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MEASURING ASPIRATIONS, BELONGING, AND PRODUCTIVITY IN SECONDARY STUDENTS: VALIDATION OF THE STUDENT SCHOOL ENGAGEMENT MEASURE

CYNTHIA E. HAZEL, G. EMMA VAZIRABADI, AND JOHN GALLAGHER

University of Denver

This article proposes a model of student school engagement, comprising aspirations, belonging, and productivity. From this model, items for the Student School Engagement Measure (SSEM) were developed. The SSEM was validated with data from 396 eighth graders in an urban school district. Utilizing structural equation modeling, the second-order empirical model of the SSEM was found to fit the data well, to have good reliability for the three factors, and to be predictive of district-identified risk factors and state standardized academic assessment results. These results suggest that the Student School Engagement Model and the SSEM may be useful tools for understanding which students might be at increased risk for school dropout and how to intervene to support school completion. Recommendations for practitioners and future research are given.

School psychologists and educators are increasingly interested in understanding the processes by which students become engaged in, or disengaged from, school. A growing body of research demonstrates the tragic outcomes of disengagement, as well as the possibilities for reshaping this malleable construct by building on student strengths and contextual protective factors (Archambault, Janosz, Fallu, & Pagani, 2009; Furlong & Christenson, 2008; National Research Council, 2004). This article contributes to the abilities of school psychologists to provide strengths-based, population-wide, data-driven services by reviewing the current engagement models, proposing a new model of engagement, and providing the findings from the validation of a screening instrument to measure engagement of secondary school students.

Student School Engagement Definitions

Students' engagement with school does not have an agreed-on definition. This is in part because various researchers conceptualize engagement differently, as can be seen in the terminology they use. For instance, Christenson and colleagues use the term *student engagement* (see, e.g., Appleton, Christenson, & Furlong, 2008; Christenson, Reschley, & Wylie, 2012), which emphasizes that engagement is located within students; conversely, Fredricks and others use the term *school engagement* (see, e.g., Fredricks, Blumenfeld, Friedel, & Paris, 2003; Jimerson, Campos, & Greif, 2003), which emphasizes engagement with the school context. We believe that both components are important. We employ the term *student school engagement* to emphasize that the measurement of engagement represents the student's perception of the goodness of fit between his or her needs and the specific environment (Lewin, 1943).This term emphasizes two equally salient points: (1) students at one school will vary in their levels of engagement with the school, and (2) some schools will engender greater (or lesser) engagement overall than will other schools.

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Correspondence to: Cynthia E. Hazel, Child, Family, and School Psychology, Morgridge College of Education, University of Denver, 1999 East Evans Street, Denver CO 80208. E-mail: chazel@du.edu

There is consensus that "engagement is a multi-dimensional construct ... [that] is highly influenced by specific facilitators such as family and school expectations" (Christenson, n.d., para. 1) and represents "the fusion of behavior, emotion, and cognition under the idea of engagement" (Fredricks, Blumenfeld, & Paris, 2004, p. 61). The following is the definition used in this article:

> Student school engagement is a multi-dimensional meta-construct representing a student's internally and externally mediated affiliation with and investment in schooling. Student school engagement is a biopsychosocial phenomenon, occurring in and responding to environmental contexts within a developmental trajectory. (Hazel, Wonner, & Jack, 2008)

The underlying premises of all definitions are that engagement is plastic (and therefore can be changed and increased) and that higher levels of engagement result in improved academic performance and increased likelihood of school completion for the student.

Importance of Students' Engagement with School

Students' engagement with school has been found to be an important factor in students' school success (Fredricks et al., 2004; Kortering & Braziel, 2008) and adolescent well-being (Archambault et al., 2009). Engagement with school may also lead to enhanced psychosocial engagement across the lifespan in multiple settings (Furlong et al., 2003). Because engagement facilitates academic and social learning, school engagement is a relevant construct for all students (Furlong & Christenson, 2008). However, understanding students' engagement with school has been primarily motivated by a desire to increase academic achievement and high school graduation rates (Appleton et al., 2008; Fredricks et al., 2011).

The high school graduation rate has not changed significantly over the past 30 years (Dynarski et al., 2008). Approximately 75% of ninth graders will graduate from high school with their cohort (Aud et al., 2011), and almost 4% of students drop out of high school each year (Chapman, Laird, & KewalRamani, 2010). However, graduation and dropout rates vary by student race and economic status, state, and school characteristics. For instance, although only 2% of White students drop out each year, 5% of Hispanic and 6% of Black students drop out each year. Poverty is an even greater predictor of dropping out; 9% of low-income students drop out each year (Chapman et al., 2010).

Looking across states, there are discrepancies beyond what can be explained by student characteristics. In 2008, 90% of Wisconsin students graduated on time, but only 64% of Mississippi students did so (Balfanz, Bridgeland, Moore, & Fox, 2010). Even within states and districts, graduation rates can vary greatly. Schools at which graduation rates are 50% or lower have been labeled "dropout factories" (Balfanz et al., 2010). Although these schools represent a little more than 10% of all high schools, they are responsible for half of the nation's dropouts; these schools are mostly large urban institutions that disproportionately serve low-income and minority students (Balfanz et al., 2010).

The three most highly predictive indicators of a student dropping out are the ABCs: Attendance (below 90%), Behavior (two or more infractions), and Course Performance (inability to read at grade level by third grade, failure in English or math in sixth through ninth grade, grade point average (GPA) lower than 2.0, or failure to earn on-time promotion to the tenth grade; Bruce, Bridgeland, Fox, & Balfanz, 2011). Although the indicators of importance seem to be agreed on, their utility is still being debated. For instance, in Chicago Public Schools, these indicators had a high school graduation prediction power of 80% (73% for predicting nongraduates and 85% for predicting graduates) for ninth-grade students (Allensworth & Easton, 2007). In contrast, a meta-analysis of similar risk factors showed that the factors were only able to predict who would drop out with 42% accuracy (Gleason & Dynarski, 2002).

However, many nongraduates begin the process of disengaging and ultimately dropping out of school much earlier than ninth grade (Finn, 1989; National Research Council, 2004). Identifying students with low engagement, prior to high school, may provide opportunities to alter trajectories and increase the probability that these students will complete their schooling.

Measurement of Engagement

The evolving terminology and definitions of engagement present a number of challenges to the measurement of the construct (Appleton et al., 2008), not least of which is the differentiation between a student's engagement and the variables in the environment that support or hinder a student from engaging in his or her schooling. Sometimes *indicators of engagement* (such as attendance, credits earned, or academic competence) and *facilitators of engagement* (contextual factors, such as discipline policies, parental supervision, and peer attitudes) are confused with engagement (Furlong & Christenson, 2008). Although indicators and facilitators can be expected to correlate with engagement, they do not capture a student's engagement with school. For instance, two students could have low attendance rates; for one student, this could be due to low engagement, and for the other student, it could be due to illness. Both students are at increased risk for not completing high school with their cohort should their attendance patterns continue; however, the appropriate interventions to increase their attendance would be different.

Two models of student school engagement have been empirically validated. These models, referred to in this article as the School Engagement Model and the Student Engagement Model, will be reviewed, and a third model, termed the Student School Engagement Model, will be proposed.

School Engagement Model

Under the construct of School Engagement Model, Blumenfeld, Fredricks, and colleagues posited three interrelated domains of engagement: emotional engagement, behavioral engagement, and cognitive engagement (Finlay, 2006; Fredricks et al., 2003; Fredricks et al., 2004; Jimerson et al., 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 (Fredricks et al., 2004). Cognitive engagement comprises both motivation and learning strategies (Fredricks et al., 2004). 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 that 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).

In a validation study of the School Engagement Measure (SEM) with elementary students, the reliability of the three scales ranged from .77 to .86, and the items loaded on the three domains as predicted (Fredricks et al., 2004). When used with 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 (GPA 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).

Student Engagement Model

Christenson, Reschley and Wylie (2012) proposed 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 engagement 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, extracurricular 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, Reschley and Wylie (2012) propose that multiple systemic contexts (e.g., family, peers, and school) influence student engagement and encourage or hinder academic, social, and emotional outcomes.

The Student Engagement Instrument (SEI), developed to measure cognitive and affective engagement in secondary students, was shown empirically to represent six factors; these factors correlated significantly with academic variables (GPA, reading and math achievement, and suspensions), and internal consistency of the subscales ranged from .72 to .88 (Appleton, Christenson, Kim, & Reschly, 2006). Further research has validated five factors (three for affective engagement and two for cognitive engagement) and has shown invariance across gender and Grades 6 through 12 (Betts, Appleton, Reschly, Christenson, & Huebner, 2010). Reliability of the factors has been reported to range from .75 to .89, and the factors correlated with the academic variables of attendance, periods tardy, and GPA (Christenson, Reschley, & Wylie, 2012).

Student School Engagement Model

The Student School Engagement Model was designed after a comprehensive literature review that included researching the two previous models, earlier work on student motivation and school belonging, and drop-out prevention. We selected 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 hypothesized domains of student school engagement were aspirations, belonging, and productivity. Aspirations were defined as students' interest and investment in their education. Aspirations lead to students' appraisals of the worthwhileness of an education and its utility to their future. Belonging was defined as students' identification with school values and positive relationships with adults and peers at school. This domain was conceptualized as students' sense that they are a member of the school community as well as their commitment to the school's norms. Productivity was defined as students' effort, persistence, concentration, attention, and willingness to work on academic tasks. Productivity encompassed cognitive strategies designed to monitor and maximize learning.

Validation of the Student School Engagement Measure

The purpose of this study was twofold. The first purpose was to assess the psychometric properties of a student self-report measure of student school engagement, called the Student School Engagement Measure (SSEM). The second purpose of the study was to determine the extent to which the SSEM related to important student outcomes (standardized test and course achievement, attendance rates, and behavior infractions).

Method

Participants

The participants were 396 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. All questionnaire data were screened to determine the presence of outliers and missing data. Three cases (1.4%) were missing more than 10% of the data; thus, they were eliminated from the analysis. An additional 4 students were eliminated because they provided inaccurate identification and could not be matched with records provided by the school district. After elimination of these students, the sample size was 388 students; of these, 98% had 100% complete protocols. According to the district records, most (80%) of the students were identified as Hispanic, 56% were male, 69% qualified for free or reduced-price lunches, 18% qualified for English-language services, 6% had been identified as gifted and talented, and 8% qualified for special education services.

Instrument Development, Instrument Administration, and Student Outcome Measures

Instrument Development. Development of the SSEM began with a review of relevant literature, existing measures of engagement, and related constructs. From this review, the stated definition of engagement was developed and the three domains defined. The research team wrote a large bank of potential items and refined these to 50 items that addressed the three theorized domains. The items were intended to avoid the assessment of cultural, academic, and behavioral histories. The researchers attempted to craft items in language that was developmentally appropriate for the participant population. The resulting draft survey was subjected to cognitive interviews (Willis, 2005) with eighth-grade students at nonparticipating schools within the same district as the study participants. The students completed the measure and, as they answered each item, they explained how they interpreted the item and why they answered as they did. Feedback from the cognitive interviews was used to refine a few potentially problematic items.

The pilot SSEM consisted of 50 items on a 10-point Likert scale of agreeableness (see Table 1 for items). The items were not grouped by domain, but were presented in random order to discourage hurried or thoughtless answers to similar questions. Twelve items were negatively worded (and reverse coded on analysis) to minimize acquiescence bias (Watson, 1992). Because many families in this district speak Spanish, the survey instructions and each of the items were translated into Spanish using a double-blind translation procedure: the English version was translated into Spanish by one bilingual graduate student, and the Spanish version was translated back into English by a second bilingual graduate student who had no prior knowledge of the instrument. Once translated back into English, the instructions and items were compared with the original English version for consistency and agreement, leading to minor translation improvements. There was one protocol: the directions and each item were listed first in English and then in Spanish, so that a student could read either or both languages. For the purpose of assessing convergent and discriminant validity (not discussed in this article), the pilot SSEM was administered with several other measures, for a total of 124 items (all listed concurrently in English and Spanish) on the protocol.

Instrument Administration. The study instrument was administered electronically to eighth-grade students at two schools and on paper to students at one school (due to a lack of computer access). Students took between 10 and 20 minutes to complete the survey protocol. At each administration, two to three researchers were present to ensure consistent survey administration. Researchers read the directions aloud in English to students. As the students completed the protocols, the researchers circulated around the classroom, answering the few questions that arose. Students appeared to work independently and be focused on completing the protocol.

Table 1
Student School Engagement Measure Initial Items, Items Remaining in the Empirical Model, and Their Theorized and Empirical Factor Placements

	Factor Placement	
Items[a]	Theorized	Empirical
1. I would leave school if I would NOT face any consequences.[b]	A	
2. It is okay if I do NOT graduate from high school.[b]	A	
3. **My family knows how I am doing in school.**	A	P
4. I have fun with my friends at school.	B	
5. **I like most of my teachers.**	B	B
6. I volunteer to help at school.	B	
7. When I am in class, I just pretend I am working.[b]	P	
8. **If I do not know what something means, I do something to figure it out.**	P	P
9. **I study at home.**	P	P
10. I give up when assignments are hard.[b]	P	
11. I think school is a waste of time. [b]	A	
12. **I plan to pursue more education after high school.**	A	A
13. **There is someone in my family who helps me when I have trouble completing my homework.**	A	P
14. Kids at school like me.	B	
15. I have at least one adult in this school that I can talk to when I have a problem.	B	
16. **Most days, I look forward to going to school.**	B	B
17. **I pay attention to my teachers.**	P	P
18. **When I am doing school work, I make sure I understand what I am learning.**	P	P
19. **I look for more information about things we are learning in school.**	P	P
20. **My school work is important.**	A	P
21. **Being successful in school will help me in the future.**	A	A
22. There is someone outside of school that I talk to about my future job plans.	A	
23. I am bothered by bullies at school.[b]	B	
24. My teachers are disrespectful to me.[b]	B	
25. **I am proud to be a student at this school.**	B	B
26. In school, I do just enough to get by.[b]	P	
27. **When learning new things, I try to connect them to things I already know.**	P	P
28. **When I have an assignment due, I keep working until it is finished.**	P	P
29. **Getting good grades is important to me.**	A	A
30. **It is important to me to be successful in a job.**	A	A
31. **I talk to my family about problems I have at school.**	A	P
32. My friends think it is important to do well in school.	B	
33. **There is a lot I can learn from my teachers.**	B	B
34. I feel left out of school activities.[b]	B	
35. When I am in class, I often think about other things.[b]	P	
36. I catch myself when I am not paying attention in class.	P	
37. I try my best on school work.	P	
38. I work hard in school, even when I would rather be doing something else.	A	
39. I know what I want to do when I am done with high school.	A	
40. My family would be disappointed if I did NOT graduate from high school.	A	
41. I am accepted at school.	B	
42. **Teachers help me to be successful at school.**	B	B
43. I attend school events.	B	

Table 1
Continued

Items[a]	Factor Placement	
	Theorized	Empirical
44. I follow class and school rules.	p	
45. **I know how to study for tests.**	P	P
46. My family does not care if I skip school.[b]	A	
47. My friends stand up for me.	B	
48. **I feel like a part of my school.**	B	B
49. I respect my teachers.	P	
50. I wait until the last minute to start assignments.[b]	P	

Note. A = Aspirations; B = Belonging; P = Productivity. [a]Items in bold were retained in the empirical validation. [b]Reverse coded.

Student Outcome Measures. Existing district data were utilized to determine the extent to which the SSEM domains were related to student outcome measures. The first outcome measure was a categorized risk score, based on the eighth-grade behaviors of poor attendance (80% or lower), discipline infractions (one suspension or more), failed language arts course, and failed math course. A score of 0 indicated meeting none of the risk categories, whereas a 4 indicated the presence of all four risk behaviors. The presence of these behaviors in eighth grade had been shown within the district to indicate an increased risk of the student not graduating from high school in 4 years. The second set of dependent variables was eighth-grade achievement on the state standardized academic assessment of math, science, reading, and writing.

Data Analysis Procedures

Prior to testing the measurement models, the reliabilities of the items were assessed. Descriptive statistics of mean and standard deviation were computed for each item. Then, three analyses were performed to assess the validity of the factor structure of the SSEM: (1) exploratory factor analysis was conducted to assess the factor structure of an empirically derived model; (2) confirmatory factor analysis was performed to determine whether a single factor, the theoretical model, or the empirical model best fit the data; and (3) criterion-related validity was measured using structural equation modeling. Statistical Package for Social Sciences 19.0 and Analysis of Moment Structures 7 were utilized for these computations.

Exploratory Factor Analysis. Because the underlying theoretical factors of aspirations, belonging, and productivity were assumed to be correlated, oblique rotation was used (Tabachnick & Fidell, 2001). Items with loadings of at least .40 on one factor were extracted and labeled to derive the empirical model.

Confirmatory Factor Analysis. Given that multivariate normality is an assumption of all subsequent analysis, the skew and kurtosis of the items were calculated. The data violated the assumption of normality, and so, the variables were transformed. The variables with a positive skew were transformed using a square root transformation, and the variables with a negative skew were transformed using a power transformation (Kline, 2005). With the exception of four variables, the skews of the transformed variables were all below the absolute value of 1.0. Thus, these transformed variables were used in measurement and structural model tests. Confirmatory factor analysis was conducted on the single-factor model, theoretical model, and empirical model.

Table 2
Correlations, Descriptive Statistics, and Cronbach's Alpha for the SSEM Empirical Factors

Factors	1	2	3	Item	Mean[a]	*SD*	α
1 Productivity	1.00			12	6.78	1.82	.92
2 Aspirations	0.93[b]	1.00		4	8.76	1.68	.85
3 Belonging	0.84[b]	0.84[b]	1.00	6	6.75	2.04	.83

Note. SSEM = Student School Engagement Measure. [a]Range of 1 to 10. [b]Significant at $p < .01$.

Criterion-Related Validity. Criterion-related validity was tested through structural equation modeling for the best fitting model of the SSEM with the state and district student outcome data. Because the district-developed risk scores included failure in language arts and math, it was not surprising that the risk scores were found to be negatively correlated with the state-level academic assessment results. Because of these correlations, models that disaggregated the risk scores were tested as well as a model in which the risk scores were treated as a composite. The model that was found to be more robust and parsimonious was the one in which the risk scores were utilized as a composite and is the one presented in the results.

Results

The following section discusses the psychometric properties of the various structural models of the SSEM and then provides a model of the empirically supported SSEM with the student outcome data. See Table 1 for a list of all items in the protocol, those that remained in the empirical model, and the theoretical and empirical domains of the items.

Reliability of Items

Four items (Items 1, 34, 35, and 46) were excluded because the internal consistency coefficients for their respective sub-domains were less than .7 prior to deletion. Two items (Items 23 and 26) did not load significantly to the Student School Engagement construct and were eliminated. This left 44 reliable items. For models with domains (the first- and second-order models), items that cross-loaded onto more than one domain were eliminated using modification indices; this led to the elimination of Items 2, 4, 10, 24, 36, 40, and 50. For the first- and second-order models, 37 reliable items remained.

Development of an Empirical Model

Initially, the principal factor analysis resulted in four factors using the minimum eigenvalues of 1.0. The percentage of variance accounted for by the four factors was 61%. A total of 15 items were removed after three iterations due to low communalities (Tabachnick & Fidell, 2001), leaving 22 items. After thorough assessment of the pattern matrix, three factors were specified. The correlations between the factors ranged from .84 to .93, and the reliability of each factor ranged from .83 to .92. See Table 2 for the correlations, means, standard deviations, and reliability measures for the three factors. Visual examination of the scree plot also confirmed the three-factor solution. The first factor consisted primarily of items that were hypothesized to measure productivity. Items that loaded to this factor included "I study at home" and "I look for more information about things we are learning in school." Therefore, this factor was labeled Productivity. The second factor consisted of items that were expected to measure student aspirations (such as "It is important for me to be successful in a job" and "Being successful in school will help me in the future"); thus, this factor was labeled Aspirations. Finally, the third factor consisted of items believed to measure belonging

Table 3
Factor Loadings of Empirically Validated Items

Item	Productivity	Aspirations	Belonging
3	.52		
5			.52
8	.54		
9	.80		
12		.50	
13	.50		
16			.47
17	.69		
18	.71		
19	.80		
20	.54		
21		.57	
25			.78
27	.51		
28	.63		
29		.55	
30		.76	
31	.50		
33			.52
42			.67
45	.46		
48			.79

(i.e., "I feel like a part of my school" and "I am proud to be a student at this school"); this factor was labeled Belonging. See Table 3 for the retained items with their factor loadings.

Comparison of Models

Table 4 lists the fit indices for the single-factor model, the theoretical model, and the empirically derived model.

Single-Factor Model. First explored was a single-factor model; see Table 4 for the fit indices. The comparative fit index (CFI) was below the acceptable criterion of .90 or greater, the normed chi-square was above the acceptable range of 2 to 3, and the root mean square of approximation (RMSEA) was on the cusp of the acceptable range (below .08; Joreskog & Sorbom, 1984; Kline, 2005). Although all path coefficients were statistically significant and in the predicted direction, in total, the single-factor solution indicated poorer fit than did the models next explored.

First-Order Theoretical Model. The next model tested was the first-order theoretical model, illustrated in Figure 1. As shown in Table 4, the normed chi-square was within the acceptable range, the CFI was below the acceptable criterion, and the RMSEA was within the acceptable range. However, the absolute value of the highest standardized residual was 5.47, which was above the acceptable limit and higher than for the second-order empirical model. Overall, the fit indices suggested that the model did not fit the data as well as the empirical model (described next; Joreskog & Sorbom, 1984).

Table 4
Fit Indices for the Second-Order Empirical, First-Order Theoretical, and Single-Factor Models of the SSEM

Index	Second-Order Empirical Model	First-Order Theoretical Model	Single-Factor Model
Chi-Square	537.18	1748.78	2066.77
Degrees of Freedom	206	626	629
Significance	0.00	0.00	0.00
Chi-Square/*df*	2.60	2.79	3.29
Comparative Fit Index	0.92	0.85	0.80
Goodness-of-Fit Index	0.88	0.77	0.73
Adjusted Goodness-of-Fit Index	0.86	0.75	0.70
Akaike Information Criterion	631.17	1902.48	2214.77
Root Mean Squared Error	0.07	0.07	0.08
Lower 90%	0.06	0.06	0.08
Upper 90%	0.07	0.07	0.09
Standardized Root Mean Residual	0.05	0.06	0.06
Highest Standardized Residual Value	2.45	5.47	–2.46

Note. Student School Engagement Measure.

Second-Order Empirical Model. The second-order empirical model with standardized coefficients is illustrated in Figure 2. As seen in Table 4, the model fit the data well. The normed chi-square was within the acceptable range, the CFI was above the acceptable criterion, and the RMSEA was within the acceptable range (Joreskog & Sorbom, 1984). All indicator variables loaded highly and significantly onto their respective constructs. Further, all paths from the second-order construct to the first-order construct were statistically significant. Four items that had been theorized to belong in the Aspirations domain were found empirically to belong in the Productivity domain (listed in Table 1).

Criterion-Related Validity

The purpose of the criterion-related analysis was to validate the second-order empirical model of the SSEM (the best-fitting model) with the criterion of student outcome measures (the state-measured academic achievement scores and a district-developed composite risk score). See Figure 3 for a diagram of the model and the strength and direction of relationships. The model fit the data well. The CFI was above the acceptable criterion of .90. The RMSEA was acceptable at .06 (Joreskog & Sorbom, 1984). The normed chi-square was 2.44, within the acceptable range. All indicator variables loaded highly and significantly to their respective constructs. Furthermore, the path coefficients between the SSEM and the student outcomes were statistically significant and in the predicted directions.

Discussion

Engagement is a malleable component that may impact students' school achievement. However, research regarding what constitutes students' engagement with school, the factors that contribute to engagement, and how to measure engagement is still emerging. This study provided an alternative conceptualization of engagement, the Student School Engagement Model, and a means to screen students' school engagement.

Once reliability of the SSEM items was established, three statistical models were compared. The single-factor model did not fit the data well, suggesting that Student School Engagement is better

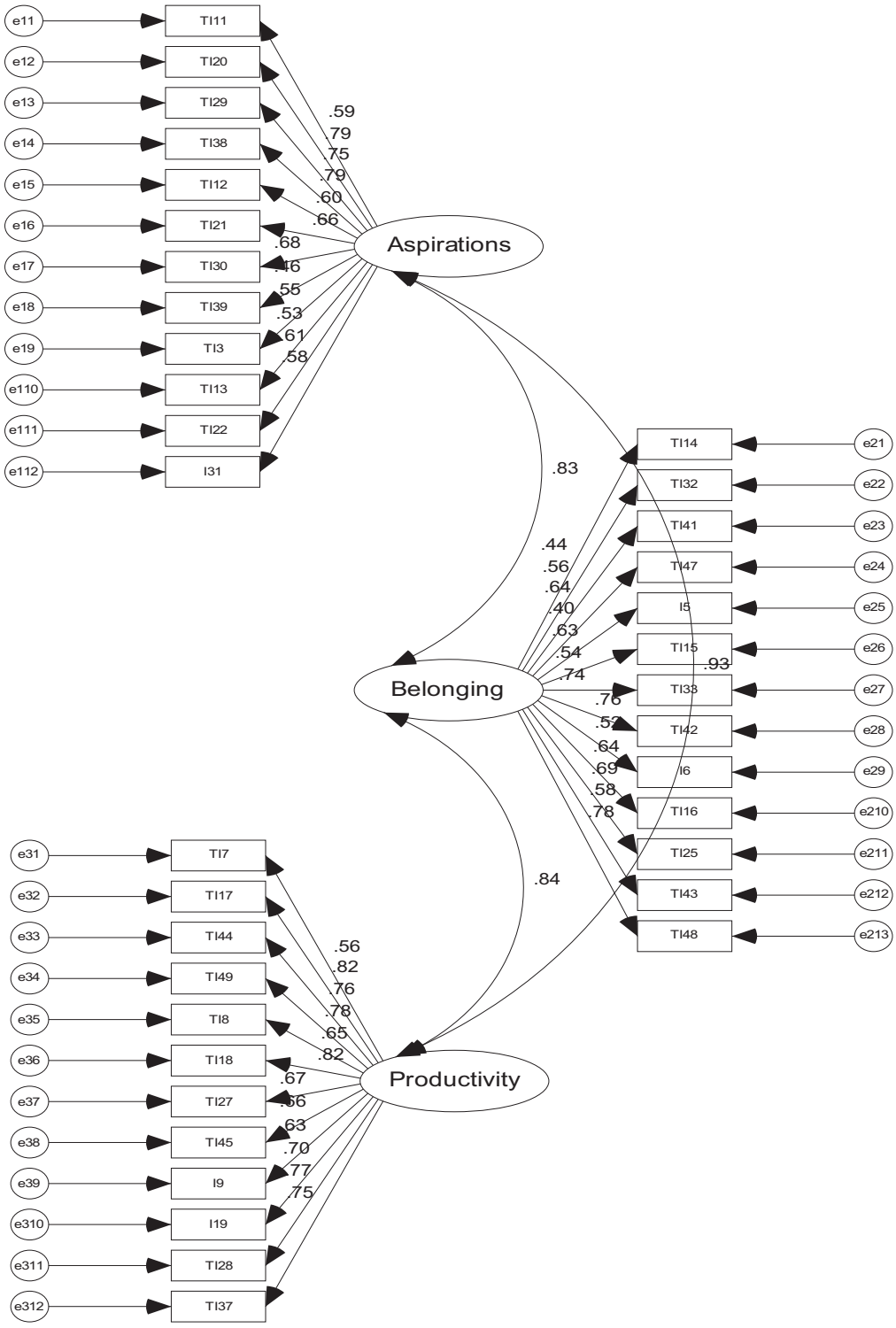

FIGURE 1. Confirmatory factor analysis results for the first-order theoretical model.

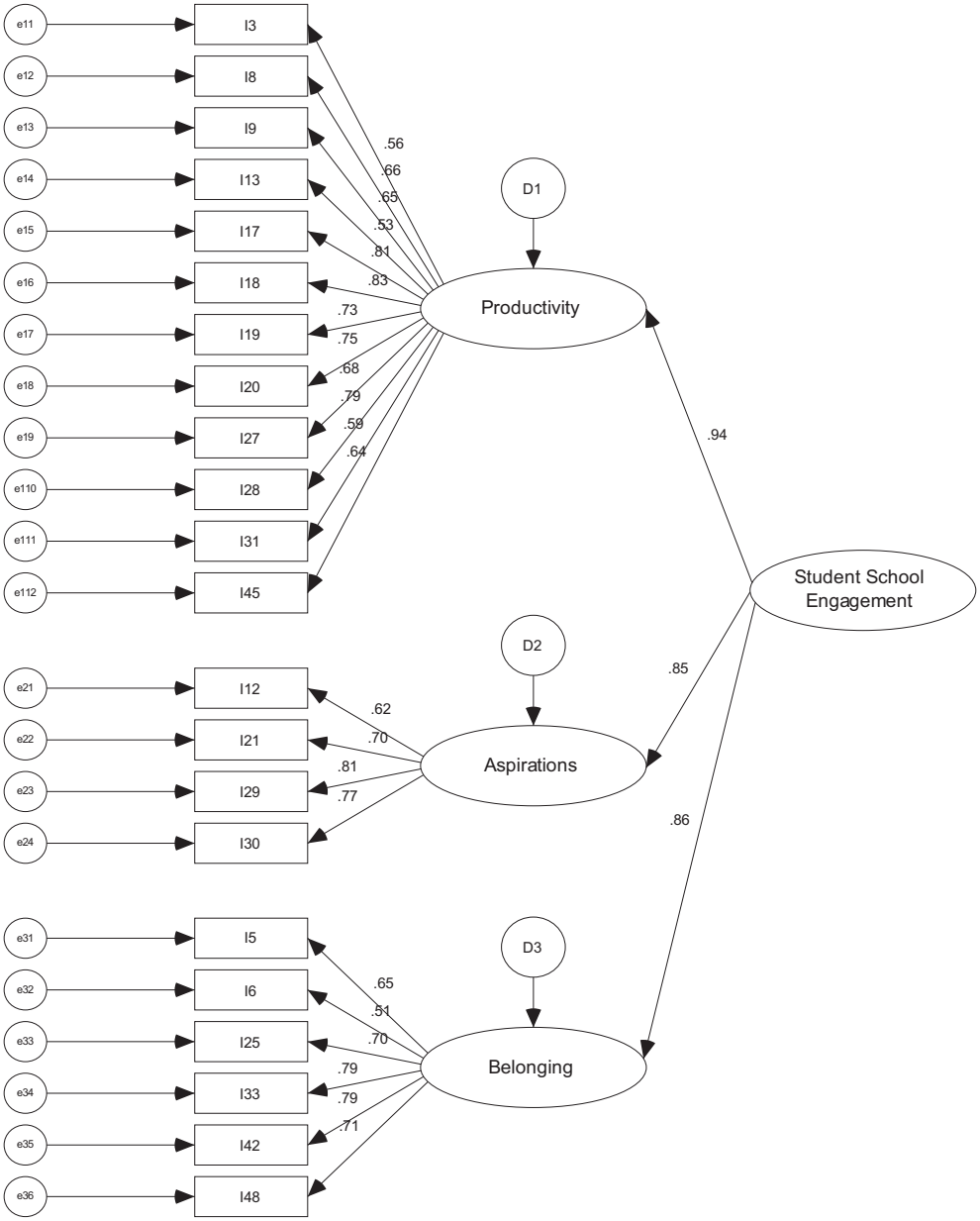

FIGURE 2. Confirmatory factor analysis results for the second-order empirical model.

defined with factors in addition to the global construct. This finding was in keeping with predominant conceptualizations of engagement (Appleton et al., 2008), as well as many other instruments that have been developed to measure engagement (Fredricks et al., 2011).

The second-order empirical model (comprising Student School Engagement as the first order and the factors of Aspirations, Belonging, and Productivity as the second order) best fit the data. This preliminary validation of the SSEM suggests that Student School Engagement is a multifaceted construct measured through Aspirations, Belonging, and Productivity. This is a different model of

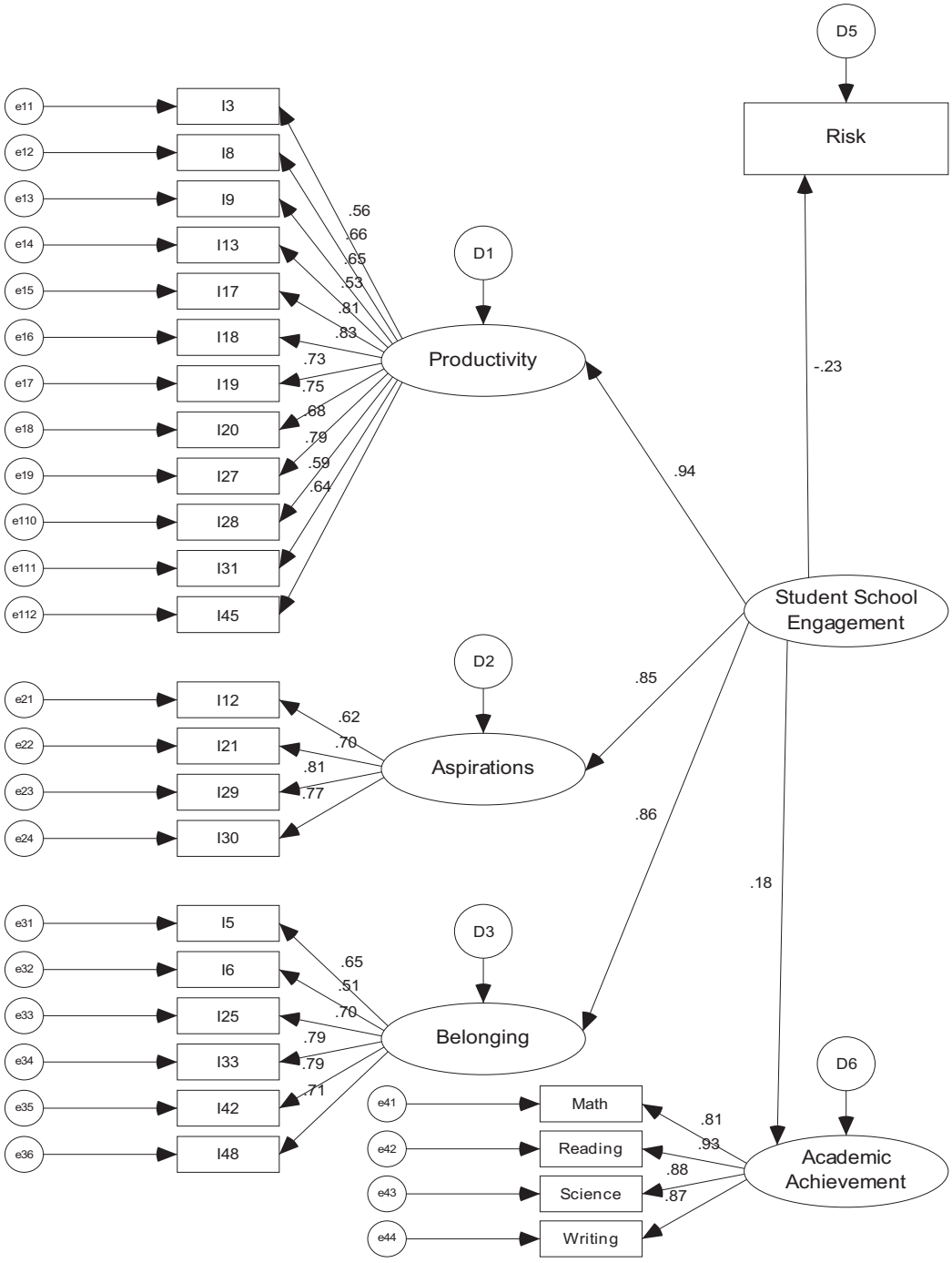

FIGURE 3. Structural model of the Student School Engagement Measure, district risk scores, and state standardized academic achievement assessment results.

engagement than others, which have primarily divided engagement into some or all of the following dimensions: affective (or psychological), behavioral, cognitive, and academic (Christenson, Reschley, & Wylie, 2012; Jimerson et al., 2003; O'Farrell, Morrison, & Furlong, 2006). The reliability of the SSEM factors ranged from .83 to .92. This is at the upper range of what has been reported for the SEM and SEI (range of .77 to .92).

When the second-order empirical model of Student School Engagement was analyzed for its relationship to state-level academic achievement data and district-level risk data, SSEM scores were shown to positively contribute to achievement on the state assessment of academic achievement (.18) and protect against district-assessed risks (poor attendance, suspensions, and failure in math or language arts; −.23). These results are in keeping with what has been found with other engagement instruments. For example, correlations between factors on the SEI and middle school student attendance and GPA ranged from not significant to .32 (Christenson, Reschley, & Wylie, 2012). Correlations between the SEM and attendance and GPA ranged from not significant to .37 (Finlay, 2006).

The findings from this study suggest that the SSEM could be a useful predictive measure of student risk behaviors and academic success. Because the SSEM is 22 items, it would be feasible for practitioners to utilize the SSEM as a screener for students who might be at increased risk of school disengagement.

Limitations

Although the SSEM showed promising preliminary results, there are limitations that must be considered. First, this sample comprised solely eighth-grade students. The transition from middle to high school has been shown to be a critical juncture in supporting students so that they may remain on track for successful high school completion (Bruce et al., 2011), so understanding engagement of eighth graders is extremely useful. However, it will be important to use the SSEM with students from other secondary grades and see whether the measure proves as valid and reliable for them.

Further, the student participants were drawn from three schools in the same urban district. How students in this district might differ in their engagement from students in other districts is unknown. Because 40% of the families in the studied district report that they speak Spanish in the home, the protocol was designed so that each item was listed simultaneously in English and Spanish. This allowed students to use either or both languages to understand the items. However, due to this design, there was no way to assess which language was used by participants and therefore, no way to know whether the cultural issues associated with linguistic diversity had an impact on the reliability or validity of the instrument. The students of this sample were predominantly identified as Hispanic (80%) and poor (69% qualified for free or reduced-price lunches). These students were representative of the demographics of this district and similar to student populations in other urban districts, but not representative of the national student population. Poor and minority students in urban districts are at increased risk for not completing high school (Chapman et al., 2010; Balfanz et al., 2010), so understanding engagement in this population is critical. However, it will be important to collect data from students in other districts to understand whether the SSEM is of similar utility with non-Hispanic students, middle class students, and students in rural and suburban schools.

Another limitation was sample size. According to Costello and Osborne (2005), the sample size should be large enough to have a subject-to-item ratio of 10 to 1 for exploratory analysis. This study's ratio was 8 to 1. Ideally, data are split in half for exploratory and confirmatory analysis. Due to a relatively small sample size, the sample was not split into two groups for analysis. Future studies with independent data sets are needed to further validate the model and instrument.

The SSEM was shown to be predictive of achievement on the state standardized assessment and district-measured academic risk factors. This suggests that the SSEM is measuring a construct of importance to students' academic performance. However, many factors outside the construct of engagement contribute to academic accomplishments. The SSEM is similar enough to other measures of students' engagement with school to suggest that it is measuring engagement, but the convergent and discriminant validity of the SSEM needs to be empirically established.

Future Directions for Research

The findings presented here suggest that the Student School Engagement Model comprising the factors of Aspirations, Belonging, and Productivity shows promise and should be investigated further. Studying results from the SSEM with students of various secondary levels, in multiple districts, and with students with different demographic profiles would give further information of the validity of the SSEM. Also, the SSEM should be compared with other measures of engagement and similar constructs to establish that the SSEM is indeed a measure of engagement. It would be useful to test the relationship of factors within the SSEM and their predictive validity for student outcomes, such as course grades and attendance. Of greatest utility will be developing models that predict student outcomes based on student school engagement profiles and then validating interventions that interrupt trajectories of school failure.

Implications for School Psychologists

This validation study suggests that the SSEM shows promise as a screener for understanding students' engagement with school. It also suggests that conceptualizing secondary students' engagement with school as comprising their aspirations, sense of belonging, and understanding of how to be productive in school environments is a viable model for understanding students' various school engagement levels. Assessing students' aspirations, belonging, and productivity may be useful in deciding how to intervene with students who are at risk for exiting school prematurely.

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