction between gender identity and ASD status was not significant, $\Lambda = 0.982$, $F(7, 140) = 0.37$, $p = .919$, $\eta^2 = .001$. These results are presented in Table 21.

Table 21

*MANOVA Results of Gender Identity and Disability Status on PII-SR Latent Factor Mean**Scores*

Effect	Λ	F	df_1	df_2	p	$\eta^2_{partial}$
Intercept	0.013	1534.76	7	140	<.001***	
Gender Identity	0.885	2.60	7	140	.015*	.025
ASD	0.877	2.79	7	140	.009**	.004
Gender Identity*ASD	0.982	0.37	7	140	.919	.001

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Λ = Wilk's Lambda, $\eta^2_{partial}$ = partial eta squared. $n = 151$.

The first root of the multivariate solution for gender identity on the PII-SR was statistically significant, and examination of associated standardized discriminant function coefficients (SDFC) used to weight the multivariate composite revealed that academic skills ($SDFC = -1.980$) was most important in forming the function that discriminated the seven IV groups by gender identity, with daily living skills ($SDFC = 1.512$) and technology literacy ($SDFC = -1.357$) contributing as well. Group means and SDFC values for this analysis by gender identity are presented in Table 22. The first root of the multivariate solution for ASD status was also statistically significant, and examination of associated standardized discriminant function coefficients (SDFC) used to weight the multivariate composite revealed that interpersonal skills ($SDFC = -2.102$) was most important in forming the function that discriminated the seven IV groups by ASD status. Group means and SDFC values for this analysis by ASD status are presented in Table 23.

Table 22

Group Means and SDFCs for PII-SR Latent Factors by Gender Identity

Measure	Group Means		SDFC
	M	F	
Academic Skills	2.79	2.99	-1.980
Emotional Regulation	2.85	2.77	1.050
Health and Wellness	2.87	2.81	0.991
Daily Living Skills	3.23	3.17	1.512
Interpersonal Skills	3.26	3.24	0.633
Technology Literacy	3.26	3.35	-1.357
Employment Skills	2.94	3.04	-0.530

Note. $n = 151$.

Table 23

Group Means and SDFCs for PII-SR Latent Factors by Disability Status

Measure	Group Means		SDFC
	ASD	No ASD	
Academic Skills	2.80	2.90	0.791
Emotional Regulation	2.76	2.94	-0.173
Health and Wellness	2.77	2.98	-1.233
Daily Living Skills	3.18	3.29	0.864
Interpersonal Skills	3.18	3.40	-2.102
Technology Literacy	3.24	3.36	0.551
Employment Skills	2.87	3.14	-0.647

Note. $n = 151$.

Univariate ANOVAs on the seven scales comprising the multivariate composite did not reveal any statistically significant results, as presented in Table 24. Additionally, univariate ANOVAs on each of the seven scales comprising the multivariate composite revealed statistically significant mean differences between ASD status on health and wellness, $p = .006$, and interpersonal skills, $p = .001$, again with an adjusted alpha of .007 (.05/7) in order to maintain the probability of type I error at .05. While emotional regulation initially appeared significant, it did not meet the adjusted alpha threshold of .007 ($p = .039$). Results from the univariate tests of ASD status are presented in Table 25.

Table 24

Univariate Results of Gender Identity on PII-SR Latent Factor Mean Scores

Measure	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Academic Skills	1	1.11	1.11	3.68	.057
Emotional Regulation	1	0.18	0.18	0.58	.449
Health and Wellness	1	0.09	0.09	0.43	.513
Daily Living Skills	1	0.10	0.10	0.49	.484
Interpersonal Skills	1	0.02	0.02	0.10	.750
Technology Literacy	1	0.23	0.23	1.16	.284
Employment Skills	1	0.26	0.26	0.74	.391

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. *SS* = Sum of Squares, *MS* = Mean Square. $n = 151$.

Table 25

Univariate Results of Disability Status on PII-SR Latent Factor Mean Scores

Measure	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Academic Skills	1	0.16	0.16	0.53	.469
Emotional Regulation	1	1.33	1.33	4.36	.039*
Health and Wellness	1	1.66	1.66	7.81	.006**
Daily Living Skills	1	0.72	0.72	3.71	.056
Interpersonal Skills	1	1.83	1.83	10.91	.001**
Technology Literacy	1	0.39	0.39	1.96	.164
Employment Skills	1	0.17	0.17	0.48	.489

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. *SS* = Sum of Squares, *MS* = Mean Square. $n = 151$.

CHAPTER V

DISCUSSION

The goal of this study was to understand the existing evidence for the reliability and validity of the PII. The PII is a theoretically grounded transition assessment instrument designed to guide student goal setting and program development for college-bound diverse learners that had not previously been systematically and empirically analyzed. Specifically, this study sought to confirm the factor structure of the instrument (i.e., Research Question 1), test the differences in model fit between the student (PII-SR) and informant (PII-IR) versions of the instrument (i.e., Research Question 2), examine the reliability and validity evidence of the best-fitting model (i.e., Research Question 3), and understand the potential impact of group differences in the mean scale scores of the instrument based on instrument version, gender identity, and disability status (i.e., Research Question 4). This chapter provides a summary and interpretation of the findings of the study as they pertain to each research question, a discussion of the study limitations, and the implications of the findings on both research and practice.

Factor Structure and Model Fit

The goal of the CFA was to test and confirm four theoretical factor structures of the PII. The first two models tested the theories that the PII items ($n = 124$) were organized into seven scales and three scales, respectively. The third and fourth models tested the complementary theories that the PII subscales ($n = 24$) were organized into seven scales and three scales, respectively. This complementary theory was proposed due to the potentially problematic case-to-variable ratio given the small sample size of the study ($n = 310$). The factors in the seven-factor model represent the seven skill

development constructs presented in Chapter II, while the three-factor model represents an alternative hypothesis that the seven skill development constructs are instead organized into three factors and not an individual factor for each construct.

The first two CFA models that used PII items as manifest variables demonstrated poor model fit and were therefore eliminated from further analysis. The seven-factor CFA subscale model demonstrated acceptable model fit and the three-factor CFA subscale model demonstrated questionable model fit. Both subscale models were further specified by examining manifest variable factor loadings in order to improve model fit. Model respecification involved determining a factor loading cutoff point of $< .4$ or $< .3$ on which to eliminate manifest variables from the model. There was a total of four subscales with factor loadings of $< .4$ (i.e., self-care = .360; potential risky behaviors = .115; hygiene = .395; technology skills = .393), and only one subscale with a factor loading of $< .3$ (i.e., potential risky behaviors = .115). While using $< .4$ may be considered a conservative cutoff for model inclusion, the intention of this analysis was confirmatory rather than exploratory and eliminating four subscales from the model is not supported by a confirmatory approach (Floyd & Widaman, 1995). Therefore, a factor loading cutoff of $< .3$ was used to respecify the model, resulting in the elimination of the potential risky behaviors subscale.

The removal of the potential risky behaviors subscale from the CFA model is also supported by the high degree of missingness (i.e., q51 = 60.97%; q52 = 35.48%; q53 = 37.42%; q54 = 29.35%) from the items in this subscale. Missing data in this study are responses of “not applicable/no opportunity” to the item, indicating a high instance of both students and informants believing that these items either do not apply to the student

or that the student has not had the opportunity to demonstrate the skill represented by the item. Though the items in this subscale may provide valuable information regarding the propensity of college-bound diverse learners toward potential risky behaviors (Nugent & Smart, 2014; Pollack et al., 2018), it is possible that informants do not have enough knowledge to rate students reliably, and the students in this sample have less experience with the behaviors associated with the items (e.g., engaging in safe sexual health practices and making healthy decisions about drug, alcohol, and tobacco use).

In addition to potential risky behaviors, the subscales of meal preparation, financial management, on the job skills, and job search skills also had higher levels of missingness than other subscales (see Appendix A). These subscales were not dropped from the analysis because of their acceptable factor loadings and Cronbach's alpha values that indicate acceptable internal consistency for respondents who did rate the item (Clark & Watson, 1995; Floyd & Widaman, 1995). However, the levels of missingness indicate potential issues of face validity and that students in this sample may have had few opportunities to demonstrate the skills represented by the items in these subscales. Research evidence still supports the relevance of these items for college students with disabilities (Mazzotti et al., 2014; Rowe, et al., 2015; Test et al., 2009), though it is possible that a pre-college assessment would be too early to capture the skills and behaviors reflected in these items.

Upon final respecification of models three and four, model comparison analysis resulted in the adjusted seven-factor subscale model (i.e., adjusted model three) as the best fitting empirical model. Using a SEM approach, model fit is determined by both an empirical test as well as strong theoretical support. Chapter II of this dissertation provides

significant evidence for the support of a seven-factor model, resulting in both empirical and theoretical evidence for this model. However, much of the theoretical evidence was based on the item-level version of the PII as opposed to a model using subscales. While the acceptable internal consistency of the subscales suggests that they can reliably represent the individual items, the evidence for the model would be stronger if the analysis was at the item-level as opposed to the subscale-level.

An examination of the factor loadings of the subscales on each of the latent factors provides insight into which scales appear to have the strongest empirical support. For example, even after dropping the potential risky behaviors subscale, the three remaining subscales in the health and wellness scale have factor loadings of .369, .441, and .470, demonstrating moderate to weak influence on the latent factor. This provides only moderate support for the assumption that these subscales are fully representative of and have an influence on the construct of health and wellness. In comparison, the five subscales in the academic skills scale have factor loadings of .597, .632, .563, .635, and .654, representing the highest average factor loading of any latent factor. This suggests the items and subscales in the academic skills scale, particularly items associated with initiation, study skills, and time management, are more closely related to and have an influence on the latent construct.

Another finding of note from the factor analysis was the high intercorrelations between latent factors. These intercorrelations ranged from .639 (i.e., interpersonal skills and academic skills) to .953 (i.e., health and wellness and daily living skills). The smallest correlation among latent factors still represents a moderate relationship, with all other correlation values $> .70$, representing strong correlations. These strong correlations

challenge the assertion that the items and subscales of the PII can be represented by unique factors. In particular, correlations $> .9$ (e.g., health and wellness and daily living skills; health and wellness and employment skills; daily living skills and technology literacy; daily living skills and employment skills; technology literacy and interpersonal skills; employment skills and interpersonal skills; and technology literacy and employment skills) suggest that those latent factors may be represented by a higher order construct. This would result in a potential second order CFA model that could provide evidence for empirical relationships between scales. However, testing these potential higher order constructs was beyond the scope of this study.

Lastly, the results of the factor invariance across versions analysis are relevant to the use of the PII model. While the results did not reveal equal subscale intercepts and means between the PII-IR and PII-SR, the results did indicate that equal factor structure and factor loadings can be assumed across the two versions of the PII. Equal factor structure and loadings suggests that all interpretations of the factor analysis apply to both versions. The items on both versions of the assessment can be assumed to belong to the same subscales, and the subscales can be assumed to belong to the same latent factors. This indicates that assessment results between the two versions can be directly compared to one another at both the scale and subscale levels to focus skill development on specific constructs of interest for individual students.

Reliability and Validity

A series of reliability and validity analyses were conducted using the adjusted seven-factor subscale model after it was determined to be empirically and theoretically sound. The purpose of these reliability and validity analyses was to further understand the

evidence for the use of this instrument with college-bound diverse learners. The first of these analyses was an examination of the instrument's internal consistency, or how well it measures what it is purported to measure. Internal consistency was calculated for each of the 23 subscales (after potential risky behaviors was removed), as well as for the full instrument and each of the latent factors, or scales.

In order to determine whether or not the subscales could accurately represent individual items in the CFA, the internal consistency of each subscale was calculated. There were five subscales that had questionable internal consistency, or an α value between .60 and .70 (i.e., self-care, meal prep, navigation of community, social rules, and technology behaviors). However, there were no subscales that demonstrated poor internal consistency, or an α value $< .60$, and the remaining 18 subscales had either acceptable (i.e., $\alpha > .70$) or good (i.e., $\alpha > .80$) internal consistency. These values support the assumption that while the subscales are not an exact representation of the items they represent, they can approximate these items in the CFA model. Interestingly, all five subscales in the academic skills scale demonstrated an α value $> .70$ (i.e., .80, .78, .80, .91, and .89), indicating that these subscales are a strong representation of the academic skills construct. This confirms the finding from the examination of factor loadings that the academic skills scale can be considered a strong approximation of a student's academic skill capacity.

After fitting the model to the data, internal consistency was evaluated on the full measure and each of the seven latent factors. The full measure had an internal consistency of .94, indicating that the 23 subscales strongly represent the overall adaptive skill, executive functions, and social skill framework of the PII. The latent factors, or

scales, had α values between .60 and .90, with the academic skills scale having the highest value and the employment skills scale having the lowest value. It is also noteworthy that both subscales in the employment skills scale also had high rates of missingness. This indicates that even for respondents who rated the items in this scale there was less consistency among the ratings, suggesting that students in this sample have had less consistent experience with or fewer opportunities to demonstrate skills related to finding and maintaining employment. The health and wellness scale also had a questionable α value of .61, indicating that there are items in this scale that are poorly correlated with the rest of the scale and may not be related to the overall health and wellness construct.

Concurrent validity was the next form of validity assessed, designed to examine how well the results of the PII correlate with other measures of equivalent or related constructs. The BRIEF-A and the OQ-45.2 were used to assess the concurrent validity of the PII. All correlations were negative, confirming the hypothesis that the full measure and scales of the PII would be negatively correlated with the General Executive Composite (GEC) from the BRIEF-A and the OQ-45.2 full scale, interpersonal relations subscale, and social roles subscale. Negative correlations demonstrate a relationship in this case because higher scores on the BRIEF and OQ-45.2 indicate higher areas of need, while lower scores on the PII indicate higher areas of need.

The strength of the correlations themselves, however, do not provide conclusive evidence of the concurrent validity of the PII. Correlations of the full measure and scales of the PII-IR with the GEC of the BRIEF-A Informant Report indicate only weak correlations, and the correlations of the full measure and scales of the PII-SR with the

GEC of the BRIEF-A Student Report indicate a mix of weak and moderate correlations. While this provides some indication of consistency across measures, these correlations cannot be interpreted as providing conclusive evidence of concurrent validity (Chen & Krauss, 2004).

Likewise, while there were some PII scales that demonstrated moderate correlations with the OQ-45.2 full scale and subscales (i.e., PII full, academic skills, emotional regulation, and health and wellness), the absence of strong correlations prevents conclusions about its concurrent validity. It was expected that the interpersonal skills scale of the PII would be strongly correlated with the interpersonal relations scale of the OQ-45.2, though in reality this correlation was only moderate (.404). The difference between these two scales is that the interpersonal skills scale of the PII focuses on the skills associated with interacting with others and the interpersonal relations subscale of the OQ-45.2 focuses on actual interactions with others. Despite this difference, the correlation between the two was still anticipated to be stronger.

The final assessment of reliability and validity evidence of the adjusted seven-factor PII subscale model was the interrater reliability between the two versions of the instrument. Intraclass Correlation Coefficients with a two-way mixed effects model were used to assess this evidence because each student was rated by an entirely different rater. ICCs were evaluated on each of the 124 items of the PII as well as the subscales, as PII-SR and PII-IR data were available from all 155 students in the dataset. Using the benchmark criteria of good reliability $> .75$, moderate reliability between $.50$ and $.74$, and poor reliability $< .49$, there were only two items (i.e., “It is easy for me [the individual] to get started on schoolwork tasks” and “I [the individual] make[s] healthy decisions about

tobacco use”) and one subscale (i.e., initiation) that had moderate reliability and no items or subscales with good reliability.

These results indicate that there is no evidence from this analysis that interrater reliability can be assumed between versions of the PII. In almost all cases, the means from the PII-SR were higher than the PII-IR, indicating the students rated themselves as more capable across items and subscales than their informant (i.e., parent or family member). While some multi-version assessments are designed to produce agreement across respondents (e.g., TAGG) (Hennessey et al., 2018), these findings are consistent with other transition assessment instruments with versions for multiple respondents, notably the AIR Self-Determination Scale (Wolman et al., 1994) and the BRIEF-A (Roth et al., 2005). While not wholly representative of the field of secondary transition, research from child and adolescent psychology consistently reports weak to moderate cross-informant agreement (Achenbach et al., 1987; Bird et al., 1992; De Los Reyes & Kazdin, 2005; Kraemer et al., 2003; Youngstrom et al., 2000). This is also true of the Social Skills Inventory System (SSIS), a measure designed to replace the Social Skills Rating Scale (SSRS) (Gresham et al., 2010).

The wide variability in responses across versions suggests that while there may be less utility in using information gleaned from independent versions of the assessment, results from both versions of the PII may be used in conjunction with one another to inform student-level goal setting (Roth et al., 2005; Wolman et al., 1994). Used in this way, students can be supported to better understand skill discrepancies and perceived differences in these discrepancies between themselves and their family member or program informant. Taken together, the student-led team can come to an agreement on

the most important areas for immediate focus and students can use this information to begin a goal-setting process.

Group Differences

The final research question explored group differences on mean scores of the PII scales according to the independent variables of version, gender identity, and disability status. A MANOVA was conducted with version as the IV and the seven scales of the PII as the DVs using the full dataset of 310 cases. Following this analysis, separate MANOVAs were conducted using the PII-IR ($n = 155$) and PII-SR ($n = 155$) with gender identity and disability status as the IVs and the seven scales of the PII as the DVs.

The first MANOVA returned a statistically significant result for the effect of PII version (i.e., PII-SR and PII-IR) on the multivariate composite of DVs, and univariate follow up analyses revealed that instrument version had a statistically significant impact on each of the seven scales of the PII. The partial eta squared for the MANOVA, which was used as an estimate of effect size, was .077, suggesting a relatively large effect. The SDFC analysis revealed that while PII-SR scores were higher than PII-IR scores on all seven scales, the largest discrepancy was on the interpersonal skills scale, which was most important in contributing to the function that discriminated between the two versions of the instrument. The findings from this analysis suggest wide variability between student self-assessment of capacity across all skill constructs captured on the PII when compared to perceived capacity by a parent or family member. These results are consistent with the results from the interrater reliability analysis, which indicated that equal scores across versions and raters cannot be assumed, reflecting findings from other

transition assessment instruments with multiple versions (Gresham et al., 2010; Roth et al., 2005; Wolman et al., 1994).

The next two MANOVAs explored the interaction between gender identity and disability status on both the PII-IR and the PII-SR. Neither MANOVA returned a statistically significant result for the interaction between these two variables, but both MANOVAs returned significant main effects for both variables. The absence of an interaction effect may be a result of the small sample size, but the consistent finding across versions suggests that these two variables may impact scores independent of one another and therefore this may not be a meaningful comparison moving forward.

Gender identity had a statistically significant main effect on both the PII-SR and PII-IR, but there were differences across the two versions in the scales that were most important in determining the function that separated the IV groups. Academic skills and interpersonal skills were most important to the DFA for the PII-IR, while academic skills, daily living skills, and technology literacy were most important for the PII-SR. Follow-up univariate analyses, however, revealed that there were no subscales that had a statistically significant result on the PII-SR and academic skills was the only scale that had a statistically significant effect on the PII-IR. The consistency of academic skills having the highest SDFC value in the DFA for both versions of the instrument and its statistically significant result on the univariate analysis of the PII-IR suggest that this is an especially important scale in representing the differences between male and female gender identity groups in this sample.

Disability status, defined in this study as whether or not the student carried a formal primary diagnosis of ASD had a statistically significant main effect on both the

PII-IR and the PII-SR. However, as with gender identity, there were differences across the two versions in the DFA and follow-up univariate analyses. Interpersonal skills and daily living skills were the most important scales in creating the function that discriminated between students with and without ASD on the PII-IR, and interpersonal skills was the most important factor in the DFA for the PII-SR, with the health and wellness scale also contributing to the function.

Mean scores from the DFA revealed that scores for students with ASD were lower across all scales on both the PII-IR and PII-SR than scores for students without ASD. According to the follow-up univariate analyses, these differences were statistically significant on the interpersonal skills and employment skills scales of the PII-IR and on the interpersonal skills and health and wellness scales of the PII-SR. The results from the univariate analyses are consistent with the findings from the DFA, particularly in articulating interpersonal skills as an impactful scale for evaluating differences between students with and without a diagnosis of ASD. While the values were different across scales and versions, it is clear that, according to results from the PII, differences between students with and without ASD are most apparent in their interpersonal skills, both as perceived by the students themselves as well as by their parents or family members. Interpersonal and social skill gaps for college students with ASD is a finding consistent with the research literature on this student population (Anderson & Butt, 2017).

Taken together, these group differences are impactful in informing PII use. The significant differences in PII version across all scales is consistent with other transition assessments (Gresham et al., 2010; Roth et al., 2005; Wolman et al., 1994) and confirms earlier findings. This supports a tandem approach in interpreting the findings of these two

versions to best inform goal setting and skill development for diverse learners. Using results from both a student version of the instrument as well as from a family member or program informant can help inform the team of both the areas of greatest need as well as the greatest discrepancies in perceived capacity (i.e., item scores that represent the largest gap between the student and their informant). This information can be valuable in a student-driven team-oriented process in order to best determine the most important areas for continued support and development. While group differences in gender identity and disability status did yield interesting findings, these findings are not conclusive enough to suggest different uses of the PII across gender identity or disability groups. The differences do, however, provide insight into mean score differences between these groups across the scales of the PII.

Limitations

This study is the first to explore the psychometric properties of the PII and its use with college-bound diverse learners. However, there are several important limitations to this study that may have impacted the results and any conclusions drawn. These limitations are primarily related to the sample, limitations in modeling and analysis, and limitations of the instrument itself. Each of these are discussed in greater detail in this section.

Sample Size

There are several limitations related to the sample used for this study. First and foremost is the size of the sample from the extant data source. While there were 310 usable cases for the data analyses, these cases represented just 155 students, as data from the PII-IR and PII-SR were available for all students in the dataset. The size of the

sample compared to the number of instrument items (i.e., 124) led to case-to-variable ratio constraints and eliminated the possibility of conducting an exploratory factor analysis (EFA) or a split-sample analysis (MacCallum et al., 1999). While the purpose of this study was to be confirmatory in nature, a larger sample may have afforded the opportunity to split the sample into two groups in order to conduct an EFA on the first group and a CFA on the second group to draw stronger conclusions about the factor structure of the instrument.

The case-to-variable ratio constraint was also a limitation on the CFA even after omitting the EFA from the analysis plan. Case-to-variable ratios for CFA with normally distributed data range from five cases per variable (Bentler & Chou, 1987) to ten cases per variable (Nunnally, 1967). For the item-level modeling conducted in this study, the ratio was smaller than either of these guidelines at 2.5 cases per variable. Using the subscales as manifest variables instead of the individual items significantly increased the case-to-variable ratio to nearly 13.5 cases per variable, though this analysis again relies on the ability of the subscales to approximate the individual items contained within them, further limiting the conclusiveness and generalizability of the findings. A larger sample may have resulted in better fitting CFA models using all 124 items as manifest variables.

An additional concern with the sample used for this study was sample bias. All cases included in the sample were students currently or previously enrolled in one specific postsecondary support program for students with disabilities. It is possible that there are demographic differences between this sample and the larger population it is intended to represent that significantly limit the ability to generalize the findings of this study to the larger population. A more geographically and demographically diverse

sample representative of the larger population would increase the generalizability of these findings.

Modeling and Analysis

There are several limitations relative to the modeling and data analysis conducted in this study to consider. The first of which is the fact that a CFA model using subscales as manifest variables is less rigorous than one using the individual items as manifest variables. This method relies on using internal consistency to estimate how well the subscales can represent the items, which may impact the accuracy and validity of the results. Furthermore, many of the latent factors were represented by only two (e.g., emotional regulation, technology literacy, and employment skills) or three (e.g., health and wellness) subscales, when four or more manifest variables per latent factor is desirable in conducting a CFA (Kline, 2005, 2010, 2016). The results of the CFA models may have demonstrated better model fit statistics with a more equal distribution of manifest variables to latent factors.

An additional limitation relative to the methods used in the study is the use of MANOVAs to investigate group differences. MANOVA is considered a technique inferior to SEM or other more rigorous analyses. However, due to sample size limitations, the IV groups in each of the group difference analyses were too small to converge in the CFA models. Therefore, these analyses needed to be conducted separately from the CFA models using SEM. A larger sample size may have afforded the opportunity to test group differences using this more rigorous technique, further increasing the validity and generalizability of the findings.

Finally, due to sample size constraints, the group differences MANOVAs were conducted using dichotomous independent variables. This was logical in the group difference analysis by instrument version as version had only two levels (i.e., PII-SR and PII-IR), but gender identity and disability status had additional levels that were unable to be investigated due to the small number of cases per level. A larger sample size with more observations for each IV level may have allowed for more informative group level analyses to better understand meaningful differences between groups.

Instrument

The final set of limitations in this study concern the PII instrument itself. The size of the instrument (i.e., 124 items) requires a large sample size to use rigorous data analytic methods. Descriptive statistics relative to missingness, i.e., a response of “not applicable/no opportunity”, raise face validity concerns for several items and subscales (e.g., potential risky behaviors, financial management, meal preparation, on the job skills, and job search skills) for use with this particular population of students. Removing items with face validity concerns may be necessary in future iterations of the PII to improve both model fit and the overall strength and nimbleness of the instrument. While full information maximum likelihood (FIML) is a powerful estimator of missing data, the substantially high rates of missingness on these items and subscales may have reduced the efficacy of the model estimation.

An additional concern with the instrument is the “not applicable/no opportunity” option itself. While treated as missing for the data analyses in this study, these two options are actually unique from one another, though treated interchangeably. It is important to understand whether each of these responses is in fact because the student did

not have an opportunity to practice the skill, or because the skill was not applicable to the student. Both of these questions have implications for further refinement of the instrument and therefore it would be important to draw a clear distinction between the two responses.

Implications for Research

Despite these limitations, the results of this study, taken together, have several important implications for future and continued research on the PII instrument. These implications include replication of the study, further refinement of the instrument and individual items themselves, and future research directions using the PII. Each of these research implications are discussed in further detail in this section.

Study Replication

First and foremost, it is recommended that this study be replicated with a larger and more representative sample. The size of this sample should allow for CFA and other SEM analyses at the item level so that subscales do not need to be used to represent these individual items. The sample should also be representative of diverse geographic, gender, racial, ethnic, and socioeconomic groups in order to increase the generalizability of the findings beyond the specific sample used in this study.

One of the interesting findings from this study with implications for future study replication was the high correlations among the latent factors in the CFA. This suggests that the seven latent factors themselves may be represented by one or more higher level constructs. Future CFA analyses with a larger sample and more flexibility for powerful and rigorous designs should test this hypothesis which may lead to additional practice applications regarding the independent use of scales or higher order constructs of the PII.

Future replication studies should also consider conducting group difference analyses as part of the CFA using SEM techniques which are more rigorous than MANOVAs. Studies with a large enough sample size to investigate multiple levels of each independent variable rather than treating them dichotomously will allow for a deeper investigation of the true differences between complex variables as opposed to a dichotomous simplification. For example, there is more information that could be gleaned from an analysis based on disability status than simply whether or not the student carries a diagnosis of ASD. Future replication studies that are able to generate additional reliability and validity evidence for the use of this instrument with college-bound diverse learners should also explore the generalizability of the instrument for use with broader populations of college students. Finally, while it was beyond the scope of this study to explore PII differences across time points (e.g., sensitivity to change), including this analysis in future studies may lead to the PII's use in representing change over time, which would allow for its use as a progress monitoring tool to support student-level goal setting and tracking processes.

Instrument Design and Item Refinement

There are several refinements that can be made to the instrument itself and individual items in future studies in an effort to improve research outcomes. As noted in the limitations section, the “double-barreled” nature of missingness (i.e., responses of “not applicable/no opportunity”) creates significant concern with the validity of response information and should be addressed in future iterations of the instrument. For this instrument, it is recommended that separate response options be offered for both “not applicable” and “no opportunity” as these two responses indeed have different meanings.

A response of “not applicable” implies that the item does not apply to the student and therefore may be an issue of face validity. However, a response of “no opportunity” simply implies that the student has not had the opportunity to demonstrate or practice the skill associated with the item and does not hold the same implications of a “not applicable” response.

Consideration in future replication studies should be given to items that don’t apply to all potential respondents. Currently, the two versions of the instrument contain all of the same items. Face validity, item missingness, and reliability results may suggest that certain items are better suited for only one version of the instrument. While the identical nature of the two versions aides in the ease of analysis, it is not necessary that each version of the instrument contain all of the same items, subscales, or scales.

Future refinement of the PII may also include dropping items from the instrument that fail to demonstrate face validity for the sample in question. Most notably, it is recommended that all items that fall under the potential risky behaviors subscale be dropped from the measure in future studies. These items had high levels of missingness, did not demonstrate strong internal consistency, and had a low factor loading in the CFA model. The data in this sample suggests that students have had fewer opportunities to demonstrate the skills associated with these items and that informants do not have the knowledge necessary to provide accurate information. It is recommended that this decision only be made, however, after the double-barreled nature of missingness is addressed in order to determine whether face validity is still an issue.

Analysis and refinement of the individual PII items may also contribute to an improvement of the utility of the instrument. Research questions of this nature might

explore the wording of the items, the likelihood of higher or lower responses on certain items based on answers to other items, and the scale used by the instrument. Answering these and other similar research questions involves exploring the individual items on the PII using Item Response Theory (IRT) methods. Models associated with IRT are generally more flexible in allowing for the separation between the characteristics of the sample and the characteristics of the test or assessment itself. These methods are interested in establishing relationships between the properties of a measurement instrument, the individuals responding to the items on the instrument, and the underlying trait being measured (Edelen & Reeve, 2007; Embretson & Reise, 2013; Hambleton, 1989; Hambleton & Swaminathan, 1985; Van der Linden & Hambleton, 1997).

While the purpose of this study was to understand the latent factor structure of the PII specific to college-bound diverse learners, an exploration of item-level implications could provide a level of detail not explored in this study and could inform refinement, or even omission, of certain items on the assessment. These item-level investigations may also support further development, refinement, and specification of appropriate subscales. It was not feasible to conduct IRT analysis for this study as a larger sample size of approximately 1,000 cases would be required in order to obtain accurate item-parameter estimates providing accurate estimates of ability (Hambleton, 1989). The strategy of using subscale mean scores as manifest variables representative of the items in the subscale would not work with IRT as the purpose of IRT is to specifically examine the individual items themselves.

Future Research Directions

Finally, future research should explore new directions with the PII. New areas may include the exploration of additional demographic variables (e.g., age, grade level, high school achievement level, and social network status), levels within those variables (e.g., multiple levels of gender identity and disability status) as well as an exploration of the PII's utility with student populations beyond the population represented by the sample in this study. Additional investigations based on disability status may lead to new insights based on group differences related to the constructs represented by the PII. For example, the sample used in this study had a high comorbidity between ASD diagnoses and mental health diagnoses, and research questions that explored these relationships may provide additional insight into how the instrument can be used to drive programming and goal setting for different subset groups of students.

The PII-IR assessments used in this study were all completed by a parent or family member. However, the intention for this version of the instrument is that it can be completed by a parent, family member, teacher, service provider, or other informant with knowledge of and a relationship with the student. Future studies should include these additional raters in the interrater reliability analysis in order to understand consistency between informants. Results from this analysis may suggest the necessity of a different version of the instrument for students, families, and professionals as opposed to just the two currently existing versions.

In addition, future research questions involving the PII should explore additional validity evidence. While the present study did explore the concurrent validity of the PII, this analysis was limited to measures available in the extant dataset. Future validity studies may consider using similar transition assessments (e.g., ABAS-3, AIR Self-

Determination Scale, Arc's Self-Determination Scale, Brigance Transition Skills Inventory, SDIS, SIB-R, TAGG, or Vineland-3) in order to understand how well the PII assesses skills and constructs assessed by widely adopted instruments in the field. Understanding how the PII assesses these skills relative to other instruments can provide valuable information about its future utility.

Finally, future research should explore the predictive validity of the PII. The present study did not explore any variables related to postsecondary outcomes and the PII's ability to predict these outcomes. Future research questions that explore the predictive nature of the PII may demonstrate evidence of its predictive validity, further increasing the utility of this instrument. Outcome variables to explore in a predictive validity study may include, but are not limited to, college course grades, credits earned, college completion rates, employment rates, employment satisfaction, social engagement, and life satisfaction.

Implications for Practice

While future research on the PII according to the above recommendations may lead to more important practice implications, the preliminary results found in this study provide tentative evidence for several implications for the use of the PII in practice. The PII was developed specifically to assess adaptive skill functioning across the seven constructs of academic skills, emotional regulation, health and wellness, daily living skills, interpersonal skills, technology literacy, and employment skills for college-bound diverse learners, and the results of this study provide additional insight into how to use this instrument effectively. The primary practice implications involve the goals for using the instrument with college-bound diverse learners, how to use both of the versions of the

instrument in practice, the viability of using PII scales in isolation from one another, and potential differences in the PII's use across groups.

Goals for Use

The purpose of this study explicitly references the intention of the PII to inform individual goal setting and program development for diverse learners. While the results of the study provide tentative evidence for using the PII to that end, it must be noted that the PII should be one tool in a process involving multiple tools. The PII can provide valuable information about an individual student's strengths and areas in which they need additional skill development support, though discrepancies between student reports and informant reports as well as inconclusive concurrent validity evidence suggest that this instrument should be a complement rather than a supplement to transition planning processes. Future validity evidence and refinement of items on the instrument may improve the generalizability of these findings.

Current practice relative to the use of the PII involves evaluating the results of individual assessments and choosing two to three target areas, or subscales, for immediate goal setting and skill development focus. Interpretation of the results of this study confirms this recommendation for continued use of the PII. In addition, students should continue to be active members of the team throughout this process. Student involvement may include leading the process, reviewing assessment results with a team member, and dissecting specifically what the results might indicate and how they might inform future support structures. The results of the PII can be used specifically within a team-oriented goal-setting process, explicitly driven by the student.

The PII can also provide programs and teams with a more holistic insight into the students they are supporting by providing present levels across multiple constructs and summarizing those constructs across students. The PII offers the opportunity to examine group means on specific items, subscales, and scales, as well as individual results, which can provide valuable information for how programs can align their systems of support to best meet the needs of their students, both individually and collectively. However, the same caveat for individual use applies for group use as well. It is recommended that the PII be one tool of many that programs and teams use to build and align their supports to meet the needs of their students.

Using Both Versions

The results of this study consistently demonstrated the stark differences in results between the PII-SR and PII-IR. The lack of interrater reliability led to the conclusion that results cannot be assumed equal across raters, namely students and their parents or family members. In addition, results from the analysis of group differences indicated that students consistently rated themselves higher across all seven scales to a statistically significant degree. The wide variability in scores across versions doesn't mean that the two versions of the scales are invalid, but rather that taken together they provide valuable information about the differences in perceived ability between raters and can point to specific areas of focus moving forward. Use of the two versions in tandem is supported by research on other multi-version instruments (Gresham et al., 2010; Roth et al., 2005; Wolman, 1994). It is recommended that versions of the instrument are not used in isolation, as other transition assessments with multiple raters recommend that the score discrepancies can be used as a useful springboard for discussion (Wolman, 1994).

Triangulation of results from both the PII-IR and PII-SR will provide the most abundant source of data for future goal setting.

Independent Scales

The results of this study also suggest there may be utility in using individual scales on the PII independent of one another. While some scales demonstrated lower overall factor loadings (e.g., emotional regulation, health and wellness, daily living skills) and lower internal consistency (e.g., health and wellness and employment skills), the academic skills scale in particular demonstrated high internal consistency and strong factor loadings. These findings indicate that the subscales in this construct are representative of the items contained within them and that they are highly related to the scale itself.

The cohesion of the academic skills scale suggests that it may be able to be used independent of the full measure in order to focus specifically on developing academic postsecondary goals with students. It could also be used to align program models to provide students with the supports they need to be successful in college and university coursework. Use of individual scales may suggest that the PII can be used as an inventory system with individual scales or assessments used independent of one another. An inventory system would mirror other assessment systems in the field including the Brigance Transition Skills Inventory (TSI; Brigance, 2010), designed to be a compilation of inventories that can be used collectively or independently from one another. The use of individual scales independent of one another will require additional research to determine its efficacy, and the same principles of using both versions of the instrument to corroborate findings hold true for this recommendation.

Use with Different Groups

The final practice application is related to the findings concerning group differences based on gender identity and disability status. The findings from this study should not be interpreted as making any definitive conclusions about how the instrument should be used for different groups of students. However, findings did consistently demonstrate higher scores for females over males on both versions of the instrument, and higher scores for students without ASD over students with ASD on both versions of the instrument. Based on the statistically significant findings from these analyses, male students who fit this demographic profile may benefit from more targeted supports in the areas of academic skills. Research evidence for this gender-based conclusion is mixed, however, and future research on the PII should confirm these findings before these gender identity differences are assumed consistent across the population. Likewise, students with ASD may benefit from more targeted support around interpersonal skills and engagement, which is in alignment with demonstrated support needs of college students with ASD (Anderson & Butt, 2017).

Conclusion

The present study was designed to investigate the psychometric properties of the PII. The results of the study provide tentative evidence for a seven-factor structure of both versions (i.e., PII-SR and PII-IR) of this assessment instrument, using the 23 subscales of the instrument as manifest variables. The PII demonstrated acceptable internal consistency, limited evidence of concurrent validity, and no evidence of interrater reliability. The study also demonstrated significant differences across responses

on the PII by version, significant differences in the academic skills scale by gender identity, and significant differences in the interpersonal scale by disability status.

The aim of this study, to validate the PII for use as a transition assessment instrument for college-bound diverse learners, is firmly grounded within the overall goal of improving postsecondary outcomes for students with disabilities. While the introduction of the PII does not solve this problem, it does potentially offer an additional tool to be used in understanding unique student differences and guiding goal-setting processes for diverse learners. The PII may provide insight into designing program development and individual student support to better prepare students with disabilities for postsecondary success as well as into how institutions of higher education can be better prepared to support diverse learners.

APPENDIX A

DESCRIPTIVE STATISTICS OF INDIVIDUAL PII ITEMS

Item	PII Full				PII-IR			PII-SR		
	Mean	SD	Missing	ICC	Mean	SD	Missing	Mean	SD	Missing
1. Brings necessary...	3.29	0.82	2.26%	.268	3.07	0.93	3.23%	3.51	0.64	1.29%
2. Uses organizational...	2.67	1.03	3.23%	.286	2.60	1.05	3.23%	2.74	1.01	3.23%
3. Understands what is...	3.13	0.94	1.94%	.309	2.86	1.00	1.94%	3.40	0.79	1.94%
4. Tracks progress in each...	2.48	1.02	2.58%	.395	2.31	0.99	1.29%	2.66	1.03	3.87%
5. Begins necessary steps to...	2.84	0.95	1.61%	.413	2.66	0.97	1.94%	3.01	0.89	1.29%
6. Gets started on...	2.21	0.99	1.94%	.518	2.14	1.04	1.94%	2.28	0.93	1.94%
7. Puts ideas for writing...	2.48	0.97	2.58%	.457	2.36	0.95	2.58%	2.61	0.97	2.58%
8. Asks teacher when they...	2.72	0.98	4.52%	.259	2.43	0.94	7.74%	2.99	0.95	1.29%
9. Seeks out instructor...	2.33	0.99	4.19%	.403	2.19	0.98	3.87%	2.47	0.97	4.52%
10. Is aware of when there is...	2.67	0.94	2.90%	.216	2.35	0.90	3.23%	2.99	0.87	2.58%
11. Works on academic...	2.74	0.95	2.58%	.300	2.58	0.99	3.87%	2.88	0.89	1.29%
12. Completes difficult...	2.64	0.97	2.26%	.408	2.34	0.98	2.58%	2.93	0.87	1.94%
13. Chooses locations free...	2.67	0.98	3.87%	.303	2.48	1.00	3.87%	2.86	0.92	3.87%
14. Removes distractions...	2.35	1.00	2.58%	.172	2.15	1.02	2.58%	2.54	0.94	2.58%
15. Pays attention during class.	3.12	0.77	3.23%	.347	3.02	0.82	5.16%	3.22	0.71	1.29%
16. Maintains focus while...	2.47	0.87	3.55%	.359	2.39	0.88	3.23%	2.56	0.86	3.87%

Item	PII Full				PII-IR			PII-SR		
	Mean	SD	Missing	ICC	Mean	SD	Missing	Mean	SD	Missing
17. Is aware of when a break...	2.78	0.93	2.90%	.170	2.72	0.86	3.87%	2.84	0.99	1.94%
18. Completes required...	2.87	0.93	2.26%	.296	2.74	0.94	1.94%	2.99	0.90	2.58%
19. Completes required...	3.03	0.94	2.58%	.418	2.73	0.97	2.58%	3.34	0.79	2.58%
20. Studies for exams.	2.65	1.02	3.87%	.413	2.53	1.00	4.52%	2.77	1.03	3.23%
21. Knows what is necessary...	2.57	1.02	3.87%	.170	2.27	0.98	5.81%	2.86	0.97	1.94%
22. Consults available...	2.69	1.01	2.90%	.205	2.35	0.98	3.23%	3.03	0.92	2.58%
23. Makes a plan for...	2.33	1.09	4.19%	.436	2.20	1.09	4.52%	2.46	1.07	3.87%
24. Puts due dates and exam...	2.14	1.06	8.71%	.235	2.01	1.03	7.74%	2.26	1.08	9.68%
25. Arrives for class on time.	3.43	0.85	1.94%	.470	3.28	0.92	1.94%	3.57	0.74	1.94%
26. Completes assignments...	2.95	0.94	1.94%	.391	2.74	0.96	2.58%	3.16	0.87	1.29%
27. Keeps a calendar of all...	2.90	1.16	8.39%	.244	2.68	1.13	4.52%	3.13	1.15	12.26%
28. Keeps a calendar of all...	2.26	1.09	8.71%	.306	2.15	1.07	7.74%	2.37	1.11	9.68%
29. Breaks down large...	2.18	0.96	4.19%	.244	1.90	0.93	5.16%	2.45	0.92	3.23%
30. Plans an adequate...	2.27	1.04	3.55%	.306	1.99	1.00	3.87%	2.55	1.01	3.23%
31. Successfully manages...	2.19	0.87	0.65%	.318	2.02	0.80	0.65%	2.36	0.91	0.65%
32. Flexible when plans...	2.48	0.94	0.65%	.230	2.43	0.94	0.65%	2.54	0.94	0.65%
33. Remains calm in the...	2.40	0.92	0.65%	.321	2.29	0.89	0.65%	2.51	0.94	0.65%
34. Maintains a support...	2.63	0.92	0.32%	.178	2.33	0.89	0.65%	2.93	0.86	0.00%

Item	PII Full				PII-IR			PII-SR		
	Mean	SD	Missing	ICC	Mean	SD	Missing	Mean	SD	Missing
35. Aware when stress...	2.60	1.01	0.32%	.097	2.19	0.88	0.00%	3.02	0.95	0.65%
36. Speaks openly about...	2.43	1.00	0.97%	.221	2.19	0.95	0.00%	2.68	0.99	1.94%
37. Stops worrying about...	2.57	0.94	1.29%	.284	2.46	0.87	1.29%	2.68	0.99	1.29%
38. Engages in activities to...	3.11	0.83	0.32%	.049	2.99	0.87	0.65%	3.23	0.77	0.00%
39. Keep control of their...	2.80	0.88	0.00%	.305	2.58	0.90	0.00%	3.03	0.80	0.00%
40. Gets over problems easily.	2.55	0.86	0.32%	.163	2.38	0.81	0.65%	2.73	0.89	0.00%
41. Thinks before acting.	2.79	0.88	0.00%	.199	2.61	0.89	0.00%	2.96	0.84	0.00%
42. Maintains a healthy diet.	2.31	0.96	0.65%	.341	2.08	0.99	0.65%	2.55	0.87	0.65%
43. Cooks healthy meals.	2.08	0.98	14.84%	.274	1.78	0.91	13.55%	2.38	0.97	16.13%
44. Reviews ingredients...	2.07	1.11	10.00%	.359	1.80	1.04	13.55%	2.32	1.12	6.45%
45. Exercises at least three...	2.01	1.10	3.23%	.468	1.76	1.04	1.29%	2.27	1.11	5.16%
46. Seeks medical assistance...	3.10	0.92	6.45%	.283	2.92	0.89	9.03%	3.27	0.93	3.87%
47. Recognizes when ill or...	3.28	0.80	5.16%	.137	3.08	0.86	6.45%	3.46	0.68	3.87%
48. Follows the directions...	3.07	0.71	8.39%	.053	3.37	0.81	12.90%	2.81	0.47	3.87%
49. Takes medications as...	3.59	0.72	9.35%	.340	3.43	0.84	9.03%	3.75	0.54	9.68%
50. Refills prescriptions...	3.16	1.04	26.77%	.166	2.74	1.20	30.32%	3.55	0.67	23.23%
51. Engages in safe sexual...	3.58	0.80	60.97%	-.037	3.44	0.85	69.03%	3.67	0.76	52.90%
52. Makes healthy decisions...	3.73	0.65	35.48%	.436	3.63	0.74	33.55%	3.82	0.52	37.42%

Item	PII Full				PII-IR			PII-SR		
	Mean	SD	Missing	ICC	Mean	SD	Missing	Mean	SD	Missing
53. Makes healthy decisions...	3.73	0.68	37.42%	.674	3.70	0.73	32.26%	3.76	0.62	42.58%
54. Makes healthy decisions...	3.23	0.73	29.35%	.273	3.63	0.73	29.03%	2.83	0.46	29.68%
55. Sleeps at least 7 hours a...	3.03	0.88	0.00%	.198	2.97	0.88	0.00%	3.09	0.87	0.00%
56. Goes to sleep at night...	3.03	0.89	0.97%	.284	2.86	0.94	1.94%	3.19	0.80	0.00%
57. Wakes up feeling...	2.43	0.92	1.29%	.272	2.38	0.96	1.29%	2.48	0.87	1.29%
58. Wakes up in time to...	3.06	0.96	0.32%	.393	2.90	1.08	0.65%	3.22	0.81	0.00%
59. Takes showers.	3.45	0.80	0.65%	.511	3.31	0.88	0.65%	3.58	0.67	0.65%
60. Uses soap and shampoo...	3.16	0.69	0.97%	.070	3.45	0.81	1.29%	2.86	0.36	0.65%
61. Wears deodorant.	3.41	0.87	1.94%	.359	3.29	0.92	1.29%	3.54	0.80	2.58%
62. Brushes teeth.	3.32	0.86	0.00%	.344	3.19	0.90	0.00%	3.45	0.80	0.00%
63. Knows what products...	3.64	0.65	0.97%	.281	3.52	0.73	0.00%	3.76	0.54	1.94%
64. Keeps a clean and tidy...	2.57	1.05	0.00%	.424	2.41	1.15	0.00%	2.74	0.92	0.00%
65. Does laundry.	3.10	1.00	3.87%	.363	2.91	1.05	5.16%	3.28	0.90	2.58%
66. Clips nails when needed.	3.16	0.97	0.97%	.261	2.91	1.01	0.65%	3.42	0.85	1.29%
67. Changes clothes when...	2.97	0.75	0.00%	.218	3.23	0.85	0.00%	2.72	0.52	0.00%
68. Creates a shopping list...	2.48	1.04	20.00%	.114	2.26	0.98	20.00%	2.70	1.05	20.00%
69. Discards food that is...	3.33	0.92	13.23%	.252	3.00	1.03	20.00%	3.62	0.70	6.45%
70. Follows recipes accurately.	3.26	0.90	20.00%	.009	2.92	0.98	27.10%	3.54	0.71	12.90%

Item	PII Full				PII-IR			PII-SR		
	Mean	SD	Missing	ICC	Mean	SD	Missing	Mean	SD	Missing
71. Able to access...	3.37	0.83	9.03%	.317	3.27	0.89	11.61%	3.46	0.77	6.45%
72. Accesses directions...	3.41	0.81	8.71%	.146	3.12	0.91	10.32%	3.70	0.58	7.10%
73. Asks for help with...	2.93	1.04	11.29%	.182	2.69	1.07	13.55%	3.16	0.97	9.03%
74. Maintains and carries...	3.64	0.67	2.26%	.216	3.53	0.72	3.87%	3.75	0.60	0.65%
75. Creates a weekly budget.	2.20	1.11	27.42%	.260	2.09	1.06	28.39%	2.31	1.15	26.45%
76. Follows a budget.	2.49	1.06	35.16%	.224	2.20	1.05	32.90%	2.79	1.00	37.42%
77. Manages personal bank...	2.88	1.07	16.77%	.370	2.62	1.06	16.13%	3.15	1.03	17.42%
78. Saves money when...	2.61	1.11	18.06%	.187	2.16	1.02	20.65%	3.02	1.03	15.48%
79. Ensures correct change...	2.67	1.16	11.29%	.194	2.52	1.18	18.71%	2.80	1.14	3.87%
80. Avoids unsafe situations.	3.40	0.76	5.48%	.124	3.17	0.82	7.10%	3.62	0.63	3.87%
81. Recognizes when being...	2.84	0.96	9.68%	.042	2.54	0.99	8.39%	3.14	0.83	10.97%
82. Recognizes when people...	2.68	0.97	5.16%	.045	2.39	0.97	6.45%	2.95	0.90	3.87%
83. Avoids interactions with...	3.13	0.85	4.19%	.116	2.91	0.88	4.52%	3.35	0.76	3.87%
84. Communicates clearly in...	3.20	0.85	0.00%	.198	2.97	0.94	0.00%	3.42	0.69	0.00%
85. Engages in back and...	3.06	0.88	0.32%	.198	2.93	0.89	0.65%	3.20	0.86	0.00%
86. Uses a conversation...	3.05	0.83	0.97%	.111	2.84	0.88	1.29%	3.26	0.72	0.65%
87. Uses non-verbal cues to...	2.56	1.02	1.29%	.233	2.29	0.99	1.29%	2.83	0.99	1.29%
88. Reacts appropriately to...	2.61	0.96	1.61%	.100	2.33	0.93	0.00%	2.91	0.90	3.23%

Item	PII Full				PII-IR			PII-SR		
	Mean	SD	Missing	ICC	Mean	SD	Missing	Mean	SD	Missing
89. Initiates and ends...	2.84	0.89	0.00%	.116	2.55	0.84	0.00%	3.12	0.85	0.00%
90. Controls emotions when...	2.88	0.90	1.94%	.195	2.60	0.94	2.58%	3.15	0.76	1.29%
91. Resolves conflict with...	2.79	0.91	6.45%	.107	2.41	0.89	4.52%	3.18	0.76	8.39%
92. Makes new friends.	2.35	0.97	0.32%	.297	2.06	0.94	0.65%	2.63	0.91	0.00%
93. Maintains relationships...	2.71	1.01	0.32%	.155	2.31	0.99	0.65%	3.10	0.87	0.00%
94. Initiates social plans...	2.28	1.02	1.29%	.396	1.98	0.95	0.65%	2.58	0.99	1.94%
95. Responds to friends...	3.09	0.88	2.58%	.067	2.75	0.93	2.58%	3.44	0.68	2.58%
96. Stays connected with...	2.86	1.02	9.68%	.350	2.74	0.98	9.03%	2.99	1.04	10.32%
97. Understands the...	3.51	0.77	10.97%	.058	3.29	0.87	16.13%	3.70	0.63	5.81%
98. Tolerates different...	2.99	0.92	0.32%	.065	2.62	0.95	0.65%	3.35	0.71	0.00%
99. Compromises on issues...	2.77	0.94	1.29%	.091	2.38	0.92	1.29%	3.16	0.79	1.29%
100. Is aware of different...	3.32	0.81	0.00%	.097	2.97	0.84	0.00%	3.67	0.60	0.00%
101. Understands other...	2.87	0.92	0.00%	.083	2.52	0.91	0.00%	3.22	0.78	0.00%
102. Chooses appropriate...	3.32	0.79	0.65%	.158	3.10	0.84	0.65%	3.53	0.67	0.65%
103. Uses appropriate table...	3.18	0.88	0.32%	.301	2.98	0.93	0.65%	3.38	0.78	0.00%
104. Uses a personal device...	2.72	1.16	4.19%	.342	2.55	1.18	5.16%	2.88	1.12	3.23%
105. Uses technology that is...	3.10	0.74	1.61%	.194	3.46	0.73	1.29%	2.73	0.55	1.94%
106. Uses technology to...	3.56	0.69	3.55%	.231	3.45	0.77	2.58%	3.67	0.58	4.52%

Item	PII Full				PII-IR			PII-SR		
	Mean	SD	Missing	ICC	Mean	SD	Missing	Mean	SD	Missing
107. Quickly learns how to...	3.41	0.78	2.26%	.242	3.37	0.80	3.87%	3.45	0.77	0.65%
108. Uses technology...	3.34	0.88	2.26%	.167	3.09	0.96	3.87%	3.58	0.72	0.65%
109. Uses search engines to...	3.76	0.51	0.65%	.363	3.65	0.58	0.65%	3.86	0.40	0.65%
110. Uses social media...	3.40	0.80	12.26%	.172	3.18	0.86	12.26%	3.61	0.68	12.26%
111. Identifies false or...	3.13	0.94	7.10%	.202	2.73	0.99	10.97%	3.50	0.70	3.23%
112. Refrains from using...	2.38	0.96	0.65%	.312	2.16	0.97	1.29%	2.60	0.90	0.00%
113. Collaborates with...	2.61	0.90	0.65%	.024	2.32	0.86	0.65%	2.91	0.84	0.65%
114. Uses creative...	2.76	0.89	1.61%	.081	2.42	0.86	1.29%	3.11	0.78	1.94%
115. Accepts constructive...	2.91	0.86	0.32%	.076	2.55	0.83	0.65%	3.27	0.72	0.00%
116. Takes directions from...	3.25	0.78	0.65%	.179	3.09	0.80	0.65%	3.42	0.72	0.65%
117. Participates effectively...	2.79	0.88	2.58%	.063	2.53	0.87	3.87%	3.05	0.81	1.29%
118. Arrives to work on...	2.85	0.90	30.00%	.256	3.20	0.94	29.68%	2.50	0.70	30.32%
119. Exhibits professional...	2.91	0.73	33.55%	.028	3.19	0.81	36.77%	2.65	0.54	30.32%
120. Keeps a calendar of...	2.82	1.17	38.71%	.273	2.65	1.19	41.29%	2.97	1.14	36.13%
121. Maintains a current...	2.83	1.12	35.81%	.359	2.64	1.15	46.45%	2.97	1.08	25.16%
122. Completes job...	2.91	1.04	37.74%	.353	2.68	1.09	43.23%	3.10	0.96	32.26%
123. Researches and...	2.51	1.06	33.87%	.333	2.27	1.08	41.94%	2.70	1.02	25.81%
124. Interviews for jobs...	2.94	1.04	40.65%	.303	2.54	1.03	41.94%	3.32	0.91	39.35%

APPENDIX B

PATHWAY TO INDEPENDENCE INVENTORY (PII)

Q1. I (the individual) bring(s) all of the necessary materials for each class.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q2. I (the individual) use(s) an organizational system for each class (binders, notebook, etc.).

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q3. I (the individual) understand(s) what is needed to achieve a passing grade in each class.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q4. I (the individual) track(s) my (their) progress in each course.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q5. When I (the individual) am (is) willing to start my (their) schoolwork, I (they) begin the necessary steps.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q6. It is easy for me (the individual) to get started on schoolwork tasks.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed

3. Often when needed
4. Almost always or Always when needed

Q7. When I (the individual) have (has) ideas for a writing assignment, I (they) can put them on paper.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q8. During class, I (the individual) ask(s) my (their) teacher when I (they) have a question or need clarification.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q9. I (the individual) seek(s) out my (their) professor/teacher/tutor outside of class for assistance when needed.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q10. I (the individual) am (is) aware of when I (they) am (are) in need of academic support.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q11. I (the individual) work(s) on academic tasks for at least 30 minutes without taking a break.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q12. I (the individual) complete(s) difficult assignments even when they are frustrating at times.

0. Not applicable or No opportunity (NA)

1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q13. I (the individual) choose(s) locations free of distractions to complete schoolwork.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q14. I (the individual) remove(s) distractions that prevent me (them) from focusing on my (their) schoolwork.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q15. I (the individual) pay(s) attention during class.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q16. I (the individual) maintain(s) focus while studying.

0. Not applicable or No opportunity
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q17. I (the individual) am (is) aware of when I (they) am (are) in need of a break from working on an academic task.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q18. I (the individual) complete(s) required reading assignments for my (their) courses.

0. Not applicable or No opportunity (NA)

1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q19. I (the individual) complete(s) required written assignments for my (their) courses.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q20. I (the individual) study (studies) for exams.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q21. I (the individual) know(s) what I (they) need to do to prepare for an exam.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q22. I (the individual) consult(s) available resources (e.g., course syllabus, class notes) to understand directions for completing coursework.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q23. I (the individual) make(s) a plan for completing coursework.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q24. I (the individual) put(s) due dates and exam dates on my (their) calendar.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed

3. Often when needed
4. Almost always or Always when needed

Q25. I (the individual) arrive(s) for class on time.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q26. I (the individual) complete(s) assignments on time.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q27. I (the individual) keep(s) a calendar of all class times.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q28. I (the individual) keep(s) a calendar of all due dates, exams, and assigned course work.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q29. I (the individual) break(s) down large assignments into manageable tasks.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q30. I (the individual) plan(s) an adequate amount of time to complete assignments and study for exams.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q31. I (the individual) successfully manage(s) my (their) stress.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q32. I (the individual) am (is) flexible when plans change at the last minute.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q33. I (the individual) remain(s) calm in the face of change or uncertainty.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q34. I (the individual) maintain(s) a support system of people who help me (them) when I (they) feel stress.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q35. I (the individual) am (is) aware when my (their) stress begins to negatively impact my (their) functioning.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q36. I (the individual) speak(s) openly about my (their) feelings when I (they) am (are) experiencing stress.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q37. I (the individual) stop(s) worrying about problems when I (they) am (are) relaxing.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q38. I (the individual) engage(s) in activities to minimize my (their) boredom.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q39. When little things bother me (the individual), I (they) keep control of my (their) emotions.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q40. After having a problem, I (the individual) get(s) over it easily.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q41. I (the individual) think(s) before acting.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q42. I (the individual) maintain(s) a healthy diet.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q43. I (the individual) cook(s) healthy meals.

0. Not applicable or No opportunity (NA)

1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q44. I (the individual) review(s) ingredients / nutritional information on food labels.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q45. I (the individual) exercise(s) at least three to five times a week.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q46. I (the individual) seek(s) medical assistance when I (they) am (are) ill or injured.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q47. I (the individual) recognize(s) when I (they) am (are) ill or injured.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q48. I (the individual) follow(s) the directions on the label when taking over the counter medication (e.g., aspirin, Tylenol, etc.).

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q49. I (the individual) take(s) my (their) medications as prescribed.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed

3. Often when needed
4. Almost always or Always when needed

Q50. I (the individual) refill(s) my (their) prescriptions before they run out.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q51. I (the individual) engage(s) in safe sexual health practices.

0. Not applicable or No opportunity
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q52. I (the individual) make(s) healthy decisions about illegal drug use.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q53. I (the individual) make(s) healthy decisions about tobacco use.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q54. I (the individual) make(s) healthy decisions about alcohol use.

0. Not applicable or No opportunity
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q55. I (the individual) sleep(s) at least 7 hours a night.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q56. I (the individual) go (goes) to sleep at night when I (they) am (are) tired.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q57. I (the individual) wake(s) up feeling refreshed.

0. Not applicable or No opportunity
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q58. I (the individual) wake(s) up in time to meet my (their) daily commitments.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q59. I (the individual) take(s) showers.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q60. I (the individual) use(s) soap and shampoo when I (they) shower.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q61. I (the individual) wear(s) deodorant.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q62. I (the individual) brush(es) my (their) teeth.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed

4. Almost always or Always when needed

Q63. I (the individual) know(s) what products I (they) need to maintain my (their) personal hygiene.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q64. I (the individual) keep(s) a clean and tidy living space.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q65. I (the individual) do (does) my (their) laundry.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q66. I (the individual) clip(s) my (their) nails when needed.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q67. I (the individual) change(s) my (their) clothes when they are dirty.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q68. I (the individual) create(s) a shopping list of needed items before I (they) go to the store.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q69. I (the individual) discard(s) food that is unsuitable for eating.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q70. I (the individual) follow(s) recipes accurately.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q71. I (the individual) am (is) able to access transportation to get where I (they) need to go.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q72. I (the individual) access(es) directions when I (they) am (are) travelling to an unfamiliar location.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q73. I (the individual) ask(s) for help with directions when I (they) am (are) uncertain about the route I (they) am (are) taking.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q74. I (the individual) maintain(s) and carry (carries) valid identification (e.g., student ID, driver's license, passport).

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q75. I (the individual) create(s) a weekly budget.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q76. I (the individual) follow(s) the budget I (they) create.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q77. I (the individual) manage(s) my (their) own bank account.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q78. I (the individual) save(s) money when planning for a future expense.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q79. When I (the individual) pay(s) for items with cash, I (they) check to see if I (they) receive the correct change.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q80. I (the individual) avoid(s) unsafe situations.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q81. I (the individual) recognize(s) when people try to take advantage of me (them).

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed

2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q82. I (the individual) recognize(s) when people are lying.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q83. I (the individual) avoid(s) interactions with people who intentionally hurt my (their) feelings.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q84. I (the individual) communicate(s) clearly in my (their) written correspondence (e.g., email, text, letter, etc.).

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q85. I (the individual) engage(s) in back and forth conversations with others.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q86. I (the individual) use(s) a conversation style that is appropriate for the situation.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q87. I (the individual) use(s) non-verbal cues to communicate.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed

3. Often when needed
4. Almost always or Always when needed

Q88. I (the individual) react(s) appropriately to non-verbal cues from others.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q89. I (the individual) initiate(s) and end(s) conversations appropriately.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q90. When I (the individual) debate(s) issues with others, I (they) control my (their) emotions.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q91. I (the individual) resolve(s) conflict with peers.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q92. I (the individual) make(s) new friends.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q93. I (the individual) maintain(s) relationships with friends.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q94. I (the individual) initiate(s) social plans with friends.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q95. I (the individual) respond(s) to friends when they reach out to me (them).

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q96. I (the individual) stay(s) connected with my (their) peers through social media.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q97. I (the individual) understand(s) the difference between a friendship and romantic relationship.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q98. I (the individual) tolerate(s) different points of view or opinions.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q99. I (the individual) work(s) to compromise on issues I (they) disagree about with others.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q100. I (the individual) am (is) aware of different points of view or opinions.

0. Not applicable or No opportunity (NA)

1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q101. I (the individual) understand(s) other people's perspectives.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q102. I (the individual) choose(s) appropriate clothes in a variety of contexts (e.g., work, school, etc.).

0. Not applicable or No opportunity
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q103. I (the individual) use(s) appropriate table manners.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q104. I (the individual) use(s) a personal device to organize my (their) daily schedule.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q105. I (the individual) use(s) technology that is required as part of my (their) course / coursework.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q106. I (the individual) use(s) technology to conduct research for schoolwork.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed

2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q107. When I (the individual) am (is) exposed to new technology, I (they) learn how to use it quickly.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q108. I (the individual) uses technology regularly to make daily tasks easier.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q109. I (the individual) use(s) search engines like Google, Firefox, or Yahoo to gather information.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q110. I (the individual) use(s) social media appropriately.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q111. I (the individual) identify (identifies) false or misleading information on the internet or in emails.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q112. I (the individual) refrain(s) from using technology during times when I (they) should be focusing on other responsibilities.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed

2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q113. I (the individual) collaborate(s) with others to solve a problem.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q114. I (the individual) use(s) creative approaches to solving problems or engaging in projects.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q115. I (the individual) accept(s) constructive criticism and feedback from others.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q116. I (the individual) take(s) directions from people in positions of authority.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q117. I (the individual) participate(s) effectively on a team.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q118. I (the individual) arrive(s) to my (their) job on time and ready to work.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q119. I (the individual) exhibit(s) professional behavior at work.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q120. I (the individual) keep(s) a calendar of all my (their) work obligations.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q121. I (the individual) maintain(s) a current professional resume.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q122. I (the individual) complete(s) job applications.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q123. I (the individuals) research(es) and explore(s) potential jobs.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

Q124. I (the individual) interview(s) for jobs effectively.

0. Not applicable or No opportunity (NA)
1. Seldom or Never when needed
2. Sometimes when needed
3. Often when needed
4. Almost always or Always when needed

REFERENCES CITED

- Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological bulletin*, *101*, 213-232.
- American Psychological Association, American Educational Research Association, & National Council on Measurement in Education. (1974). *Standards for educational & psychological tests*. American Psychological Association.
- American Educational Research Association, American Psychological Association, National Council on Measurement in Education, Joint Committee on Standards for Educational, & Psychological Testing (US). (1999). *Standards for educational and psychological testing*. American Educational Research Association.
- Anastasi, A. (1988). *Psychological testing* (6th ed.). New York: Macmillan.
- Anderson, C., & Butt, C. (2017). Young adults on the autism spectrum at college: Successes and stumbling blocks. *Journal of Autism and Developmental Disorders*, *47*, 3029-3039.
- Bengtsson, H. (2020). *matrixStats: Functions that apply to rows and columns of matrices (and to vectors)*. R package version 0.56.0. <https://CRAN.R-project.org/package=matrixStats>
- Bentler, P. M., & Chou, C. (1987). Practical issues in structural modeling. *Sociological Methods & Research*, *16*, 78-117.
- Bird, H., Gould, M., & Staghezza, B. (1992). Aggregating data from multiple informants in child psychiatry epidemiological research. *Journal of the American Academy of Child & Adolescent Psychiatry*, *31*, 78-85.
- Blackorby, J., & Wagner, M. (1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the national longitudinal transition study. *Exceptional Children*, *62*, 399-413.
- Blanck, P. D. (Ed.). (2000). *Employment, disability, and the Americans With Disabilities Act: Issues in law, public policy, and research*. Evanston, IL: Northwestern University Press.
- Bland, J. M., & Altman, D. G. (1997). Statistics notes: Cronbach's alpha. *British Medical Journal*, *314*, 572-572.
- Bouck, E. C., & Chamberlain, C. (2017). Postschool services and postschool outcomes for individuals with mild intellectual disability. *Career Development and Transition for Exceptional Individuals*, *40*, 215-224.

- Brigance, A. H. (1976). *Brigance inventory of basic skills*. North Billerica, MA: Curriculum Associates, Inc.
- Brigance, A. H. (1981). *Brigance inventory of essential skills*. North Billerica, MA: Curriculum Associates, Inc.
- Brigance, A. H. (1994). *Brigance diagnostic life skills inventory*. North Billerica, MA: Curriculum Associates, Inc.
- Brigance, A. H. (2010). *Brigance transition skills inventory*. North Billerica, MA: Curriculum Associates, Inc.
- Bragg, D. D., & Taylor, J. L. (2014). Toward college and career readiness: How different models produce similar short-term outcomes. *American Behavioral Scientist*, *58*, 994–1017. <https://doi.org/10.1177/0002764213515231>
- Bruininks, R. H., Woodcock, R. W., Weatherman, R. F., & Hill, B. K. (1984). *The scales of independent behavior*. Allen, TX: DLM Teaching Resources.
- Bruininks, R. H., Woodcock, R. W., Weatherman, R. F., & Hill, B. K. (1985). *Development and standardization of The Scales of Independent Behavior*. Allen, TX: DLM Teaching Resources.
- Bruininks, R., H., Woodcock, R. W., Weatherman, R. F., & Hill, B. K. (1996). *Scales of Independent Behavior–Revised (SIB-R)*. Chicago: Riverside.
- Burnes, J. J., Martin, J. E., Terry, R., McConnell, A. E., & Hennessey, M. N. (2018). Predicting postsecondary education and employment outcomes using results from the transition assessment and goal generator. *Career Development and Transition for Exceptional Individuals*, *41*, 111–121. <https://doi.org/10.1177/2165143417705353>
- Burnham, K. P., & Anderson, D. R. (2004). Multimodel inference: Understanding AIC and BIC in model selection. *Sociological Methods & Research*, *33*, 261–304. [doi:10.1177/0049124104268644](https://doi.org/10.1177/0049124104268644)
- Camara, W. (2013). Defining and measuring college and career readiness: A validation framework. *Educational Measurement: Issues and Practice*, *32*(4), 16–27. <https://doi.org/10.1111/emip.12016>
- Carter, E. W., Boehm, T. L., Biggs, E. E., Annandale, N. H., Taylor, C. E., Looock, A. K., & Liu, R. Y. (2015). Known for my strengths: Positive traits of transition-age youth with intellectual disability and/or autism. *Research and Practice for Persons with Severe Disabilities*, *40*, 101–119. <https://doi.org/10.1177/1540796915592158>

- Carter, E. W., Brock, M. E., & Trainor, A. A. (2014). Transition assessment and planning for youth with severe intellectual and developmental disabilities. *Journal of Special Education, 47*, 245–255. <https://doi.org/10.1177/0022466912456241>
- Chen, P., & Krauss, A. (2004). Pearson's correlation coefficient. In Lewis-Beck, M. S., Bryman, A., & Liao, T. F. (Eds.), *The SAGE encyclopedia of social science research methods* (Vol. 1, pp. 808-810). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781412950589.n700
- Chou, Y. C., Wehmeyer, M. L., Shogren, K. A., Palmer, S. B., & Lee, J. (2017). Autism and self-determination: Factor analysis of two measures of self-determination. *Focus on Autism and Other Developmental Disabilities, 32*, 163–175. <https://doi.org/10.1177/1088357615611391>
- Clark, L., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*, 309-319.
- Chan, C.-h., Chan, G. C., Leeper, T. J., & Becker, J. (2018). *Rio: A swiss-army knife for data file i/o*.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.
- De Los Reyes, A., & Kazdin, A. (2005). Informant discrepancies in the assessment of childhood psychopathology: A critical review, theoretical framework, and recommendations for further study. *Psychological Bulletin, 131*, 483–509.
- Dell'Armo, K. A., & Tassé, M. J. (2019). The role of adaptive behavior and parent expectations in predicting post-school outcomes for young adults with intellectual disability. *Journal of Autism and Developmental Disorders, 49*, 1638–1651.
- Dukes, L. L., Madaus, J., Faggella-Luby, M., Lombardi, A., & Gelbar, N. (2017). PASSing College: A taxonomy for students with disabilities in postsecondary education. *Journal of Postsecondary Education and Disability, 30*, 111–122.
- Edelen, M. O., & Reeve, B. B. (2007). Applying item response theory (IRT) modeling to questionnaire development, evaluation, and refinement. *Quality of Life Research, 16*, 5-18.
- Edgerton, A. K., & Desimone, L. M. (2018). Teacher implementation of college and career readiness standards: Links among policy, instruction, challenges, and resources. *AERA Open, 4*, 1-22. <https://doi.org/10.1177/2332858418806863>
- Embretson, S. E., & Reise, S. P. (2013). *Item response theory*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

- Epskamp, S. (2019). *semPlot: Path diagrams and visual analysis of various SEM packages' output*. R package version 1.1.2. <https://CRAN.R-project.org/package=semPlot>
- Every Student Succeeds Act of 2015, Pub. L. No. 114-95, 1 U.S.C. § 4107.
- Firke, S. (2019). *Janitor: Simple tools for examining and cleaning dirty data*. Retrieved from <https://CRAN.R-project.org/package=janitor>
- Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7*, 286-299. doi:10.1037/1040-3590.7.3.286
- Fowler, C. H., Test, D. W., Cease-Cook, J., Toms, O., Bartholomew, A., & Scroggins, L. (2014). Policy implications of high school reform on college and career readiness of youth with disabilities. *Journal of Disability Policy Studies, 25*, 19–29. <https://doi.org/10.1177/1044207313518072>
- Fox, J., Friendly, M., & Monette, G. (2018). *heplots: Visualizing tests in multivariate linear models*. R package version 1.3-5. URL <https://CRAN.R-project.org/package=heplots>
- Frey, B. (2018). *The SAGE encyclopedia of educational research, measurement, and evaluation* (Vols. 1-4). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781506326139
- Gamer, M., Lemon, J., Fellows, I., & Singh, P. (2019). *irr: Various coefficients of interrater reliability and agreement*. R package version 0.84.1. <https://CRAN.R-project.org/package=irr>
- Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2000). *Behavior Rating Inventory of Executive Function*. Odessa, FL: Psychological Assessment Resources.
- Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2015). *Behavior Rating Inventory of Executive Function, Second Edition (BRIEF®2)*. Lutz, FL: Psychological Assessment Resources.
- Gresham, F. M., Elliott, S. N., Cook, C. R., Vance, M. J., & Kettler, R. (2010). Cross-informant agreement for ratings for social skill and problem behavior ratings: An investigation of the Social Skills Improvement System—Rating Scales. *Psychological Assessment, 22*, 157-166. <http://dx.doi.org.libproxy.uoregon.edu/10.1037/a0018124>

- Grosjean, P., & Ibanez, F. (2018). *pastecs: Package for analysis of space-time Ecological series*. R package version 1.3.21. <https://CRAN.R-project.org/package=pastecs>
- Grosjean, P. (2019). *SciViews-R*. UMONS, Mons, Belgium. <http://www.sciviews.org/SciViews-R>.
- Hambleton, R. K. (1989). Principles and selected applications of item response theory. In Linn, R. L. (Ed.), *Educational measurement* (3rd ed., pp. 147-200). New York, NT: Macmillan.
- Hambleton, R. K., & Swaminathan, H. (1985). *Item response theory principles and applications*. Boston, MA: Kluwer-Nijhoff Publishing.
- Harrison, P. L., & Oakland, T. (2003). *Adaptive Behavior Assessment System manual* (2nd ed.). Los Angeles: Western Psychological Services.
- Harrison, P. L., & Oakland, T. (2015). *Adaptive Behavior Assessment System* (3rd ed.). Torrance, CA: Western Psychological Services.
- Haynes, S. N., Richard, D. C. S., & Kubany, E. S. (1995). Content validity in psychological assessment: A functional approach to concepts and methods. *Psychological Assessment*, 7, 238-247.
- Hennessey, M. N., Terry, R., Martin, J. E., McConnell, A. E., & Willis, D. M. (2018). Factor structure and basic psychometric properties of the transition assessment and goal generator. *Career Development and Transition for Exceptional Individuals*, 41, 99–110. <https://doi.org/10.1177/2165143417691021>
- Hewitt, L. E. (2015). Assessment considerations for college students with autism spectrum disorder. *Topics in Language Disorders*, 35, 313–328. <https://doi.org/10.1097/TLD.0000000000000073>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- Hume, K., Dykstra Steinbrenner, J., Sideris, J., Smith, L., Kucharczyk, S., & Szidon, K. (2018). Multi-informant assessment of transition-related skills and skill importance in adolescents with autism spectrum disorder. *Autism*, 22, 40–50. <https://doi.org/10.1177/1362361317722029>
- Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C. § 1401 et seq. (2004).
- Jarek, S. (2012). *mvnormtest: Normality test for multivariate variables*. R package version 0.1-9. <https://CRAN.R-project.org/package=mvnormtest>

- Jorgensen, T. D., Pornprasertmanit, S., Schoemann, A. M., & Rosseel, Y. (2019). *semTools: Useful tools for structural equation modeling*. R package version 0.5-2. Retrieved from <https://CRAN.R-project.org/package=semTools>
- Kane, M. T. (1992). The assessment of professional competence. *Evaluation & the health professions, 15*, 163-182.
- Kane, M. (2002). Validating high-stakes testing programs. *Educational measurement: Issues and practice, 21*, 31-41.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd Ed.). New York, NY US: Guilford Press.
- Kline, R. B. (2010). *Principles and practice of structural equation modeling*. (3rd ed.). New York, NY: Guilford Press.
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). New York, NY: The Guilford Press.
- Kraemer, H., Measelle, J., Ablow, J., Essex, M., Boyce, W., & Kupfer, D. (2003). A new approach for integrating data from multiple informants in psychiatric assessment and research: Mixing and matching contexts and perspectives. *American Journal of Psychiatry, 160*, 1566–1577.
- Kochhar-Bryant, C. A., & Izzo, M. V. (2006). Access to post-high school services: Transition assessment and the summary of performance. *Career Development for Exceptional Individuals, 29*, 70–89
- Kohler, P. D. (1996). *Taxonomy for transition programming*. Champaign: University of Illinois.
- Kohler, P. D., Gothberg, J. E., Fowler, C., and Coyle, J. (2016). *Taxonomy for transition programming 2.0: A model for planning, organizing, and evaluating transition education, services, and programs*. Western Michigan University. Available at www.transitionta.org.
- Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine, 15*, 155-163.
- Korkmaz, S., Goksuluk, D., & Zararsiz, G. (2014). MVN: An R Package for Assessing Multivariate Normality. *The R Journal, 6*, 151-162.
- Kuhn, M. (2020). *caret: Classification and regression training*. R package version 6.0-86. <https://CRAN.R-project.org/package=caret>

- Kuhn, M., Jackson, S., & Cimentada, J. (2020). *corr*: Correlations in R. R package version 0.4.1. <https://CRAN.R-project.org/package=corr>
- Lambert, M. J., Hansen, N. B., Umphress, V., Lunnen, K., Okiishi, J., Burlingame, G. M., & Reisinger, C. W. (2001). *Administration and scoring manual for the OQ-45*. Orem, UT: American Professional Credentialing Services.
- Laroque, S. (2013). *Pathway to Independence Inventory*. [Measurement instrument]. Unpublished instrument.
- Lee, Y., Wehmeyer, M. L., Palmer, S. B., Williams-Diehm, K., Davies, D. K., & Stock, S. E. (2012). Examining individual and instruction-related predictors of the self-determination of students with disabilities: Multiple regression analyses. *Remedial and Special Education, 33*, 150–161. <https://doi.org/10.1177/0741932510392053>
- Lombardi, A. R., Kern, L., Flannery, K. B., & Doren, B. (2017). Is college and career readiness adequately addressed in annual and postsecondary goals? *Journal of Disability Policy Studies, 28*, 150–161. <https://doi.org/10.1177/1044207317716147>
- Lüdtke, D. (2020). *sjstats: Statistical functions for regression models* (Version 0.17.9). doi: 10.5281/zenodo.1284472 (URL: <https://doi.org/10.5281/zenodo.1284472>), <URL: <https://CRAN.R-project.org/package=sjstats>>.
- MacCallum, R.C., Widaman, K.F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods, 4*, 84-99.
- Martin, J. E., Hennessey, M. N., McConnell, A. E., Terry, R. A., & Willis, D. M. (2015). Transition Assessment and Goal Generator. Retrieved from <https://tagg.ou.edu/tagg/>
- Mazzotti, Lombardi, A., Freeman, J., & Rifenbark, G. (2018). Modeling college and career readiness for adolescents with and without disabilities: A bifactor approach. *Exceptional Children, 84*, 159–176. <https://doi.org/10.1177/0014402917731557>
- Mazzotti, V. L., Rowe, D. A., Kelley, K. R., Test, D. W., Kohler, P. D., & Kortering, L. J. (2009). Linking transition assessment and postsecondary goals. *Teaching Exceptional Children, 42*, 44–51.
- Mazzotti, V. L., Test, D. W., & Mustian, A. L. (2014). Secondary transition evidence-based practices and predictors: Implications for policymakers. *Journal of Disability Policy Studies, 25*, 5–18. <https://doi.org/10.1177/1044207312460888>

- McConnell, A. E., Martin, J. E., & Hennessey, M. N. (2015). Indicators of postsecondary employment and education for youth with disabilities in relation to GPA and general education. *Remedial and Special Education, 36*, 327–336. <https://doi.org/10.1177/0741932515583497>
- McConnell, A. E., Martin, J. E., Juan, C. Y., Hennessey, M. N., Terry, R. A., el-Kazimi, N. A., Phannels, T.C., & Willis, D. M. (2013). Identifying nonacademic behaviors associated with post-school employment and education. *Career Development for Exceptional Individuals, 36*, 174–187. <https://doi.org/10.1177/2165143412468147>
- Messick, S. (1980). Test validity and the ethics of assessment. *American Psychologist, 55*, 1012-1027.
- Messick, S. (1993). Validity. In R. L. Linn (Ed), *Educational measurement* (2nd ed. (pp. 13–104). Phoenix: American Council on Education and Oryx Press.
- Messick, S. (1995). Validity of psychological assessment. *American Psychologist, 50*, 741-749.
- Monahan, J., Lombardi, A., & Madaus, J. (2018). Promoting college and career readiness: Practical strategies for the classroom. *TEACHING Exceptional Children, 51*, 144–154. <https://doi.org/10.1177/0040059918802579>
- Morningstar, M. E., Lombardi, A., Fowler, C. H., & Test, D. W. (2017). A college and career readiness framework for secondary students with disabilities. *Career Development and Transition for Exceptional Individuals, 40*, 79–91.
- Morningstar, M. E., Lombardi, A., & Test, D. (2018). Including college and career readiness within a multitiered systems of support framework. *AERA Open, 4*, 233285841876188. <https://doi.org/10.1177/2332858418761880>
- Morningstar, M. E., Zagona, A. L., Uyanik, H., Xie, J., & Mahal, S. (2017). Implementing college and career readiness: Critical dimensions for youth with severe disabilities. *Research and Practice for Persons with Severe Disabilities, 42*, 187–204. <https://doi.org/10.1177/1540796917711439>
- Müller, K. (2017). *Here: A simpler way to find your files*. Retrieved from <https://CRAN.R-project.org/package=here>
- Müller, K., & Wickham, H. (2019). *Tibble: Simple data frames*. Retrieved from <https://CRAN.R-project.org/package=tibble>
- National Secondary Transition Technical Assistance Center. (2007). *Age-appropriate transition assessment guide*. Charlotte, NC: Author.

- Neubert, D. A., & Leconte, P. J. (2013). Age-appropriate transition assessment: The position of the Division on Career Development and Transition. *Career Development for Exceptional Individuals*, 36, 72–83.
- Newman, L. A., & Madaus, J. W. (2015). Reported accommodations and supports provided to secondary and postsecondary students with disabilities: National perspective. *Career Development and Transition for Exceptional Individuals*, 38, 173–181.
- Newman, L., Wagner, M., Knokey, A. M., Marder, C., Nagle, K., Shaver, D., Wei, X., with Cameto, R., Contreras, E., Ferguson, K., Greene, S., & Schwarting, M. (2011). *The post-high school outcomes of young adults with disabilities up to 8 years after high school. A report from the National Longitudinal Transition Study-2 (NLTS2) (NCSE 2011–3005)*. Menlo Park: SRI International.
- Nugent, K., & Smart, W. (2014). Attention-deficit/hyperactivity disorder in postsecondary students. *Neuropsychiatric disease and treatment*, 10, 1781-1791.
- Nunnally, J. C. (1967). *Psychometric Theory*. New York: McGraw-Hill.
- Nunnally, J. C. (1975). Psychometric theory: 25 years ago and now. *Educational Researcher*, 4, 7-21.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Pepperdine, C. R., & McCrimmon, A. W. (2018). Test review: Vineland Adaptive Behavior Scales, Third Edition (Vineland-3) by Sparrow, S. S., Cicchetti, D. V., & Saulnier, C. A. *Canadian Journal of School Psychology*, 33, 157–163.
- Pollack, B., DuPaul, G., Weysandt, L., & Anastopoulos, A. (2018). Social group membership and risk-taking behaviors among college students with ADHD symptoms. *Journal of Postsecondary Education and Disability*, 31, 367–382.
- Preacher, K. P., & MacCullum, R. C. (2003). Repairing Tom Swift's electric factor analysis machine. *Understanding Statistics*, 2, 13-43.
- R Core Team. (2019). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from <https://www.R-project.org/>
- Revelle, W. (2018) *psych: Procedures for personality and psychological research*. <https://CRAN.R-project.org/package=psych> Version = 1.8.12.
- Robinson, D., & Hayes, A. (2019). *broom: Convert statistical objects into tidy tibbles*. <https://broom.tidyverse.org/>, <http://github.com/tidymodels/broom>.

- Roth, R. M., Isquith, P. K., & Gioia, G. A. (2005). *Behavior Rating Inventory of Executive Function – Adult Version: Professional manual*. Lutz, FL: Psychological Assessment Resources.
- Rosseel, Y. (2015). The lavaan tutorial for R. *The Lavaan Tutorial*, 37. Retrieved from <http://lavaan.ugent.be/tutorial/tutorial.pdf>
- Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48, 1-36.
- Rowe, D. A., Alverson, C. Y., Unruh, D. K., Fowler, C. H., 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. <https://doi.org/10.1177/2165143414526429>
- Rowe, D. A., Mazzotti, V. L., Hirano, K., & Alverson, C. Y. (2015). Assessing transition skills in the 21st century. *TEACHING Exceptional Children*, 47, 301–309.
- Salkind, N. J. (2010). *Encyclopedia of research design* (Vols. 1-0). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781412961288
- Schafer, J. L., & Olsen, M. K. (1998). Multiple imputation for multivariate missing-data problems: A data analyst's perspective. *Multivariate Behavioral Research*, 33, 545-571.
- Shogren, K. A., Kennedy, W., Dowsett, C., Garnier Villarreal, M., & Little, T. D. (2014). Exploring essential characteristics of self-determination for diverse students using data from NLTS2. *Career Development and Transition for Exceptional Individuals*, 37, 168–176. doi:10.1177/2165143413486927
- Shogren, K. A., Little, T. D., Grandfield, E., Raley, S., Wehmeyer, M. L., Lang, K. M., & Shaw, L. A. (2018). The Self-Determination Inventory–Student Report: Confirming the factor structure of a new measure. *Assessment for Effective Intervention*, 45, 110-120. <https://doi.org/10.1177/1534508418788168>
- Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Forber-Pratt, A. J., Little, T. J., & Lopez, S. J. (2015). Causal agency theory: Reconceptualizing a functional model of self-determination. *Education and Training in Autism and Developmental Disabilities*, 50, 251–263.
- Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Forber-Pratt, A. J., Little, T. J., & Seo, H. (2017). Preliminary validity and reliability of scores on the Self-Determination Inventory: Student Report version. *Career Development and Transition for Exceptional Individuals*, 40, 92–103. doi:10.1177/2165143415594335

- Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984a). *Vineland Adaptive Behavior Scales*. Circle Pines, Minnesota: American Guidance Service.
- Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984b). *The Vineland adaptive behavior scales: Interview edition, survey form*. Circle Pines, MN: American Guidance Service.
- Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984c). *The Vineland adaptive behavior scales: Interview edition, expanded form*. Circle Pines, MN: American Guidance Service.
- Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1985). *The Vineland adaptive behavior scales: Classroom edition*. Circle Pines, MN: American Guidance Service.
- Sparrow, S. S., Cicchetti, D. V., Balla, D. A. (2005). *Vineland Adaptive Behavior Scales, Second Edition (Vineland-II)*. San Antonio, TX: Pearson.
- Sparrow, S. S., Cicchetti D. V., & Saulnier, C. A. (2016). *Vineland Adaptive Behavior Scales, Third Edition (Vineland-3)*. San Antonio, TX: Pearson.
- Stewart, D., Freeman, M., Law, M., Healy, H., Burke-Gaffney, J., Forhan, M., Guenther, S. (2010). Transition to adulthood for youth with disabilities: Evidence from the literature. *International Encyclopedia of Rehabilitation*, 30, 805-823.
- Smith, G. T., & McCarthy, D. M. (1995). Methodological considerations in the refinement of clinical assessment instruments. *Psychological Assessment*, 7, 300–308.
- Suen, H. K. (1990). *Principles of test theories*. Hillsdale, NJ: Erlbaum.
- Suhr, D. (2006). The basics of structural equation modeling. *Presented: Irvine, CA, SAS User Group of the Western Region of the United States (WUSS)*.
- Sullivan G. M. (2011). A primer on the validity of assessment instruments. *Journal of graduate medical education*, 3, 119–120. doi:10.4300/JGME-D-11-00075.1
- Tabachnick, B. G., Fidell, L. S. (2001). *Using multivariate statistics* (4th Ed.). New York: Harper & Row.
- Test, D. W., Fowler, C. H., Richter, S. M., Mazzotti, V., White, J., Walker, A. R., Kohler, P., & Kortering, L. (2009). Evidence-based practices in secondary transition. *Career Development for Exceptional Individuals*, 32, 155-128.
- Test, D. W., Mazzotti, V. L., Mustian, A. L., Fowler, C. H., Kortering, L., & Kohler, P. (2009). Evidence-based secondary transition predictors for improving postschool outcomes for students with disabilities. *Career Development for Exceptional Individuals*, 32, 160–181. <https://doi.org/10.1177/0885728809346960>

- Thorndike, R. M., & Thorndike-Christ, T. M. (2013). *Measurement and Evaluation in Psychology and Education* (8th Ed.). Boston, MA: Pearson.
- Ullman, J. B. (2006). Structural equation modeling: Reviewing the basics and moving forward. *Journal of Personality Assessment*, *87*, 35–50.
https://doi.org/10.1207/s15327752jpa8701_03
- U.S. Department of Education. (2010). *A blueprint for reform: The reauthorization of the Elementary and Secondary Education Act*. Retrieved from
<http://www2.ed.gov/policy/elsec/leg/blueprint/blueprint.pdf>
- Van der Linden, W. J., & Hambleton, R. K. (Eds.). (1997). *Handbook of modern item response theory*. New York, NY: Springer.
- Walsh, W. B. (1995). *Tests and assessment*. New York: Prentice-Hall.
- Wehmeyer, M. L. (1996). A self-report measure of self-determination for adolescents with cognitive disabilities. *Education and Training in Mental Retardation and Developmental Disabilities*, *31*, 282–293.
- Wehmeyer, M. L., Gragoudas, S., & Shogren, K. (2006). Self-determination, student involvement, and leadership development. In P. Wehman (Ed.), *Life beyond the classroom transition strategies for young people with disabilities* (pp. 41–69). Baltimore, MD: Paul H. Brookes.
- Wehmeyer, M. L., & Kelchner, K. (1995). *The Arc's self-determination scale*. Arlington, TX: The Arc National Headquarters.
- Wehmeyer, M. L., Kelchner, K., & Richards, S. (1996). Essential characteristics of self-determined behavior of individuals with mental retardation. *American Journal on Mental Retardation*, *100*, 632–642.
- Wickham, H. (2017). *Tidyverse: Easily install and load the 'tidyverse'*. Retrieved from
<https://CRAN.R-project.org/package=tidyverse>
- Wickham, H., François, R., Henry, L., & Müller, K. (2019). *Dplyr: A grammar of data manipulation*. Retrieved from <https://CRAN.R-project.org/package=dplyr>
- Wickham, H., & Henry, L. (2019). *Tidyr: Easily tidy data with 'spread()' and 'gather()' functions*. Retrieved from <https://CRAN.R-project.org/package=tidyr>
- Wickham, H., Hester, J., & Chang, W. (2019). *Devtools: Tools to make developing r packages easier*. Retrieved from <https://CRAN.R-project.org/package=devtools>

- Wickham, H., & Miller, E. (2019). *haven: Import and export 'SPSS', 'Stata' and 'SAS' files*. R package version 2.2.0. <https://CRAN.R-project.org/package=haven>
- Williams-Diehm, K., & Benz, M. R. (2008). Where are they now? Lessons from a single district follow-up study. *Journal for Vocational Special Needs Education, 30*, 4–15.
- Wolman, J., Campeau, P., Dubois, P., Mithaug, D., & Stolarski, V. (1994). *AIR Self-Determination Scale and user guide*. Palo Alto, CA: American Institute for Research.
- Xu, T., Dempsey, I., & Foreman, P. (2016). Validating Kohler's taxonomy of transition programming for adolescents with intellectual disability in the Chinese context. *Research in Developmental Disabilities, 48*, 242–252. <https://doi.org/10.1016/j.ridd.2015.11.013>
- Youngstrom, E., Loeber, R., & Stouthamer-Loeber, M. (2000). Patterns and correlates of agreement between parent, teacher, and male adolescent ratings of externalizing and internalizing problems. *Journal of Consulting and Clinical Psychology, 68*, 1038–1050.
- Yuan, K.-H., Yang-Wallentin, F., & Bentler, P. M. (2012). ML versus MI for missing data with violations of distribution conditions. *Sociological Methods & Research, 41*, 598-629. doi:10.1177/0049124112460373
- Zopluoglu, C. (2018). *itemanalysis: Classical test theory item analysis*. R package version 1.0. <https://CRAN.R-project.org/package=itemanalysis>