Preliminary Validation of the Teacher-Rated DESSA in a Low-Income, Kindergarten Sample

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Abstract

This study investigated the measurement of social emotional competence in low-income youth by assessing the validity of responses derived from the widely used, teacher-rated Devereux Student Strengths Assessment (DESSA). Based on the five-component social emotional learning model proposed by the Collaborative for Academic, Social, and Emotional Learning, the teacher-rated DESSA shows promise as an easy-to-administer, strengths-based assessment tool for teachers from low-income communities. In a sample of 313 kindergarten students from a southeastern city, three competing measurement models were tested (one-factor, correlated five-factor, and higher order five-factor) using confirmatory factor analyses. Results revealed that, relative to the one-factor model, the higher order five-factor framework had the best model-data fit, although the first-order factors were highly correlated with the second-order factor. Furthermore, zero-order correlations showed that the DESSA was associated with both direct and teacher-reported measures of school-related outcomes. Implications for practice and directions for future research are discussed.

Keywords

factor analysis, kindergarten assessment, social emotional competence

Social emotional competence supports children's capacity to succeed in the face of poverty-rated challenges (Oades-Sese, Kaliski, & Weiss, 2010). Defined as the ability to work well socially and emotionally with others from diverse backgrounds and act in a responsible and respectful manner (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Greenberg et al., 2003), social emotional competence predicts personal, social, and academic success among children, including those from low-income backgrounds (Elias, O'Brien, & Weissberg, 2006; Payton et al., 2008). Social emotional competence is often conceptualized as either one construct, or as comprising distinct yet interrelated components (Jones & Bouffard, 2012). Indeed, the Collaborative for Academic, Social, and Emotional Learning (CASEL) proposed a framework of social emotional competence consisting of self-awareness, self-management, social awareness, responsible decision-making, and relationship skills (CASEL, 2017). Although this theoretical framework is widely accepted (Denham & Brown, 2010; Payton et al., 2000; Zins & Elias, 2007),

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little measurement work has supported this framework in the field, and validity evidence from low-income populations remains especially lacking. Assessing competing factor structures underlying an assessment tool is an important process in ensuring that empirically derived factors corroborate a theoretical framework (e.g., the Classroom Assessment Scoring System and the bifactor model; Hamre, Hatfield, Pianta, & Jamil, 2014).

To address this gap, this article established construct-related validity evidence for the use of the Devereux Student Strengths Assessment (DESSA; LeBuffe, Shapiro, & Naglieri, 2009) with a sample of low-income kindergartners. Unlike traditional deficit- or pathology-oriented approaches to assessment, strengths-based measures like the DESSA proactively assess the absence of necessary skills important for children's development while highlighting their unique abilities and strengths (Climie & Henley, 2016), which is particularly important for promoting social emotional competencies of low-income children. Most measurement work on strengths-based measures has focused on samples that are either nationally representative or clinical in nature (Merrell, Cohn, & Tom, 2011; Naglieri, LeBuffe, & Shapiro, 2011; Nickerson & Fishman, 2009), or older in age (Denham & Brown, 2010; Renshaw, 2016). Furthermore, few studies have examined concurrent associations between scores derived from the DESSA and other assessments that purport to measure similar or related constructs (Naglieri et al., 2011; Nickerson & Fishman, 2009), and none have validated the interpretation of the DESSA scores among younger children. Measurement work focused on subpopulations is important to ensure that all students are fairly assessed on skills in contexts where opportunities are afforded to them.

To reduce administrative burden, assessments for use in applied settings should be cost-effective and easy to administer, particularly when working with low-resourced populations (Prince-Embury, 2010). Toward this end, the DESSA, the creation of which was guided by the multiple-component framework, shows promise for measuring social emotional competence in the field. Although competing frameworks of social emotional competence may be equally viable in informing recommendations of children's social emotional competencies, if the factors of social emotional competence cannot be adequately distinguished by this assessment, then this factor structure may be an inappropriate measurement model for use in research.

Social Emotional Competence in Young Children

According to the CASEL (2017), social emotional competencies support students' positive social behavior and academic success. Studies examining social emotional competence as a single construct have established associations with higher quality and less conflictual relationships between peers and adults, more confidence, and better attitudes about themselves and others (Durlak et al., 2011; Payton et al., 2008). At the same time, social emotional competence is multifaceted, and its components share characteristics that are often exhibited together in the classroom (Denham & Brown, 2010; Jones & Bouffard, 2012). Studies using this multicomponent framework have found positive and differential associations with important outcomes, described below and in Table 1.

Self-awareness reflects an ability to identify one's feelings and values, possessing a realistic understanding of one's strengths and limitations (Denham & Brown, 2010). It is demonstrated by children's ability to ask someone for feedback and help. Greater self-awareness is associated with more positive adult–child relationships (Denham & Brown, 2010; Denham, Ji, & Hamre, 2010). *Self-management* involves handling emotions in a productive and healthy way and is demonstrated when children control their impulses and wait their turn while the teacher attends to other students. It is positively related to self-regulation and executive functioning and negatively related to internalizing and externalizing behavior (Denham et al., 2010). *Social awareness* is the ability to take another's perspective and to understand social and ethnic norms. It is demonstrated

Table I. SEL Constructs, Related Definitions, and Predicted Associations With Other Measures.

SEL construct	Definition (CASEL, 2017; LeBuffe, Shapiro, & Naglieri, 2009)	Example DESSA items	Associations with other constructs (Denham, Ji, & Hamre, 2010)
Self-awareness	DESSA: a child's realistic understanding of his or her strengths and limitations and consistent desire for self-improvement CASEL: ability to accurately recognize one's emotions and thoughts and their influence on behavior	Teaches another person to do something Asks someone for feedback Describes how he or she was feeling	Relationship quality Emotion matching
Self-management	DESSA: a child's success in controlling his or her emotions and behaviors, to complete a task or succeed in a new or challenging situation CASEL: ability to regulate one's emotions, thoughts, and behaviors effectively in different situations	Waits for his or her turn Adjusts well when going from one setting to another Adjusts well to changes in plans	Self-regulation Executive function Emotion matching Internalizing/externalizing behaviors (negative)
Social awareness	DESSA: a child's capacity to interact with others in a way that shows respect for their ideas and behaviors, recognizes her or his impact on them, and uses cooperation and tolerance in social situations CASEL: ability to take the perspective of and empathize with others from diverse backgrounds and cultures, to understand social and ethical norms for behavior, and to recognize family, school, and community resources and supports	Respects another person's opinion Acts respectfully in a game or competition Shares with others	Empathy Emotion matching Situation knowledge
Responsible decision-making	DESSA: a child's approach to problem solving that involves learning from others and from her or his own previous experiences, using her or his values to guide her or his actions, and accepting responsibility for her or his decisions CASEL: ability to make constructive and respectful choices about personal behavior and social interactions based on consideration of ethical standards, safety concerns, social norms, the realistic evaluation of consequences of various actions, and the well-being of self and others	Follows the example of a positive role model Shows the ability to decide between right and wrong Follows the advice of a trusted adult	Emotion matching Situation knowledge Noncompliance and externalizing behaviors (negative)
Relationship skills	DESSA: a child's consistent performance of socially acceptable actions that promote and maintain positive interactions with others CASEL: ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups	Shows appreciation of others Offers to help somebody Expresses concern for another person	Empathy internalizing/Externalizing behaviors (negative)

Note. SEL = social and emotional learning; CASEL = Collaborative for Academic, Social, and Emotional Learning; DESSA = Devereux Student Strengths Assessment.

when a child shows respect for others' ideas, cooperates with peers during group activities, and possesses accurate perceptions of social situations and others' emotions (Denham et al., 2010). *Responsible decision-making* is the ability to make constructive and respectful choices about personal behavior and social interactions. It is demonstrated when children take responsibility for having yelled at a peer in frustration, when they should have calmly explained their feelings. It is associated with healthy relationship skills (Elias et al., 2006), as well as reduced risky and disruptive behavior, and internalizing symptoms (Denham et al., 2010). *Relationship skills* reflect the ability to construct healthy relationships across a diverse range of individuals, particularly when working cooperatively with others, through listening and turn taking. Positive relationships, especially with teachers, are associated with greater school engagement and higher achievement (Zins & Elias, 2007).

Although the research summarized here has considered both single and multicomponent frameworks, it is not evident which framework researchers and practitioners should use, particularly with low-income populations. A one-factor framework is simple and captures the interrelatedness of its components and yet may not detect the nuances each component contributes. If five components cannot be reliably distinguished, then forcing a five-factor solution could lead to multicollinearity or misinformed conclusions.

The Teacher-Rated DESSA

Grounded in theories of resilience, social emotional learning, and positive youth development, the DESSA is a widely used, 72-item behavioral rating scale assessing characteristics that serve as protective factors for children in kindergarten through eighth grade. Teachers or administrative staff rate children on the frequency of positive social emotional behaviors and characteristics, which are organized into conceptually and statistically derived subscales. The assessment has many applications, including identifying strengths and needs of individual children.

The DESSA has been standardized with nationally representative samples from children in kindergarten through eighth grade (Harrison, Vannest, & Reynolds, 2013), and has demonstrated good test reliability and internal consistency. Nickerson and Fishman (2009) showed that the DESSA scores have strong evidence of convergent validity with measures of similar constructs, such as the scores of the Behavioral and Emotional Rating Scales–2 (BERS-2; Epstein, 2004) and the Behavior Assessment System for Children–2 (BASC-2; Reynolds & Kamphaus, 2004). To the best of our knowledge, no study has assessed convergent evidence of validity with outcomes important for school, or validated the interpretation of the DESSA scores, among low-income children, although these associations have been evaluated using other measures and samples (e.g., Oades-Sese et al., 2010).

In practice, the DESSA subscales are used to create a composite score. The manual recommends examining this composite score, the eight separate subscores, and individual item responses to assess both children's social emotional competencies, and their individual strengths and needs. In this study, we examine the five subscales that directly align with the CASEL framework: Self-Awareness (seven items), Self-Management (11 items), Social Awareness (nine items), Decision-Making (eight items), and Relationship Skills (10 items). The subscales that are not included are as follows: Goal-Directed Behavior (initiating and persisting in completing various tasks), Personal Responsibility (ability to be careful and reliable in one's actions, as well as contribute to group efforts), and Optimistic Thinking (attitude of confidence and positive thinking about oneself and one's situations). Although these subscales are important aspects of social emotional competence, they were omitted because they did not directly align with the five competencies put forth by the CASEL, which was used in this study as the guiding framework. We did not remove or add items, or modify the assessment in any other way.

Table 2. Descriptive Statistics.

	n	%	% missing	M	SD	Minimum	Maximum	Skewness	Kurtosis
Demographic variables									
Child age in years	313		0	5.60	0.32	4.42	6.25	−0.23	2.58
Gender	313								
Male = 1	142	46							
Female = 0	171	54							
Ethnicity	280		11						
African American/Black	255	91							
Hispanic/Latino	15	5							
Caucasian/White/Other	10	4							
Maternal education	275		12						
High school or more = 1	195	71							
Less than high school = 0	80	29							
DESSA									
Self-management	313		0	3.61	0.79	1.36	5.00	−0.19	2.53
Self-awareness	313		0	3.42	0.85	1.14	5.00	−0.12	2.51
Social awareness	313		0	3.73	0.79	1.11	5.00	−0.21	2.75
Decision-making	313		0	3.64	0.76	1.13	5.00	−0.38	2.86
Relationship skills	313		0	3.75	0.78	1.20	5.00	−0.37	2.80
Composite score	313		0	3.63	0.73	1.19	4.98	−0.23	2.79
School-related outcomes									
Executive function (HTKS)	310		1	16.06	17.04	0	56	0.68	2.19
Theory of mind	311		1	10.88	4.06	3	21	0.14	2.18
Conflict (STRS)	313		0	1.80	0.84	1.00	4.25	0.97	2.97
Closeness (STRS)	313		0	4.16	0.66	2.29	5.00	−0.51	2.46
Self-regulation (CBRS)	305		3	3.01	0.69	1.00	4.00	−0.38	2.36
Problem behaviors (SSIS)	305		3	1.66	0.52	1.00	3.36	0.90	3.27

Note. DESSA = Devereux Student Strengths Assessment; HTKS = Head–Toes–Knees–Shoulders; STRS = Student–Teacher Relationship Scale; CBRS = Child Behavior Rating Scale; SSIS = Social Skills Improvement System.

The Current Study

We investigated the validity of scores derived from the teacher-rated DESSA among a sample of young, low-income children, by evaluating competing factor structures to determine which measurement model best fit the data. We also evaluated convergent and discriminant evidence of validity with direct assessments and other teacher-reported measures of school-related domains. This preliminary validation informs how researchers and practitioners should conceptualize social emotional competence in their work with low-income children, and whether social emotional competence can be parsed into its interrelated components or should be holistically examined as a single construct.

Method

Participants

Study participants included 313 children from an urban, southeastern school district, recruited across 3 years, who were part of a larger longitudinal, multisite evaluation of an after-school social emotional learning program. This sample consisted of 142 males and 171 females, with a mean age of 5.60 years (range = 4.42-6.25 years, *SD* = 0.30). Almost the entire sample comprised racial minorities (91% Black). Twenty-nine percent of the children's mothers did not have a high school degree, and approximately 95% of the children received free or reduced lunch (see Table 2 for descriptive statistics).

Procedures

Data were collected in the first half of the kindergarten year. Teachers were asked to rate children's behavioral and social skills as observed in the classroom. In addition, direct individual assessments of children were conducted by trained research assistants and occurred in three separate batteries, each approximately 20 to 25 min in length. Demographic information was collected from children's caregivers.

Measures

DESSA. The DESSA is a teacher-reported 5-point behavioral rating scale (1 = "never" to 5 = "very frequently"), appropriate for school-aged children through eighth grade. The subscales, which showed high internal consistency for this sample, were Social Awareness (α = .94; for example, "respects another person's opinion"), Self-Awareness (α = .92; for example, "describes how he or she was feeling"), Self-Management (α = .95; for example, "waits his or her turn"), Decision-Making (α = .94; for example, "shows good judgment"), and Relationship Skills (α = .96; for example, "attracts positive attention from peers"). The 45 items together also had high internal consistency in this sample (α = .98).

Self-regulation. Children's classroom self-regulation was assessed using the Child Behavior Rating Scale (CBRS; Bronson, Goodson, Layzer, & Love, 1990), a 10-item, teacher-reported 4-point subscale (1 = "never" to 4 = "almost always"). A composite score was calculated by averaging the raw scores, and was shown to have strong reliability for the sample (α = .95). The CBRS has been validated for use in this sample (Bronson et al., 1990; McClelland et al., 2007; McClelland & Morrison, 2003) and is correlated positively with observed measures of children's self-regulation in the classroom (r = .43; Bronson, Tivnan, & Seppanen, 1995). Sample items include "completes tasks successfully" and "returns to unfinished tasks successfully."

The Head–Toes–Knees–Shoulders (HTKS; Cameron Ponitz, McClelland, Matthews, & Morrison, 2009) is a three-part direct assessment of behavioral self-regulation that has been validated for use in this sample (Cameron Ponitz et al., 2009; McClelland et al., 2014). Children are verbally prompted to respond to sets of paired rules that require the child to override a natural response to a direction (e.g., "When I say touch your toes, I want you to touch your head"). Children received a score from 0 to 2 on 30 test items based on their ability to complete each item successfully (McClelland et al., 2014). A composite score was created by summing across all items, which demonstrated high internal consistency for our sample (α = .93).

Relationship quality. Closeness and conflict in the teacher–child relationship were measured using the 15-item Student–Teacher Relationship Scale–Short Form (STRS; Pianta, 2001), which has been validated for use with this demographic (Doumen et al., 2009). Teachers responded using a 5-point scale (1 = "definitely does not apply" to 5 = "definitely applies"). Consistent with Pianta (2001), internal consistency for our sample was adequate (α = .86 and α = .89 for closeness and conflict, respectively). Sample items include, "If upset, this child will seek comfort from me," and "This child easily becomes angry at me."

Classroom behavior. The Social Skills Improvement System (SSIS; Gresham & Elliott, 2008) is a teacher-reported measure of an individual child's relationships and social behaviors in the classroom. The SSIS asks teachers to rate children's behaviors on a 4-point frequency scale (1 = "never" to 4 = "almost always"). The SSIS demonstrated high levels of internal consistency for our sample (α = .91). The problem behaviors domain (24 items; for example, "does things to make others feel scared") was used in this study.

Social and emotional development. Social and emotional development was assessed using the *Theory of Mind* subtest of *the Developmental NEuroPSYchological Assessment* (Korkman, Kirk, & Kemp, 2007). The verbal task (15 items) assesses one's ability to understand another's thoughts, ideas, and feelings, and the contextual task (six items) assesses one's ability to relate emotions to the context in which it is expressed. Scores from these subtests were summed to create a composite score, which demonstrated high internal consistency for our sample ($\alpha = .91$).

Analysis Plan

The distributions, means, standard deviations, correlations, and percentage of missing data were examined using Stata 14.1 (StataCorp, 2016). Confirmatory factor analyses (CFAs) were conducted under a structural equation modeling (SEM) framework using Mplus version 7.0 (Muthén & Muthén, 2012). We then examined associations with school-related outcomes to evaluate convergent and discriminant evidence of validity. Because children in our data were nested in classrooms, we used the TYPE = COMPLEX command in Mplus to produce clustered standard errors.

CFA. The DESSA manual supports the interpretation of both a composite score and individual components; therefore, we explored whether the subscales could be distinctly measured or a one-factor solution more adequately captured social emotional competence for this sample. We examined three a priori factor structures.

One-factor model. In this model, all 45 items loaded onto a single factor. Among the factor structures tested, this solution was the most parsimonious representation of social emotional competence. Because items from the DESSA were intended to map onto specific subscales, rather than a composite, we hypothesized this model would not fit the data as well.

Correlated five-factor model. In this model, items loaded onto five factors that were allowed to correlate, which better supports the CASEL framework and the subscales theorized by LeBuffe and colleagues (2009). Items were not cross-loaded onto multiple factors to align with the practical usage and interpretation of the DESSA. Because the items were designed to represent specific types of behaviors and characteristics, we hypothesized a five-factor solution would produce greater model-data fit than the one-factor model.

Higher order model. This model imposed latent loadings onto a single, second-order factor. It is equivalent to the correlated five-factor model except in the covariance structure between the first-order factors (Rindskopf & Rose, 1988). However, this factor structure directly models theory proposed by the DESSA manual: Item responses contribute to uniquely defined and interpretable subscales, and the subscale scores are used to create a higher order, composite score. As such, this factor structure would be the preferred model, conditional on good model-data fit.

Model estimation and comparison. We used the robust mean- and variance-adjusted weighted least squares estimator (WLSMV), which does not depend on the normality of the data and is appropriate for modeling ordinal data (Brown, 2006). To assess model-data fit for each factor structure, we used Bentler's comparative fit index (CFI $\geq$ .96; Bentler, 1990), the Tucker–Lewis index (TLI $\geq$ .95; Tucker & Lewis, 1973), the root mean square error of approximation (RMSEA $\leq$ .05; Steiger & Lind, 1980), and the weighted root mean square residual (WRMR $\leq$ 1.0; Yu & Muthén, 2002). A chi-square difference test suitable for the WLSMV was used to determine model-data fit of nested models.

We then examined model modifications recommended by Mplus (Muthén & Muthén, 2012) for the best-fitting model. In considering modifications, we did not allow items to load onto

multiple factors, or allow item errors to be correlated if each of the items loaded onto different factors. However, we did allow errors to be correlated if corresponding items loaded onto the same factor and if the modification was theoretically supported.

Convergent and discriminant evidence of validity. In examining associations between scores from the DESSA and other measures, which we modeled under an SEM framework, the option 'vce (cluster *idvar*)' in Stata was used to obtain standard errors adjusted for clustering and appropriate for statistical inference. Significant correlations between scores from theoretically related measures suggested evidence of convergent validity, whereas correlations closer to zero between scores from theoretically unrelated measures suggested evidence of discriminant validity. We used standard conventions for assessing the strengths of associations (none: 0-.1, weak: .1-.3, moderate: .3-.5, strong > .5; Cohen, 1977).

Cameron Ponitz and colleagues (2009) found that HTKS was associated with the classroom self-regulation subscale of the CBRS ($r = .20$), but only weakly associated with interpersonal skills ($r = .11$). As such, we hypothesized that measures of self-regulation (HTKS, CBRS) would be most associated with Self-Management, but not Social Awareness or Relationship Skills. We also expected perspective taking (theory of mind) to be associated with Social Awareness, and relationship quality measures (STRS) to be associated with Relationship Skills.

Missing data. All participants had complete data on the DESSA. Missingness occurred on demographic variables (0%-14%) and other measures collected in the study (1%-3%). Logistic regressions indicated that children's observable baseline characteristics were not predictive of missingness in school-related outcomes. We specified a maximum likelihood estimation strategy (MLSMV) in all analyses to handle missing data where appropriate.

Results

Descriptive statistics of composite variables and demographic information, correlations among variables, and other preliminary checks indicated that the data met the assumptions required of the analysis plan. The means of the DESSA subscales ranged from 3.42 to 3.75 points on a 5-point scale ($SD = 0.73$-0.85), with no evident univariate or multivariate outliers for this sample. Correlations between the DESSA subscale scores were in the mid- to high-range (.65-.90). Inter-item correlations were also explored. One item ("copes well with insults and mean comments," Item 1) was found to be weakly correlated with other items on the DESSA (most ranging from .10 to .30), whereas the majority of pairwise correlations between items were moderate to strong (ranging as high as .86).

CFA

Because intraclass correlations (ρ) ranged from .26 to .37 across measures, we clustered standard errors to avoid model misfit and incorrect standard errors (Pornprasertmanit, Lee, & Preacher, 2014). Overall, the correlated five-factor model produced adequate fit (CFI = .943; TLI = .940; RMSEA = .046, 90% confidence interval [CI] = [.042, .050]; WRMR = 1.317), with standardized factor loadings ranging from 0.35 to 0.95. Fit indices for this model were comparatively better than those from the one-factor model (CFI = .929; TLI = .925; RMSEA = .051, 90% CI = [.047, .055]; WRMR = 1.523). Standardized factor loadings for the one-factor model ranged from 0.33 to 0.91. A chi-square difference test offered empirical support for the correlated five-factor model, $\Delta\chi^2(10) = 180.11$, $p < .01$.

Latent correlations between factors for this model were high and ranged from .75 to .96, suggesting that the higher order model might be more theoretically supported. As expected of equivalent models, the higher order model produced fit statistics similar to the correlated five-factor

model (CFI = .943; TLI = .940; RMSEA = .046, 90% CI = [.042, .050]; WRMR = 1.334). Standardized factor loadings for the higher order model were strong and are presented in Table 3. Latent factor loadings from this model were very high, ranging from .86 (Self-Awareness) to .99 (Decision-Making). Because model-data fit and the magnitude of factor loadings did not vary substantially, the higher order five-factor model was the preferred model.

Modification indices suggested that two items in the Self-Management subscale, "adjusts well from one setting to another" and "adjusts well to changes in plans," were related with each other. Allowing the errors of these items to correlate in the measurement model improved the chi-square by 37.76 ($p < .001$), though the fit indices only changed nominally (CFI = .946; TLI = .943; RMSEA = .044, 90% CI = [.040, .048]; WRMR = 1.299). Modification indices also showed that the Decision-Making item "seeks advice" might be related to "shows an awareness of her or his personal strengths" or "asks somebody for feedback." However, because these items loaded onto Self-Awareness, and not Decision-Making, we did not permit the item errors to covary.

Nearly all standardized factor loadings in the final model were very high (.72-.96), suggesting strong associations between the indicators and their respective constructs (see Table 3). The exception was Item 1, which had a standardized factor loading of .35. R^2 values ranged from .54 to .92 for all indicators except Item 1 ($R^2 = .12$).

Convergent and Discriminant Evidence of Validity

Table 4 presents pairwise correlations between the DESSA and other measures of children's school-related outcomes. Overall, associations were in the expected direction, providing evidence of convergent validity. The DESSA composite scores were found to be strongly associated with conflict scores ($r = -.61$, $p < .01$) and closeness scores ($r = .63$, $p < .01$), classroom self-regulation ($r = .55$, $p < .01$), and problem behaviors ($r = -.52$, $p < .01$); moderately associated with perspective taking scores ($r = .22$, $p < .01$); and weakly associated with behavioral self-regulation scores ($r = .16$, $p < .01$). The DESSA subscales had similar strengths of associations. For example, the relationships skills domain scores were more strongly associated with the scores of the closeness domain ($r = .66$, $p < .01$) relative to other domains. Associations with perspective taking were strongest for the self-awareness scores, yet still modest ($r = .29$, $p < .01$). Although perspective taking was hypothesized to be related with the social awareness scores, the association was only small in magnitude ($r = .13$, $p = .05$). In line with our hypotheses, the social awareness scores were not associated with the HTKS scores ($r = .07$, $p = .21$), providing discriminant evidence of validity.

Discussion

Experts support the CASEL's mission to teach the components of social emotional competence across different contexts (CASEL, 2017), but no measurement work supports whether these five components can be reliably and distinctly measured among low-income children. This study, among the first to validate the use of a measure in a sample that incorporates these five components, revealed that scores from multicomponent frameworks were valid and demonstrated associations with important school-related outcomes. However, high correlations between the five components for this sample provided suggestive evidence that a total score may be more appropriate for use in research in the DESSA's current form. We elaborate on these findings and the need for further measurement work below.

Social Emotional Competence as a Multifaceted Construct

Research has considered social emotional competence both as a single construct (e.g., Durlak et al., 2011) and as comprising multiple components (e.g., Jones & Bouffard, 2012). CFAs

Table 3. Item Clusters With Factor Loadings for Final Higher Order Model.

	Factors				
	1	2	3	4	5
Item no.	Self-management	Self-awareness	Social awareness	Decision-making	Relationship skills
26	0.90*				
19	0.87*				
24	0.85*				
17	0.83*				
45	0.83*				
21	0.82*				
16	0.80*				
33	0.80*				
29	0.79*				
40	0.79*				
27	0.70*				
22		0.89*			
14		0.85*			
31		0.85*			
36		0.84*			
30		0.79*			
35		0.77*			
32		0.73*			
8			0.95*		
7			0.93*		
3			0.92*		
4			0.90*		
5			0.90*		
2			0.87*		
6			0.80*		
9			0.79*		
1			0.35*		
15				0.91*	
10				0.89*	
12				0.85*	
38				0.85*	
42				0.85*	
39				0.82*	
41				0.79*	
25				0.65*	
34					0.93*
23					0.92*
44					0.90*
18					0.89*
13					0.86*
39					0.86*
37					0.85*
20					0.83*
28					0.82*
11					0.80*

Note. Standardized factor loadings reported. Latent loadings were as follows: Self-Management (0.96*), Self-Awareness (0.86*), Social Awareness (0.91*), Decision-Making (0.99*), and Relationship Skills (0.97*).
*The factor loading is significantly different from zero at $\alpha = .05$.

Table 4. Pairwise Correlations.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Child age in years	1.00														
2. Gender (male = 1)	-.01	1.00													
3. Mother's education (HS or more = 1)	-.01	-.01	1.00												
4. DESSA composite	.12*	-.14*	.11	1.00											
5. Self-management	.13*	-.15*	.08	.94*	1.00										
6. Self-awareness	.18*	-.13*	.16*	.86*	.74*	1.00									
7. Social awareness	.00	-.10	.06	.90*	.86*	.65*	1.00								
8. Decision-making	.15*	-.12*	.10	.95*	.89*	.76*	.81*	1.00							
9. Relationship skills	.09	-.13*	.08	.95*	.86*	.79*	.83*	.90*	1.00						
10. HTKS	.09	-.14*	.11	.16*	.17*	.19*	.07	.16*	.14*	1.00					
11. Theory of mind	.17*	-.11	.13*	.22*	.18*	.29*	.13*	.21*	.20*	.27*	1.00				
12. STRS conflict	-.03	.14*	-.16*	-.61*	-.64*	-.38*	-.59*	-.64*	-.58*	-.18*	-.16*	1.00			
13. STRS closeness	.02	-.11*	.08	.63*	.53*	.59*	.55*	.57*	.66*	.05	.15*	-.37*	1.00		
14. Self-regulation	.23*	-.21*	.03	.55*	.55*	.47*	.43*	.58*	.52*	.32*	.27*	-.40*	.31*	1.00	
15. Problem behaviors	-.05	.19*	-.12*	-.52*	-.53*	-.37*	-.47*	-.54*	-.50*	-.19*	-.12*	.60*	-.26*	-.69*	1.00

Note. HS = high school; DESSA = Devereux Student Strengths Assessment; HTKS = head-toes-knees-shoulders; STRS = Student–Teacher Relationship Scale.
*Statistical significance at the 5% alpha level, with standard errors clustered at the classroom level.

revealed that a correlated five-component framework was valid and the better fitting model, compared with a one-factor model that assumes social emotional competence as a single construct. Furthermore, construct-related validity evidence supporting a higher order model was also adequate for this sample. Not only were the five competencies interrelated and distinguishable by teachers, they were also explained by a higher order, social emotional competence construct. This evidence supports the interpretation of a composite score in providing teachers and parents with a holistic representation of the child, as proposed by the DESSA manual, while also supporting a more nuanced view of the child's social and emotional strengths. Future directions might further investigate how usage of the DESSA may be useful for informing teachers' classroom practices, particularly in providing opportunities for students to develop social and emotional skills.

Although results provide general support for teachers noticing different strengths of children in the classroom, they also suggest a need for additional measurement work. For example, items with correlated errors point to the possibility that teachers may be interpreting the wording of the items too similarly. In its current form, the teacher-rated DESSA is a useful tool for identifying which behavior students less frequently exhibit. At the same time, the 45 items could be modified to more adequately represent intended constructs, and to minimize excessive items. Shorter strengths-based measures of social emotional competence are especially important for working with low-income populations, where schools may be low-resourced and lengthy assessments may be tedious and burdensome for teachers (Prince-Embury, 2010).

Social Emotional Competence Is Associated With School-Related Outcomes

In line with previous studies (e.g., Denham et al., 2010), social emotional competence as measured by the teacher-rated DESSA was associated with school-related outcomes examined in this sample, including relationship quality and classroom and behavioral self-regulation. The strongest associations were between scores from teacher-reported measures, although scores from most direct assessments also showed small yet meaningful associations with the DESSA subscale scores. The most surprising result was the weaker association between perspective taking (theory of mind) and social awareness. This may be due to differences in assessment environments: Direct assessments seek to standardize assessment sessions to isolate the child's ability from his or her environment, whereas teacher-rated assessments rate children's abilities in the context of the environment, and consider how the child functions within the classroom setting.

A lack of correlation between scores from social awareness and HTKS provided evidence of discriminant validity, and was in line with prior research (Cameron Ponitz et al., 2009). Specifically, behaviors characterizing social awareness, such as showing respect and interacting with others, do not seem important for overriding natural responses and other tasks demanded by the HTKS. The weak association between scores from Relationship Skills and HTKS ($r = .14$), although statistically significant, was also in agreement with prior literature suggesting that behavioral self-regulation and interpersonal skills should not be strongly linked ($r = .11$; Cameron Ponitz et al., 2009). More broadly, the high correlations observed in this study suggest that, without further reevaluation, the DESSA might not be able to pick up on the nuances of each of the subcomponents. As such, it may be too soon to make concrete conclusions or recommendations about which school-related outcomes are or are not related to social emotional competence.

Implications for Research

The teacher-rated DESSA is easy to administer, which makes it an appealing tool for use in this population, and is useful for obtaining scores of social emotional competencies for individual children. However, researchers should acknowledge issues of multicollinearity when using the five highly correlated factors in their analyses. Until a measure with greater psychometric properties for

this sample is developed, such that the five components are more uniquely identified, the higher order measurement model may be more appropriate for examining how these components differentially or concurrently predict child outcomes.

Researchers should also consider the importance of teachers' interpretations and perspectives when using teacher-rated measures in the field. For example, teachers in our study appeared to not distinguish between "adjusts well from one setting to another" and "adjusts well to changes in plans," even though one item describes adjustment to different contexts while the other item describes adjustment to unexpected change. The importance of the teacher perspective was also highlighted in the strong associations between the DESSA and other teacher-reported measures. Teacher-rated measures have great utility to the extent that teachers construct environments that allow children to express their individual strengths. As such, researchers should be mindful of context when using teacher-rated measures, and in particular acknowledging when environmental constraints might influence teachers' perspectives.

Limitations

This study had several limitations. First, our study used only five of the eight DESSA subscales, a decision that was made to align with the CASEL's five-component framework. As such, we caution the generalizability of our findings and recommend that future research validate the use of other abbreviated versions of the DESSA, and other low-burden assessments that show promise for low-income populations. Second, our study examined only concurrent associations with school-related outcomes. Future research should evaluate criterion-related validity evidence by assessing whether social emotional competencies differentially predict gains in social and academic outcomes over time. Third, although our study was sufficiently powered to detect meaningful differences in RMSEA values, our sample size did not meet the 10 per parameter criterion (Hair, Anderson, Tathan, & Black, 1995), so future research might replicate these findings with larger sample sizes. Finally, as with all correlational studies, we cannot claim that greater social emotional competence causes gains in the school-related outcomes we examined in this study. Our findings should not be interpreted as having greater importance over other factors that explain the school-related outcomes we examined here, particularly factors beyond the child such as teachers' classroom practices.

Conclusion

The purpose of this study was to validate responses derived from the DESSA to gain a better understanding of social emotional competence among young, low-income children. By focusing on a homogeneous group of young disadvantaged children, we begin a valuable line of measurement work that acknowledges the unique differences in children who are at a different developmental stage than their older counterparts, and who also experience a different context than their higher income peers, both at home and school.

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