

Evidence of Convergent and Discriminant Validity of the Student School Engagement Measure

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The purpose of this study was to investigate the convergent and discriminant validity of the Student School Engagement Measure (SSEM) with 3 other measures of student well-being: (a) the School Engagement Scale, (b) the Student Engagement Instrument, and (c) the Student Life Satisfaction Survey. The data were analyzed from 370 8th-grade students from 3 middle schools in an urban school district. As hypothesized, strong and significant positive correlations (.80) were found between the SSEM and the 2 measures of engagement (the School Engagement Measure and the Student Engagement Instrument). Also as hypothesized, a weak but significant positive correlation (.35) was found between the SSEM and a measure of life satisfaction (the Student Life Satisfaction Survey). These findings provide additional support for using the SSEM as a valid measure of adolescents' engagement with school.

Keywords: construct validity, convergent validity, discriminant validity, student life satisfaction, student school engagement

Students' engagement during middle and high school has shown to be predictive of students' likelihood to graduate from high school with their cohort (Balfanz, Herzog, & MacIver, 2007). As well as increased on-time high school graduation rates, adolescents who are engaged with school have higher grades (Faircloth & Hamm, 2005), better global well-being (Archambault, Janosz, Fallu, & Pagani, 2009), and greater psychosocial engagement across the lifespan (Furlong et al., 2003) than disengaged adolescents. Engagement has been shown to be plastic: It can be changed and increased, thus making it a target for intervention (Christenson, Reschly, & Wylie, 2012). Because of its malleable nature and impact on important developmental outcomes, being able to assess students' engagement can assist psychologists who work with adolescents.

A lack of clarity of what constitutes engagement (Reschly & Christenson, 2012) and, following that, an understanding of which instruments are best suited to assess engagement, given contextual

issues and intended use of results (Fredricks & McColskey, 2012), has hampered psychologists' ability to provide appropriate interventions based on adolescents' engagement (or disengagement) with school. This article reviews models of engagement, presents convergent and discriminant results from a study of the Student School Engagement Measure (SSEM) and makes recommendations from these findings for practitioners and further research.

Engagement as an Area of Study

Current engagement models have been influenced by motivational theories (Connell & Wellborn, 1991; Deci, Koestner, & Ryan, 2001), the Expectancy-Value Theoretical Model (Eccles, 2009; Eccles & Wang, 2012), the Theory of Planned Behavior (Ajzen, 1985), and school dropout and completion studies (Finn, 1989). Connell and Wellborn (1991) postulated that the social context either supported or hindered the developing person in experiencing the self as competent, autonomous, and related; the meeting or frustration of these psychological needs led to engagement or disaffection with the environment. This response to the environment affected the development of academic skills and social adjustment. From this perspective, a supportive school environment encourages positive self-perceptions and attitudes about learning, which lead to behaviors that promote academic and social development. Reciprocally, in Finn's Participation-Identification Model (Finn, 1989; Finn & Zimmer, 2012), participation in school activities (behaviors) supports successful performance, which leads to positive identification with school (attitudes).

But the same environment does not support all individuals equally; nor, are all individuals seeking the same thing from an environment. Eccles' Expectancy-Value Theoretical Model emphasizes the importance of context, history and one's prescribed

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role in the development of self-identity (Eccles, 2009); expectations of success and the subjective value given a task affects achievement-related choices and performance (Eccles & Wang, 2012). Similarly, the theory of planned behavior (Ajzen, 1985) states that behavioral beliefs (expectations of a behavior leading to mostly positive or negative outcomes) affects one's attitude toward performing the behavior; also, individuals perceive environments to vary in their correlational strength between behaviors and outcomes. Applying these theories to engagement, the school environment may be perceived by disengaged students as a place where it is difficult to achieve desired outcomes due to their demographic or cultural memberships, previous educational history, or role within the student population (Eccles & Wang, 2012); or students may be disengaged because they anticipate a low correlation between their behaviors and outcomes at school (Ajzen, 1985).

These theories illustrate that engagement can be seen as a precursor to academic success or as an outcome of academic success, depending on the timeframe utilized (Reschly & Christenson, 2012). Similarly, motivation is a necessary, but not wholly sufficient, precursor to engagement, as engagement is motivation in action and is situationally affected (Appleton, Christenson, & Furlong, 2008; Fredricks & McColskey, 2012). Although engagement is conceptualized as motivation in action, many models of engagement have their basis in tripartite models of attitude: affect, behavior, and cognition (e.g., Breckler, 1984; Rosenberg & Hovland, 1960). Three contemporary models of engagement will be reviewed.

School Engagement Model

Blumenfeld, Fredricks, and colleagues define engagement as composed of three interrelated domains: emotional engagement, behavioral engagement, and cognitive engagement (Fredricks, Blumenfeld, Friedel, & Paris, 2005; Fredricks, Blumenfeld, & Paris, 2004; Jimerson, Campos, & Greif, 2003). Emotional engagement refers to students' attachment to their teachers and peers, as well as their feelings about academics and school in general. Behavioral engagement includes students' positive conduct, such as effort, persistence, concentration, attention, and contributions in class. Cognitive engagement is composed of both motivation and learning strategies. Motivation includes students' investment in their learning as well as an intrinsic desire to learn and master the material. Students who are cognitively engaged are able to self-monitor and evaluate their learning strategies (Fredricks et al., 2004). The authors posit emotional engagement may be a precursor to cognitive and behavioral engagement, whereas cognitive and behavioral engagement appear most directly linked to academic success (Buhs, Ladd, & Herald, 2006; Fredricks et al., 2004).

Student Engagement Model

Christenson, Jacob, & Berman-Young (2008) developed a four-factor model of student engagement: academic, behavioral, cognitive, and affective engagement. This model differentiates between observable factors (academic and behavioral engagement) and internal factors (cognitive and affective engagement) that contribute to students' engagement. The observable engagement factors can be determined by observation of behaviors; the internal en-

agement factors require self-report to assess. Academic engagement is evidenced by behaviors such as time on task, credits earned, and homework completion. Behavioral engagement is determined by attendance, voluntary classroom participation, extra-curricular participation, and extra-credit options. Cognitive engagement includes students' appraisals of self-regulation abilities, the relevance of school to future aspirations, the value of learning, and ability to set goals and strategize. Affective engagement encompasses students' sense of belonging at school, identification with school, and appraisal of school membership. Christenson et al. (2008) propose that multiple systemic contexts (e.g., family, peers, and school) influence student engagement and encourage or hinder academic, social, and emotional outcomes.

Student School Engagement Model

In contrast to attitude model divisions, the Student School Engagement Model (Hazel, Vazirabadi, & Gallagher, 2013) contains domains that represented the self-appraisal of fit with the school environment and that have been shown to impact student success and persistence in schooling. The three domains are Aspirations, Belonging, and Productivity.

Aspirations are students' interest and investment in their education, based on their appraisals of the worthwhileness of an education and its utility to their future. The Expectancy-Value Model (Eccles, 2009; Eccles & Wang, 2012) states that subjective valuing of a task and its outcomes will greatly impact achievement-related choices.

Belonging encompasses students' identification with school values, their sense that they are a member of the school community, and their acceptance of the school's norms. This draws from the theoretical understanding that the meeting or frustration of psychological needs (including being related to others) impacts motivation and engagement (Connell & Wellborn, 1991).

Productivity includes students' willingness to work on academic tasks, cognitive strategies designed to monitor and maximize learning, and utilization of family or community resources to support academic achievement. Finn's Participation-Identification Model states that pro-school behaviors lead to greater engagement; especially for students who identify as less supported in school environments (Eccles, 2009) or perceive that there is only a weak link between their behaviors and academic outcomes (Ajzen, 1985), the proactive aspects of productivity should differentiate engaged from disengaged students.

The Student School Engagement Model assumes that engagement represents a student's perception of the fit between his or her needs and the school environment. In contrast to the Student Engagement Model (Christenson et al., 2008), no behavioral data such as credits earned or attendance are collected. In this model, engagement encompasses students' perceptions exclusively; for this reason, self-report is expected to be the most accurate means to measure engagement. As stated, the Student School Engagement Model is grounded in motivational and related theories, rather than typical attitude model divisions. Starting from theories that explain the impetus for engagement-related behaviors may allow the Student School Engagement Model to parse engagement into domains with greater clinical utility. For instance, in the Student School Engagement Model, aspirations comprise one of three constructs. In the Student Engagement Model (Christenson et

al., 2008), aspirations are conceptualized as part of cognitive engagement, which includes appraisal of self-regulation abilities, unrelated to aspirations.

The initial study of the SSEM, developed from the Student School Engagement Model, was conducted with data from 388 eighth-grade students and showed promising results (Hazel et al., 2013). Scores in the three domains had strong reliability estimates ($\alpha = .83$ to $.92$). Structural equation modeling supported a second-order model composed of Student School Engagement as the first order and the domains of aspirations, belonging, and productivity as the second order. SSEM scores had a positive relationship with achievement on the state assessment of academic achievement (standardized path coefficient of $.18$) and a negative relationship with district-assessed risks (poor attendance, suspensions, and failure in math or language arts; standardized path coefficient of $-.23$). When utilizing independently measured variables, these are considered moderately strong relationships (Hemphill, 2003) and are similar to the correlational power found for other self-report engagement instruments with significant academic outcomes and predictors (see, e.g., Christenson et al., 2008; Finlay, 2006).

As the SSEM is 22 items and has taken participants in group settings approximately 10 min to complete (Hazel, 2011), the SSEM could be a practical screener for adolescents who might be at increased risk of school disengagement. The findings from the preliminary study suggest that the SSEM could be a useful predictive measure of academic risk behaviors and success and is worthy of further study. An important next step was to investigate the construct validity of the SSEM through evaluating the convergence of students' scores on the SSEM with other instruments that measure engagement and divergence of scores with instruments that measure related but distinct constructs.

Measuring Engagement

As noted above, there are multiple definitions and models of engagement. Valid interpretation of and decision making based on psychological measures' scores is difficult when the construct has inconsistent definitions or boundaries (Haynes, Richard, & Kubany, 1995); this has been true in the development of engagement measures (Samuelsen, 2012). Because engagement is inconsistently defined, it is critical that practitioners and researchers identify the model of engagement from which they operate and what that model does and does not include (Appleton et al., 2008).

Engagement scales have been criticized for including correlates of engagement that reside outside of the construct: environmental facilitators, antecedents, and consequences of engagement (Finn & Zimmer, 2012; Lam et al., 2012). Given these confounding issues, it is not surprising that the measurement of engagement with different methods has often found minimal correlations (Fredricks & McColskey, 2012). The three most common methods used to measure engagement are self-report, teacher report, and observation (Fredricks et al., 2011). These different measurement methods and various instruments within each method may capture differing aspects of engagement (Fredricks et al., 2011), as well as variables outside the construct. Because the Student School Engagement Model states that engagement is solely a student's perception of the goodness of fit between his or her needs and the school environment, only self-report will capture engagement as defined by this model.

Supporting Construct Validity Through Investigations of Convergent and Divergent Evidence

Because psychological constructs are essentially unobservable, there is a need to demonstrate an instrument's degree of convergence with and discrimination from measures of other constructs in order to determine the utility of that measure to assess the psychological construct of interest (Cronbach & Meehl, 1955; Fiske & Campbell, 1992). As constructs are revised as theories evolve, construct validation of an instrument is an ongoing, iterative process (Smith, 2005). It has been argued that the most rigorous method of finding convergent and discriminant evidence will utilize multitraits (at least one additional construct other than the construct of interest to assess the measure's ability to discriminate between the desired construct and other constructs) and multimethods (two or more methods for measuring the construct of interest to eliminate correlations based on measurement similarities; Campbell & Fiske, 1959; Foster & Cone, 1995). However, this requires that (a) for all utilized measures, the reliability of the scores for the population and validity of score interpretations in the given context be high and (b) that there are comparison instruments that utilize different measurement methods while operationalizing the construct similarly (Foster & Cone, 1995). Within the engagement literature, the first criterion is still being established and the second criterion has had even less study (Fredricks & McColskey, 2012; Fredricks et al., 2011).

Although more than 20 engagement instruments exist and some have been empirically analyzed (Fredricks et al., 2011), published studies of convergent and discriminant evidence are lacking. One exception was an article that presented preliminary results of a study that compared the Student Engagement Instrument (SEI) with the Motivation and Engagement Scale (for convergence) and the Student Life Satisfaction Scale (SLSS; for divergence; Reschly & Betts, 2009). As the authors predicted, stronger correlations were found between domains of the two engagement instruments than between the SEI domains and SLSS items; they did not report the correlations between the total scores on the three instruments. A longitudinal study of adolescents found that high life satisfaction predicted increased cognitive engagement over a year later; and, reciprocally, high cognitive engagement at the first measurement was predictive of increased life satisfaction at the second time point (Lewis, Huebner, Malone, & Valois, 2011). These two studies suggest that engagement and life satisfaction are distinct, but related, psychological constructs.

This Study

The purpose of this study was to explore the construct validity of the SSEM by investigating convergent and discriminant evidence with other established measures of students' engagement and well-being. The two self-report engagement measures selected for analyzing convergence were those that have published empirical support with similar populations. Because of previous engagement convergence and divergence work, student life satisfaction was selected for the analysis of divergence.

The hypotheses were that the SSEM total scale would be (a) significantly and positively correlated with the total scales of two other measures of engagement, thus providing support for the SSEM as a measure of engagement, and (b) positively, but less

strongly, correlated with a measure of student life satisfaction, thus providing a lack of support for the SSEM as a measure of life satisfaction. Because the subscales of the three engagement instruments were not purporting to measure the same aspects of engagement, convergence of the subscales was not under investigation.

Method

This study was conducted in accordance with the research guidelines of the American Psychological Association's (2010) *Ethical Principles of Psychologists and Code of Conduct*. Approval for the research was received by the participating district and the Internal Review Board of the University of Denver and of the school district in which the data were collected.

Participants and Survey Administration

The data set utilized was the same one as was used in the initial validation study of the SSEM (Hazel et al., 2013). The participants were 389 eighth graders at three middle schools (73% of all eighth-grade students at these schools) within an urban district in the central mountain region of the United States. As described below, 370 protocols (95% of the sample) were able to be included in the analysis. Families were informed through each school's weekly communication folder of the study and how to withdraw their student if they so wished; at these schools, all materials for families are printed in English on one side and Spanish on the other. No parents denied their student's participation; all students present the day of data collection assented to participating and were included in the study. The students received no compensation for participating but were informed that aggregated results would be reported to their teachers and used to better meet the engagement needs of students. Student identification numbers and names were used to match the students' protocol results with district-collected demographic and academic information. According to district records, most students were Latino (80%), many were low-income (69% qualified for free or reduced price lunches

[FRL]), and there were slightly more males (56%) than females in the sample; see Table 1 for more demographic information. The students completed the protocol during a regularly scheduled class with their teacher and at least two of the researchers present.

Measures

Student School Engagement Measure (SSEM). The SSEM is a 22-item self-report measure designed for secondary students (Hazel et al., 2013). Responses are on a 10-point Likert-type scale of agreeableness and none of the items are reverse coded. The measure has three domains: aspirations (four items, e.g., "Being successful in school will help me in the future"), productivity (12 items; e.g., "When I have an assignment due, I keep working until it is finished"), and belonging (six items, e.g., "I am proud to be a student at this school"). The SSEM domain scores have shown strong reliability and the SSEM was found to be predictive of student grades in core subjects and risks to on-time graduation (course failures, low attendance, and suspensions; Hazel et al., 2013). Although this analysis used the same data set as the Hazel et al. (2013) study, there were different inclusionary criteria leading to a slightly different portion of the data set being utilized; for this analysis, the reliability estimates from the sample ranged from .80 (aspirations) to .90 (productivity).

School Engagement Instrument (SEI). The 35-item SEI, designed to measure the internal indicators of cognitive and affective engagement, was first validated with 1,940 ninth graders (Appleton, Christenson, Kim, & Reschly, 2006); many of the participants were students of color and 10% were Hispanic. Factor analyses revealed six factors, whose internal consistency ranged from .84 (family support for learning) to .88 (teacher-student relationships; Appleton et al., 2006). A later study (Betts, Appleton, Reschly, Christenson, & Huebner, 2010) showed invariance across Grades 6 through 12 and by sex using a 33-item version of the scale; this sample was largely White (86%) and only 1% of participants were identified as Hispanic. Due to the sample characteristics, the 35-item SEI from the original validation study was

Table 1
Student Demographics (N = 389)

Participant characteristic	School				Total
	A	B	C	Missing	
Gender					
Female	28	47	96	0	171
Male	40	64	100	4	208
Missing	5	1	1	3	10
Race and ethnicity					
American Indian or Alaskan Native	0	0	4	0	4
Asian or Pacific Islander	0	1	13	0	14
Black (not Hispanic)	4	1	3	0	8
Hispanic	53	100	139	3	295
White (not Hispanic)	10	5	33	0	48
Missing	6	5	5	4	20
Qualified for					
Free or reduced price lunches (FRL)	54	85	113	3	255
Special education	7	8	15	1	31
Gifted and talented services	8	9	22	0	39
English language learner services	32	76	65	3	176
Total student population	73	112	197	7	389

used in this study because the sample include a higher percentage of students of color, which was more similar to this sample. The six factors are (a) teacher–student relationships (nine items; e.g., “Overall, adults at my school treat students fairly”), (b) control and relevance of school work (nine items; e.g., “The tests in my class do a good job of measuring what I’m able to do”), (c) peer support for learning (six items; e.g., “Other students at school care about me”), (d) future aspirations and goals (five items; e.g., “I plan to continue my education following high school”), (e) family support for learning (four items; e.g., “My family/guardian[s] are there for me when I need them”), and (6) extrinsic motivation (two items; e.g., “I’ll learn but only if my family/guardian[s] give me a reward”; both of these items are reverse coded). SEI items have a 4-point Likert-type scale of agreeableness. For the sample in this study, the internal consistence ranged from .81 (family support for learning) to .91 (teacher–student relationships).

Student Engagement Scale (SES). The SES was designed to measure student engagement based on Fredricks and colleagues’ model of engagement (Fredricks et al., 2004, 2005). The SES has three domains: (a) emotional engagement, (b) cognitive engagement, and (c) behavioral engagement. The instrument has 19 items (three are reverse coded): five behavioral engagement items (e.g., “I follow the rules at school”), six emotional engagement items (e.g., “I like being at school”), and eight cognitive engagement items (e.g., “I check my schoolwork for mistakes”). Items are answered on a 4-point Likert-type scale of agreeableness. A study with 294 fourth- and fifth-grade students showed internal consistency ranging from .77 (behavioral engagement) to .86 (emotional engagement; Fredricks et al., 2005); although sample percentages are not given, the authors state that two of the five schools had a majority of Hispanic students and that all schools predominantly served low income urban children, with over 95% of the student body qualifying for FRL. Students’ self-report of engagement was found to correlate with perceived teacher support, perceived peer support, students’ work orientation, and teachers’ reports of behavior. Invariance for sex and grade was not found: girls reporting significantly higher engagement than boys and engagement decreasing with grade (Fredricks et al., 2005). When used with urban middle school students, the reliability of the scales ranged from .79 to .92; low and inconsistent correlations between the behavioral and cognitive scales and academic variables (grade-point average and attendance) were found (Finlay, 2006). With Canadian seventh- through ninth-grade students, a higher order three-factor model was validated with internal consistency of the three factors ranging from .65 to .88; global school engagement and behavioral engagement were shown to be significant predictors of school dropout, controlling for the effects of student age, maternal education, and secondary school retention (Archambault et al., 2009). For this sample, reliability estimates ranged from .77 (behavioral engagement) to .87 (emotional engagement).

Student Life Satisfaction Survey (SLSS). The SLSS is a seven-item single domain instrument, designed to be used with students from third through 12th grade (Huebner, 1991). Two of the seven items are reverse coded; each item is answered on a 4-point Likert-type scale of agreeableness. Examples of SLSS items include “I would like to change many things about my life” and “My life is better than most kids.” In various studies, coefficient alphas have been in the .70 to .80 range and shown it to be invariant by grade and gender (Huebner, Suldo, & Valois, 2005);

samples were reported to be predominantly White. For this sample, the coefficient alpha was .85.

Procedures

The protocol contained the SSEM, the SLSS, the SES, and the SEI. As many families in this district speak Spanish, the protocol instructions and each item were listed concurrently in English and Spanish, so that a student could read either or both languages (i.e., there was one protocol with each item written first in English and then in Spanish). The protocol had been translated into Spanish and back-translated into English to ensure accuracy. Of the 396 students who participated, protocols from 370 students met the criteria of being at least 90% complete on each measure. For these protocols, the response rate was almost 100% (there were 12,989 out of 12,998 items answered, or 99.93% complete).

Descriptive statistics were computed for each instrument. After reverse-worded answers were recoded, scale and subscale means were computed (so that nonanswers did not affect scores) for each participant. These participant means were then used to calculate the descriptive statistics. Invariance across gender and schools was found for the SSEM total scores and so, the data were analyzed in total. For example, the SSEM total score mean was 7.24, with a *SD* of 1.54, for both boys and girls.

When measures are self-report ordinal scales, it is recommended that Spearman rho, rather than Pearson, correlations be utilized for assessing the relationship between scales, as they are more conservative and help compensate for the possible inflations of correlations due to using all self-report (Bobko, 2001; Jenkinson, Coulter, Bruster, Richards, & Chandola, 2002). For the missing items, cases were excluded pairwise, which is considered acceptable when the data are at least 95% complete (Buhi, Goodson, & Neilands, 2008). Spearman rho correlations were calculated between all total scales and subscales for the four measures. All analyses were performed using the SPSS, Version 20.

Results

Descriptive Statistics

Table 2 summarizes the mean, standard deviation, skew, and coefficient alpha for each measure. Most total scale and subscale reliability estimates were quite strong, and all were within established psychometric guidelines (.60–.90; Nunnally, 1978). Scores on all instruments had a negative skew, indicating that student endorsed their engagement and life satisfaction more toward “strongly agree” than “strongly disagree”; this was particularly true for the SSEM and SLSS. Histograms revealed that the distribution patterns were consistent, which suggests the skewness is not a concern for the analysis (Tabachnick & Fidell, 2013). Although not under analysis, the two subdomains that assess aspirations (aspirations in the SSEM and future aspirations and goals in the SEI) were the most negatively skewed.

Convergent and Discriminant Validity

All correlations were significant at $p < .01$ between total scales and subscales for all measures (see Table 3). However, the SSEM total scale correlation with the SEI and SEM total scales was much

Table 2
Descriptive Statistics for Scales and Subscales of the SSEM, SEI, SEM, and SLSS

Measure	N	Number of Items	M ^a	SD ^a	Skew	α
SSEM	368	22	7.27	1.55	-0.63	.93
Aspirations	370	4	8.87	1.45	-1.93	.80
Belonging	368	6	6.93	1.96	-0.56	.86
Productivity	370	12	6.90	1.72	-0.42	.90
SEI	365	35	3.07	0.49	-0.29	.95
Control and relevance of school work	368	9	2.97	0.57	-0.25	.87
Extrinsic motivation	370	2	3.28	0.82	-0.86	.81
Family support for learning	369	4	3.26	0.66	-0.89	.84
Future aspirations and goals	370	5	3.54	0.57	-1.50	.89
Peer support for learning	369	6	3.08	0.63	-0.66	.87
Teacher-student relationships	369	9	2.76	0.68	-0.22	.91
SEM	370	19	2.66	0.55	-0.02	.91
Behavioral engagement	370	5	3.10	0.60	-0.46	.77
Cognitive engagement	370	8	2.40	0.64	0.05	.84
Emotional engagement	370	6	2.64	0.72	-0.07	.87
SLSS	370	7	2.89	0.68	-0.55	.85

Note. SSEM = Student School Engagement Measure (Hazel et al., 2013); SEI = Student Engagement Instrument (Appleton et al., 2006); SEM = School Engagement Measure (Fredricks et al., 2004, 2005); SLSS = Student Life Satisfaction Survey (Reschly & Betts, 2009).

^a Potential range is 1 to 10 for SSEM and 1 to 4 for all others.

greater than its correlation with the SLSS (.80 vs. .35). This suggests that a student's score on the SSEM could predict 64% of the variation of his or her score on the SEI or SEM, compared to only 12% of the variability on the SLSS. Although not under investigation, the all subscales of the engagement instruments were found to be significantly and positively correlated within and across instruments.

Discussion

The purpose of this study was to investigate the construct validity of the SSEM by evaluating convergent with two other self-report measures of engagement (the SEI and SEM) and a

measure of a related, but different, construct (life satisfaction, as measured by the SLSS). Both hypotheses were supported: (a) Students' responses on the SSEM were shown to be significantly and positively correlated with their responses on the SEI and SEM, suggesting that the SSEM is a measure of engagement, and (b) their responses on the SSEM were shown to be positively, but less strongly, correlated to their responses on the SLSS, suggesting that the SSEM is not a measure of life satisfaction.

In recent comprehensive reviews of engagement instruments (Fredricks & McColskey, 2012; Fredricks et al., 2011), empirical assessment of convergent and discriminant evidence had not been reported by the instruments' developers. In the one study we know

Table 3
Spearman Rho Correlations Between the SSEM, SEI, SEM, and SLSS

Measure	1	1a	1b	1c	2	2a	2b	2c	2d	2e	2f	3	3a	3b	3c	4
1. SSEM	1.00															
1a. Aspirations	.71*	1.00														
1b. Belonging	.86*	.55*	1.00													
1c. Productivity	.95*	.63*	.70*	1.00												
2. SEI	.80*	.58*	.78*	.72*	1.00											
2a. Control and relevance of school work	.80*	.62*	.73*	.73*	.88*	1.00										
2b. Extrinsic motivation	.33*	.35*	.27*	.31*	.41*	.29*	1.00									
2c. Family support for learning	.65*	.48*	.50*	.66*	.76*	.64*	.30*	1.00								
2d. Future aspirations and goals	.60*	.69*	.50*	.54*	.69*	.62*	.45*	.60*	1.00							
2e. Peer support for learning	.43*	.30*	.47*	.40*	.67*	.46*	.23*	.45*	.41*	1.00						
2f. Teacher-student relationships	.70*	.35*	.71*	.56*	.86*	.71*	.21*	.56*	.39*	.49*	1.00					
3. SEM	.80*	.56*	.70*	.76*	.73*	.77*	.32*	.55*	.53*	.37*	.62*	1.00				
3a. Behavioral engagement	.66*	.54*	.53*	.66*	.62*	.63*	.46*	.51*	.54*	.31*	.46*	.73*	1.00			
3b. Cognitive engagement	.64*	.43*	.50*	.64*	.55*	.62*	.20*	.45*	.40*	.25*	.46*	.86*	.48*	1.00		
3c. Emotional engagement	.69*	.44*	.72*	.60*	.69*	.67*	.25*	.44*	.45*	.38*	.64*	.86*	.53*	.59*	1.00	
4. SLSS	.35*	.22*	.30*	.35*	.44*	.32*	.21*	.39*	.28*	.38*	.33*	.32*	.28*	.20*	.39*	1.00

Note. SSEM = Student School Engagement Measure (Hazel et al., 2013); SEI = Student Engagement Instrument (Appleton et al., 2006); SEM = School Engagement Measure (Fredricks et al., 2004, 2005); SLSS = Student Life Satisfaction Survey (Reschly & Betts, 2009).

* Correlations significant at the .01 level (one-tailed).

of, correlations between the SEI domains and the Motivation and Engagement Scale domains ranged from .24 to .69; however, total scale correlations were not reported. Carlson and Herdman (2012) recommend that convergent evidence be above .70 between measures in order to consider the instruments as proxies for one another. In this study, the correlations between the SSEM and the other measures of engagement were .80 each. The convergent validity between the two comparison measures (the SEI and the SSEM) was .73. These findings support the hypothesis that the SSEM is a measure of engagement.

The correlation between the SSEM and the SLSS was .35. Although still significant, this was a smaller correlation than between the engagement measures and does not meet the criteria established by Carlson and Herdman (2012). This correlation is within the range of correlations found between SEI domains and individual SLSS items reported by Reschly and Betts (2009; range from .25 to .57); the correlation between the SEI and SLSS as composites was not reported. It is also similar to the results from a structural equation modeling study of engagement and the SLSS, where standardized path coefficients between engagement domains and the SLSS ranged from .24 to .43 (Lewis et al., 2011). Similarly, the correlations found in this study between the other engagement measures and the SLSS were significant but weak (ranging from .32 to .44). Our findings support the hypothesis that the SSEM is measuring a construct related to student life satisfaction but also distinct from life satisfaction.

Limitations and Recommendations for Future Research

Although this study provides support for the contention that the SSEM is measure of engagement, there are limitations that must be considered. This study was based solely on student self-report. The most rigorous form of convergent analysis includes comparing measures that represent different but related constructs and that utilize multiple methods of data collection (Campbell & Fiske, 1959). This study complied with the multitrait recommendation. However, multiple methods of measuring engagement were not utilized for two reasons: (a) Other means of assessing engagement have been shown to have low correlations with students' self-report of engagement (Fredricks & McColskey, 2012), and (b) the Student School Engagement Model (from which the SSEM was developed) assumes that engagement is a student's perception and cannot be assessed through observation or teacher report (the other most common forms of assessing engagement). The use of only self-report measures could have resulted in inflated correlations, due to the instruments' type, rather than content; to help compensate for this, Spearman's rho was used to calculate the correlations. A limited number of studies have assessed engagement with multiple sources or measurement methods (see, e.g., Fredricks et al., 2005; Skinner, Marchand, Furrer, & Kindermann, 2008). Although these multiple source studies are often muddled by unclear construct boundaries (for instance, observation of on- and off-task behavior is compared to self-report of engagement), they can provide useful comparisons to student self-report studies. It will be important for future studies to utilize multiple methods of measuring engagement and assess the relationships between these.

This sample was composed solely of eighth-grade students. It is unknown if the correlations between the SSEM and the two

engagement measures and the SLSS would differ for students at other grade levels. Betts et al. (2010) found invariance for students across middle and high school grades with the SEI, but Fredricks et al. (2005) found grade-level effects on engagement levels (as measured by the SEM) in upper elementary students. Given that engagement may vary with grade level, studying the SSEM with other grades will provide additional information about the utility of the SSEM.

The student participants were drawn from three schools in the same urban district and were predominantly identified as Hispanic and low-income. These students were representative of student demographics in this district and similar to student populations in other urban districts but not representative of the national student population. As with the grade-level limitation, results from the SSEM with non-Hispanic students, more affluent students, and students in rural and suburban schools might show different correlation patterns than what was found in this study and should be investigated.

Conversely, the Latino population is extremely diverse. Adolescents of Spanish descent have different cultures and personal histories (Lopez, Gonzalez-Barrera, & Cuddington, 2013), such as facility with English, citizenship, and acculturation. This study was unable to assess if diversity within the Latino students had an impact on the accuracy of measuring their engagement or life satisfaction. For instance, the dual-language format of the protocol allowed students to read the items in English, Spanish, or both languages. However, it allowed for no analysis of responses based on English, Spanish, or dual-language use.

Similarly, the sample size was sufficiently large and proportional to assess invariance by students' school and gender. There were not adequate number of participants to assess differences in the measures' reliability or scores for students by their race and ethnicity, FRL status, or educational (special education, gifted or talented, and English language acquisition) services. All of these factors potentially impact a student's engagement with school and the ability of measurement tools to capture the engagement of students with these characteristics or educational experiences. More nuanced understanding of students and how that intersects with their engagement and self-report of engagement are important areas for study.

Although not under investigation, significant positive correlations were found between subdomains of the three engagement instruments internally and across instruments. Subdomains also had smaller but significant positive correlations with the SLSS total scores. Most researchers conceptualize engagement as a multifaceted construct with interrelated subdomains (Reschly & Christenson, 2012). To improve measurement and practice, it will be imperative that these interrelationships continue to be investigated.

Another finding that warrants further investigation is the negative skewness that was found for all instruments and subdomains. The most negatively skewed instruments were the SSEM and SLSS; the most negatively skewed SSEM domain was aspirations. As engagement and life satisfaction are desirable constructs, it is tempting to believe that most students are more engaged than disengaged and more satisfied with their lives than dissatisfied. However, before doing that, it is important to assess if the items of the measures discriminate between students with sufficient levels of engagement (or life satisfaction) necessary to support the desired outcomes and those with insufficient levels (Smith & Mc-

Carthy, 1995). The finding that aspirations were more negatively skewed than the other subdomains also deserves further investigation. If educational aspirations are a strength commonly found in low-income Latino students in urban middle schools (the majority of the subjects), then programs could be designed that draw upon students' aspirations to help develop other aspects of their engagement. However, it may also be that the Aspiration items required a relatively low level of engagement to endorse and need to be revised.

Conclusion

The findings from this study provide support for the Student School Engagement Model and, specifically, the potential of the SSEM to measure engagement. As the Student School Engagement Model is based on the domains of aspirations, belonging, and productivity, and the SSEM is a brief measure that can be administered in group settings, these findings support the SSEM as an option for psychologists interested in understand global or specific domains of engagement in adolescents, especially when working with urban Hispanic middle school students. Further research of the SSEM with other populations will increase our understanding of its utility in broader settings. As engagement is a malleable construct that, when enhanced, supports the positive development of all students (Furlong & Christenson, 2008), having practical and valid means of assessing engagement in adolescents is important for psychologists who work with this age group.

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