

# Understanding Student Engagement with a Contextual Model\*

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## Abstract

In the present study, student engagement was conceptualized as a meta-construct with affective, behavioral, and cognitive dimensions. As the indicators in each of the three dimensions were unpacked from facilitators and outcomes, we were able to investigate how student engagement was associated with its antecedents and outcomes in a sample of Chinese junior secondary school students ( $N=822$ ). The results supported a contextual model for understanding student engagement. They revealed that students were engaged in school when they felt that their teachers adopted motivating instructional practices and they had social-emotional support from their teachers, parents, and peers. Their engagement was high when they had high self-efficacy, endorsed learning goals, and effort attribution. Most importantly, when students were engaged in schools, they experienced positive emotions frequently and their teachers rated them high on academic performance and conduct. The findings have implications for interventions for the enhancement of student engagement in school.

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In recent years, the concept of student engagement has attracted much attention from educators and researchers (Fredricks, Blumenfeld, & Paris, 2004). Many studies have indicated that student engagement has both short-term and long-term impacts on students. In the short term, it is predictive of students' learning, grades, and conduct in school (Connell, Spencer, & Aber, 1994; Hill & Werner, 2006; Marks, 2000; Skinner & Belmont, 1993; Voelkl, 1997). Over the long term, it is linked to a variety of life outcomes, such as academic achievement, self-esteem, and socially appropriate behaviors (Finn & Rock, 1997; Hawkins, Gou, Hill, Battin-Pearson, & Abbott, 2001; Maddox & Prinz, 2003). It is considered

as a protective factor against school dropout, substance abuse, delinquency, and antisocial behaviors (Appleton, Christenson, & Furlong, 2008; Chung, Hill, Hawkins, Gilchrist, & Nagin, 2002; O'Farrell & Morrison, 2003). Given the abundant evidence that student engagement is related not only to an adaptive orientation toward school but also to a wide range of developmental and adjustment outcomes, no wonder it has emerged in recent decades as an important concept in the field of education.

### Conceptualization and Measurement of Student Engagement

While there is a consensus about the importance of student engagement and the necessity to investigate how to enhance it, there is little consensus about its conceptualization and measurement. Most researchers agree that it is a metaconstruct encompassing multiple dimensions of involvement in school or commitment in learning (Appleton et al., 2008; Fredricks et al., 2004; Jimerson, Campos, & Greif, 2003). However, the number and nature of dimensions within this metaconstruct remain confusing and require clarification. Some researchers use a three-part typology and conceptualize it as comprising affective, behavioral, and cognitive dimensions (Fredricks et al., 2004; Jimerson et al., 2003; Lam et al., 2009), whereas some researchers use a four-part typology, adding an academic dimension to this metaconstruct (Appleton, Christenson, Kim, & Reschly, 2006). Some researchers include antecedents of student engagement, such as teacher support and peer relationships, in the measurement of student engagement (e.g., Appleton et al., 2006), whereas others include outcomes, such as grades and discipline, in the measurement (e.g., Archambault, Janosz, Fallu, & Pagani, 2009).

The fusion of several dimensions under the idea of student engagement is valuable because it may provide a richer characterization of students than is possible in research on a single dimension (Fredricks et al., 2004). However, to capitalize on the merits of this metaconstruct, clarification must be made regarding the number and nature of its dimensions. Otherwise, a comprehensive but

elusive metaconstruct may cause more confusion than understanding. Three concerns regarding the conceptualization and measurement of this metaconstruct need to be addressed. The first relates to the distinction between indicators versus facilitators of student engagement. Indicators refer to the features that define student engagement, while facilitators are contextual factors that influence student engagement (Sinclair, Christenson, Lehr, & Anderson, 2003; Skinner, Furrer, Marchand, & Kindermann, 2008). Indicators are the characteristics that belong inside the construct of student engagement proper, e.g., students' effort and enthusiasm in school work. By contrast, facilitators are the causal factors outside the construct, e.g., teacher support that contributes to student engagement. We agree with Skinner et al. (2008) that a clear demarcation between these two is needed. If facilitators are defined as part of student engagement itself, researchers cannot explore how contextual factors, such as teacher support, influence student engagement. Therefore, facilitators should not be included in the conceptualization and measurement of student engagement.

The second concern relates to the distinction between indicators versus outcomes of student engagement. This concern is parallel with the first one. Similarly, outcomes such as grades, discipline, and number of credits the student has accrued should not be defined as part of student engagement itself. Otherwise, researchers cannot explore the consequences of student engagement. Therefore, there is also a need for a clear demarcation between indicators and outcomes of student engagement. Outcomes should not be included in the conceptualization and measurement of student engagement.

The third concern relates to the uniqueness and redundancy of the dimensions in student engagement. Although the dimensions in this metaconstruct are not isolated processes and should be interrelated dynamically within individual students, their features should not be overlapping with one another across the dimensions. Otherwise, the justification for the proposed dimensions is in question. For example, in a four-part typology (Appleton et al., 2006), the amount of time spent on schoolwork and the amount

of homework completed are considered as academic engagement. However, involvement in academic activities and on-task behavior can also be considered as behavioral engagement (Skinner & Belmont, 1993). The overlapping between the academic and behavior engagement may result in redundancy and confusion. Parsimony is important in the development of theoretical models (Gauch, 2003). There is a need to streamline the dimensions in the metaconstruct of student engagement and to avoid redundancy.

To address the above concerns, we have adopted a three-part typology and conceptualized student engagement as a metaconstruct that comprises affective, behavioral, and cognitive dimensions. They are the most critical dimensions of student involvement in school (Fredricks et al., 2004; Jimerson et al., 2003). Affective engagement refers to students' feelings about learning (Connell & Wellborn, 1991; Skinner & Belmont, 1993) and the school they attend (Finn, 1989; Voelkl, 1997). The feelings about learning activities are reflections of intrinsic motivation, while the feelings about the school are a manifestation of school bonding. Students with high affective engagement enjoy learning and love going to school. Behavioral engagement refers to student participation in learning (Birch & Ladd, 1997; Skinner & Belmont, 1993) and extracurricular activities in school (Finn, Pannoza, & Voelkl, 1995). Students with high behavioral engagement are diligent in learning activities and active in extracurricular activities. Cognitive engagement refers to the amount and types of cognitive strategies that students employ (Walker, Greene, & Mansell, 2006). Students may employ deep or shallow processing strategies. Deep processing is associated with cognitive elaboration of the to-be-learned material, whereas shallow processing involves rote memorization, basic rehearsal, and other types of superficial engagement with the new material. Students who engage in deep cognitive processing have better understanding and retention of meaningful learning materials.

In this three-part typology, the three dimensions of student engagement have clear and distinctive features that do not overlap with one another. The components in each of the dimensions are actually well-established constructs in

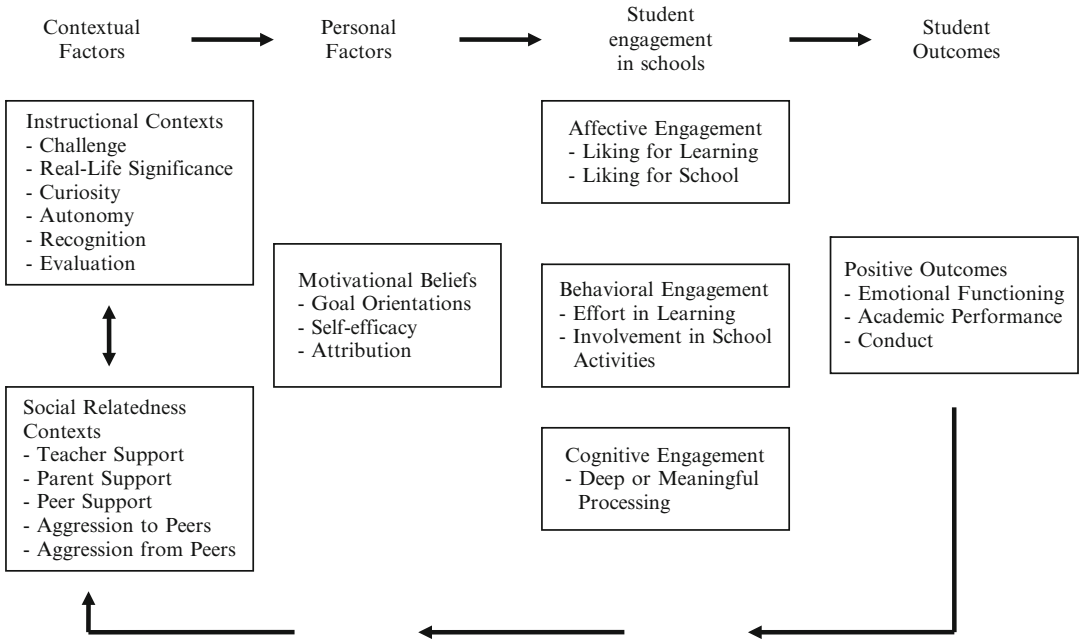
the literature. They have been addressed by robust bodies of work separately. For example, enjoyment in learning, a component of affective engagement, is intrinsic motivation, the eagerness that comes from the pleasure in learning itself. This component is a well-researched construct in the field of motivation (Ryan & Deci, 2000). To build a metaconstruct on well-defined and well-researched constructs enables researchers to tap into their existing body of knowledge and examine their additive and interactive effects simultaneously and dynamically. Compared to the research that focuses on only one construct, the study of student engagement as metaconstruct provides a new and comprehensive perspective.

In this three-part typology of student engagement, indicators are conceptually unpacked from facilitators and outcomes. The clear demarcation among the three enables researchers to examine the consequences of student engagement in both the short and the long run. Most importantly, it also enables researchers to examine how and what contextual factors contribute to the development of student engagement. As Furlong and Christenson (2008) pointed out, student engagement is "a state of being that is highly influenced by contextual factors – home, school, and peers – in relation to the capacity of each to provide consistent support for student learning" (p. 366). It is not a nonmalleable trait of the student. The conceptualization of student engagement as a state instead of a trait is very important because it makes intervention possible and legitimate. If student engagement is a nonmalleable trait, there is no point to do any intervention. By contrast, if student engagement is influenced highly by contextual factors, intervention with these factors will bring changes to student engagement.

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## Contextual Factors

Given the important impact of student engagement on the wide range of developmental and adjustment outcomes, researchers and educators need to know how and what contextual factors can enhance it. The contextual factors of student engagement are best conceptualized from the



**Fig. 19.1** A contextual model for student engagement

ecological system theory (Bronfenbrenner, 1986). According to this theory, human development occurs in a nested arrangement of systems, each contained within the next. The most immediate systems in which a human organism develops are the microsystems (e.g., school, family, workplace). The dynamics and relationships in these microsystems have a significant impact on human development. To learn about how student engagement develops in an intricate web of mutually influencing contexts, it is important to explore its antecedents in the school and family.

Figure 19.1 presents a contextual model of the antecedents and outcomes of student engagement. In the school, at least two sets of contextual factors are likely to influence students' personal motivational beliefs and their engagement in school. The first set pertains to instructional contexts, and the second pertains to social-relatedness contexts. How teachers teach in classrooms has tremendous impact on student motivation (Perry, Turner, & Meyer, 2006). On the basis of social-cognitive theories and empirical research findings in motivation and instructional strategies, Lam, Pak, and Ma (2007) have identified

six important components of motivating instructional contexts: (1) challenge, (2) real-life significance, (3) curiosity, (4) autonomy, (5) recognition, and (6) evaluation. The more the students reported that their teachers assigned challenging work, integrated real-life significance to learning tasks, aroused their curiosity, supported their autonomy, recognized their effort or improvement, and used formative evaluation, the stronger was the intrinsic motivation they reported in learning.

Social-relatedness factors can also affect student engagement. Children who report a higher sense of relatedness with teachers and peers show greater affective and behavioral engagement (Connell & Wellborn, 1991; Eccles et al., 1993; Furrer & Skinner, 2003; Gest, Welsh, & Domitrovich, 2005; Murray & Greenberg, 2000; Wentzel, 1998). Research on school bullying and victimization has also revealed that children with larger circles of friends, higher levels of peer acceptance, and lower levels of peer victimization tend to like school more (Ladd, Kochenderfer, & Coleman, 1997). Students' enthusiasm, interest, happiness, and comfort in school, then, seem to be shaped by their sense of relatedness to others.

By contrast, feelings of boredom, frustration, sadness, and anxiety in the school are exacerbated when children feel alienated from others.

Other than social relatedness in school, social relatedness at home is also influential to student engagement in school. Family is one of the most immediate microsystems for human development. Parent support is expected to play an important role in student engagement in school. It is well documented that parenting styles (e.g., Donrbush, Ritter, Leiderman, Roberts, & Fraleigh, 1987) and parental involvement (e.g., Hoover-Dempsey & Sandler, 1995) contribute to children's academic performance in school. Students will be engaged in school when they perceive that their parents have high expectation on them and provide them with encouragement and assistance.

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## Personal Factors

Some personal factors may have direct impact on student engagement. They may mediate the effect of contextual factors on student engagement. It is well documented that some motivational beliefs are essential to students' intrinsic interest and may be important proximal determinants of student engagement (see Schunk & Zimmerman, 2006 for a review). These beliefs include goal orientations (Dweck, 2006), attribution (Weiner, 1985), and self-efficacy (Bandura, 1977). Students with learning goals are more persistent after failure than students with performance goals (Lam, Yim, Law, & Cheung, 2004). They focus on gaining new skills and knowledge even if failures occur during the process. On the contrary, students with performance goals focus on gaining positive evaluation of their ability. They tend to avoid challenges when they are not sure that they can gain positive feedback from others. Goal orientations affect not only students' persistence and effort in learning but also their cognitive engagement (Elliot, McGregor, & Gable, 1999; Graham & Golan, 1991; Meece, Blumenfeld, & Hoyle, 1988; Nolen, 1988). Learning goals are positive predictors of deep processing, whereas

performance goals are positive predictors of surface processing.

Attribution can also be an important antecedent of student engagement. Weiner (1985) postulated that differences in effort expenditure by students can be explained by differences in how they explain their successes and failures. When students attribute success and failure to effort, they are more likely to invest effort in future tasks. Another potential determinant of students' effort expenditure is self-efficacy (Bandura, 1977). Students with high self-efficacy believe that they are capable of successfully performing the course of action that will lead to success. They attempt challenging tasks and do not give up easily. It is reasonable to expect that students with high self-efficacy tend to be engaged in school.

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## Overview of the Study

The study reported in this chapter is a part of a multicountry project initiated by the International School Psychology Association (Lam et al., 2009). Twelve countries (Austria, Canada, China, Cyprus, Estonia, Greece, Korea, Malta, Portugal, Romania, United Kingdom, and United States) participated in this project with the purpose of investigating both the personal and contextual antecedents of student engagement in schools across different countries. This was a large-scale international project that involved many themes of investigation. In this chapter, the focus is on the validation of the contextual model presented in Fig. 19.1. With the data from China, we examined how student engagement was associated with contextual factors, personal factors, and student outcomes. It is noteworthy that the relations among these constructs may be bidirectional. Better student outcomes may reinforce student engagement, which in turn may have positive impact on personal and contextual factors. Reciprocal relationships between contextual factors and student engagement were found in previous research (Skinner & Belmont, 1993).

## Method

### Participants

The participants were 822 junior secondary school students from three cities in China, namely, Hangzhou, Hong Kong, and Kunming. The three cities are located in different regions of the country and are considered as big cities in their regions. The population of these three cities ranged from 6.25 million to 7 million. The sample consisted of 280 seventh graders, 236 eighth graders, and 306 ninth graders from the three cities. About 34% of the students came from Hangzhou, 29% from Hong Kong, and 37% from Kunming. Parental consent was obtained in Hong Kong and approval was sought from local education authorities in Hangzhou and Kunming. All the students gave assent to the participation. Their mean age was 14.14, with a range of 12–19 and a standard deviation of 1.21. The percentages of boys and girls were 54.8% and 45.2%, respectively. To make sure that the sample was representative of the average urban Chinese students, the students were recruited from an ordinary school with an average academic performance in each city. Elite schools or special schools were not included in the present study.

### Procedures

The participants were asked to complete a questionnaire in their schools. The questionnaire included questions about their engagement in school and antecedent factors of their engagement. The questionnaire was either administered by project research assistants or the teachers in their respective schools. The survey was administered at the end of a semester, and the students were asked to answer the questions with reference to their experience in that semester. At about the same time, their teachers completed a rating form to report each student's academic performance and conduct in that semester.

## Measures

### Student Engagement

Student engagement in school was measured by a scale that consisted of three subscales, namely, affective engagement, behavioral engagement, and cognitive engagement Subscales. The affective engagement subscale consisted of nine items that measured the student's liking for learning and school (e.g., "I like what I am learning in school."). The behavioral engagement subscale consisted of 12 items that measure students' persistence and effort in learning (e.g., "I try hard to do well in school."). The cognitive engagement subscale consisted of 12 items that measured students' use of meaningful information processing strategies in learning (e.g., "When I study, I try to connect what I am learning with my own experiences."). The students were asked to indicate their agreement to the items in the affective and behavioral subscales on a 5-point Likert scale with 1 for *strongly disagree* and 5 for *strongly agree*. As for the cognitive subscale, responses were made on a 5-point Likert scale with 1 for *never* and 5 for *always*. We used the average of the three subscale scores to indicate student engagement. A high score indicated high engagement and a low score indicated otherwise. The Cronbach's  $\alpha$  of the three subscale-scores was .78 for this sample.

### Motivating Instructional Contexts

Students' perceptions of their teachers' instructional practices were measured by the Motivating Instructional Contexts Inventory (MICI) (Lam et al., 2007). The MICI consisted of 24 items with four items in each of the six subscales: challenge (e.g., "Teachers give assignments at the right level, neither too difficult nor too easy."), real-life significance (e.g., "Teachers point out the relation between the subject and our everyday life."), curiosity (e.g., "During the course of teaching, teachers will pinpoint the intriguing part and demand us to think it over and sort it out."), autonomy (e.g., "Teachers let us choose



exercises that match our individual interests.”), recognition (e.g., “Teachers give recognition to our self-improvement and care not so much if we can win over others.”), and evaluation (e.g., “When giving comments on our work, teachers specifically point out those areas for improvement instead of just grading it good or bad.”). These six subscales, respectively, measured students’ perceptions of the proportion of their teachers who had provided them with challenging tasks, ensured real-life significance in their learning activities, stimulated their curiosity, granted them autonomy, recognized their efforts, and provided useful feedback for their improvement. The students were asked to indicate the proportions on a 5-point Likert scale with 1 for *none of them* and 5 for *all of them*. We used the average of the six subscale-scores as an indicator of the students’ perceptions of their teachers’ instructional practices. A high score indicated that the students perceived that most of their teachers adopted instructional practices that were motivating. A low score indicated otherwise. The Cronbach’s  $\alpha$  of these six subscale-scores was .92 for this sample.

### Teacher Support

Student perception of teacher support was measured by the Caring Adult Relationships in School Scale of the California Healthy Kids Survey (WestEd, 2000). The scale consisted of three items: (1) “At my school, there is a teacher who cares about me”; (2) “At my school, there is a teacher who is kind to me”; and (3) “At my school, there is a teacher who listens to me when I have something to say.” Students were asked to indicate how much they agreed to these three statements on a 5-point Likert scale with 1 for *strongly disagree* and 5 for *strongly agree*. A high score indicated perception of high teacher support and a low score indicated otherwise. The Cronbach’s  $\alpha$  of the three item-scores was .79 for this sample.

### Parent Support

Student perception of parent support was measured by eight items adapted from the components of home support for learning in the

Functional Assessment of Academic Behavior (Ysseldyke & Christenson, 2003). These items described parent involvement in their children’s learning, such as asking their children about school, monitoring their children’s academic progress, and discussing schoolwork with their children at home. The students indicated the frequency of their parent support as stated in these items on a 5-point Likert scale with 1 for *never* and 5 for *always*. A high score indicated perceptions of high parent support and a low score indicated otherwise. The Cronbach’s  $\alpha$  of the eight item-scores was .85 for this sample.

### Peer Support

It was measured by the Caring Peer Relationships in School Scale of the California Healthy Kids Survey (WestEd, 2000). The scale consisted of three items: (1) “At my school, I have a friend who really cares about me”; (2) “At my school, I have a friend who talks with me about my problems”; and (3) “At my school, I have a friend who helps me when I’m having a hard time.” The students were asked to indicate how much they agreed to these three statements on a 5-point Likert scale with 1 for *strongly disagree* and 5 for *strongly agree*. A high score indicated perceptions of high peer support and a low score indicated otherwise. The Cronbach’s  $\alpha$  of the three item-scores was .79 for this sample.

### Aggression to Peers

This was measured by a 7-item scale of peer aggression (Hill & Werner, 2006). The students indicated how often over the semester they had engaged in aggressive behaviors toward their peers (e.g., “hit someone because you didn’t like what that person said or did.”). Responses were made on a 5-point scale with 1 for *never* and 5 for *at least once every day*. A high score indicated high aggression to peers in the school and a low score indicated otherwise. The Cronbach’s  $\alpha$  of the seven item-scores was .76 for this sample.

### Aggression from Peers

This was measured by a scale modified from the scale that measured aggression to peers (Hill & Werner, 2006). The students indicated how often

over the semester someone was aggressive to them (e.g., “Someone who didn’t like you hit you.”). Responses were made on a 5-point scale with 1 for *never* and 5 for *at least once every day*. A high score indicated high aggression from peers in the school and a low score indicated otherwise. The Cronbach’s  $\alpha$  of the seven item-scores was .86 for this sample.

### Self-Efficacy

This was measured by a 7-item scale adapted from the self-efficacy scale used by Pintrich and de Groot (1990). The students indicated the extent to which they agreed with the statement about their self-efficacy in learning (e.g., “I can do very well in this class if I work hard.”). Responses were made on a 5-point scale with 1 for *strongly disagree* and 5 for *strongly agree*. We used the average of the five item-scores to indicate students’ self-efficacy. A high score indicated that students believed strongly that they were capable of successfully performing the course of action that would lead to success and a low score indicated otherwise. The Cronbach’s  $\alpha$  of the five item-scores was .74 for this sample.

### Learning Goals

A 3-item scale, adapted from the Scales of Achievement Goal Orientations (Midgley et al., 1998), was used to measure learning goals. These three items were (1) “I like school work best when it really makes me think,” (2) “An important reason I do my school work is because I want to get better at it,” and (3) “I do my school work because I am interested in it.” The students were asked to indicate their agreement to these items on a 5-point scale with 1 for *strongly disagree* and 5 for *strongly agree*. The average of the three item-scores reflected the extent to which the students endorsed the goals to develop their ability or master the task. A high score indicated high endorsement of learning goals and a low score indicated otherwise. The Cronbach’s  $\alpha$  of the three item-scores was .68 for this sample.

### Performance Approach Goals

These were also measured by a three-item scale adapted from the Scales of Achievement Goal Orientations (Midgley et al., 1998). These three

items were (1) “It’s important to me that the other students in my classes think that I am good at my work,” (2) “I’d like to show my teachers that I’m smarter than the other students in my classes,” and (3) “Doing better than other students in school is important to me.” The students were asked to indicate their agreement to these items on a 5-point scale with 1 for *strongly disagree* and 5 for *strongly agree*. The average of the three item-scores reflected the extent to which the students endorsed the goals to seek positive evaluation of their performances or abilities. High scores indicated high endorsement of performance approach goals and low scores indicated otherwise. The Cronbach’s  $\alpha$  of the three item-scores was .60 for this sample.

### Performance Avoidance Goals

These were also measured by a 3-item scale adapted from the Scales of Achievement Goal Orientations (Midgley et al., 1998). These three items were (1) “It’s very important to me that I don’t look stupid in my classes,” (2) “An important reason I do my school work is so that I don’t embarrass myself,” and (3) “The reason I do my work is so others won’t think I’m dumb.” The students were asked to indicate their agreement to these items on a 5-point scale with 1 for *strongly disagree* and 5 for *strongly agree*. The average of the three item-scores reflected the extent to which the students endorsed the goals to avoid negative evaluation of their performance or ability. A high score indicated high endorsement of performance avoidance goals and a low score indicated otherwise. The Cronbach’s  $\alpha$  of the three item-scores was .59 for this sample.

### Attribution

To measure students’ beliefs in attribution, we asked them to indicate how much their academic performances in that semester were influenced by their abilities, efforts, luck (e.g., boring learning materials), and situations (e.g., being sick). They were asked to write down the percentage of each factor’s contribution and the total was required to add up to 100%. The higher the percentage that a student assigned to a factor indicated the more that the student attributed his/her academic performance to that factor.



## Emotional Functioning

This was measured by a scale adapted from the Emotional Functioning Scale (Diener, Smith, & Fujita, 1995). The item with the highest factor loading in each of the six clusters of emotion in this scale was selected. The students were asked to indicate how often they had felt happiness, anxiety, anger, shame, sadness, or caring in that semester. Their responses were made on a 5-point scale with 1 for *never* and 5 for *always*. The scores for happiness and caring were averaged to indicate positive emotion. The scores for anxiety, anger, shame, and sadness were averaged to indicate negative emotion. The Cronbach's  $\alpha$  of the positive emotion scores and negative emotion scores were .50 and .70, respectively, for this sample.

## Academic Performance

The students' academic performances were reported by their teachers. The teachers reported how much each of the students in their class was "good at school work," had "good performance on tests," and did "well on assignments." They were asked to indicate their agreement to the above three statements on a 5-point Likert scale with 1 for *strongly disagree* and 5 for *strongly agree*. The average of these three item-scores was used as an indicator of the students' academic performances in school. A high score indicated good academic performances and a low score indicated otherwise. The Cronbach's  $\alpha$  of the six item-scores was .89 for this sample.

## Conduct

The students' conduct was also reported by their teachers. The teachers reported how much each of the students in their class was "well behaved in class," "followed all of the rules," and "never got in trouble in class." They were asked to indicate their agreement to the above three statements on a 5-point Likert scale with 1 for *strongly disagree* and 5 for *strongly agree*. The average of these three item-scores was used as an indicator of the students' conduct in school. A high score indicated good conduct and a low score indicated otherwise. The Cronbach's  $\alpha$  of the six item-scores was .92 for this sample.

## Results

### Intraclass Correlations

Before completing the main analyses to examine how student engagement was related to the antecedent factors and outcomes, it was essential to determine the proportion of total variance that occurred systematically between the three cities, i.e., the intraclass correlation (ICC). In the current study, the students were nested within cities. If the ICC was high, one could not treat the students as independent subjects and do the analyses as if they were not nested within cities. Ignoring their cities would have resulted in an overestimation of the correlation among the variables. Lee (2000) argued that researchers should consider a multilevel analytic method when the ICC is more than trivial (i.e., greater than 10% of the total variance in the outcome). To determine the ICC, we conducted analyses of unconditional models for the three subscales and the full scale of student engagement using Hierarchical Linear Modeling (Raudenbush & Bryk, 2002). The between-city ICCs of affective engagement, behavioral engagement, cognitive engagement, and the full scale were .07, .05, .04, and .04, respectively. All the ICC indicated that less than 10% of the total variance in these variables occurred systematically between cities. Thus, it was justifiable to pool the data from the three cities and to run the analyses with the students as independent subjects.

### Student Engagement and Instructional Contexts

The means for the subscale scores of affective engagement, behavioral engagement, cognitive engagement, and the full-scale score of student engagement were 3.32, 3.56, 3.18, and 3.36, respectively. The correlation coefficients of these scores with the subscale and full-scale scores of the Motivating Instructional Contexts Inventory are presented in Table 19.1. Given the many correlation tests and large sample size, attention

**Table 19.1** Means of the subscale and full-scale scores of the Motivating Instructional Contexts Inventory (MICI) and their correlations with student engagement

	Mean (SD)	Affective engagement	Behavioral engagement	Cognitive engagement	Student engagement
Challenge	2.80 (.86)	.30**	.24**	.31**	.34**
Curiosity	3.50 (.86)	.39**	.35**	.31**	.42**
Real-life significance	3.29 (.92)	.47**	.38**	.35**	.48**
Autonomy	2.77 (1.02)	.35**	.25**	.30**	.36**
Recognition	3.41 (.96)	.32**	.31**	.26**	.35**
Evaluation	3.11 (.86)	.40**	.34**	.31**	.42**
Full-scale score	3.15 (.78)	.43**	.36**	.36**	.46**

Note: \*\* $p < .01$

**Table 19.2** Means of the factors in the social-relatedness contexts and their correlations with student engagement

	Mean (SD)	Affective engagement	Behavioral engagement	Cognitive engagement	Student engagement
Teacher support	3.80 (.84)	.46**	.42**	.32**	.48**
Parent support	3.62 (.84)	.32**	.34**	.30**	.38**
Peer support	4.07 (.78)	.25**	.29**	.25**	.31**
Aggression toward peers	1.46 (.57)	-.26**	-.27**	-.16**	-.27**
Aggression from peers	1.50 (.72)	-.10**	-.09*	-.01	-.08*

Note: \*\* $p < .01$ , \*  $p < .05$

should be focused on the effect size of the correlation instead of the  $p$  value. As suggested by Cohen (1992),  $r = .1 - .23$  is considered as small;  $r = .24 - .36$  is considered medium; and  $r > 0.37$  is considered as large. The correlations in Table 19.1 were mostly medium and large. Student engagement was associated significantly with instructional contexts. The more the students perceived that their teachers assigned challenging work, integrated real-life significance to learning tasks, aroused their curiosity, supported their autonomy, recognized their effort or improvement, and used formative evaluation, the more they reported that they were engaged affectively, behaviorally, and cognitively in school. It is noteworthy that among the six instructional practices, the practice to integrate real-life significance with learning tasks had the highest correlation with student engagement. We regressed student engagement on the six instructional practices and obtained similar results. Real-life significance had the highest predictive power of student engagement ( $\beta = .33$ ,  $p < .001$ ). It is also noteworthy that, among the three subscales of student engagement, affective engagement had

the highest correlation with all the six motivating instructional practices. It seemed that liking for learning and for school was most sensitive to motivating instructional contexts.

### Student Engagement and Social-Relatedness Contexts

The correlation coefficients between the factors in social-related contexts and the subscales and full scale of student engagement are presented in Table 19.2. All the correlation coefficients were significant except the one between aggression from peers and cognitive engagement. The results indicated that student engagement was related closely to teacher support, parent support, peer support, aggression to peers, and aggression from peers. It is interesting to note that teacher support had a stronger association with student engagement than parent support and peer support. We regressed student engagement on all the five contextual variables and found that teacher support had the highest predictive power of student

**Table 19.3** Means of motivational beliefs and their correlations with student engagement

	Mean (SD)	Affective engagement	Behavioral engagement	Cognitive engagement	Student engagement
Self-efficacy	3.83 (.61)	.41**	.55**	.46**	.56**
Learning goals	3.36 (.83)	.58**	.52**	.45**	.62**
Performance approach goals	3.20 (.78)	.22**	.17**	.25**	.26**
Performance avoidance goals	2.80 (.84)	-.06	-.11**	.04	-.05
Effort attribution	37.50 (19.20)	.20**	.17**	.14**	.20**
Ability attribution	29.46 (17.21)	-.03	.03	.01	.00
Luck attribution	12.25 (11.75)	-.06	-.06	-.07*	-.08*
Situation attribution	21.59 (14.98)	-.20**	-.29**	-.14**	-.21**

Note: \*\* $p < .01$ , \* $p < .05$

engagement ( $\beta = .35$ ,  $p < .001$ ). In addition, Table 19.2 shows that aggression to peers had a stronger association with student engagement than aggression from peers. The results of the multiple regression analysis also corroborated with this finding. Aggression to peers had higher predictive power of student engagement ( $\beta = -.26$ ,  $p < .001$ ) than aggression from peers ( $\beta = -.14$ ,  $p < .001$ ). In other words, the chances for the bullies to be disengaged from school were higher than those of the victims who got bullied.

### Student Engagement and Motivational Beliefs

The correlation coefficients between the motivational beliefs and the subscales and full scale of student engagement are presented in Table 19.3. Self-efficacy had a strong association with student engagement. The more the students believed that they were capable of successfully performing the course of action that would lead to success, the more they were engaged affectively, behaviorally, and cognitively in school. Among the three goal orientations, learning goals had the strongest association with student engagement. It is noteworthy that performance approach goals were also associated positively with student engagement although the effect size was not as big as that of learning goals. Performance avoidance goals did not have much association with student engagement although it had a small negative association with behavioral engagement ( $r = -.11$ ,

$p < .01$ ). Among the four types of attribution, effort attribution and situation attribution had the strongest association with student engagement. The more the students attributed their academic performances to their efforts, the more they would be engaged in school. By contrast, the more the students attributed their academic performances to situations, such as teachers' teaching strategies or boring learning materials, the less they would be engaged. In addition, the associations of ability attribution and luck attribution with student engagement were not obvious.

Given the strong association between self-efficacy and student engagement, self-efficacy was very likely a mediator in the relationship between instructional contexts and student engagement. To verify this mediation model, we examined the mediation effect of self-efficacy in the relationship between instructional contexts and student engagement. The Sobel Test indicated that the effect of instructional contexts on student engagement was mediated partially by self-efficacy,  $z = 6.63$ ,  $p < .01$ . The indirect and direct effects of instructional contexts on student engagement were .12,  $p < .01$ , and .35,  $p < .01$ , respectively.

### Student Engagement and Student Outcomes

The correlation coefficients between the four outcome variables and the subscales and full scale of student engagement are presented in Table 19.4.

**Table 19.4** Means of the student outcomes and their correlations with student engagement

	Mean (SD)	Affective engagement	Behavioral engagement	Cognitive engagement	Student engagement
Positive emotion	3.63 (.92)	.38**	.32**	.26**	.38**
Negative emotions	2.55 (.76)	-.06	-.03	.02	-.03
Academic performance	3.72 (1.05)	.18**	.24**	.15**	.22**
Conduct	3.99 (.98)	.16**	.18**	.07*	.16**

Note: \*\* $p < .01$ , \* $p < .05$

As predicted, student engagement was correlated significantly with positive emotions. The more the students reported that they were engaged affectively, behaviorally, and cognitively in school, the more they would report that they often had positive emotions. However, there was little association between negative emotions and student engagement. Both academic performances and conduct had significant correlations with student engagement. The more the students reported that they were engaged in school, the more their teachers would report that they had good academic performance and conduct.

## Discussion

With the conceptualization and measurement of student engagement with indicators in three dimensions that were unpacked from facilitators and outcomes, we were able to investigate how student engagement was associated with its antecedents and outcomes. The results indicated that student engagement was associated significantly with the contextual factors, motivational beliefs, and student outcomes. They provided empirical support to the contextual model proposed in Fig. 19.1. Students were engaged affectively, behaviorally, and cognitively in school when they felt that their teachers adopted motivating instructional practices and they had social-emotional support from their teachers, parents, and peers. Their engagement in school was also high when they had high self-efficacy, endorsed learning goals, and attributed their academic performances to how much effort they had made. Most importantly, when students were engaged in schools,

they experienced positive emotions frequently and their teachers rated them high on academic performance and conduct.

The data of the present study were collected from junior secondary students in China, a developing country where a collectivistic culture prevails. One may query the generalizability of the results to other countries with different cultures. As this is a subproject of an international research project that involved 12 countries (Lam et al., 2009), cross-country comparisons could be made. Lam et al. found that the proposed contextual model was consistent across the 12 countries. They found that how student engagement was related to the contextual factors and student outcomes did not vary between countries according to gross domestic product (GDP) per capita, an important indicator of economic development. Neither did the relationships vary between countries according to Hofstede's Individualism Index (2009), an indicator of cultural value that distinguished individualistic cultures from collectivistic cultures. The contextual model in Fig. 19.1 is valid for the 12 countries although they are very different in economic development and cultures. There are more cultural similarities than differences when it comes to matters about how student engagement is related to its contexts, antecedents, and outcomes.

## Instructional and Social-Relatedness Contexts

The results of the present study indicated that instructional contexts were related closely to student engagement. A close examination of the

correlations between student engagement and the subscales of the Motivating Instructional Contexts Inventory revealed an interesting pattern. Real-life significance stood out to be the subscale that had the highest correlation with student engagement. The more the students perceived that many of their teachers integrated real-life significance into their learning tasks, the more they reported that they were engaged affectively, behaviorally, and cognitively in school. According to expectancy x value theory, the amount of effort invested in a task is a product of expectation of success and the values of the task (Wigfield & Eccles, 2000). To increase the value of a task, one strategy is to incorporate real-life significance into the task. Students are more likely to be interested in a task and to think highly of its successful completion if it is relevant to their lives. The results of the present study support the claims of the expectancy x value theory and have important implications for instructional practices. To enhance student engagement, teachers need to provide learning materials and activities relevant to their students' real-life experiences. Instructional strategies specific to the promotion of real-life significance include explaining the text with reference to daily life examples and pointing out the practical use of the learning activities.

Among the three dimensions of student engagement, affective engagement had the highest positive association with instructional contexts. This seemed to be the most responsive and sensitive dimension to motivating instructional strategies. Affective engagement refers to the intrinsic motivation (liking for learning) and school bonding (liking for school). It is the direct feeling toward learning and school. Compared to behavioral and cognitive engagement, the response of affective engagement to instructional contexts may be more direct and intuitive. In a longitudinal study of the internal dynamics of student engagement, Skinner et al. (2008) found that emotional components of engagement contributed significantly to changes in their behavioral counterparts. The affective dimension may be the engine that drives the other dimensions of student engagement. Interventions that target affective dimension are particularly important

because they may provide leverage to uplift student engagement as a whole.

In the present study, most of the factors in social-relatedness contexts were associated with student engagement. The most outstanding one was teacher support. Its correlation with the full-scale score of student engagement ( $r = .48, p < .01$ ) was much higher than those of parent support ( $r = .38, p < .01$ ) and student support ( $r = .32, p < .01$ ). The findings that peer support ranked the last does not seem to be consistent with the common belief that peers are influential to adolescents. However, these findings are understandable when the support from teachers, parents, and teachers is compared across various outcomes of children. In a study with sixth grade students, Wentzel (1998) found that peer support was a positive predictor of prosocial goal pursuit, teacher support was a positive predictor of class-related and school-related interest, and parent support was a positive predictor of school-related interest and goal orientations. Different outcomes were associated with support from different socializing agents. Peer support was still important; however, it was not as important as teacher and parent support when the matter of concern was school-related interest. The findings of the present study supported the importance of teacher support in student engagement. Students will be engaged in school when they feel that their teachers provide them with social-emotional support. Teacher support can be a pivotal factor in the enhancement of student engagement.

In the present study, aggression to peers was found to have negative association with student engagement ( $r = -.27, p < .01$ ). This association was much higher than that of aggression to peers ( $r = -.08, p < .05$ ) with student engagement. The findings suggest that the chances for the bullies to be disengaged from school are higher than those of the victims who get bullied. The vulnerable victims are usually the center of attention for the research in peer aggression (Juvonen & Graham, 2001; Ladd et al., 1997). However, the findings of the present study remind us that the bullies may be more susceptible to disengagement from school. They are also a group of students who need attention from researchers and educators.

## Motivational Beliefs

As presented in Table 19.3, self-efficacy was associated positively with student engagement. The more the students believed that they were capable of successfully performing the course of action that would lead to success, the more they were engaged in schools. It was found in the present study that self-efficacy was a mediator in the relationship between instructional contexts and student engagement. The instructional contexts had impact on students' self-efficacy, which in turn had impact student engagement. This mediation model can be explained by expectancy  $\times$  value theory (Wigfield & Eccles, 2000). According to this theory, the amount of effort invested in a task is a product of expectation of success and the values of the task, the increase in the expectation of success would be motivational. When teachers adopt instructional practices that enable students to master challenging tasks successfully, they will increase their students' self-efficacy. As indicated in the challenge subscale of the Motivating Instructional Contexts Inventory, these instructional practices include providing scaffolding and assigning a task at the appropriate difficulty level. The results of the mediation analysis showed that the more the teachers adopted these practices, the more the students would feel efficacious. When the students felt more efficacious, they would be more engaged in school. These results illustrate the mechanism by which instructional contexts affect student engagement. They help teachers understand how they can enhance student engagement by promoting self-efficacy.

Among the three goal orientations, learning goals had the strongest correlation with student engagement. Nevertheless, performance approach goals also had a positive association with student engagement. The role of performance approach goals in learning and achievement has been controversial (Midgley, Kaplan, & Middleton, 2001). Experimental studies with manipulation (e.g., Lam et al., 2004) have usually shown that performance goals have detrimental effects on learning and achievement, but correlational studies with observed data (e.g., Pintrich, 2000) showed otherwise. As the present study was also a correlational

study, its results were consistent with those of the previous correlational studies and showed that performance approach goals had a positive association with student engagement. It was only the performance avoidance goals that had any negative association with behavioral engagement. The discrepancy between the findings of experimental and correlational studies may be due to the differences in methodology. Studies with experimental design usually manipulate performance goals and look into how students with these goals respond to setbacks. As Dweck described clearly in a seminal paper (1986), performance goals with high self-confidence are as motivating as learning goals. It is only in the condition of low self-confidence that performance goals will elicit avoidance and self-handicapping behaviors. Performance goals with high self-confidence are similar to performance approach goals, whereas performance goals with low self-confidence are similar to performance avoidance goals. It is understandable that correlational studies, without controlling the level of self-confidence, will find that performance approach goals are associated with positive outcomes. The positive role of performance approach goals in learning and achievement is unstable because it may turn negative once self-confidence is low. Educators must be cautious in promoting performance approach goals because it may backfire when learning becomes difficult and challenging.

The results of the present study indicated that, among the four types of attribution, effort attribution had the highest correlation with student engagement. The more the students attributed their academic performances to their efforts, the more they reported that they were engaged affectively, behaviorally, and cognitively in school. Effort is an internal, controllable, and changeable factor (Weiner, 1985). Students will believe that they can control and change their academic performance if they endorse effort attribution. By contrast, attribution to external and uncontrollable factors, such as luck and situation, does not help them think that they can control and change their academic performance. It is interesting to note that ability attribution did not have any association with student engagement. Ability is an



internal factor, but whether it is controllable and changeable depends on one's implicit theory of intelligence (Dweck, 1986). If students believe that ability is inherited and nonmalleable, ability attribution does not help them much. This is particularly so in the face of setback. Out of good intention, many teachers may praise their students' abilities for good academic performance. This practice may also backfire if their students believe that ability is inherited and nonmalleable (Mueller & Dweck, 1998).

### Limitations and Future Directions

The present study has provided support to a contextual model for understanding student engagement. With the conceptualization and measurement of student engagement with indicators in three dimensions that were unpacked from facilitators and outcomes, the present study showed how student engagement was associated with its antecedents and outcomes. The findings have significant implications for strategies for the enhancement of student engagement.

Despite its contributions, the present study also has some obvious limitations. This is a correlational study with observed data, so causal relations between variables cannot be ascertained. To address this limitation, future studies may consider field experiments on the effects of intervention (e.g., motivating instructional practices) on student engagement. Another possibility is to employ longitudinal designs that allow time series analyses in field studies. With longitudinal data, one can justify the temporal ordering of variables and possible causal effects according to the time of measurement.

Another limitation of the present study is its dependence on self-report measures from students. Almost all of the measures were reported by students. The exceptions were the measures of academic performance and conduct, which were reported by teachers. There is a possibility of inflation of correlations when variables are measured at the same time from the same participants. Although self-reports are valid measures of subjective psychological constructs, such as liking

for learning and for school, the results of the present study would be much stronger if measures other than self-reports were included. For example, instructional contexts can be measured with a third party's observation. This objective measure might provide stronger evidence for the current contextual model.

The findings of the present study have only presented a general picture or overview about how student engagement is related to its antecedents and outcomes in a contextual model. It provides understanding in a broad stroke. Details about the mechanisms among the variables in this contextual model still need further investigation. For example, we only did one mediation analysis to see the relationship among instructional contexts, self-efficacy, and student engagement. Actually, there may be more mediation relations among other variables in this contextual model. In addition, the internal dynamics among the three dimensions of student engagement should also be studied. Further investigation into the details of this contextual model will definitely enhance our understanding of student engagement and its facilitators.

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### References

- Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools, 45*, 369–386.
- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the student engagement instrument. *Journal of School Psychology, 44*, 427–445.
- Archambault, I., Janosz, M., Fallu, J.-S., & Pagani, L. S. (2009). Student engagement and its relationship with early high school dropout. *Journal of Adolescence, 32*, 651–670.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191–215.
- Birch, S. H., & Ladd, G. W. (1997). The teacher-child relationship and children's early school adjustment. *Journal of School Psychology, 35*, 61–79.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*, 723–742.
- Chung, I. J., Hill, K. G., Hawkins, J. D., Gilchrist, L. D., & Nagin, D. S. (2002). Childhood predictors of offense

- trajectories. *Journal of Research in Crime and Delinquency*, 39, 60–90.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155–159.
- Connell, J. P., Spencer, M. B., & Aber, J. L. (1994). Educational risk and resilience in African-American youth: Context, self, action, and outcomes in school. *Child Development* 65, 493–506.
- Connell, M. P., & Wellborn, J. G. (1991). Competence, autonomy and relatedness: A motivational analysis of self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self processes and development: The Minnesota symposia on child psychology* (pp. 43–78). Hillsdale, NJ: Erlbaum.
- Diener, E., Smith, H., & Fujita, F. (1995). The personality structure of affect. *Journal of Personality and Social Psychology*, 69, 130–141.
- Donrbusch, S. M., Ritter, P. L., Leiderman, P. H., Roberts, D. F., & Fraleigh, M. J. (1987). The relation of parenting style to adolescent school performance. *Child Development*, 58, 1244–1257.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41, 1040–1048.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York: Random House.
- Eccles, J. S., Midgley, C., Wigfield, A., Buchanan, C. M., Reuman, D., Flanagan, C., et al. (1993). Development during adolescence: The impact of stage-environment fit on young adolescents' experiences in schools and in families. *American Psychologist*, 48, 90–101.
- Elliot, A. J., McGregor, H. A., & Gable, S. (1999). Achievement goals, study strategies, and exam performance: A mediational analysis. *Journal of Educational Psychology*, 91(3), 549–563.
- Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research*, 59, 117–142.
- Finn, J. D., Pannozzo, G. M., & Voelkl, K. E. (1995). Disruptive and inattentive withdrawn behavior and achievement among fourth graders. *The Elementary School Journal*, 95, 421–454.
- Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, 82, 221–234.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74, 59–109.
- Furlong, M. J., & Christenson, S. L. (2008). Engaging students at school and with learning: A relevant construct for ALL students. *Psychology in the Schools*, 45, 365–368.
- Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology*, 95, 148–162.
- Gauch, H. G. (2003). *Scientific method in practice*. Cambridge, MA: Cambridge University Press.
- Gest, S. D., Welsh, J. A., & Domitrovich, C. E. (2005). Behavioral predictors of changes in social relatedness and liking school in elementary school. *Journal of School Psychology*, 43, 281–301.
- Graham, S., & Golan, S. (1991). Motivational influences on cognition: Task involvement, ego involvement, and depth of information processing. *Journal of Educational Psychology*, 83, 187–194.
- Hawkins, J. D., Gou, J. G., Hill, K. G., Battin-Pearson, S., & Abbott, R. D. (2001). Long term effects of the Seattle social development intervention on school bonding trajectories. *Applied Developmental Science*, 5, 225–236.
- Hill, L. G., & Werner, N. E. (2006). Affiliative motivation, school attachment, and aggression in school. *Psychology in the Schools*, 43, 231–246.
- Hofstede, G. (2009). *Geert HofstedeTM cultural dimensions*. Retrieved from [http://www.geert-hofstede.com/hofstede\\_dimensions.php](http://www.geert-hofstede.com/hofstede_dimensions.php).
- Hoover-Dempsey, K. V., & Sandler, H. M. (1995). Parental involvement in children's education: Why does it make a difference? *Teachers College Record*, 97, 310–331.
- Jimerson, S., Campos, E., & Greif, J. (2003). Towards an understanding of definitions and measures of school engagement and related terms. *The California School Psychologist*, 8, 7–28.
- Juvonen, J., & Graham, S. (Eds.). (2001). *Peer harassment in school: The plight of the vulnerable and victimized*. New York: Guilford Press.
- Ladd, G. W., Kochenderfer, B. J., & Coleman, C. C. (1997). Classroom peer acceptance, friendship, and victimization: Distinct relational systems that contribute uniquely to children's school adjustment? *Child Development*, 68, 1181–1197.
- Lam, S.-f., Jimerson, S., Basnett, J., Cefai, C., Duck, R., Farrell, P., et al. (2009, July). *Exploring student engagement in schools internationally: A collaborative international study yields further insights*. A symposium at the 31st annual International School Psychology Association Colloquium, Malta.
- Lam, S.-f., Pak, T. S., & Ma, W. Y. K. (2007). Motivating Instructional Contexts Inventory. In P. R. Zelick (Ed.), *Issues in the psychology of motivation* (pp. 119–136). Huppauge, NJ: Nova Science.
- Lam, S.-f., Yim, P.-s., Law, J. S. F., & Cheung, R. W. Y. (2004). The Effects of competition on achievement motivation in Chinese classrooms. *British Journal of Educational Psychology*, 74, 281–296.
- Lee, V. (2000). Using hierarchical linear modeling to study social contexts: The case of school effects. *Educational Psychologist*, 35, 125–141.
- Maddox, S. J., & Prinz, R. J. (2003). School bonding in children and adolescents: Conceptualization, assessment, and associated variables. *Clinical Child and Family Psychology Review*, 6, 31–49.
- Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal*, 37, 153–184.
- Meece, J. L., Blumenfeld, P. C., & Hoyle, R. H. (1988). Student's goal orientations and cognitive engagement

- in classroom activities. *Journal of Educational Psychology*, *80*, 514–523.
- Midgley, C., Kaplan, A., & Middleton, M. (2001). Performance-approach goals: Good for what, for whom, under what circumstances, and at what cost? *Journal of Educational Psychology*, *93*, 77–86.
- Midgley, C., Kaplan, A., Middleton, M., Maehr, M. L., Urdan, T., Anderman, L. H., et al. (1998). The development and validation of scales assessing students' achievement goal orientations. *Contemporary Educational Psychology*, *23*(2), 113–131.
- Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology*, *75*, 33–52.
- Murray, C., & Greenberg, M. T. (2000). Children's relationships with teachers and bonds with school: An investigation of patterns and correlates in middle childhood. *Journal of School Psychology*, *38*, 423–445.
- Nolen, S. B. (1988). Reasons for studying: Motivational orientations and study strategies. *Cognition and Instruction*, *5*, 269–287.
- O'Farrell, S. L., & Morrison, G. M. (2003). A factor analysis exploring school bonding and related constructs among upper elementary students. *The California School Psychologist*, *8*, 53–72.
- Perry, N. E., Turner, J. C., & Meyer, D. K. (2006). Classrooms as contexts for motivating learning. In P. A. Alexander & P. H. Winnie (Eds.), *Handbook of educational psychology* (Vol. 2). Mahwah, NJ: Lawrence Erlbaum.
- Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of Educational Psychology*, *92*, 544–555.
- Pintrich, P. R., & de Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, *82*(1), 33–40.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*, 54–67.
- Schunk, D. H., & Zimmerman, B. J. (2006). Competence and control beliefs: Distinguish the means and ends. In P. A. Alexander & P. H. Winnie (Eds.), *Handbook of educational psychology* (Vol. 2, pp. 349–367). Mahwah, NJ: Lawrence Erlbaum.
- Sinclair, M. F., Christenson, S. L., Lehr, C. A., & Anderson, A. R. (2003). Facilitating school engagement: Lessons learned from Check & Connect longitudinal studies. *The California School Psychologists*, *8*, 29–41.
- Skinner, E., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, *85*, 571–581.
- Skinner, E., Furrer, C., Marchand, G., & Kindermann, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic? *Journal of Educational Psychology*, *100*, 765–781.
- Voelkl, K. E. (1997). Identification with school. *American Journal of Education*, *105*, 204–319.
- Walker, C. O., Greene, B. A., & Mansell, R. A. (2006). Identification with academics, intrinsic/extrinsic motivation, and self-efficacy as predictors of cognitive engagement. *Learning and Individual Differences*, *16*, 1–12.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, *92*, 548–573.
- Wentzel, K. R. (1998). Social relationships and motivation in middle school: The role of parents, teachers and peers. *Journal of Educational Psychology*, *90*, 202–209.
- WestEd. (2000). *California healthy kids survey*. Los Alamitos, CA: WestEd.
- Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology*, *25*, 68–81.
- Ysseldyke, J., & Christenson, S. (2003). *Functional assessment of academic behavior: Creating successful learning environments*. Longmont, CO: Sopris West.