Measuring School Engagement: A Longitudinal Evaluation of the School Liking and Avoidance Questionnaire from Kindergarten through Sixth Grade

by

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ABSTRACT

Few measurement tools provide reliable, valid data on both children's emotional and behavioral engagement in school. The School Liking and Avoidance Questionnaire (SLAQ) is one such self-report measure developed to evaluate a child's degree of engagement in the school setting as it is manifest in a child's school liking and school avoidance. This study evaluated the SLAQ's dimensionality, reliability, and validity. Data were gathered on children from kindergarten through 6th grade (n=396). Participants reported on their school liking and avoidance in the spring of each school year. Scores consistently represented two distinct, yet related subscales (i.e., school liking and school avoidance) that were reliable and stable over time. Validation analyses provided some corroboration of the construct validity of the SLAQ subscales, but evidence of predictive validity was inconsistent with the hypothesized relations (i.e., early report of school liking and school avoidance did not predict later achievement outcomes). In sum, the findings from this study provide some support for the dimensionality, reliability, and validity of the SLAQ and suggest that it can be used for the assessment of young children's behavioral and emotional engagement in school.

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Introduction

School engagement has been linked to many positive and negative academic outcomes, including achievement, and evidence implies that this holds true for children not only as they enter school but also over the entire course of their school careers (see Fredricks, Blumenfield, Friedel, & Paris, 2005). School engagement may be expressed differently in children (e.g., emotional, behavioral, and cognitive engagement), but it broadly refers to children's level of investment in, commitment to, and participation in school or school-related activities (Fredricks, Blumenfield, & Paris, 2004; Fredricks et al., 2005).

A number of investigators have examined the association between engagement and achievement-related outcomes with younger and older school-age children. Evidence suggests that there is a positive correlation between engagement and achievement indices (i.e., standardized test scores, grades) for children in elementary school through high school (Connell, Spencer, & Aber, 1994). Conversely, lesser school engagement – particularly, discipline problems in the classroom – is related to lower school performance across elementary grades (Finn & Rock, 1997; Finn, Pannozzo, & Voelkl, 1995) and can have long-lasting impacts on school achievement (Fredricks et al., 2004; Ladd & Dinella, 2009). Thus, school engagement appears to be an important predictor of future educational attainment and success.

Because evidence implies that early school disengagement forecasts underachievement, there is a clear and pressing need to identify children with engagement problems and intervene early in their school careers to prevent them from falling behind academically, failing to realize their academic potential during the school years. Moreover, engagement appears to be malleable and responsive to educational interventions if preventive efforts are implemented before early-occurring or cumulative deficits develop (Fredricks et al., 2004); however, before educators can screen and accurately identify children who display early signs of disengagement, or appear to be at risk for decreasing school engagement, it is essential for researchers to operationally define school engagement and develop a reliable and valid measure of this construct.

Types of School Engagement

Thus far, three forms of school engagement – behavioral, emotional, and cognitive – have been studied among grade school children (see Fredricks et al., 2004; Fredricks et al., 2005). Behavioral engagement includes many aspects of participation in classroom tasks such as adherence to classroom and school rules and the absence of disruptive behavior (Finn et al., 1995; Finn & Rock, 1997). Additionally, behavioral engagement includes constructive participation in classroom activities, persistence, effort, and attention (Birch & Ladd, 1997; Skinner & Belmont, 1993). Emotional engagement refers to the affective reactions children have toward teachers, classmates, academic work and, ultimately, the positive and negative sentiments children develop about the classroom or the larger school environment. Other less commonly used descriptions of emotional engagement refer to children's sense of identification with school (i.e., feelings of valuing or belonging to the school), and the degree to which children value academic success (Finn, 1989; Voelkl, 1997). Cognitive engagement generally represents a child's investment, or intellectual effort, to learn and master difficult learning tasks (Fredricks et al., 2004; Fredricks et al., 2005; Newmann, Wehlage, & Lamborn, 1992). This form of engagement has also been conceptualized as intentional, task-specific thinking (Helme & Clarke, 2001), the use of cognitive or learning strategies (Lee & Anderson, 1993), and a preference for challenging tasks, flexible problem solving, and positive coping in the face of failure (Connell & Wellborn, 1991).

Investigators have examined these three forms of engagement and found that each correlates with important school outcomes, such as achievement (Fredricks et al., 2004). There is a considerable amount of research linking cognitive engagement and achievement (e.g., Fincham, Hokoda, & Sanders, 1989; Finn & Voelkl, 1993; Furrer & Skinner, 2003; McKinney, Mason, Pekerson, & Clifford, 1975); however, only a few investigators have examined the link between behavioral and emotional engagement and achievement outcomes. In the research that has been conducted, behavioral engagement has been found to predict a positive academic achievement trajectory and lower rates of dropping out of school (Connell, 1990; Finn, 1989). It has also been reported that disruptive and inattentive students scored lower on all achievement tests (Finn et al., 1995). Behavioral engagement has also been used to explain group differences between students who drop out, those who achieve academic success and graduate from high school, and those who stay in high school but are not academically successful (Finn & Rock, 1997). Almost no research has examined emotional engagement as a distinct predictor of achievement; emotional engagement is frequently combined with behavioral engagement (e.g., Connell et al., 1994; Voelkl, 1997). Of the studies that have examined the prospective contribution of school engagement on achievement, gains in engagement correlated positively with early and later achievement (Ladd & Dinella, 2009). Further research is needed to examine both behavioral and emotional engagement, particularly with elementary-school age children.

Measures of School Engagement

Even though behavioral and emotional engagement have not been well studied, some efforts have been made to develop reliable and valid measures of these constructs. In research with elementary aged children, the following types of measures and measurement strategies have been developed and utilized.

Teacher-report measures. Teacher-report questionnaires are one of the most common methods for evaluating elementary school children's behavioral and emotional school engagement. One such instrument, the *Teacher Ratings Scale of School Adjustment (*TRSSA; Birch & Ladd, 1997; Ladd, Birch, & Buhs, 1999) contains subscales that tap constructs such as school liking, school avoidance, cooperative classroom participation, and independent classroom participation. The school liking subscale was designed to index teachers' perceptions of students' emotional engagement with school. The other three indices, termed school avoidance (i.e., attempting to avoid or escape the school environment), cooperative participation (i.e., accepting versus resisting the student role), and independent participation (i.e., independently seeking out and performing school-related tasks) were constructed as indicators of differing forms of behavioral engagement.

Psychometric properties of the teacher-report measures. Although not extensively evaluated, the TRSSA subscales appear to provide reliable scores. Investigators who have utilized these subscales have obtained Cronbach's alphas that range between .74 and .92 (Birch & Ladd, 1997).

Parent-report measures. Although few parent-report measures of children's school engagement have been developed, some indicators have been administered as part of large-scale survey studies. In general, these measures consist of brief or single-item questionnaires, and for the most part, little or nothing is known about their psychometric properties (e.g., reliability and validity). One such instrument was utilized in the *National Survey of America's Families* (NSAF; Ehrle & Moore, 1999). NSAF is part of a larger project at the Urban Institute and Child Trends. Within this larger study, four parent-report questions (e.g., "my child cares about doing well in school" or "my child always does their homework") were adapted from the *Rochester Assessment Package for Schools* (RAPS; Wellborn & Connell, 1987) and administered to obtain information about children's behavioral engagement.

Psychometric properties of the parent-report measures. Parents' report of school engagement in the NSAF data set – as indexed by the four items from the *Rochester Assessment Package for Schools* – were found to be moderately consistent (Cronbach's alpha =.76). Ehrle and Moore (1999) tested the validity of this subset of questions by exploring their relation to various family variables known to be correlates of engagement. These investigators found that the percentage of students with low engagement increased with poverty, single parenthood, and low parental education.

Child-report measures. The *Rochester Assessment Package for Schools* (RAPS; Wellborn & Connell, 1987) has been the most commonly used child-report questionnaire designed to measure both behavioral and emotional engagement. The items used to tap behavioral engagement include estimators of children's amount of effort, attention, classroom participation, and initiative in the classroom. Items designed to assess emotional engagement include estimates of children's overall emotional reactions in the classroom such as boredom, worry, sadness, or anger.

A second child-report measure was administered as part of the *National Educational Longitudinal Study* (NELS; Finn, 1993, Finn & Rock, 1997; Lee & Smith, 1993, 1995). This study was undertaken to learn more about trends in education particularly during transitional periods. Beginning in 8^{th} grade, students were surveyed every two years until two years post high school. The questionnaire battery consists of numerous child-report items that were intended to tap behavioral and emotional engagement. Students were asked in each wave of data collection to report about their school experiences and activities including tardiness, absenteeism, perceptions of teachers, perceptions of the school environment, behavior in school, and perceived educational attainment.

The *School Liking and Avoidance Questionnaire* is another child self-report measure of school engagement (SLAQ; adapted from Ladd & Price, 1987;

Ladd, 1990). This questionnaire was developed for young, grade-school age children, and contains 14 items that were designed to assess children's feelings and emotions toward school. Items ask children to report specific feelings they have toward school (i.e., school liking) as well as to distinguish between their preferences to go to school or stay home (i.e., school avoidance). Thus, the *School Liking and Avoidance Questionnaire* was designed to provide data on both emotional and behavioral engagement.

Psychometric properties of child-report measures. Data gathered with the student (and teacher) versions of the *Rochester Assessment Package for Schools* suggest that these instruments have adequate psychometric properties (Cronbach's alpha =.79 -.86). The validity of RAPS has been tested by exploring the relation between responses to behavior and emotional engagement items and the *self-esteem model* (Connell, 1990). A key premise of the self-esteem model is that children will report higher levels of behavioral and emotional engagement in school contexts where their needs for relatedness with teachers and students, autonomy, and competence are met. Results supported this hypothesis by showing that a positive relation exists between fulfillment of student's needs in the classroom and their level of engagement. Thus far, RAPS has not been used to assess the association between engagement and achievement.

The reliability of the emotional and behavioral subscales within *National Educational Longitudinal Study* has not been assessed; however, Finn and colleagues found a modest positive correlation between this scale and measures of achievement and modest negative correlations between engagement measures and behavior problems and dropping out (Finn & Rock, 1997; Finn et al., 1995). Unfortunately, investigators who have used these subscales in subsequent investigations have not done so in a consistent way (i.e., they have administered different combinations of items), making it difficult to compare the instruments' psychometric properties across studies. To be specific, items comprising the behavioral engagement subscale in one study often are not the same as in another study (see Fredricks et al., 2004 for a review).

Evidence gathered on the psychometric properties of the *School Liking and Avoidance Questionnaire* have shown that all items on the questionnaire yields scores that are internally consistent and reliable across time (Cronbach's alpha = .76-.91). Efforts to evaluate the validity of this instrument have been limited; although the SLAQ was developed for children of all ages its properties have been evaluated only with young children (e.g., kindergarteners; see Ladd, Kochenderfer, & Coleman, 1996; Ladd, Buhs, & Sied, 2000). Ladd et al. (2000) assessed the predictive contributions of school liking-avoidance for understanding young children's school adjustment and found support for the hypothesis that early school avoidance predicted later school adjustment. The purpose of the present study is to further develop and validate this child-report measure of school liking and school avoidance for children from kindergarten through sixth grade.

Strengths and Limitations of Extant School Engagement Measures

Although some progress has been made toward developing reliable and valid measures of emotional and behavioral school engagement, this work is still at an early stage. Fredricks et al. (2005) outline the limitations of extant research as well as the current debate about the reliability and validity of the existing scales for measuring behavioral and emotional engagement. One limitation of current measures is that there is little consistency in the behavioral and emotional engagement subscales among studies: same items are sometimes used to assess different types of engagement. For example, in one study an item might be an indicator of behavioral engagement and in another study the same item is used as an indicator of emotional engagement. Indicators of emotional engagement are also less developed (i.e., items do not specify the source of emotions and do not account for quality and intensity variations based on the type of activity or classroom setting) than those for behavioral and are often used in conjunction with behavioral engagement to examine a child's overall school engagement (e.g., Connell et al., 1994; Marks, 2000; see Birch & Ladd, 1997; Connell, 1990 for exceptions). Unless investigators are able to develop and utilize items that differentiate between these constructs, it will be difficult for investigators to develop valid indicators and determine whether these two forms of engagement are distinct and make separate contributions to children's school adjustment. A second limitation is – with the exception of TRSSA and SLAQ – current measures of school engagement are geared towards older students (e.g., middle and high school students). In order to fully understand the association between early engagement and concurrent or future academic achievement, investigators need a measure that can be administered to students in early elementary school and throughout the remainder of their primary education.

The final limitation of current measures is that they are primarily teacher- or parent- report, not child self-report. Substantial evidence suggests that child-report is just as, if not conceptually more, valuable than teacher or other report. Children are more valid informants about internal processes, emotions (Kolko & Kazdin, 1993), and their own problem behaviors (Verhult & van der Ende, 1992). Parents or teachers are less advantageous reporters because they are more likely to have biased responses; specifically, they are more likely to over-report children's problem behaviors (Briggs-Gowan, Carter, & Schwab-Stone, 1996). Thus, there is a need to develop reliable and valid child self-report measures of behavioral and emotional engagement for elementary school children. A measure of this nature would need to tap both of these forms of school engagement (i.e., possess two distinct subscales), and be developed in such a way that it could be easily understood and completed by children between the ages of 5 and 12.

One possible method for gauging emotional and behavioral engagement is by gathering self-report data on children's school liking and school avoidance. Reports about school liking, or children's sentiments toward school, can be seen as tapping emotional engagement (Ladd, 1990). For example, questions such as "does school make you feel like crying?" encourage children to report their feelings or sentiments toward school (i.e., professed liking and disliking). Children who report high levels of school liking can be seen as positively emotionally engaged (implying that respondents experience positive feelings in school and/or about school), whereas children who report low levels of liking can be seen as negatively emotionally engaged or disaffected with school (implying that respondents experience negative feelings in school or have developed negative affect toward school).

In contrast, school avoidance can be considered an indicator of behavioral disengagement. School avoidance can be defined in terms of children's behavioral attempts to stay away from or "escape" the bounds of the school context. Indicators include poor attendance, low involvement in school activities, and the desire to escape or avoid classrooms or school, as well as anxiety toward school (Ladd, 1990). For example, with grade school children, indicators of school avoidance might be obtained by asking children to indicate whether or not they want to go to school (versus refuse to do so), prefer to be places other than school (e.g., home), pretend to be sick, or ask to go to the nurse during the school day.

One of the child-report measures that is available and appears well suited for these aims is the *School Liking and Avoidance Questionnaire.* This measure contains subscales that have been designed to tap both children's affective reactions toward school (school liking, an indicator of emotional engagement) and their propensity to avoid the school context (school avoidance, an indicator of behavioral disengagement). Unfortunately, however, most of the evidence obtained about the psychometric properties of the SLAQ has been gathered with samples of young elementary school children (e.g., kindergarteners, first graders), and little is known about its reliability and validity with primary-age and older grade school children. Therefore, additional studies are needed to evaluate this instrument's ability to provide reliable and valid information about emotional and behavioral engagement with grade school children (i.e., children ages 5 through 12).

Study Aims and Hypotheses

The overarching goal of this study is to empirically evaluate the measurement properties of the *School Liking and Avoidance Questionnaire* with samples of grade-school children between the ages of 5 and 12. The data source for this study will be a longitudinal study in which the SLAQ was administered yearly to a sample of grade school children as they progressed from kindergarten through grade six. The first step will be to conduct individual item analysis in order to empirically assess whether or not items differentiate among respondents at each grade (i.e., item means, standard deviations, item distributions, and corrected item-total correlations). The second step will be to explore the dimensionality of SLAQ. Previous research has suggested that this scale taps two related, but distinct aspects of school engagement (i.e., school liking and school avoidance; Ladd et al., 1996; Ladd et al., 2000); however, this hypothesis has not been empirically tested with older samples of elementary school children. Findings are expected to conform to this hypothesis; that is, confirmatory factor analyses are expected to reveal the presence of two related but distinct subscales composed of items that correspond to their hypothesized factors. Following confirmatory factor analysis, additional analysis will be undertaken to evaluate the hypothesis that the dimensions tapped by each subscale remain invariant across grade levels (i.e., factorial invariance). If the two subscales are deemed invariant over time, the next step will be to evaluate: (a) the internal consistency of the scores obtained for the items that comprise each of the two subscales at each time of measurement (by grade level); and (b) the extent to which subscale scores evidence stability over time (age, grade levels). If the subscales are not found to be invariant from kindergarten through sixth grade, then attempts to obtain partial invariance will be undertaken. In the first examination, analyses will be conducted by grade such that they examine invariance by "developmental stages" rather than across the entire elementary school years. For example, invariance might be examined during the early (i.e., kindergarten through third grade), versus the later (fourth through sixth grade) years of grade school. Second, items that have highly variable factor loadings will be identified and freely estimated (allowed to vary freely, rather than constrained to be equal).

The final purpose of this study is to assemble evidence that reflects on the construct and predictive validity of the subscales of the *School Liking and Avoidance Questionnaire*. Evidence of construct validity will be obtained by correlating the latent variable factors of SLAQ (school liking, school avoidance) with other indicators of emotional and behavioral engagement, including those obtained from different types of informants (e.g., teachers, parents). It is anticipated that: (a) there will be a significant positive correlation between teacher and child report of school liking and avoidance; (b) there will be a significant positive correlation between parent and child report of school liking and avoidance; and (c) there will be a stronger relation between child and teacher than child and parent (greater within- than between-context agreement; see Achenbach, McConaughy, & Howell, 1987).

As tests of predictive validity, SLAQ latent factors will be used to forecast the scores children receive on measures that, theoretically and empirically, are expected to be engagement-related school outcomes (i.e., indicators of achievement). Because differences in engagement are expected to result in greater or lesser learning, and cumulatively, higher versus lower levels of achievement, the principal criteria used for predictive validity in this study will be measures of children's achievement.

Method

Participants

The sample for this study consisted of children between the ages of 5 and 12 who took part in a larger longitudinal study. Participants included a sample of 396 children (198 boys; 198 girls) that was recruited as they entered kindergarten (*M* age= 5.62 yrs.) and followed prospectively until they completed sixth grade (*M* age = 11.39 yrs.). Children came from similar albeit diverse racial/ethnic and socioeconomic backgrounds (79.5% European American, 16.5% African American, and 3.2% Latina, mixed race, or other; average family income in kindergarten = $40-50,000; Range = $10-120,000; third grade average SEI = 49.74; Range = 0-97.16).

Consent was obtained from school districts before recruitment began. Written informed parental consent and youth assent was obtained from all participants at the time of recruitment and 95% of the recruited families agreed to participate.

The number of classrooms in which data were collected each year ranged from 79 to 141. For peer assessment purposes, informed consent was obtained from participants' classmates, and permission rates across classrooms averaged 89.2% (range 71% - 100%). Because participants were redistributed each year into classrooms that contained substantial proportions of non-participating peers, the number of participants within the same classroom declined from an average of 7.9 in grade 1 to 2.7 in grade 6.

If participants changed schools, permission was sought from administrators, teachers, and the parents of classmates, and only those classmates for whom written parental consent (and child assent) was obtained took part in the study. Of the 396 children in the sample, 391 (98%) remained in the study from first through sixth grades, and all of the children in the supplemental sample participated from fifth through sixth grades. The number of teachers who participated per assessment period ranged from 32 to 282, and the number of classmates who contributed data per assessment ranged from 964 to 4,203.

Measures

The child-report study measures were administered to participants yearly, from kindergarten through grade 6, during the spring of the school year. In kindergarten, fifth and sixth grade, assessments were also administered in the fall semester. At each of these times of measurement, teachers and parents were asked to complete a series of questionnaires.

School Liking and Avoidance Questionnaire. SLAQ is a child self-report measure composed of 14 questions designed to measure the constructs of school liking and avoidance. Nine items were designed to index school liking and five items were intended to tap school avoidance. School liking questions included "Is school fun?" and "Are you happy when you're at school?" Questions intended to tap school avoidance included "Do you wish you didn't have to go to school?" and "Do you wish you could stay home from school?" (See Table 1 for a full list of items). The questionnaire was individually administered to participants at school during the spring semester of each school year. For some items, wordings were altered during later years of data collection to be more appropriate for older students. For example, "Does school make you feel like crying?" and "Is school yucky?" were changed to "Does school make you feel unhappy or upset" and "Is school terrible?", respectively beginning in fourth grade. Items were on a 5-point scale: 1 = *almost never*, 2 = *a little*, 3 = *sometimes*, 4 = *a lot* and 5 = *almost always*. All items from kindergarten through third grade were on a 3-point scale but were rescaled to reflect the 5-point scale sued from fourth-sixth grade.[1] For the purposes of this study, only spring semesters will be used from kindergarten through sixth to ensure consistency of both measure and time of data collection in the school year.

Existing evidence on the SLAQ, gathered with young children, indicates moderate to high levels of internal consistency for items comprising the school liking (alphas = .87-.90) and the school avoidance (alphas = .76-.80) subscales. Moreover, factor analyses conducted with these samples for items from both subscales (14 items) have consistently yielded two subscales; a nine item subscale representing school liking, and a five item subscale representing school avoidance (Ladd et al., 1996).

Teacher Rating Scale of School Adjustment (TRSSA). This measure consists of 52 questions and contains items that tap school liking ("enjoys most classroom activities" or "likes to come to school"), school avoidance ("asks to leave the classroom" or "asks to see school nurse"), cooperative participation ("follows teachers directions", "uses classroom materials responsibly", "is easy to manage"), and independent participation ("seeks challenges", "works independently", "interested in classroom activities", "participates willingly in classroom activities"). Teachers rated all questions on a 3 point scale: 1 = *doesn't apply*, 2 = *applies sometimes*, and 3 = *certainly applies*. Cronbach's alpha for the TRSSA ranges from .82 -.97 for elementary school children (Birch & Ladd, 1997; Ladd et al., 2000). Teacher report of school liking (5 items) and school avoidance (5 items) will be used as cross-informant indicators of construct validity. Scores from the cooperative participation and independent participation subscales will serve as criteria for evaluating predictive validity. School liking is expected to predict higher levels of cooperative and independent participation. School avoidance is expected to predict lower scores on the subscales.

Parent Report of Child School Liking-Avoidance. This parent report measure (PR-SLA; adapted from Ladd, 1990; Ladd et al., 2000) contains two subscales (i.e., School Liking, School Avoidance) which will be used as cross-informant indicators of construct validity. Ten items on the questionnaire were similar to questions from the SLAQ: four items for school liking and six items for school avoidance. An item intended to tap school liking is “enjoys school activities or events”. An example item for school avoidance is “asks to stay home from school”. Parents rated children on a 5-point scale: 1 = *almost never*, 2 = *a little,* 3 = *sometimes*, 4 = *a lot*, and 5 = *almost always*. This measure was found to have adequate psychometric qualities with samples of young children (alphas range from .76-.81; Ladd et al., 2000). Parent report of school liking-avoidance is expected to correlate positively with child report of school liking and avoidance.

Academic achievement. An index of this construct was obtained by individually administering the reading and math subtests of the *Wide Range Achievement Test* (WRAT; Wilkenson, 1993) to all participants during the spring of Grades 1 through 6. The WRAT possesses adequate psychometric properties and has validated on national samples (alpha = .69 to .97; Hughes, 1987). The scores for the reading and math subtests correlated positively within and across waves of assessment (*r*s ranged from .35 to .60, *M* = .49, from first to sixth grade). Accordingly, at each grade level, a composite achievement score was calculated for each participant level by averaging the scores he/she received on the WRAT reading and math subscales. This achievement composite scores exhibited moderate stability over time (*r*s ranged from .62 to .83; *M* = .74; from first to sixth grade). Child reports of school liking and school avoidance are expected to predict higher and lower levels of academic achievement, respectively.

Another index of school achievement was obtained by administering the *Teacher Ratings of Student Achievement and Progress* to assess achievement in math and reading. The scale for ratings of achievement and progress is a 5-point scale: 1 = *well below grade level*, 2 = *somewhat below grade level*, 3 = *on grade level*, 4 = *above grade level*, and 5 = *well above grade level*. All measures of academic achievement will be used to assess predictive validity. School liking is expected to predict higher concurrent and future teacher ratings of achievement and progress. The opposite effect is expected for school avoidance.

The third index of school achievement was obtained by collecting teacher report of academic problems (*Academic Problems Checklist*). This assessment was administered each year from first through sixth grade and evaluates the child's performance in reading (17 items, alpha = .97; e.g., "poor oral reading", "difficulty with compound words") and math (9 items, alphas= .95-.96; e.g., "poor problem solving ability", "easily frustrate with math activities"). Teachers rated each child on a 3-point scale: 1 = *not very characteristic of this child*, 2 = *somewhat characteristic of this child* and 3 = *very characteristic of this child*. This measure has strong psychometric properties (all alphas=.98). The *Academic Problems Checklist* will be used to evaluate predictive ability of SLAQ. It is expected that early report of school liking and will predict lower teacher report of academic problems and school avoidance will predict higher levels of academic problems.

Results

Item Analyses

Item means and standard deviations are displayed in Table 2. All items, even those with possible floor or ceiling effects, were retained throughout item analyses. Mean responses on the school liking items were generally greater than 4.00, indicating that most students reported a high degree of liking regardless of grade level. Mean responses on the school avoidance items indicated that children generally reported a lower degree of school avoidance.

Histograms were generated for each item using SPSS (version 19). Item distributions followed similar patterns across each grade. All school liking items were positively skewed. Because fourth through sixth grade items were on a 5-point scale, they looked more normally distributed than items on the 3-point scale used from kindergarten through third grade. Scores for school avoidance items tended to fall at the extremes of the scale: children either reported very low or very high degrees of school avoidance. One school avoidance item, item 14 “ask mom or dad to let you stay home from school”, did not have the same distribution as the other avoidance items but was negatively skewed.

Item correlations. School liking items were positively correlated with each other (*r*s = .11-.71) at each grade. School avoidance items at each measurement point were also positively correlated with all other items that measure school avoidance (*r*s = .14-.74). As expected, school liking and school avoidance items were negatively correlated across all grades (*r*s = -.08 to-.60). Corrected item-total correlations revealed that all items discriminated well throughout all grades with the exception of item 2 which had item-total correlations less than .34 from kindergarten through fourth grade. This item was still retained for use in confirmatory factor analysis.

School Liking and Avoidance Subscales

Subscale factor structure. In studies conducted with young grade-school children, previous investigators proposed and found that school liking (9 items) and school avoidance (5 items) represent two distinct subscales (see Figure 1). Analyses were undertaken not only to determine whether it was possible to replicate this finding, but also to ascertain whether the SLAQ tapped these same two dimensions when it was administered to samples of older grade-schoolers. To address this aim, confirmatory factor analysis using the robust WLS estimator (which is the recommended estimator for use with order-categorical data; Flora & Curan, 2004; Muthen & Muthen, 2009) were conducted with the goal of determining whether a one- or a two-factor model best fit the data for each grade level. The one factor model included school liking items and school avoidance on their respective factors with the latent factors constrained to be equal. The two factor model consisted of school liking and school avoidance on separate correlated factors. Because the data are categorical and the WLSMV estimator was used, the robust chi-square for difference testing was required for comparisons of nested models (Asparouhov & Muthén, 2006). For each grade, the two factor model fit better than the one factor model (displayed in Table 5). The two factor model containing all grade levels was a good fit (χ^2 (4564) = 5228.97, p < .01, CFI= .98, RMSEA= .02, WRMR= .96). Models ran for each grade individually indicated that the more constrained one factor model significantly reduced the model fit. Moreover, the two factor model fit the data better than the one factor model when all grades were examined simultaneously (χ^2 (4571) =

35911.58, $p < .01$, *CFI*= .00, *RMSEA*= .13, WRMR= 4.88). Accordingly, the correlated two-factor model was retained for subsequent analyses.

Item means, standard deviations, corrected item-total correlations, item loadings, and additional model improvement suggestions generated by Mplus were used to identify items that reduced model fit. This inspection confirmed that item 2 “school makes you cry/upset”, as well as items 11 and 13, “feel happier when it’s time to go home from school”, were likely reducing model fit. Each of these items had lower means, higher standard deviations, lower corrected-item total correlations or lower factor loadings. Separate models were computed without item 2, without item 11, without items 2 and 11, and finally without 13 (analyses are displayed in Table 7). Models excluding item 2 (Model 3) and item 11 (Model 4) did not change model fit. The model with item 13 removed (Model 5) reduced model fit (χ^2 (3913) = 5999.04, $p < .01$, *CFI* = .92, *RMSEA* = .04, WRMR = 1.45); whereas, removing item 2 and 11 (Model 6) improved model fit (χ^2 (3311) = 3750.72, $p < .01$, *CFI* = .99, *RMSEA* = .02, WRMR = .88). Internal consistency of the School Liking and Avoidance Questionnaire without item 2 and 11 remained high ranging from alpha = .89-.95. Refer to Table 6 for the complete list of alphas by grade.

After excluding items 2 and 11, the need for residual item correlations across and within wave was explored to examine the effect of non-independence of observations (i.e., children reporting on the same measure each year) on model estimation. Model fit indexes for this series of analyses are shown in Table 7. In the first model (Model 7 in Table 7), the same items were allowed to correlate at each time point (e.g., kindergarten with first grade, first grade with second grade, and kindergarten with second grade); in the second model (Model 8), items were allowed to correlate only across consecutive time points (e.g., kindergarten with first grade, first grade with second grade). Model 8 fit significantly worse (χ^2 (3239) = 3595.02, p < .01, *CFI* = .99, *RMSEA* = .02, WRMR = .84) than Model 7 (χ^2 (3059) = 3389.48, p < .01, *CFI* = .99, *RMSEA* = .02, WRMR = .82). For the model where item residuals were allowed to correlate with immediately adjacent time points, many items were not significantly correlated. As such, one model, Model 9, specified that only the significant residuals at adjacent time points were to be correlated. This model improved fit slightly from Model 8 (χ^2 (3291) = 3659.29, p < .01, *CFI* = .99, *RMSEA* = .02, WRMR = .85), but was a significantly worse model fit than Model 6 (no residual correlations specified). For the sake of parsimony, Model 6 was used in subsequent analyses for assessing the degree of invariance of the school liking and school avoidance subscales.

Factorial Invariance

This set of analyses were undertaken to test the hypothesis that the factor structure of the SLAQ was invariant across the sampled grade levels. Testing the invariance of the two factors, or subscales, began by running a baseline model (item loadings and thresholds remained freely estimated) separately for each subscale from kindergarten through sixth grade.

School liking factorial invariance. In the model used to examine the invariance of the school liking factor, the same seven items served as indicators of this dimension at each of the measurement points. School liking factor invariance results are displayed in Table 8.

The full model for school liking fit the data well (χ^2 (1106) = 1301.83, p < .01, *CFI* = .99, *RMSEA* = .02, WRMR = .84. The second test of invariance assessed weak invariance where factor loadings were constrained. This model was compared with the baseline model in order to determine if weak invariance was obtained. Difference testing showed that the more constrained model significantly reduced model fit based on a significant chi square value for difference testing (χ^2 (1142) = 1453.67, p < .01, *CFI* = .98, *RMSEA* = .03, WRMR = .99). Although the weak invariance was a good fit to the data, this model fit the data less well than the less constrained model. As such it became important to consider sources of non-invariance in order to obtain partial invariance.

One possible source of non-invariance was due to grade. As such, analyses were repeated for subgroups of grades in order to determine whether weak invariance existed across specific age periods. Developmentally, a kindergarten student is vastly different from a sixth grade student. To explore grade-level influences on factorial invariance the data were split into developmentally appropriate grade ranges: kindergarten-third grade in one set of analyses and fourth-sixth grade in a different set. The baseline model for kindergarten-third grade was good fit (χ^2 (344) = 408.41, p < .01, *CFI* = .99, *RMSEA* = .02, WRMR = .78). Tests of weak invariance revealed that the model with item loadings constraints was significantly different from the baseline model (χ^2 (362) = 453.42, p < .01, *CFI* = .99, *RMSEA* = .025, WRMR = .90); weak invariance was not present in kindergarten through third grade based on difference test results. A baseline model for school liking items from fourth-sixth grade was also possessed good data fit (χ^2 (186) = 374.56, $p < .01$, *CFI* = .98, *RMSEA* = .05, WRMR = .92). Constraining loadings of the school liking items for the fourth-sixth grade model reduced the model fit (χ^2 (198) = 410.58, $p < .01$, *CFI* = .98, *RMSEA* = .05, WRMR = 1.07); weak invariance was also not present in the model containing just fourth-sixth grade.

Because invariance was not obtained it was necessary to pursue additional pairwise analyses of partial invariance for the school liking subscales. This set of analyses examined weak invariance from kindergarten-first grade and second-third grade by constraining item loadings. Baseline models were run for both groups. The model for kindergarten-first grade was a good fit (χ^2 (76) = 135.12, $p < .01$, *CFI* = .99, *RMSEA* = .05, WRMR = .99). The model for second-third grade was also a good fit (χ^2 (76) = 126.32, $p < .01$, *CFI* = .99, *RMSEA* = .04, WRMR = .81). Robust chi square difference tests revealed that weak invariance was not obtained from kindergarten-first grade but was for second-third grade (χ^2 (82) = 136.29, $p < .01$, *CFI* = .99, *RMSEA* = .04, WRMR = .90).

School avoidance factorial invariance. In the model used to examine the invariance of the school avoidance factor, the same five items served as indicators of this dimension at each measurement point. All model fit indices for factor invariance of school avoidance are displayed in Table 9.

Testing invariance for school avoidance subscales followed the same procedure as testing for the invariance of the school liking subscales. The unconstrained baseline model for school avoidance was a good fit (χ^2 (539) = 801.05, $p < .01$, *CFI* = .98, *RMSEA* = .04, WRMR = .95). Next, weak invariance was assessed by constraining item loadings of the school avoidance subscales to be equal. This model adequately fit the data (χ^2 (563) = 888.06, $p < .01$, *CFI* = .97, *RMSEA* = .04, WRMR = 1.10). Because robust chi square difference testing showed a significant change between the less constrained and more constrained models, it was necessary to pursue alternative partial invariance analyses to identify possible sources of non invariance.

Similarly to school liking, lack of invariance of the school avoidance subscales due to grade level was examined by running different models for groups of grades. Toward this end, invariance was first tested from kindergarten-third grade, and fourth-sixth grade. The baseline model for school avoidance from kindergarten-third grade fit the data well (χ^2 (164) = 283.17, $p < .01$, *CFI* = .98, *RMSEA* = .04, WRMR = .94). Weak invariance was obtained from kindergarten through third grade by constraining the item loadings to be equal (χ^2 (176) = 280.50, $p < .01$, *CFI* = .99, *RMSEA* = .04, WRMR = 1.00). Constraining loadings of the school avoidance items for fourth-sixth grade reduced the model fit (χ^2 (95) = 307.64, $p < .01$, *CFI* = .96, *RMSEA* = .08, WRMR = 1.25) indicating that weak invariance from fourth-sixth grade was not obtained.

Additional pairwise factor invariance analyses were also conducted for school avoidance subscales. Baseline models for kindergarten-first grade and second-third grade fit the data well (χ^2 (34) = 58.31, $p < .01$, *CFI* = .99, *RMSEA* = .04, WRMR = .74 and (χ^2 (34) = 103.365, $p < .01$, *CFI* = .99, *RMSEA* = .07, WRMR = 1.04), respectively). These analyses suggested that weak invariance for school avoidance was also evident from kindergarten-first grade and second-third grade, indicating that avoidance is less discrepant over time. Furthermore, robust chi square difference test showed that strong invariance was obtained from kindergarten-first grade and second-third grade (χ^2 (43) = 75.96, p < .01, *CFI* = .99, *RMSEA* = .04, WRMR = .92 and (χ^2 (43) = 100.05, p < .01, *CFI* = .99, *RMSEA* = .06, WRMR = 1.08), respectively).

Constraining loadings of those items that had a wide range of loading values was another possible explanation for lack of invariance of the school avoidance subscales. After examining the factor loadings one school avoidance (item 13) was identified as loading less consistently onto factors than the other items. Freely estimating item 13 produced a model that was not significantly different from the less constrained model (χ^2 (557) = 815.93, p < .01, *CFI* = .98, *RMSEA* = .03, WRMR = 1.00), resulting in weak factorial invariance across all grades.

A more holistic approach for rejecting the setwise null hypothesis of factor invariance for the school liking and school avoidance subscales might be necessary. Particularly for school liking subscales, instead of relying solely on the *p*-value for the chi-square difference testing, it is possible that CFI, WRMR, and RMSEA are adequate indicators of determining invariance by showing which models maintain adequate model fit even if constraints reduce the overall model fit according to the chi-square difference test. Using this approach, weak invariance models for school liking and school avoidance (with item 13 freely estimated) adequately fit the data and will be the final models retained for subsequent analyses.

Subscale Reliability

Structural equation model-based reliability. Subscale reliability results are displayed in Table 6. Coefficient alpha was not suitable for evaluating the reliability of subscales in a non-linear structural equation model, especially for categorical data, because they violate several major assumptions of alpha reliability. Green and Yang (2009) suggest an alternative method for determining reliability: conducting SEM-based reliability in SAS v. 9.2. In order to determine reliability with this method, four matrices produced by Mplus confirmatory factor analyses were pulled into SAS: item loadings matrix, item thresholds matrix, polychoric correlations, and latent variable correlations. Reliability was analyzed separately for each grade. In order to create full matrices for item loadings and latent variable correlations, school liking and avoidance were assessed simultaneously. There is no specific range preferred for SEM-based reliability estimates available. Green and Yang (2009) propose that these coefficients should be similar to alpha coefficients. Based on the appropriate range for alpha coefficient, results from this series of analyses indicated that school liking and avoidance subscales had adequate reliability only at some grades, with coefficients ranging from .59-.72.

Subscale stability. The stability of the school liking and school avoidance subscales were evaluated to determine whether or not children who reported high degree of school liking or avoidance (or vice versa) early in their school years also reported high (or low) degree of school liking or avoidance across elementary school. Subscale stability results are displayed in Table 10. Coefficients revealed that school liking and school avoidance subscales were particularly stable across one or two immediately succeeding grades (coefficients ranged from .223-.462). For example, coefficients for the stability of kindergarten were .368 and .246 for first and second grade, respectively but were less than .200 for third through sixth grade. This pattern was evident for school liking and avoidance subscales across all grades suggesting that scores are more stable projected a couple of grades but become less stable over time.

Validity

Construct validity. To assess the construct validity of the School Liking and Avoidance Questionnaire, a six factor model compared the latent variable relations between child-, teacher- (*Teacher Rating Scale of School Adjustment*), and parent-reports (*Parent-Report of School Liking and Avoidance*) of school liking and school avoidance. Correlations between teacher-report of school liking (5 items) and school avoidance (5 items) as well as parent-report of school liking (4 items) and school avoidance (5 items) with child-report of school liking (7 items) and avoidance (5 items) were examined within-grade, one grade at a time. These models allowed for cross-comparisons of each subscale for all reporters. The first round of analyses revealed that two parent-report of school liking items and one teacher-report of school avoidance item consistently loaded poorly onto their respective factors at each grade. These items were removed from analyses to explore their effects on model fit: model fit improved at each grade. As such, these items were excluded from construct validity analyses. Following the exclusion of parent and teacher report items identified as reducing model fit, items for both informants revealed a clear two-factor structure (i.e., school liking and school avoidance) at each measurement time.

Table 11 displays all latent variable correlation coefficients between child- and teacher- and child- and parent- report of school liking and avoidance. Only parent-report of school liking was significantly correlated with child-report in the expected directions for school liking (correlations ranged from .14-.39) and school avoidance (correlations ranged from -.08 to -.29) at most grades. Parent-report of school avoidance was also significantly correlated with child-report of school liking (-.10 to -.35) and school avoidance (.08-.26) at most grades. Teacher-reports of school liking and school avoidance were generally uncorrelated with student school liking and school avoidance, with the exception being for fourth grade. At all other grades, teacher-reports were not significantly correlated with child-report of school liking and avoidance, and at times correlated in the opposite direction than expected (i.e., teacher-report of school liking was correlated positively with child-report of school avoidance).

Predictive validity. Three different achievement measures – *Wide Range Achievement Test*, *Teacher Ratings of Student Achievement and Progress,* and *Academic Problems Checklist* – were used to assess the predictive validity of the *School Liking and Avoidance Questionnaire*. The first step examined the correlations between school liking and avoidance and the WRAT subscales within and between grades. Correlation coefficients (presented in Table 12) revealed that the relation between school liking and avoidance and the WRAT were in expected directions and of moderate magnitude; however, for second and third grade, the correlations between school liking subscales and scores on WRAT were negative. Following correlation analyses, WRAT was regressed on latent variables of school liking and avoidance separately to gauge how each subscales predicted achievement. Kindergarten and first grade child-reports of school liking and avoidance were used to predict scores of achievement from first grade through sixth grade. Regression coefficients were not significant for the *Wide Range Achievement Test* as well as for the *Student Achievement and Progress* (refer to Table 13) indicating that neither early report of school liking or school avoidance predicted later scores on these two achievement measures. The Academic Problems Checklist model did not converge therefore results are not reported.

Because early report of school liking and school avoidance did not predict later achievement, a second set of predictive validity analyses were conducted to compare concurrent reports of school liking and avoidance and achievement scores. The achievement measures were not administered in kindergarten, consequently this round of validity analyses began in first grade. Table 14 displays regression coefficients for the *Wide Range Achievement Test*. All coefficients were significant with the exception of school liking and avoidance for third grade and avoidance for sixth grade. Positive coefficients present for school liking indicated that as school liking increases, so did scores on WRAT. Contrary to expectations, positive coefficients were also revealed for school avoidance and scores on WRAT. The models for *Teacher Report of Student Achievement and*

Progress and *Academic Problems Checklist* either produced non-significant findings or failed to converge across grades. Therefore only results for the *Wide Range Achievement Test* are reported.

Discussion

Overall, evidence from this investigation adds to what is known about the psychometric properties of the *School Liking and Avoidance Questionnaire*, and further elucidates the instrument's potential as a tool for measuring children's emotional and behavioral engagement in school. Moreover, the findings contribute to researchers efforts to quantify the construct of school engagement – particularly as it is exhibited in emotional and behavioral forms – and aid practitioners who wish to obtain and utilize tools for purposes such as (a) identifying children who dislike or disengage from school, (b) assessing the relation between a child's degree of liking and avoidance and other important adjustment outcomes, and (c) assessing the impact of prevention programs on children who are at-risk for school disengagement.

Distinguishing Between School Liking and School Avoidance

Confirmatory factor analysis supported the hypothesis that the *School Liking and Avoidance Questionnaire* provides information about two distinct, yet related, constructs, termed school liking and school avoidance. Items constructed to tap school liking consistently loaded on the same subscale across grade levels. Similarly, items referencing school avoidance loaded on a separate subscale consistently across grades. Together, these findings lend support to the hypothesis that the school liking and school avoidance subscales tap partially distinct constructs. Corroboration of this inference came from findings indicating that at each grade, a two factor model fit the data better than a model in which all items comprised a single subscale. Because item loadings were significant at each grade and the same items loaded consistently on each subscale, the findings provide preliminary support for the factorial validity of the SLAQ. Moreover, because these findings were consistent over the sampled grades, the results imply that the SLAQ provides information about two partially distinct subscales for younger and older elementary-age children (i.e., from kindergarten through sixth grade).

Reliability and Stability of the School Liking and Avoidance Subscales

Findings from analyses conducted to gauge the reliability of the two SLAQ subscales suggested that the sampled grade-schoolers were consistent with themselves in the way that they responded to subscale items. Moreover, the scores obtained with the School Liking and the School Avoidance subscales were found to be relatively internally consistent regardless of age or grade level. The magnitudes of the alphas calculated by subscale and grade were well above commonly-accepted cut-offs (e.g., .70), although the estimates obtained for the school avoidance subscale were slightly lower than those for the school liking subscale.

In contrast to alpha, the SEM-derived estimates, which were calculated by considering scores from both subscales simultaneously, were somewhat lower in magnitude. Based on previous SEM-based reliability explorations of other measures conducted by Green and Yang (2009), it was expected that SEM and alpha coefficients would be similar to each other, but the reliability coefficients generated by the series of SEM-based analyses were lower than the alpha coefficients. Only a few grades had SEM coefficients above the ideal reliability range whereas alpha exceeded this range at each grade. SEM-based reliability is a new technique to correct for violations of alpha with non-linear, multidimensional data and little is known about the meaning of coefficients that are much lower than alpha. A holistic interpretation of both reliability coefficients indicates that the school liking and avoidance subscales are reliable from kindergarten through sixth grade.

Moderate to high levels of consistency were also found in the stability of subscale scores over time or grades. Scores for the school liking subscale correlated significantly over time as did scores for the school avoidance subscale. Moderate stability coefficients suggested that children at younger ages who scored higher on school liking or school avoidance tended to also score higher on these subscales at later time points. Cross-time patterns revealed that, for both subscales, scores showed greater stability across shorter time intervals (i.e., grade to grade), and lesser stability across longer time lags (e.g., across multiple grades).

In sum, consistent with previous research conducted on the SLAQ in kindergarten and first grade (Ladd et al., 2000), the school liking and school avoidance subscales yielded results that were internally consistent and stable over time. Adjusted item-total correlations and subscale alphas computed by grade levels showed that the items comprising the school liking and school avoidance subscales discriminate well and that the subscales themselves are reliable. These results were relatively stable across the range of study suggesting that these data patterns would replicate across different samples and varying age ranges.

Validity of the School Liking and School Avoidance Subscales

The validity of the SLAQ was evaluated across grade levels by examining the convergence among subscale scores with cross-informant indicators (i.e., parent, teacher reports) of each form of school engagement (i.e., construct validity) and with established correlates of school engagement (i.e., concurrent, predictive validity). Overall, modest support was found for the construct and predictive validity of the two SLAQ subscales.

Construct validity. Children's reports of school liking on the SLAQ evidenced consistent but moderate levels of convergence with parents' reports of the same construct across grade levels. In contrast, little or no association was found between scores on this SLAQ subscale and teachers' reports of school liking. The fact that modest convergence was found between children's self-reports and parents' reports of school liking suggests that scores for this subscale are measuring children's emotional engagement and interest in school and classroom activities. It is possible that the lack of correlations between teacher and child-report of school liking might reflect inadequacies of the teacher-report of school liking rather than a failure of the child-report to capture emotional engagement. Teachers may also be using observable behaviors other than those parent's might observe such as a student's willingness to do schoolwork or cooperate in school activities as the basis for evaluating and rating their student's school liking and avoidance.

Children's reports of school avoidance were also compared with teacher- and parent-report of school avoidance. As was found for school liking, moderate convergence was found between parent- and child-reports of school avoidance at almost all time points—and these results provide some substantiation of this subscales' construct validity. Teachers' reports of school avoidance correlated only sporadically with children's reports; a finding that was again consistent with the proposition that teachers' reports are not tapping behavioral engagement in the same way as parent- and child-report, or even at all.

In sum, analyses undertaken to evaluate the construct validity of the SLAQ subscales produced mixed results. On the one hand, children's and parents' reports of school liking and school avoidance showed modest convergence. On the other hand, children's and teachers reports of school liking were generally unrelated, and relations between children's and teachers reports of school avoidance were inconsistent across the sampled grade levels. Teachers' reports, more than parents' reports were expected to correlate more highly with children's reports because teachers are in a better position to observe children in the school context. A number of factors might be responsible for the general lack of congruence of SLAQ scores and teachers' reports. Teachers might, for example, not be attuned to more subtle forms of school liking and avoidance—noticing only those children who display extreme emotional and behavioral engagement and/or disengagement. Because of the large number of students present in most classrooms, teachers might not attend to more modest levels of school liking or avoidance. It might be easier for parents than for teachers to recognize children's emotional and avoidant behaviors toward school. Additionally, little is known about the psychometric properties of the teacher measure used to evaluate students' school liking and avoidance. This is also true for the parent-report measures; however, the parent-report factors were associated as expected with child-report. The convergence between parent and child report of both school liking and avoidance provides support for the construct validity of the SLAQ and lend partial support that the two school liking and avoidance subscales tap the constructs they were intended to.

Predictive validity. Modest support was found for the predictive validity of the SLAQ subscales. Children's reports of school liking on the SLAQ correlated moderately but consistently with concurrent scores on the *Wide-Range Achievement Test* at every grade level. In contrast, little or no association was found between early report of school liking and later achievement outcomes for the *Wide-Range Achievement Test* and teacher report of achievement and progress. There was no association between school liking and teacher report of academic problems either concurrently or predictively. This evidence provides some support that child-report can predict achievement within the same grade in which school liking was measured.

Similarly, child-report of school avoidance and scores on the WRAT were significantly positively associated within grade at each measurement point with the exception of sixth grade; however, for only second and third grade was this relation in the expected direction. Contrary to expectations regression coefficients indicated that the relation between the school avoidance and WRAT latent variables was positive suggesting that scores on WRAT increased as school avoidance increased. No association was found between early report of school avoidance and teacher report of academic problems. Additionally, the association between early report of school avoidance and later achievement scores on the WRAT and achievement and progress was not significant at any grade. The results from this series of predictive validity analyses showed that school avoidance can predict concurrent achievement scores on the Wide Range Achievement Test at almost every grade.

Attempts to assess the degree to which SLAQ possesses predictive validity revealed patterns that were inconsistent with expected relations. In accordance with previous investigations (e.g., Connell, Spencer, & Aber, 1994), it was originally hypothesized that school liking and achievement measures would be highly positively correlated suggesting that children who like the school context would also do well on achievement tests; results only partially supported this hypothesis. The *Wide Range Achievement Test* was significantly correlated with child-report of school liking and avoidance. Because school liking and avoidance tap a more social engagement and a more general enjoyment in school whereas achievement measures academic ability and performance it might be inappropriate to expect that one predict the other: it is possible for a child to not enjoy the social environment of school and yet score well on achievement tests.

Future Research Needs

Because the patterns of validity differed from expectations, both construct and predictive validity of the SLAQ warrants further investigation. First, teacher report of school liking and avoidance requires its own validation study. Items pulled from the *Teacher Rating Scale of School Adjustment* have not been examined in depth. It would be important to determine the reliability and validity of the TRSSA and create a final set of items to comprise the school liking and avoidance subscales. This would begin to help explain the small and non-significant correlations with child-report of school liking and avoidance. Similarly, it would be remiss to ignore the *Parent-Report of School Liking and Avoidance*. Although correlations between child- and parent-report of school liking and avoidance were in the expected direction, validating this measure would provide additional support for the construct validity of the SLAQ.

Second, because achievement outcomes were not well predicted by school liking and avoidance neither concurrently nor in later grades, additional outcome variables need to be explored. More specifically, it would be beneficial to use outcome measures that are more socially based such as measures friendship quality. Future investigations should consider different outcome variables such as Cassidy and Asher’s *Loneliness and Social Dissatisfaction Scale* (1992) or Ladd and Kochenderfer-Ladd’s *Multisource Peer Victimization Scale* (2002). This study briefly examined the correlations between individual items of loneliness and peer victimization with school liking and avoidance but inconsistent and mostly non-significant correlations were found. It would be important and a necessary next step to follow an SEM framework to explore the relation between these other outcome measures and the SLAQ. These analyses might provide more support for the predictive validity of the SLAQ and would provide insight to the reciprocal nature or school sentiments or engagement and social experiences in school.

Conclusions and Applications

More attention needs to be paid to the *School Liking and Avoidance Questionnaire*; however, the information gathered about the measure in this study provides evidence to suggest that it is reliable and valid. Researchers or members of the community alike can use the more parsimonious set of items yielded from these analyses to identify children who dislike or disengage from school and understand the association between these feelings and concurrent or subsequent social or school adjustment. Access to this smaller set of variables would also reduce initial time spent administering the questionnaires and would allow for less complex analyses post data collection.

Although there is still much to be learned about the validity of the SLAQ, this study began the laborious process and uncovered many of the underlying features of the questionnaire: (1) there is a clear two-factor structure of school liking and avoidance, and (2) these constructs can be reliably studied in elementary school children.

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Footnote

[1] Analyses were run to examine if data patterns changed for different scaling type: kindergarten through third grade used a 3-point scale and fourth grade through sixth grade used a 5-point scale. Separate analyses were run for each group (k-third and fourth-sixth). Results indicate that changing the 3-point scale to parallel the 5-point scale did not change data patterns for subscale analysis, reliability, or validity.

Table 1

School Liking and Avoidance Questionnaire

Subscales	Items
School Liking	1. Is school fun?
	2. Does school make you feel like crying? (reversed)
	4. Are you happy when you're at school?
	6. Do you hate school? (reversed)
	7. Do you like being in school?
	8. Do you like to come to school?
	10. Is school a fun place to be?
	11. When you get up in the morning, do you feel happy about going to school?
	12. Is school yucky (awful)? (reversed)
School Avoidance	3. Do you wish you didn't have to go to school?
	5. Would you like it if your Mom or Dad let you stay home from school?
	9. Do you wish you could stay home from school?
	13. Do you feel happier when it's time to go home from school?
	14. Do you ask your Mom or Dad to let you stay home from school?

Table 2

Item Means and Standard Deviations for School Liking and Avoidance Subscales by Grade

Item	Kindergarten		First Grade		Second Grade		Third Grade		Fourth Grade		Fifth Grade		Sixth Grade	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1.	4.28	1.22	4.30	1.17	4.19	1.11	4.10	1.13	3.56	1.22	3.44	1.15	3.38	1.13
4.	4.05	1.47	4.23	1.28	4.15	1.23	4.17	1.20	3.35	1.24	3.37	1.16	3.35	1.14
7.	4.19	1.38	4.28	1.24	4.25	1.14	4.12	1.21	3.37	1.31	3.41	1.20	3.30	1.14
8.	4.09	1.41	4.15	1.35	4.16	1.29	3.98	1.28	3.22	1.26	3.24	1.16	3.17	1.14
10.	4.22	1.36	4.34	1.21	4.25	1.14	4.14	1.17	3.56	1.2	3.53	1.14	3.49	1.17
11.	3.73	1.64	3.56	1.64	3.48	1.52	3.26	1.46	2.79	1.27	2.77	1.23	2.73	1.20
2.*	4.23	1.33	4.56	1.04	4.58	1.03	4.64	0.89	3.96	1.09	3.97	1.08	3.98	1.05
6.*	4.33	1.34	4.45	1.16	4.49	1.11	4.58	1.02	4.01	1.21	4.06	1.15	3.95	1.17
12.*	4.52	1.16	4.48	1.13	5.54	1.06	4.57	0.97	4.08	1.17	4.16	1.11	4.00	1.15
3. †	2.99	1.84	2.81	1.82	2.63	1.69	2.77	1.62	2.93	1.42	2.93	1.36	3.06	1.37
5. †	3.34	1.80	3.26	1.82	2.96	1.79	3.09	1.71	2.77	1.53	2.80	1.44	2.95	1.40
9. †	2.98	1.84	2.85	1.74	2.65	1.62	2.69	1.55	2.68	1.36	2.80	1.27	2.87	1.29
13. †	3.78	1.70	3.72	1.66	3.36	1.61	3.77	1.46	3.65	1.32	3.76	1.28	3.64	1.27
14. †	2.37	1.75	2.20	1.60	1.98	1.49	2.04	1.46	2.18	1.40	2.13	1.39	2.19	1.29

Note. * Item reverse scored. †School Avoidance item.

Table 3

Ranges of Inter-item Correlations by Grade

Grade	School Liking with School Avoidance		Within Subscales			
			School Liking		School Avoidance	
	Low	High	Low	High	Low	High
Kindergarten	-0.09	-0.49**	0.23**	0.70**	0.33**	0.65**
First Grade	-0.12*	-0.55**	0.11*	0.70**	0.35**	0.66**
Second Grade	-0.08	-0.57**	0.11*	0.68**	0.30**	0.73**
Third Grade	-0.19**	-0.57**	0.15**	0.68**	0.31**	0.70**
Fourth Grade	-0.11*	-0.60**	0.24**	0.70**	0.37**	0.68**
Fifth Grade	-0.18**	-0.57**	0.21**	0.71**	0.24**	0.74**
Sixth Grade	-0.10*	-0.53**	0.19**	0.68**	0.14*	0.67**

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

Table 4

Corrected Item-total Correlations for School Liking and School Avoidance Items by Grade

Item	Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade
1. Is school fun	.51	.54	.58	.53	.72	.79	.71
4. Are you happy at school	.75	.67	.69	.71	.82	.72	.82
7. Do you like being in school	.76	.69	.73	.74	.78	.79	.81
8. Do you like to come to school	.72	.72	.67	.70	.86	.85	.83
10. Is school a fun place to be	.69	.71	.72	.72	.81	.69	.66
11. Do you feel happy about going to school	.64	.61	.69	.64	.74	.75	.60
2. Does school make you feel like crying*	.34	.29	.19	.17	.31	.48	.47
6. Do you hate school*	.68	.67	.58	.61	.75	.79	.78
12. Is school yucky*	.59	.65	.59	.56	.81	.73	.72
3. Wish you did not have to go to school*	.54	.62	.68	.71	.75	.82	.76
5. Would you like to stay home from school*	.58	.61	.65	.70	.79	.78	.75
9. Wish you could stay home from school*	.69	.74	.77	.74	.82	.80	.81
13. Happier when go home from school*	.38	.46	.48	.50	.67	.50	.38
14. Ask parents to stay home from school*	.50	.55	.47	.48	.69	.71	.52

Note. * Items are reversed coded

Table 5

Testing a One-factor versus Two-factor Model for the School Liking and Avoidance Questionnaire by Grade

Model (No. of factors)	χ^2	*df*	CFI	WRMR	RMSEA (95% CI)	Robust χ^2 Model Comparison χ^2	*df*
All grades							
(1)	35991.58	4571	0.000	4.884	.130 (.129, .132)		
(2)	5228.97	4564	0.978	0.956	.019 (.016, .021)	4098.890**	7
Kindergarten							
(1)	6701.69	77	0.286	7.565	.461 (.453, .471)		
(2)	157.83	76	0.991	0.895	.052 (.040, .063)	2049.514**	1
First Grade							
(1)	791.08	77	0.921	2.35	.153 (.143, .163)		
(2)	178.06	76	0.989	0.953	.058 (.047, .069)	2049.514**	1
Second Grade							
(1) †							
(2)	160.42	76	0.990	0.884	.053 (.042, .065)		
Third Grade							
(1)	10086.44	77	0.000	9.459	.578 (.569, .588)		
(2)	181.62	76	0.987	0.955	.060 (.049, .071)	2234.879**	1
Fourth Grade							
(1)	9270.07	77	0.000	8.749	.566 (.556, .576)		
(2)	277.52	76	0.974	0.99	.084 (.074, .095)	1946.980**	1
Fifth Grade							
(1)	11086.63	77	0.000	9.554	.617 (.608 .627)		
(2)	321.32	76	0.967	1.108	.094 (.084, .104)	3015.511**	1
Sixth Grade							
(1)	7809.97	77	0.000	8.254	.521 (.511, .531)		
(2)	293.62	76	0.967	1.083	.088 (.077, .099)	2967.847**	1

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; WRMR= weighted root mean residual. * p< .05. **p< .01. † Model did not converge.

Table 6

Alpha and SEM-Based Reliability Estimates by Grade

Grade	All Items*	Excluding 2 and 11*	School Liking	School Liking no 2 and 11	School Avoidance	SEM-based Reliability
	alpha	alpha	alpha	alpha	alpha	
Kindergarten	0.90	0.89	0.90	0.91	0.80	0.70
first Grade	0.90	0.90	0.89	0.91	0.82	0.72
second Grade	0.90	0.90	0.88	0.90	0.83	0.68
third Grade	0.91	0.90	0.88	0.89	0.83	0.59
fourth Grade	0.95	0.95	0.90	0.90	0.84	0.64
fifth Grade	0.95	0.94	0.90	0.90	0.83	0.67
sixth Grade	0.93	0.93	0.89	0.90	0.79	0.67

Note. *School avoidance items were reversed scored.

Table 7

Model Fit Statistics for Confirmatory Factor Analyses Across All Grades

Model	χ^2	*df*	CFI	WRMR	RMSEA (95% CI)	Robust χ^2 Model Comparison		
							χ^2	*df*
1. One Factor Model	5775.54	4634	0.964	1.163	0.025 (.023, .027)			
2. Correlated Two-Factor Model	5228.97	4564	0.978	0.956	0.019 (.016, .021)			
3. Model 2 with item 2 removed	4481.38	3913	0.981	0.918	0.019 (.015, .022)			
4. Model 2 with item 11 removed	4442.42	3913	0.982	0.922	0.018 (.015, .021)			
5. Model 2 with item 13 removed	5999.04	3913	0.918	1.453	0.036 (.034, .037)			
6. Model 2 with items 2 and 11 removed	3750.72	3311	0.985	0.879	0.018 (.015, .021)			
7. Model 6 item residuals correlated at all grades	3389.48	3059	0.990	0.815	0.016 (.012, .020)			
8. Model 6 item residuals correlated at adjacent grade	3595.02	3239	0.987	0.843	0.016 (.013, .020)	M8 and M6	286.50	20**
9. Model 6 only significant residual correlations	3659.29	3291	0.987	0.852	0.017 (.013, .020)	M9 and M6	286.50	20**

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; WRMR= weighted root mean square residual. * $p< .05$. ** $p< .01$.

Table 8

Testing for Factorial Invariance of the School Liking Subscales

Model	χ^2	*df*	Model Comparison	CFI	WRMR	RMSEA (95% CI)	Robust χ^2 Model Comparison	
							χ^2	*df*
Full Factor Invariance								
0. Baseline Model	1301.83	1106		0.99	0.839	0.021 (.016, .025)		
1. Weak Invariance	1453.67	1142	M1-M0	0.984	0.991	0.026 (.022, .033)	122.924**	36
2. Strong Invariance	3193.71	1184	M2-M1	0.897	1.854	0.065 (.062, .068)	2522.96**	42
Partial Factor Invariance								
3. Kindergarten-third grade	408.408	344		0.995	0.78	0.022 (.011, .029)		
4. Weak Invariance	453.418	362	M4-M3	0.993	0.896	0.025 (.017, .032)	41.128**	18
5. Fourth-sixth grade	374.56	186		0.981	0.919	0.052 (.044, .059)		
6. Weak Invariance	410.578	198	M6-M5	0.979	1.069	0.053 (.046, .060)	42.713**	12
7. Kindergarten-first grade	135.118	76		0.994	0.831	0.044 (.032, .056)		
8. Weak Invariance	154.763	82	M8-M7	0.992	0.989	0.047 (.035, .058)	18.854**	6
9. Second-third grade	126.319	76		0.993	0.808	0.041 (.028, .053)		
10. Weak Invariance	136.293	82	M10-M9	0.992	0.899	0.041 (.028, .053)	12.823*	6

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; WRMR= weighted root mean square residual. * $p < .05$. ** $p < .01$.

Table 9

Testing for Factorial Invariance of the School Avoidance Subscales

Model	χ^2	*df*	Model Comparison	CFI	WRMR	RMSEA (95% CI)	Robust χ^2 Model Comparison	
							χ^2	*df*
Full Factor Invariance								
0. Baseline Model	801.049	539		0.877	0.945	0.035 (.033, .042)		
1. Weak Invariance	888.063	563	M1-M0	0.971	1.100	0.038 (.033, .042)	76.899**	24
2. Strong Invariance	1301.770	593	M2-M1	0.937	1.431	0.054 (.050, .058)	551.148**	30
Partial Factor Invariance								
Item 13 loadings freed	801.049	539		0.977	0.945	0.035 (.030, .040)		
3. Weak Invariance	815.926	557	M3-M0	0.911	0.999	0.034 (.029, .039)	32.156*	18
4. Kindergarten-third	283.170	164		0.984	0.939	0.042 (.034, .051)		
5. Weak Invariance	280.503	176	M5-M4	0.986	1.102	0.038 (.030, .047)	15.208	12
6. Strong Invariance	397.881	191	M6-M5	0.972	1.243	0.052 (.045, .059)	36.286**	15
7. Fourth-sixth grade	284.712	87		0.972	0.991	0.07 (.060, .080)		
8. Weak Invariance	307.64	95	M8-M7	0.963	1.254	0.077 (.067, .086)	52.912**	8
9. Kindergarten-first	58.311	34		0.993	0.739	0.042 (.023, .060)		
10. Weak Invariance	57.871	38	M10-M9	0.994	0.787	0.036 (.015, .054)	3.949	4
11. Strong Invariance	75.959	43	M11-M10	0.991	0.917	0.044 (.027, .059)	8.684*	5
12. Second-third grade	103.365	34		0.985	1.040	0.072 (.056, .088)		
13. Weak Invariance	99.433	38	M13-M12	0.987	1.076	0.064 (.049, .080)	4.266	4
14. Strong Invariance	100.054	43	M14-M13	0.987	1.080	0.058 (.043, .073)	1.794	5

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; WRMR= weighted root mean square residual. * $p< .05$. ** $p< .01$.

Table 10

Stability Coefficients of School Liking (above the diagonal) and School Avoidance (below the diagonal) Subscales

	Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade
Kindergarten	-	0.297**	0.173**	0.125**	0.146**	0.136**	0.132**
First Grade	0.368**	-	0.380**	0.235**	0.253**	0.159**	0.225**
Second Grade	0.246**	0.442**	-	0.306**	0.245**	0.161**	0.188**
Third Grade	0.194**	0.317**	0.383**	-	0.243**	0.216**	0.207**
Fourth Grade	0.145**	0.196**	0.291**	0.395**	-	0.297**	0.259**
Fifth Grade	0.188**	0.220**	0.223**	0.359**	0.386**	-	0.402**
Sixth Grade	0.166**	0.237**	0.155**	0.320**	0.311**	0.462**	-

Note. *p< .05. **p< .01

Table 11

Latent Variable Correlation Coefficients for Child, Teacher, and Parent Report of School Liking and Avoidance

Grade	Teacher-Report School Liking	Teacher-Report School Avoidance	Parent-Report School Liking	Parent-Report School Avoidance
Child-Report of School Liking				
Kindergarten	0.061	-0.126	0.152*	-0.172*
First Grade	-0.021	0.021	0.245*	-0.181*
Second Grade	0.048	-0.090	0.182*	-0.145*
Third Grade	-0.103*	0.104*	0.141**	-0.095*
Fourth Grade	0.224**	-0.205**	0.152*	-0.143*
Fifth Grade	0.013	-0.106	0.393**	-0.346**
Sixth Grade	0.003	-0.194*	0.277**	-0.230**
Child-Report of School Avoidance				
Kindergarten	-0.133	0.098	-0.081	0.192**
First Grade	0.029	0.035	-0.079	0.142*
Second Grade	-0.004	-0.020	-0.172*	0.235**
Third Grade	0.005	-0.078**	-0.139**	0.080
Fourth Grade	-0.123	-0.215**	-0.151*	-0.183**
Fifth Grade	-0.019	-0.004	-0.286**	0.264**
Sixth Grade	-0.053	0.060	-0.170*	0.193**

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

Table 12

Correlations between School Liking and School Avoidance and Measures of Achievement

	Wide Range Achievement Test					
Grade	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade
Kindergarten						
School Liking	0.202**	0.207**	0.211**	0.195**	0.217**	0.188**
School Avoidance	-0.218**	-0.236**	-0.190**	-0.192**	-0.192**	-0.212**
First Grade						
School Liking	0.087	0.051	0.057	0.072	0.045	0.026
School Avoidance	-0.075	-0.033	-0.039	-0.072	-0.043	-0.019
Second Grade						
School Liking	0.003	-0.015	-0.041	-0.093	-0.079	-0.065
School Avoidance	-0.049	-0.027	-0.023	-0.007	-0.039	-0.068
Third Grade						
School Liking	-0.009	-0.059	-0.039	-0.057	-0.070	-0.011
School Avoidance	0.011	0.016	-0.023	-0.011	0.024	-0.040
Fourth Grade						
School Liking	0.117*	0.123*	0.161**	0.164**	0.148**	0.182**
School Avoidance	-0.034	0.013	-0.040	-0.038	-0.017	-0.025
Fifth Grade						
School Liking	0.194**	0.152**	0.190**	0.201**	0.201**	0.218**
School Avoidance	-0.085	-0.054	-0.070	-0.071	-0.056	-0.072
Sixth Grade						
School Liking	0.099	0.102	0.103	0.147*	0.103	0.125*
School Avoidance	-0.098	-0.084	-0.079	-0.127*	-0.056	-0.072

Note. *p< .05. **p< .01.

Table 13

Standardized Regression Coefficients for Kindergarten and First Grade Predicting Later Achievement

	Kindergarten		First Grade	
Grade	School Liking	School Avoidance	School Liking	School Avoidance
Wide Range Achievement Test				
First Grade	0.095	-0.149	0.197	0.031
Second Grade	0.072	-0.185	0.292	0.161
Third Grade	0.166	-0.067	0.296	0.176
Fourth Grade	0.118	-0.107	0.192	0.046
Fifth Grade	0.166	-0.070	0.273	0.156
Sixth Grade	0.066	-0.166	0.168	0.065
Achievement and Progress				
First Grade	0.201	0.046	-0.271	-0.215
Second Grade	0.276	0.061	-0.145	-0.060
Third Grade	0.069	-0.178	-0.082	0.028
Fourth Grade	-0.091	-0.338	0.037	0.140
Fifth Grade	0.052	-0.206	0.077	0.166
Sixth Grade	0.201	-0.132	-0.282	-0.126

Table 14

Regression Coefficients for School Liking and Avoidance Predicting Concurrent Scores on the Wide Range Achievement Test (WRAT)

Grade	School Liking	School Avoidance
WRAT First Grade	0.76**	0.68**
WRAT Second Grade	-1.14**	-1.20**
WRAT Third Grade	-2.73*	-2.73*
WRAT Fourth Grade	1.19**	1.06**
WRAT Fifth Grade	0.47*	0.30*
WRAT Sixth Grade	0.26*	0.07

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

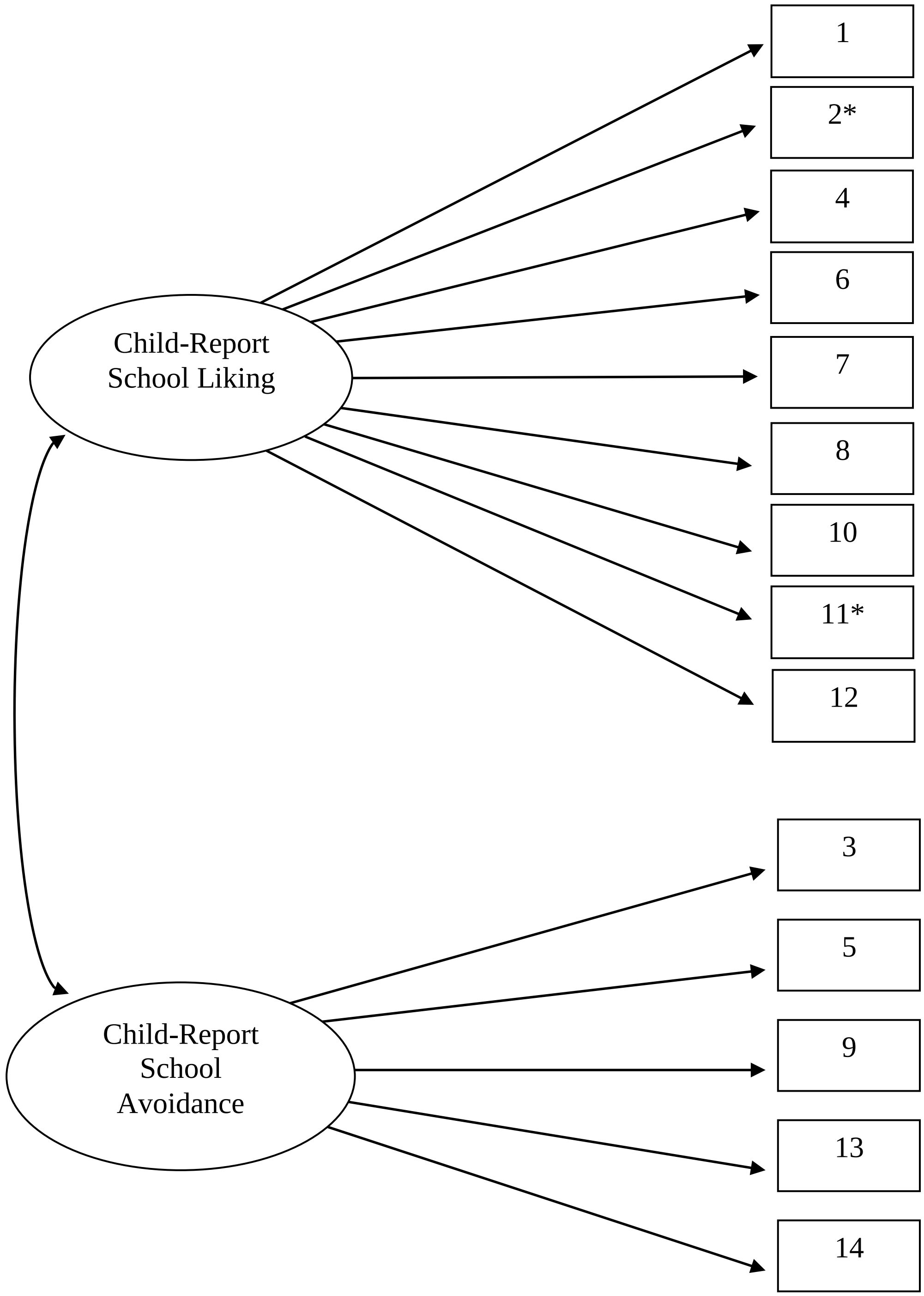

Figure 1. Latent variable structure of the School Liking and Avoidance Questionnaire. *Items removed from final model.