Hammill Institute on Disabilities

Career Development and Transition for Exceptional Individuals
2023, Vol. 46(4) 184–196

DOI: 10.1177/21651434221141405
cdtei.sagepub.com
SAGE

Piloting an Assessment of Foundational Workplace Competencies for Students With Disabilities and Competitive Employment Aspirations

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Abstract

It is critical students with disabilities be adequately prepared with the foundational competencies necessary for entry-level employment. However, the field needs a research-based, structurally sound assessment to assist teachers in assessing such competencies and then writing appropriate transition goals. The purpose of this pilot study is to determine whether modifications can be made to the Employer Identified Trait Assessment (EITA) for use in school settings without altering its underlying structure. Data were collected from 402 transition-age students, professionals, and family members. Three versions of the EITA were modified for use in this pilot study. Results show modifications did not influence the underlying assessment structure. Implications for practice are discussed.

Keywords

transition assessment or planning, transition area

Preparing students for work after high school has been a dominant theme in transition education for the last 40 years (Halpern, 1994; Lee & Carter, 2012; Wagner et al., 2017). Students with disabilities have historically shown lower rates of stable, competitive employment upon leaving their educational experiences (Newman et al., 2011; Test et al., 2009) compared with students without disabilities. In 2018, only 37.8% of individuals with disabilities living in community settings ages 21 to 64 were employed, compared with 80.0% of individuals the same age without a disability (Erickson et al., 2020). Although not a new difference, the severity of this discrepancy remains alarming even after decades of efforts to help students with disabilities transition into employment after high school (Madaus et al., 2013). To resolve this discrepancy, students with disabilities should be adequately prepared with the skills employers report as necessary to successfully perform the jobs for which they are hired.

Although navigating, requesting, and advocating for workplace accommodations to confront environmental and contextual barriers (e.g., Sundar et al., 2017) is a necessary skill for individuals with disabilities (e.g., Eckstein et al., 2017) to be employed at a rate comparable to their nondisabled peers (Lindsay et al., 2019), students must also be prepared to successfully navigate necessary workplace skills (e.g., Eckstein et al., 2017; Rogers et al., 2008). In other words, individuals with disabilities must be equipped with the specific skills employers report as being necessary for success in a work setting (Nochajski & Schweitzer, 2014), regardless of whether or not they have a disability (Ju et al., 2014). It is these competencies, or learned skill-sets, about which transition goals are often written in individualized education program (IEP) documents for students with disabilities who wish to be competitively employed.

The importance of developing a workforce population, including those with disabilities, with the competencies necessary for the demands of 21st-century employment is evident in reports from The Secretary's Commission on Achieving Necessary Skills (SCANS; United States Department of Labor, 1992), the American Institutes for Research (Welch et al., 2017), and various economic agencies (e.g., World Economic Forum, 2016). In particular, the SCANS report discussed two types of learned skill sets for which students need to be prepared for future employment:

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workplace and foundational competencies (United States Department of Labor, 1992). *Workplace competencies* can be defined as those skills needed to do a specific job (Nochajski & Schweitzer, 2014). For example, an individual working as a food service worker would need to understand things such as safe food storage temperatures and how to sanitize food preparation areas to do the job adequately, but those same competencies would not be needed if an individual was working as a telemarketer.

In contrast to workplace competencies, *foundational competencies* are those that transcend jobs (Nochajski & Schweitzer, 2014) and may be able to be taught outside a workplace situation. Kopple and colleagues (1993) identified three categories of foundational competencies: basic skills, thinking skills, and personal qualities. Social awareness (Black & Rojewski, 1998), social skills (Alwell & Cobb, 2006), functional academic and soft skills (Lindsay et al., 2014), time management, and the ability to work in teams (Hamzah & Abdullah, 2009) fit into this framework as foundational competencies necessary for entry-level employment.

The aforementioned occupational skills "represent basic functional skills that are valued in occupational settings" (Murray & Doren, 2013, p. 97). Employers have increased their emphasis on these foundational competencies for the last 5 to 10 years because the shift to globalization and a knowledge economy requires more emphasis on employees' foundational competencies (e.g., Grugulis & Vincent, 2009), such as their abilities to communicate effectively, build relationships with multiple teams and team members, and adapt to a changing environment (Succi & Canovi, 2020). Performance in foundational competencies are the requirement for modern employees, as 10 of the 16 proficiencies identified by the World Economic Forum (2016) are nontechnical and transcend specific employment situations. Moreover, Deloitte Access Economics (2017) predicts that "soft skill-intensive occupations will account for two-thirds of all jobs by 2030" (p. 1).

Due to the importance of these skills, it follows that poor performance in these important foundational competencies may continue to account for a large proportion of job loss for individuals with disabilities (Gilson & Carter, 2018), in some cases upward of 90% (Elksnin & Elksnin, 2001) should students not be prepared for the competencies employers expect. Thus, despite being almost 30 years old, the SCANS competencies continue to be relevant (Cappelli, 2015), particularly when writing transition goals for future employment. With the transition to a knowledge economy (Grugulis & Vincent, 2009), it is more important than ever that students with disabilities exhibit competence in the foundational skills employers are expecting.

To ensure students with disabilities are able to make an appropriate transition from a school to a work environment that includes the foundational skills expected by employers, Fultz and Kinsey (2004) state that it is necessary to assess the foundational competencies employers desire before students exit high school "in order to delineate areas of need for students with disabilities prior to entering the work setting" (p. 255). To ensure a student's success in employment upon exiting high school, transition education professionals should develop and make available transition assessments measuring these characteristics and skills (Neubert & Leconte, 2013) so that teachers can identify the places where student skills need to be enhanced.

Although not designed to assess student employment skills, an instrument developed by Ju and colleagues (2012, 2014) was designed to assess the foundational competencies identified by employers as being important for and expected in entry-level workers, both with and without disabilities, because after "[k]nowing employers' expectations for specific employability skills, educators and vocational rehabilitation (VR) professionals can incorporate these skills into their transition programs" (p. 36). After thoroughly reviewing the extant literature and published topical reports, as well as using current school practices as guidance, Ju and colleagues (2012) created a 36-item assessment designed to categorize the skills employers looked for in entry-level employees, the content of which aligns with the foundational competencies the World Economic Forum (2016) and Deloitte Access Economics (2017) identified as essential. The assessment was then given to employers to measure the extent to which the skills exhibited in the assessment were deemed as important in their workplaces on a four-point scale, with anchors of "not important," "somewhat important," "very important," and "extremely important." A total of 188 employers from various types of businesses responded to the survey. Results of exploratory and confirmatory factor analyses revealed 31 items loaded highly onto five foundational competency areas: (a) *Basic Skills*, (b) *Higher Order Thinking Skills*, (c) *Basic Work Skills*, (d) *Social Skills*, and (e) *Personal Traits*. For the purposes of this paper, we are referring to this assessment as the Employer Identified Trait Assessment (EITA).

Subsequent to this study, Ju and colleagues (2014) compared the perspectives of special education professionals and employers relative to the five foundational competency areas assessed by the EITA. Results of this study showed that the two groups of professionals identified the same five areas listed above, although in somewhat different order of importance. For example, while special education professionals regarded *Social Skills* as most important, employers considered *Basic Skills*, *Higher-Order Thinking Skills*, and *Personal Traits* to be more valuable in an employment setting. Potentially more important, employers did not distinguish between the expectations they held for entry-level employees, regardless of whether they had disabilities or not. Because employers held all prospective entry-level employees to the same level when making hiring decisions,

it becomes important that teachers identify the foundational competencies students with disabilities have and where they need to improve. This identification will help students with disabilities become competitively employed at the same rate as their peers without disabilities.

Purpose

According to the Individuals with Disabilities Education Improvement Act (IDEA, 2004b), students served on an IEP must have annual transition goals in the areas of education, employment, and independent living as needed (IDEA Regulations 20 U.S.C. § 1416[a][3][B]). To determine individual students' needs prior to entering the workforce, it is necessary to assess student abilities on foundational competencies desired by employers. However, the original purpose of the EITA was to determine the extent to which employers considered foundational skills as important to working within their specific place of employment, not to assess students' abilities in each of these areas. Employers using the original EITA did not necessarily consider the transfer of such skills to individuals with a disability. Modifications to the EITA are needed so that annual employment transition goals can be developed using an assessment of students' abilities about the skills employers desire.

To meet this need, the EITA was modified for this study so that items could be answered by professional educators, family members, and the students themselves to assess such employment traits. The views of multiple individuals are necessary to construct the best transition plan for students, and this should include the views of family members (e.g., Jepsen et al., 2012; Murray et al., 2009; Tassé & Lecavalier, 2000). The EITA was specifically chosen for modification for use by individuals with multiple perspectives in this study, due to its potential ability to directly assess the employment skills identified by actual employers.

Therefore, the specific purpose of this study is to present the results of a pilot study designed to determine if the modified versions of the EITA (Ju et al., 2012) answered by individuals in the three groups (i.e., students with disabilities, professional educators, and family members) present the same structure as the original version of the EITA. Specifically, we are interested in establishing the extent to which modifications made to the items altered the structure of the assessment as originally intended (Ju et al., 2012, 2014) to ensure the modified assessment measures the appropriate foundational competencies for students with disabilities. If the three versions of the EITA present the same structure as the original EITA, we can gain confidence that assessment results may be used by transition teams to ascertain the extent to which students have attained the foundational competencies employers desire for individuals applying for entry-level positions. In addition, the EITA could become a formal transition assessment for educators to use while developing the transition portions of IEPs.

Method

Participants

As part of a larger research study, the sample for this study consisted of three different groups of individuals providing data about each student: transition-age students with various disabilities, representative family members (typically the parent/guardian), and the professional educator responsible for the transition sections of their IEP documents. Data were collected for a total of 402 transition-age students from 44 high schools across 21 states. Data came from 391 of those students, 48 professionals, and 187 family members. Students about whom data were collected were classified by professional educators as having disabilities and competitive employment aspirations, were educated in the general education classroom with their peers, and had goals of future competitive employment. Professional educators responded about multiple students for whom they completed the transition sections of student IEP documents, resulting in professional data for all 402 students. Recruitment occurred through national efforts as part of a larger study (described below). See Table 1 for participant demographics from each of the three participant categories. When asked for feedback via open-ended questions, no professional educators reported students experiencing difficulties responding to any item.

Instrument

The EITA used in this study was a modification of Ju et al.'s (2012) survey, designed to assess the extent to which employers felt certain skills found in the literature (Kocman et al., 2018) were important for entry-level employees both with and without disabilities. In their study, Ju et al. (2012) gleaned 36 specific skills or personal attributes from the literature that could be potentially important for entry-level employees to have to be successful at their job. The original 36 items were classified into five constructs: basic skills, higher order thinking skills, personal management skills, interpersonal skills, and personal attributes. Employers (e.g., company presidents or owners of leading companies) in a large, suburban area were recruited for participation and were asked to rate the importance of each of the 36 skills on a four-point Likert-type scale, anchored with *not important* (1) and *extremely important* (4), separately for individuals having disabilities and for those not having disabilities. In general, items specified employment-related, foundational competencies. Item examples include, "Ability to seek help when needed," and "Demonstrating ability to adapt to change." After conducting an exploratory factor analysis on half the data collected from employers responding about the importance of the listed skills for individuals who have disabilities, and subsequent confirmatory factor analysis on the other half of the data, as well as the full

Table 1. Educator, Family Member, and Student Demographic Information.

Demographic	Educator	Family	Student
Sample size	50	187	402
Average age	47.0	44.6	18.0
Average years experience	16.0		
% Female	94.2	80.2	38.4
Family respondent			
% Mother/stepmother		72.6	
% Father/stepfather		16.2	
% Grandparent		6.1	
% Legal guardian		1.5	
% Lived with student		97.5	
% English at home		95.0	
% No high school diploma		13.7	
% high school education only		39.6	
% Greater than high school education		46.7	
Racial/ethnic categories			
% Caucasian	84.6	31.5	25.8
% Hispanic	1.9	11.1	15.2
% Black	7.7	6.3	14.9
% American Indian	5.8	7.3	9.2
% Other category	—	2.4	2.0
% Multiracial	—	4.9	2.7
% no response	—	36.5	30.1
Student information			
% 9th grade			0.7
% 10th grade			1.3
% 11th grade			37.8
% 12th grade			46.0
% 18–21 program			13.2
% Specific learning disability			53.5
% intellectual disability			13.7
% Other health impairment			15.4
% Emotional disturbance			5.0
% Autism			4.0
% Other disability			6.2
% Secondary disability			11.7
% English language learner			2.6
% Free/reduced-price lunch eligible			57.6

Note. Other disabilities included are hearing impairment, visual impairment, speech or language impairment, and traumatic brain injury. The racial/ethnic category of "other" includes participants reporting belonging to categories including Puerto Rican, Cuban, Native Hawaiian, Korean, Vietnamese, and Other Asian categories. Additional missing data: educator age (n = 1), student age (n = 16), family age (n = 19), student gender (n = 1), family relationship (n = 7), student grade (n = 4), and disability category (n = 9).

dataset when responding about employees without disabilities, the scale was reduced to 31 items.

For the present study, the item stems and anchors were modified from the original assessment (Ju et al., 2012) because the purpose of this study was not to investigate the extent to which employers felt skills were important for entry-level employability. Instead, the purpose is to develop the assessment into one able to be used by education professionals to rate students on how often they demonstrated the performance of a skill. Moreover, because we wanted to modify this assessment to be used with professionals, family members, and students, the original assessment was modified into three versions. For example, Ju et al.'s (2012) original item asking employers to rate the importance of an entry-level employee's "Ability to speak so others can understand" was modified for use by family members, students, and professional educators to specify how often the student under question demonstrated the skill over the past year. For family members, item modifications included, "My child is able to speak so others can understand." The

Table 2. Examples of Adjustments Made to Items from Original to This Study.

Instrument	Example item / adjustments	Original factor
Ju et al.	Ability to read with understanding	Basic skills
F-EITA	My child is able to read with understanding.	
S-EITA	I can understand what I read.	
P-EITA	The individual is able to read with understanding.	
Ju et al.	Ability to solve problems	Higher order thinking skills
F-EITA	My child is able to solve problems.	
S-EITA	I can solve problems.	
P-EITA	The individual is able to solve problems.	
Ju et al.	Ability to follow schedules	Basic work skills
F-EITA	My child is able to follow schedules.	
S-EITA	I can follow a schedule.	
P-EITA	The individual is able to follow schedules.	
Ju et al.	Ability to use socially acceptable language	Social skills
F-EITA	My child is able to use socially acceptable language.	
S-EITA	I can use socially acceptable language.	
P-EITA	The individual is able to use socially acceptable language.	
Ju et al.	Demonstrating responsibility in work	Personal traits
F-EITA	Being responsible at work is important to my child.	
S-EITA	Being responsible at work is important to me.	
P-EITA	The individual demonstrates responsibility in work.	

Note. F-EITA = Family-Employer Identified Trait Assessment; S-EITA = Student-Employer Identified Trait Assessment; P-EITA = Professional-Employer Identified Trait Assessment.

item asked to students was, "I can speak so others can understand." For professionals, this item was modified to read, "The individual is able to speak so others can understand." The resulting three assessment versions are hereby referred to as F-EITA (Family-EITA), S-EITA (Student-EITA), and P-EITA (Professional-EITA).

Family members and professional educators were asked to rate the behaviors exhibited by the student on each individual item over the past year on a five-point Likert-type scale with the following anchors: (1) *trait or skill not observed within the past year*; (2) *trait or skill observed a few times or did not do well when performing the skill*; (3) *trait or skill observed several times or did a fair job of performing this skill*; (4) *trait or skill observed many times or did a good job of performing this skill*; and, (5) *trait or skill observed often or was successful at performing this skill*. Students were asked to rate the frequency of their own behaviors on a three-point scale with anchors of "rarely," "sometimes," and "often." Table 2 includes one example item from Ju et al.'s (2012) original assessment and modifications made for the three versions included in this study for one item from each of the original five factors. One additional item was added to the assessments used in the current study. An item from the "higher order thinking skills" factor on Ju et al.'s (2012) original study asked employers the importance of entry-level employees' "Ability to recognize and correct mistakes." For the purposes of the present study, this item was split into two components. For professional educators, the two items were "The individual is able to recognize mistakes," and "The individual is able to correct mistakes." Thus, the total number of items on each version of the assessment for this study was 32 items.

Procedures

As part of a larger investigation, transition education professionals were recruited from email lists of participants attending transition education in-service workshops and through listservs of those interested in transition education. Professionals watched a video describing their roles and duties, obtained an agreement from building principals for themselves and their students to participate in the study, and facilitated parental and student consent/assent for participation. Both parental consent and student assent were required for all students under 18 years of age, and only student consent was required for students ages 18 and older.

Upon receiving consent from parents or students, study materials were distributed either online or in paper form to professionals for completion. Professionals completed a demographic form with their own information, a student demographic form (e.g., participation in general education, disability), and the P-EITA about student behaviors. They also administered the S-EITA to students and facilitated data collection from family members, which included reading items or explaining directions to participating family members of 12 students. Family members (i.e., mother/

stepmother, father/stepfather, grandparent, or legal guardian) completed demographic information (e.g., relationship with student and other basic demographic information) and the F-EITA. After all study materials were complete, professionals ensured they were returned to researchers, either online or via mail. Professionals received $30 for each completed packet of assessment materials for approximately one hour of their time. Family members and students each received a $10 gift card for their participation.

Results

Data collected from all three versions of the EITA (i.e., F-EITA, S-EITA, and P-EITA) were treated as ordered categorical (Bovaird & Koziol, 2012; Dumenci & Achenbach, 2008; Li, 2016) and were analyzed using the R package "lavaan." In this package, confirmatory factor analytic procedures were employed using diagonally weighted least squares to estimate model parameters and the full-weight matrix was used to compute robust standard errors. Confirmatory factor analysis procedures were employed instead of exploratory procedures to specifically test the structure of the EITA assessment as presented by Ju and colleagues (2012, 2014). Because missing data occurred across groups of items (e.g., a respondent having missing data would not respond to a large number of items in a row), we chose to use listwise deletion methods as the most appropriate way to address missing data. The overall model-data fit of confirmatory factor analytic models was assessed using three indices: root mean square error of approximation (RMSEA; MacCallum et al., 1996), Bentler's (1990) comparative fit index (CFI), and the Tucker-Lewis index (TLI; Tucker & Lewis, 1973). Models presenting adequate fit should have RMSEA indices below .08 (MacCallum et al., 1996) and CFI and TLI indices greater than .90 (Bentler, 1990; Tucker & Lewis, 1973). More commonly known criteria for assessing model misspecification were forwarded by Hu and Bentler (1999), with indices of .95 for CFI and TLI and .06 for RMSEA indicating adequate model-data fit surrounding the conditions of their simulation studies. Each fit statistic assesses different aspects of model-data fit, and together give an indication of the extent to which the tested model is able to reproduce the empirical data. Results are presented below separately for each version of the assessment.

Family-EITA

We began our analysis of the three different versions of the EITA with an investigation of the family version. Although education professionals have other students by which to judge the behaviors of each individual student, we felt family members would better be able to assess some of the behavioral characteristics of their children than professionals because they see their children in a more personal context. We also felt family members would provide more accurate estimates of their children's employability skills than would the students themselves.

Before analysis, we noticed one of the items previously broken into two components, "My child is able to correct mistakes," was only answered by 152 (81.3%) of the family participants, whereas very little data were missing for any other item. Because the pattern of missing data for this item was drastically different than that for any other item, we decided to eliminate it from further analysis, leaving us with a total of 31 items on the F-EITA.

We began the analysis by examining the fit of Ju et al.'s (2012) five-factor structure to the present F-EITA data. If the factor model previously developed fit the data well, this would provide evidence of convergent validity for the factors written for a different audience and purpose. We found the fit of the five-factor model to the present 31 items was acceptable ($\chi^2 = 663.313$, $df = 424$; RMSEA = .056, CFI = .978, TLI = .976). All items loaded positively onto only one factor (by design) and there were no problems with estimation. Table 3 shows standardized loadings for each item onto its respective factor, and Table 4 shows correlations between the factors. McDonald's omega was used to estimate reliability throughout this study, as it does not require the assumption of essentially tau-equivalent data (e.g., Hayes & Coutts, 2020). Reliability estimates for scores from items comprising the five factors ranged from .771 (*basic skills*) to .918 (*higher order thinking skills*), and omega for all 31 items was .961 (see Table 5). These results suggest employers and family members have similar perspectives on the categories of skills required of students with disabilities and gives evidence the modifications made to the EITA assessment did not alter its structure.

Student-EITA

Data from the student version of the EITA were submitted to the five-factor model previously established (Ju et al., 2012) to determine the extent to which the previously identified model fit the data collected from the items revised to ascertain student perspectives about their own skills regarding identified employability behaviors. As with the F-EITA, the item of "I am able to correct mistakes" was removed from the current analysis because only 319 (81.6%) of the students who provided S-EITA data answered this item. This pattern of missing data was different from that found for any other item, so it was eliminated from further analysis, leaving 31 items.

Results indicated the five-factor model previously established (Ju et al., 2012) fit the S-EITA data adequately ($\chi^2 = 727.126$, $df = 424$; RMSEA = .043, CFI = .969, TLI = .966). Table 3 shows standardized loadings for each item onto its respective factor and Table 4 shows factor

Table 3. Standardized Factor Loadings for Each Version of the EITA.

Factor	Item	Factor loadings		
		F-EITA	S-EITA	P-EITA
Basic Skills	My child is able to read with understanding.	.493	.530	.876
	My child is able to listen actively.	.828	.751	—
	My child is able to speak so others can understand.	.818	.734	.803
	My child is able to explain ideas in writing.	.691	.586	.896
Higher Order Thinking Skills	My child is able to recognize mistakes.	.783	.726	.852
	My child is able to use critical thinking.	.792	.695	—
	My child is able to apply basic math.	.717	.649	.775
	My child is able to solve problems.	.896	.819	.843
	My child is able to negotiate and resolve conflict.	.808	.694	—
	My child is able to apply basic computer/ technology skills.	.773	.682	.789
	My child is able to make plans and work toward goals.	.842	.810	.860
	My child is able to advocate for self.	.814	.772	.749
	My child is able to use creative thinking.	.794	.745	.847
Basic Work Skills	My child is able to be on time.	.748	.739	.609
	My child is able to seek help when needed.	.757	.768	.695
	My child is able to follow schedules.	.818	.802	.742
	My child is able to cooperate with others and be a good team player.	.863	.853	.882
	My child is able to stay with a task until finished.	.807	.767	.831
	My child is able to work well with people from different backgrounds.	.842	.757	.839
	My child is able to monitor the quality of his/her work.	.890	.712	—
Social Skills	My child is able to show respect for others.	.823	.865	.927
	My child is able to use socially acceptable language.	.755	.670	.827
	My child is able to accept authority.	.783	.711	.859
	My child is able to maintain appropriate personal appearance (e.g., grooming, hygiene, and clothing).	.817	.809	.655
	My child is able to accept criticism.	.710	.633	.802
	My child is able to control him/herself and work without direct supervision.	.878	.829	.865
Personal Traits	Being honest is important to my child.	.871	.937	.891
	Being responsible at work is important to my child.	.926	.856	.923
	My child is able to adapt to change.	.847	.740	.840
	Being motivated at work is important to my child.	.899	.875	.867
	Being interested at work is important to my child.	.889	.818	.847

Note. Item wording given is for the F-EITA version. Only one or two individuals failed to respond to three F-EITA items, 11 S-EITA items, and 10 P-EITA items, except for items S-EITA5 ($n = 15$ missing) and S-EITA7 ($n = 4$ missing). F-EITA = Family-Employer Identified Trait Assessment; S-EITA = Student-Employer Identified Trait Assessment; P-EITA = Professional-Employer Identified Trait Assessment.

Table 4. Factor Correlations Between the Three EITA Versions.

Factor	Version	F-EITA	S-EITA
Basic Skills	S-EITA	.312**	—
	P-EITA	.315**	.252**
Higher Order Thinking Skills	S-EITA	.307**	—
	P-EITA	.318**	.372**
Basic Work Skills	S-EITA	.217**	—
	P-EITA	.309**	.177**
Social Skills	S-EITA	.194**	—
	P-EITA	.321**	.302**
Personal Traits	S-EITA	.114	—
	P-EITA	.116*	.320**

Note. F-EITA = Family-Employer Identified Trait Assessment; S-EITA = Student-Employer Identified Trait Assessment; P-EITA = Professional-Employer Identified Trait Assessment.
*$p < .05$. **$p < .01$.

Table 5. McDonald's Omega Factor and Overall Reliability Coefficients for All Three EITA Versions With 95% Confidence Intervals.

Factor	F-EITA [95%, CI]	S-EITA [95%, CI]	P-EITA [95%, CI]
Basic Skills	.771 [.700, .831]	.683 [.621, .732]	.835 [.804, .862]
Higher Order Thinking Skills	.918 [.891, .937]	.860 [.828, .884]	.915 [.899, .928]
Basic Work Skills	.891 [.853, .918]	.844 [.804, .876]	.849 [.817, .875]
Social Skills	.865 [.818, .900]	.868 [.841, .891]	.788 [.735, .825]
Personal Traits	.899 [.856, .917]	.823 [.754, .866]	.910 [.892, .925]
Overall	.961 [.947, .970]	.945 [.928, .956]	.943 [.932, .951]

Note. 95% Confidence intervals around McDonald's omega reliability estimates were obtained by bootstrapping 2000 samples using the Omega macro developed by Hayes and Coutts (2020). F-EITA = Family-Employer Identified Trait Assessment; S-EITA = Student-Employer Identified Trait Assessment; P-EITA = Professional-Employer Identified Trait Assessment; CI = confidence interval.

correlations. Much like the F-EITA, McDonald's omega reliability estimates were adequate. Reliability for scores from all items was .945 (Table 5), and individual factor reliability estimates ranged from .683 (*Basic Skills*) to .860 (*Higher Order Thinking Skills*). Results suggest modifications made to the EITA to gain students' perspectives on their own behaviors also did not significantly modify the underlying structure of the assessment. In other words, the traits identified by employers as being important are able to be similarly measured in a context where students are responding about their own behaviors.

Professional-EITA

Data from the professional version of the EITA were submitted to the same five-factor model (Ju et al., 2012) previously used to analyze data from the F-EITA and S-EITA. Again, the item written as, "The individual is able to correct mistakes" was removed from the current analysis because data were provided for only 325 (80.8%) of the total number of students, leaving 31 items for analysis.

Results indicated the fit of the 5-factor model to P-EITA data was somewhat less than adequate (χ^2 = 1,508.277, *df* = 424; RMSEA = .080, CFI = .964, TLI = .961) and did not fit the data as well as in the previous two samples. An investigation of modification indices revealed the model would be improved if one item ("The individual is able to monitor the quality of his/her work") was allowed to freely load onto all latent factors. Similarly, modification indices revealed improved model fit if two more items ("The individual is able to negotiate and resolve conflict," and "The individual is able to listen actively") were allowed to load on three of the remaining four latent factors. These results suggested professionals did not perceive these items as clearly related to other items or underlying factors in the way originally designed. Because our goal was to establish a modified assessment allowing professional educators to easily assess students and use results to prepare students for the specific skills desired by employers, we felt the best option was to eliminate the three offending items from the modified P-EITA. After removing these items, model fit improved (χ^2 = 987.251, *df* = 340; RMSEA = .069, CFI = .975, TLI = .972). The chi-square difference between these two models was significant (χ^2 = 521.026, *df* = 84, $p <$ .001).

An investigation of asymptotic standardized residuals showed three doublet pairs (Landis et al., 2009; Mulaik, 2009), a result that generally occurs when respondents perceive items to be highly similar and, thus, are answered in highly correlated ways. These doublet pairs were modeled as correlated residuals (Item Pair 1: "The individual is able to apply basic math," and "The individual is able to solve problems"; Item Pair 2: "The individual is able to be on time," and "The individual is able to follow schedules"; Item Pair 3: "The individual demonstrates motivation toward work" and "The individual demonstrates personal interest in work") to further improve fit (χ^2 = 849.481, *df* = 337; RMSEA = .062, CFI = .980, TLI = .978) and retain items in the P-EITA version so the factors could maintain their interpretability compared with those in the F-EITA and S-EITA. The chi-square difference between these two models was significant (χ^2 = 137.770, *df* = 3, $p <$ .001). Factor loadings are presented in Table 3 and correlations between the factors are presented in Table 4.

McDonald's omega reliability for the overall 28-item P-EITA was acceptable (r = .943; Table 5), with factor reliability estimates ranging from .835 (*Basic Skills*) to .915 (*Higher Order Thinking Skills*). Although modifications were made to the P-EITA making it slightly different from the other two versions, results show the underlying five-factor structure remains an adequate explanation of the data collected from professional educators about the employability behaviors they observed in their students over the past year.

Relations Between EITA Versions

In addition to investigating the structure of the three revised versions of the EITA (i.e., F-EITA, S-EITA, and P-EITA), we were also interested in the extent to which scores from the three versions were related to each other. Although data

were collected from three different sources about the same student behaviors over the past year, we expected there to be differences in those scores because individuals responding had different experiences with the students and saw their behaviors from different perspectives. When investigating correlations between composite factor scores across the three versions of the EITA, we noticed scores were less related to each other than we expected (Table 4). Except for *Personal Traits*, scores on each of the factors were correlated at low to moderate, but significant, levels across the three versions, with correlations ranging from .177 to .321. Correlations between the three versions on the factor of *Personal Traits* were lower, with scores from family members being correlated with those given by students (r = .114) and professionals (r = .116) at very low levels. These results suggest the three groups of individuals providing data about students did offer unique perspectives.

Discussion

The purpose of this study was to determine if modified versions of the EITA (Ju et al., 2012) written for data collection from three different sources (i.e., students, education professionals, and family members) present factor structures and psychometric properties similar to the original instrument. The overall factor structure of each resulting version was the same as the original EITA assessment (Ju et al., 2012), thus giving evidence for the validity of the structure of the modified versions. Moreover, reliabilities for each of the factors are at acceptable levels (Table 5), with reliability consistently being somewhat lower for *Basic Skills*, likely due to fewer items comprising the factor in all versions.

Potentially more interesting and important are the low correlations found between the three modified EITA versions (Table 4), providing clear evidence that despite the same factor structure, the three versions of the modified EITA all provide critical, yet different, perspectives on the skills high school students with disabilities exhibit. The notions of surveying these three distinct groups (i.e., students, professionals, and family members) have been found through other transition assessments including the AIR Self-Determination Assessment (Wolman et al., 1994), the Transition Planning Inventory (Clark & Patton, 2006), and more recently, the Transition Assessment and Goal Generator (Martin et al., 2015). For the EITA, this study provides direct evidence that each of the three perspectives, while different, are valuable in total and provide a unique perspective in the transition assessment process. Future research should investigate the thought processes of respondents from each of the three groups to determine the nature of these differences and their underlying meaning.

Additionally pertinent for education professionals is the development of a new transition assessment that can aid them in the preparation of transition portions of IEP documents. Current IDEA transition requirements state that all students served on an IEP must have a transition plan in place by age 16 (IDEA Regulations 20 U.S.C. § 1416[a][3][B]), with more than half of all U.S. states and territories requiring transition plans at younger ages, most commonly at age 14 (Suk et al., 2020). Within this legislation, school districts must incorporate annual transition goals in the IEP, based upon current and appropriate assessments (Deardorff et al., 2020) in the areas of (a) employment, (b) further education, and (c) independent living, with best practices ensuring goals are provided for independent living, regardless of disability category or level of support needed (Williams-Diehm et al., 2021). Further best practice specifically states that a minimum of two transition assessments should be used and at least one of those assessments should be considered formal, defined as having validity and reliability evidence to support the assessment interpretations (Prince et al., 2014). Transition-related litigation is increasing, and by using psychometrically sound assessments, school districts can both create better transition plans and ensure due process (Prince et al., 2020). The resulting EITA, in all three versions, takes the first step to provide reliability and validity evidence for the structure of a new, formal transition assessment, one that can specifically target skills identified as necessary by employers for entry-level positions.

The strengths and areas of need identified through the EITA could potentially lead to annual transition goals specifically addressing employment. Educators can carefully select skills where students exhibited weaker scores or items exhibiting an emerging strength to focus on for annual goals. Table 2 shows example questions provided on all versions of the modified EITA with all items from the F-EITA version given in Table 3. Regardless of the version, low scores from any item or group of items could be arranged into annual transition goals with coordinated activities. For example, a student who scores low on the F-EITA question reading, "My child is able to use socially acceptable language," can have a specific transition goal of using formal language in emails when requesting help from teacher:

> The student will use formal email etiquette when writing emails to core teachers (English, math, science, social studies) requesting accommodations for testing. This will include appropriate headers, salutations, spelling, complete sentences, and no slang/abbreviations with 90% accuracy in 4 out of 5 emails.

As another example, students who are scored lower by professional educators on the P-EITA question reading, "The individual is able to follow schedules," may have an example transition goal as follows:

> The student will follow a three-step employment sequence of [insert employment task] with 95% accuracy three days in a row.

Both example transition goals could be coupled with coordinated activities in the classroom. However, given the EITA addresses employer-identified skills, it would be more appropriate to develop such skills in the employment setting, to help with generalization. Many high school-age students with disabilities participate in vocational and employment internships during high school. In fact, strengthening the school-employer partnership benefits all parties involved (Carter et al., 2009). Communicating employment skills targeted for development would allow employers to provide invaluable feedback on the acquisition of such goals.

Students who learn employment skills and have employment experiences during high school achieve greater employment outcomes after high school (Mazzotti et al., 2021; Test et al., 2009). Thus, ensuring the development of a new, available transition assessment focused solely on employment traits identified by employers could increase employment outcomes for individuals with disabilities.

Discrepancies between ratings given by students, professional educators, and family members are also expected within an assessment of this nature. This creates an opportunity for discussion among the entire transition team. For example, one team member (e.g., the student) may have an inflated view of their true ability, or another team member (e.g., the professional) may have a reduced perspective of a student's ability, due to having only seen the student in a school-based setting. Finding and discussing discrepancies across the three versions of the modified EITA in transition team discussions will help to ensure students are prepared with the foundational competencies employers expect in entry-level employees (Deloitte Access Economics, 2017; Ju et al., 2012, 2014; World Economic Forum, 2016), regardless of disability status.

Recommendations and Future Research

Current research studies indicate that professional educators often do not utilize sound, research-supported transition assessments to develop transition goals, but instead utilize easily available questionnaires and interviews, often coupled with educational testing already in existence (Deardorff et al., 2020). To ensure best practice (Prince et al., 2014), educators must employ formal transition assessments in the development of transition goals. School districts need to hold educators accountable for creating IEPs and transition plans using at least one transition assessment with ample reliability and validity evidence. In addition, as is evident from the results of this study seen in the vastly different opinions of three groups of stakeholders, the input of multiple stakeholders is critical in determining student skill levels and resulting in appropriate transition goals. As such, it is the recommendation of the authors that appropriate transition assessment should also include those different stakeholders, namely professional educators, students, and family members. Current employers and adult service providers are other voices that can add significantly to the transition assessment.

To ensure, then, that the EITA is effective as a transition assessment from which employment transition goals can be written, additional research to collect further evidence of the reliability and validity of scores is necessary. Again, the purpose of this article was to determine the factor structure of the modified EITA into three assessment versions (F-EITA, S-EITA, and P-EITA). Results show the factor structure held across all three versions of the assessment, providing evidence of the validity of both the content and the structure of the assessment. However, the modified EITA has not yet been used for its intended purpose as a transition assessment. Future studies must use the EITA as a transition assessment to establish employment transition goals. Relations should also be established between EITA scores and achievement of transition goals written based on EITA scores with IEP compliance, teacher perspective on the appropriateness and usefulness of the assessment, and postsecondary employment outcomes. These future studies will provide evidence that the modified EITA can be used by professionals for the intended purpose.

Finally, the modified EITA has the potential to be used as a measure to show growth in employability skills. This can be done by using assessment scores in annual transition planning across multiple years. By providing direct annual transition goals related to the areas of need identified in the modified EITA, educators can specifically address annual employment goals. However, unless these skills are tested in authentic work environments, true generalization is still unknown.

Limitations

As with any research, limitations existed. First, although the purpose of this study was to investigate the extent to which the factor structure of the assessment held after modifying the EITA (Ju et al., 2012) for use with three different groups of individuals, it is conceivable that wording changes skewed or altered the intended meaning established in the original items. In addition, the S-EITA was based on a three-point scale, whereas the other two versions employed a five-point scale. Because the optimal number of scale points used depends on empirical setting (Chang, 1994), it follows that future studies should investigate the extent to which different numbers of scale points adequately differentiate responses for each of the three versions. Moreover, limitations in sample size did not allow for us to assess the fit of the structure across multiple demographic characteristics, which could be problematic, particularly for differences across student

presentations of disabilities and cultural considerations. Further considering sample restrictions, because this study was part of a larger study including only those students who were classified as having disabilities and competitive employment aspirations, future research should be conducted to determine the structure of this assessment should it be used to assist professional educators in writing transition goals for those with more significant support needs. Finally, the present study did not include longitudinal follow-up, so questions of whether responses on these items lead to future employment and if addressing these skills through transition planning will predict future employment remain opportunities for further research.

Conclusion

Transition planning can be described as the heart of educational planning under IDEA services. After all, the primary purpose of IDEA (2004a) is to create an individually designed and appropriate educational plan that "prepares the child for further education, employment, and independent living" (IDEA Regulations 20 U.S.C. § 1400[d][1][A]). Results of this study suggest the modified EITA has the potential to become a formal transition assessment (Prince et al., 2014) to specifically help teachers plan for future employment in understanding and directly targeting skills employers value (Ju et al., 2012). Transition planning is also team planning, and as a result it can and should include the multiple perspectives of individuals having an interest in each student's future (e.g., Jepsen et al., 2012; Murray et al., 2009; Tassé & Lecavalier, 2000). As such, this creates opportunities for discussion and the transition planning committee to make decisions based upon multiple data points. This pilot study gives evidence of the structure of three versions of the EITA, showing it has the potential to become one source of information about which transition teams can make the best decisions for students' future educational planning.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

A grant from the Institute of Education Sciences, National Center for Special Education Research, grant award number R324A100246, in part, supported this research project.

Open Practices

All open materials have been made publicly available via the Open Science Framework https://shareok.org/handle/11244/336617

Supplemental Material

Supplementary material for this article is available on the *Career Development and Transition for Exceptional Individuals* website with the online version of this article..

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