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Student Academic Optimism: a confirmatory factor analysis

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Abstract

Purpose – This research aims to add to the literature on Academic Optimism, a composite measure composed of teacher perceptions of trust in students, academic press, and collective efficacy by exploring a similar set of constructs from the student perceptive. The relationships between student trust in teachers, student perceptions of academic press, and student identification with school were examined as well as how they were individually and collectively related to student achievement in the schools in an urban school district.

Design/methodology/approach – This study assessed the perceptions of students in 49 elementary, middle, and high schools in one urban district. The measures used included the Student Trust in Teachers Survey (Adams and Forsyth), the Identification with School Questionnaire (Voelkl), and an adaptation of Academic Press (Hoy, Hannum and Tschannen-Moran). Confirmatory factor analysis was employed to explore whether these three observed variables would form a latent variable called Student Academic Optimism. Finally, the relationship of Academic Optimism to student achievement, controlling for SES, was examined using SEM.

Findings – Strong and significant relationships were found between all three of the observed variables. A CFA analysis confirmed that they formed a latent variable the authors called Student Academic Optimism. Student Academic Optimism had a significant direct effect on student achievement ($b = 0.73$, $p < 0.01$) while SES (percent of students eligible for the free and reduced lunch program) had a significant negative effect on student achievement ($b = -0.37$, $p < 0.01$). Together student academic optimism and SES explained 67 percent of the variance in student achievement with student academic optimism making the largest contribution to the explanation.

Social implications – The findings that Student Academic Optimism was unrelated to SES and that Student Academic Optimism has a significant effect on achievement over and above the effects of SES and student demographic characteristics leads the authors to consider the possibility that SES may not be as influential as once thought when other conditions of the school environment are taken into consideration.

Originality/value – This study makes a unique contribution to the literature by focusing on the perspectives of students and by linking the measures of three important dynamics within schools to form a new construct: Student Academic Optimism.

Keywords Student trust, Student academic press, Identification with school, Achievement, Urban schools, Schools, Students

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Students' attitudes about school have been found to predict their investment in learning and long-term growth in achievement (Ladd and Dinella, 2009). In some school settings, students enjoy high-trust relationships with their teachers, and this trust seems likely to foster more constructive attitudes on the part of students. There are schools where students perceive that academic success is important and honored in their school while in others investing the effort for academic achievement is not highly regarded. Furthermore, some school environments create conditions where most students come to value school and feel that they belong while in other settings students are more reluctant to affiliate with schools. We suspect that these three sets of attitudes are related to one another and that together they contribute to higher levels of achievement. The purpose of this study is to build upon the research base to examine the relationship between student trust in teachers, student perceptions of academic press (SAP), and student identification with school to explore whether they covary closely enough to form a composite construct we call student academic optimism. Furthermore, we sought to explore the effect of this construct on a measure of student achievement.

Student trust in teachers

Over the past two decades, the construct of trust has been increasingly studied by organizational theorists and more recently, in relation to schools. Schools depend upon members' mutually interdependent relationships in order to function successfully (Bryk and Schneider, 2002). Thus, the construct of trust provides a lens with which to examine relationships among members of school communities and organizational outcomes.

Defining trust

Trust has been a challenging construct for researchers to define because it is multifaceted. People use multiple criteria simultaneously as they make trust judgments of people they interact with. Furthermore, trust is dynamic, meaning that the level of trust in a relationship can change in an instant with the revelation of a betrayal (Tschannen-Moran, 2004). The definition of trust used in this study was the five-facet model of trust conceptualized by Hoy and Tschannen-Moran (1999): trust is a willingness to be vulnerable based on confidence that the other party is benevolent, honest, open, reliable, and competent.

Vulnerability. When people are in situations of interdependence such that they cannot achieve valued outcomes without the involvement of others, whether they can trust their partners becomes a matter of importance. The vulnerability created by interdependence provokes an assessment of trust-relevant aspects of the other party's character and behavior. Students are vulnerable to their teachers because teachers control students' access to the knowledge and skills at the heart of education, and they have the means to coerce or punish students if they choose.

Benevolence. Benevolence is expressed as a generalized sense of good will toward the other person and a caring about the relationship (Baier, 1986). It fosters "confidence that one's well-being or something one cares about will be protected by the trusted person or group" (Hoy and Tschannen-Moran, 1999, p. 187). Students look to their teachers to act in their best interest in both general and specific ways.

Honesty. This facet of trust refers to the truthfulness of one's accounts of occurrences, owning one's behavior, and following through on statements of future action (Tschannen-Moran and Hoy, 2000). As students build trust with teachers, they

have the expectation that teachers will have integrity of word and deed, be authentic, and keep promises. In addition, students expect that teachers will offer them honest feedback with the goal of helping them to be successful learners.

Openness. Openness refers to the willingness to share information and control, indicating reciprocal trust in the give and take with the trusted other. The interdependence of school members makes this facet of trust crucial in that they depend upon one another to openly communicate and exchange information that will affect all aspects of the organization. Students trust that their teacher will convey information about content, strategies, and resources that will positively affect their achievement and other important outcomes.

Reliability. Reliability has to do with the extent to which one can rest assured that the trusted party will come through with appropriate actions when needed. It combines consistency with a sense of caring (Hoy and Tschannen-Moran, 1999). In schools, teachers earn the trust of their students through dependability and predictability (Tschannen-Moran, 2004).

Competence. Competence is one's ability to perform the duties required of their job (Hoy and Tschannen-Moran, 1999). It points to the "expectation of one's technically competent role performances" (Barber, 1983, pp. 9-10). Students depend upon this competence as they trust that their teachers have the ability to impart to them the necessary subject-matter knowledge that will allow them to succeed. It also entails the competence to maintain order and to keep them safe.

Student-teacher trust

Research on trust in schools has focussed primarily on faculty trust perceptions. Only recently has the focus begun to shift to student perceptions of relationships with teachers and the effect that this has on learning outcomes (Adams and Forsyth, 2009; Mitchell *et al.*, 2008). Just as infants form attachments with their caregiver, when children enter school they form attachments with their teachers (e.g. Bowlby, 1969; Ainsworth, 1967). The security of these trusting relationships with teachers may influence students' achievement in school in a similar way that children's attachment to their caregiver effects their cognitive development. In the school environment, some of the attitudes that these student-teacher trust relationships could influence may include whether or not students feel that school is an important place where they belong and want to be and how willing they are to seek and accept the support that they need in order to be successful in an academically oriented environment where expectations are high. Research has documented evidence that student perceptions of their relationships with teachers effect achievement (e.g. Connell and Wellborn, 1991; Furrer and Skinner, 2003; Stipek, 2002; Wentzel, 1997). An examination of elementary students' self-reported sense of relatedness to parents, teachers, and peers found that student's relationships with teachers was the strongest predictor of academic performance (Furrer and Skinner, 2003). Exploration of the nature of the student-teacher relationship can shed light on the processes by which this relationship influences achievement.

Cognitive development and social relationships. Many relational studies on children are situated in Bowlby's (1969) attachment theory. Bowlby postulated that children form attachments through proximity-seeking behavior toward a preferred individual who is accessible and responsive to their needs. Bowlby postulated that attachment affects infants' early bonding experiences and cognitive processes with caregivers, including the development of thoughts, beliefs, and expectations about self and others.

He termed this system the internal working model of social relationships, which develops continuously over time. Bowlby (1969) contended that:

> Human beings of all ages are found to be at their happiest and to be able to deploy their talents to best advantage when they are confident that, standing behind them, there are one or more trusted persons who will come to their aid should difficulties arise. The person trusted provides a secure base from which his (or her) companion can operate (p. 359).

Thus, children's perceptions of trust in the relationship with their caregiver affect their internal working model, which provides a foundation for their development and encourages exploration and risk taking with the assurance that the caregiver will protect them from harm.

Ainsworth (1967) expanded upon Bowlby's theory through field studies, which resulted in the description of three attachment patterns that children form with caregivers: secure, avoidant, and ambivalent. When children first enter school, their previous attachment patterns affect their learning (Berlin *et al.*, 2008). Sroufe (1983) examined attachment patterns from infancy through preschool and found that children's attachment histories effected their beliefs about themselves, which can in turn affect their performance and success in school. Watson (2003) suggested that children who arrive in school with insecure attachments will have deficits to overcome, including "little ability to regulate behavior; difficulty trusting teachers and using them as a secure base from which to explore, […] fewer skills and less knowledge to build upon" (p. 279). Thus, teachers play a crucial role in helping students to form attachments that create the context for successful school experiences.

Self-system processes. Students' perception of themselves as school social actors has to do with self-system processes, meaning interpersonal processes affect individuals' beliefs about themselves in various environments. The construct of self-system processes in relation to school stems from the notion that students' psychological needs include competence, autonomy, and relatedness (Connell and Wellborn, 1991) which are affected by feelings of trust in others (Furrer and Skinner, 2003). One of the reasons that self-system processes such as relatedness play a role in achievement has to do with the effect on motivation. Self-system processes act as a catalyst for engagement, which is a key factor in many models of motivation; motivation affects achievement by influencing the level of effort put forth in learning (Connell and Wellborn, 1991; Goodenow, 1993; Murdock, 1999).

Caring. Theorists have suggested that one of the characteristics of student-teacher relationships which has an effect on academic performance is students' perception of whether teachers care about them (Goldstein, 1999; Noddings, 1984; Wentzel, 1997). Noddings' (1984) ethic of care model explicates the importance of caring in school social relations, positing that caring is a relation that is entered into as a moral obligation; the one caring feels a duty to protect the interests of the cared-for regardless of their own feelings and needs. Building on this model, the term pedagogical caring has been coined to describe the duty to care of teachers (Wentzel, 1997). Wentzel found that students characterized teacher-caring most commonly to mean that teachers were concerned about them as a person outside of school, acted as a friend, and were able to communicate openly. These factors are similar to those of benevolence and openness in the five-facet model of trust discussed above. The crucial role of caring in the student-teacher relationship has been studied empirically with findings of a correlational relationship between caring, motivation, and achievement (Furrer and Skinner, 2003; Stipek, 2002; Wentzel, 1997). This linkage could indicate that students' perception of

their relationships with teachers and whether or not teachers care about them have both a direct and an indirect effect on achievement.

Academic press

Academic press is rooted in the notion that children are more likely to succeed in environments that offer challenging and interesting work (Bandura, 1986; Eccles *et al.*, 1989; Hoy *et al.*, 1991). Also referred to as academic emphasis, it is concerned with the focussed attention on learning and academics. A school with strong academic press is an academically oriented environment where goals and expectations are high, achievement is recognized and honored, teachers have confidence in students' abilities, and students respect the academic norms of the school (Hoy and Feldman, 1987; Hoy *et al.*, 1998). Academic press includes policies, practices, expectations, and norms that push students to achieve (Murphy *et al.*, 1982). In high press schools, achievement is an established strongly held norm. Teachers hold high expectations that students participate in class, complete homework, and study for exams; and teachers behave in ways that support this high press environment, such as offering students timely feedback, developing challenging and interesting course work, supporting students to meet high expectations, and rewarding success (Goddard *et al.*, 2000). School community members learn to behave according to the manner in which the overall group behaves, and group members evaluate themselves and other members of the group according to the established norms of the environment (Bandura, 1989). Thus, in schools with high academic press, shared norms affect the behavior of students, faculty, and administrators as they adjust their behavior according to the strong expectations for academic success.

A rich body of empirical research has established a link between teachers' perceptions of academic press and student achievement (Goddard *et al.*, 2000; Hoy *et al.*, 1998; Hoy and Sabo, 1998; Hoy *et al.*, 1991; Lee and Smith, 1999). The increased levels of achievement in high press schools can be explained as an interaction between personal, behavioral, and environmental factors, which Bandura (1989) termed triadic reciprocal causation. He contended that:

> Persons are neither autonomous agents nor simply mechanical conveyers of animating environmental influences. Rather, they make causal contributions to their own motivation and action within a system of triadic reciprocal causation [...] action, cognitive, affective and other personal factors, and environmental events all operate as interacting determinants (p. 1175).

At the root of Bandura's perspective is the notion that humans have certain capabilities, which include symbolizing (extracting meaning from their environment), forethought (planning, anticipating, goal setting, and creating challenges), vicarious learning (through observational processes), and self-reflection (which he asserted is the most uniquely human of these capabilities). The ability to evaluate one's actions through self-reflection is the most prominent capability in its effect on human behavior, because it determines motivation, effort, and perseverance (Bandura, 1989). Thus, a high press environment affects the normative behavior of group members, and the normative behavior presses students to achieve through the effect on their motivation, effort, and perseverance.

Student identification with school

Students who identify with school are often described in terms of their sense of affiliation, attachment, involvement, commitment, and bonding; conversely, less

successful students who do not identify with school are portrayed as being alienated and withdrawn (Finn, 1989). Finn (1989) and Voelkl (1997) posited two complementary ideas that describe students who identify with school: first, they feel that they belong within the school community in that school plays an important role in their lives; and second, they value school and school-related goals. Alternate terms used to describe closely related constructs include school membership, engagement with school, and commitment to school.

Sense of belonging

Feelings of acceptance and belonging are crucial in all stages of life, but have particular significance when applied to student learning in school. School membership theory focusses on the reciprocal behavior of adults and students in schools, and posits that when adults show care and concern for students as individuals and learners, students will respond to adults' commitment to them with positive behavior toward others and a commitment to and engagement with academics (Finn, 1989; Wehlage *et al.*, 1989; Weiner, 1990). One of the predictors of students' sense of belonging is prior academic success (Anderman, 1999, 2003). Goodenow (1993) found that a sense of belonging was related to levels of achievement through the influence on engagement, motivation, effort, and participation. In a study of successful schools for at-risk youth, the success of these schools was attributed, in part, to various aspects of school belonging, such as attachment, bonding, and involvement with adults in the school and the norms of schooling (Wehlage *et al.*, 1989).

Students who do not experience a sense of belonging at school are likely to experience feelings of alienation. The study of alienation has focussed on the measurement of attitudes, values, sentiments, or expectancies. Those variables are evident in Seeman's (1975) six categories of alienation: powerlessness, meaninglessness, normlessness, cultural estrangement, self-estrangement, and social isolation. Seeman's work gave rise to an understanding of the necessary feelings and behaviors that students must internalize and exhibit in order to be committed to school. The feelings of isolation, normlessness, and self-estrangement embodied in Seeman's categories have been negatively correlated with student achievement (Reid, 1981).

Valuing school and school-related goals

As educators grapple with issues of stagnant or declining student motivation, achievement, and graduation rates, the construct of engagement or identification with school has been examined more closely as a potential solution to these problems (Finn, 1989; Fredricks *et al.*, 2004; Mitchell *et al.*, 2008). Students who value school and school-related outcomes are more likely to be actively engaged in academics and to be successful academically. The key premise of school engagement is that in order for learning to take place, students must actively participate in the classroom and the school environment. Engagement may be related to two kinds of commitment: a commitment to school academics and a commitment to school as an institution (Seeman, 1975; Smerdon, 2002; Wehlage *et al.*, 1989). Similarly, Firestone and Rosenblum (1988) identified two separate elements to teacher and student commitment to school:

> The first is commitment to learning […] some students indicate that they take seriously the school's primary activity. Some students become committed to the "place". It appears that school is important because it is a place where students can come to be with their friends or where they find activities other than educational ones to keep them occupied. These include extracurricular activities but also "hanging around" with others (p. 291).

Along these same lines, Polk and Halferty (1972) conducted a factor analysis of a number of elements associated with home environment, participation in school, achievement, and extracurricular activities. They found that items associated with commitment to school included school-related goals, activities, and values. Engagement has been operationalized to include three dimensions: behavioral, or participation in school; emotional, referring to students' feelings about school social relations and schoolwork; and cognitive, meaning effort and motivation (Fredricks *et al.*, 2004; Ladd and Dinella, 2009; Mitchell, 2012).

Behavioral engagement. Within the research literature, behavioral engagement has been defined as adhering to school norms and following school rules, academic involvement, and participation in extracurricular activities (Finn, 1989; Fredricks *et al.*, 2004). It has been operationalized with respect to constructive and cooperative participation in the classroom (Ladd and Dinella, 2009). Characteristics of behavioral engagement have been correlated with students' perceptions of teachers. Students who feel that teachers are supportive and care about them are more likely to attend school (Cronninger and Lee, 2001) and have higher levels of participatory and on-task behavior (Battistich *et al.*, 1997).

Emotional engagement. Emotional engagement has been characterized as the way that students feel about members of the school community and schoolwork, as well as their affective reactions in the classroom (Ladd and Dinella, 2009; Connell and Wellborn, 1991). Emotional engagement is a key aspect of student identification with school (Finn, 1989; Voelkl, 1997), which Fredricks *et al.* (2004) noted was based upon an earlier body of work that examined attitudes toward school such as interest and value (e.g. Epstein and McPartland, 1976; Yamamoto *et al.*, 1969).

Students' behavioral engagement, or participation, is linked to their emotional engagement or identification with school. In his participation-identification model, Finn (1989) put forward that participation, or engagement with school, is based upon external behaviors, whereas identification with school is based upon an internal emotional feeling. Participation is a manifestation of identification with school, and has been empirically correlated with achievement outcomes (Finn, 1989). Expanding on Finn's work, Voelkl (1997) concluded that participation and identification are not only linked, but that identification is a prerequisite in order for participation to take place. In her study of prior participation and achievement as correlates of identification with school, Voelkl (1997) found that the strongest link to identification was participatory behavior, particularly in the primary grades. This finding suggests that identification with school influences participation which in turn affects achievement.

Cognitive engagement. The construct of cognitive engagement generally refers to students' intellectual effort put forth in learning (Ladd and Dinella, 2009). Cognitive engagement has been conceptualized as including students' psychological investment in learning and centers around concepts having to do with students' desire for challenge and engaging work that extends beyond minimum expectations (Connell and Wellborn, 1991; Fredricks *et al.*, 2004; Newman *et al.*, 1989; Wehlage *et al.*, 1989). Students who are intrinsically motivated to learn are focussed on understanding, mastering the task, and trying to accomplish something that is challenging. These students are persistent when faced with difficulty because they adopt learning goals as opposed to performance goals (Fredricks *et al.*, 2004). Moreover, the research literature on learning focusses on cognitive engagement in terms of self-regulation which includes the use of metacognitive, learning, and effort-control strategies in order

to persist with academic tasks (Corno and Madinach, 1983; Fredricks *et al.*, 2004; Pintrich and Degroot, 1990).

Student academic optimism: trust, academic press, identification with school

While the empirical study of the effects of student trust in teachers, student academic press, and identification with school are in their infancy, an emerging body of research has pointed to both the correlation between these variables and the significant effects of these variables on student achievement (Adams and Forsyth, 2009; Mitchell, 2012; Mitchell *et al.*, 2008). Although these findings are preliminary at best, they give us reason to believe that these three constructs may be closely related to one another as well as to student achievement.

For example, empirical evidence has established a link between student-teacher relationships and students' sense of identification with school. Students who reported feeling cared about by teachers also felt a greater sense of belonging in school, valued academic work, and had higher levels of behavioral engagement (Fredricks *et al.*, 2004). School social relations, including student-teacher relationships, are based upon trust (Bryk and Schneider, 2002; Tschannen-Moran, 2004). Although this is the first study known to look at student trust in teachers in conjunction with identification with school and SAP, prior research has found student trust in the principal and student trust in schools to be positively correlated with and predictive of both identification with school and student achievement (Mitchell, 2004, 2006, 2012; Mitchell *et al.*, 2008). Furthermore, Mitchell *et al.* (2008) found that student trust in the principal along with parent trust in the school explained roughly 60 percent of the variance in identification with school over and above the effects of socioeconomic status (SES). Adams and Forsyth (2009) found student trust in teachers to be positively correlated with identification with school ($r = 0.53$, $p < 0.01$). Mitchell (2004) found that identification with school moderated the effects of parent trust in school and student trust in the principal on academic achievement and that identification with school was positively correlated with and predictive of academic achievement. Given the empirical evidence thus far linking student-teacher relationships as well as student trust in the principal and the school to identification with school, one could surmise that student trust in teachers may be an essential factor related to the degree to which students identify with school.

We are not aware of any studies that have looked at student academic press but prior research on teacher perceptions of academic press have indicated a clear link between the academic press of the school and student achievement. The normative environment created by academic press affects the behavior of all members of the school community. One of the ways that students can meet the high expectations of schools with an emphasis on academic press is through their personal sense of responsibility (e.g. Lee and Smith, 1999; Shouse, 1995). Lee and Smith examined the relationship between academic press, social support, and achievement. They characterized social support as the social relations that students maintain with members of the school community who have an effect on their academic success, including teachers. Their findings revealed that benchmark test scores in reading and math were highest in schools with high levels of academic press and social support for students, and concluded that "to succeed in schools that press them to learn, students need support from the people with whom they interact" (p. 935). In his study of schools serving economically disadvantaged students, Shouse (1995) examined

the effect of academic press and schools' sense of communality. Communality has been characterized by Bryk and Driscoll (1988) as containing three components: shared understandings; common expectations; and caring relations among faculty as well as between students and teachers. Shouse (1995) found that "the combination of academic press and communal organization constitutes the strongest package of achievement effects" (p.16).

Student-teacher relationships based upon trust affect achievement through the influence from self-system processes and the level of effort and motivation put forth by students (Bryk and Schneider, 2002; Connell and Wellborn, 1991; Furrer and Skinner, 2003). Student-teacher relationships also influence identification with school. Identification with school is based upon an internal feeling having to do with how students' feel about members of the school community (Finn, 1989; Ladd and Dinella, 2009). Students must first identify with school before they will participate in school which is the external manifestation of identification (Voelkl, 1997). Identification with school effects achievement through the influence on participation, effort, and motivation (Fredricks *et al.*, 2004; Ladd and Dinella, 2009). Additionally, student-teacher relationships and student trust may have an influence on students' perceptions of academic press, which in turn effects achievement. The normative environment of schools characterized by high levels of academic press can affect teachers' feelings about their own capabilities and also their persistent support of students in their efforts (Goddard *et al.*, 2000). This normative environment presses students to achieve through the effect on their effort, motivation, and persistence (Bandura, 1986).

Research not only suggests that student teacher trust may influence both SAP and student identification with school, but preliminary evidence indicates that these three constructs could also be complementary and that together they can have an even greater effect on achievement (Anderman, 1999, 2003; Bonich, 2007; Ma, 2003). Anderman (2003) studied students' changes in sense of belonging over three years. She concluded that factors of academic press in educational environments were linked with students' sense of belonging. Specifically, her findings revealed that students feel a greater sense of belonging in educational settings that emphasize "personal effort, improvement, and mastery […] [and] academic tasks [that are] interesting, important, and useful" (p. 18). Ma (2003) reported similar findings indicating a relationship between academic press and sense of belonging. Students reported that caring teachers and an emphasis on schoolwork and academic success were the most important factors that contributed to their sense of belonging. Thus, it could be suggested that school environments that are characterized by academic press may have an influence on what students identify with most within that environment. Consequently, the hypotheses that guided this study were:

H1. Student trust in teachers, student academic press, and student identification with school will be positively correlated with each other.

H2. Student trust in teachers, student academic press, and student identification with school will come together to form a latent construct we call student academic optimism.

H3. Student academic optimism will explain a significant proportion of the variance in student achievement above and beyond the effects of SES.

Methods

The relationship between trust, academic press, and collective efficacy has been established at the teacher level and framed as a composite measure called academic optimism, and the combined effects of these three constructs has been shown to be strongly related to student achievement (Hoy *et al.*, 2006; Kirby and DiPaola, 2009; Bevel and Mitchell, 2012). However, the combined effect of student perceptions of trust in teachers, academic press, and identification with school on achievement has not been explored. We suspect that these three variables will work together to create a culture of student academic optimism that will be favorable to increased student achievement such that schools with high trust, high academic press, and high identification with school will be more likely to score higher on a measure of student achievement which has been aggregated to the school. Therefore, the purpose of this study was threefold: first, to examine the relationships between student trust in teachers, student academic press, and student identification with school; second, to determine whether these three observed variables would come together to create a latent variable we call student academic optimism; and third, to test the effect of this latent variable on a composite measure of student achievement above and beyond the effects of SES. The unit of analysis was the school, thus the interrelationships of the variables were aggregated to the school level. SES as measured by the percent of students' eligible for the free and reduced lunch program was added as a control variable.

Participants

The school district under study is an urban district in the mid-Atlantic region. The district includes 35 elementary schools, nine middle schools, and five high schools, with a total population of over 34,000 students. The student population is diverse, with 23 percent white, 63 percent African American, and 4 percent Hispanic. Nearly six out of every ten students (59 percent) qualify for free or reduced-price lunches. To protect the anonymity of the student participants, demographic data on gender and racial-ethnic identity were not included on the surveys.

Instrumentation

The constructs of student trust in teachers, student identification with school, and SAP were included on a survey that was distributed to students. The response set was a five-point Likert scale with choices ranging from strongly agree (5) to strongly disagree (1).

Student trust in teachers. The student trust in teachers scale (Adams and Fossyth, 2009), which measures student trust in teachers, is based upon the five-facet model of trust conceptualized by Hoy and Tschannen-Moran (1999). Adams and Forsyth (2009) described their measure as "written to capture student perceptions and recollections of teacher behavior, which allow for judgments to be made about their relative openness, benevolence, reliability, competence, and honesty" (p. 264). The ten-item student trust in teachers scale is comprised of five survey items adapted from the parent trust scale (Forsyth *et al.*, 2006) and five original survey items. Sample survey items from the student trust scale include:

- "Teachers at this school are always honest with me" (honesty).
- "Teachers at this school are good at teaching" (competence).

SAP. The SAP measure is an adaptation of the academic press subscale of the organizational climate index (Hoy *et al.*, 1998) that assesses teacher perceptions of academic press. Academic press describes an academically oriented environment where expectations are high, teachers have confidence in students' abilities, academic success is celebrated, and students respect the academic norms of the school (Hoy and Feldman, 1987; Hoy *et al.*, 1998). Sample items include:

- this school is serious about learning; and
- students work hard to get good grades.

Student identification with school. The identification with school questionnaire (ISQ) measures the extent to which students both feel a sense of belonging at school and value school and school-related goals (Voelkl, 1996). The original ISQ included 16 items on a Likert scale, with nine items that indicated feelings of belongingness in school, and seven items reflecting a sense of valuing school and school-related goals. The ISQ was developed and then pilot tested with a sample of over 3,500 ethnically diverse students (Voelkl, 1996). Although separate factors of belonging and valuing school emerged from a confirmatory factor analysis, they were correlated at $r = 0.85$ thus the two factors were combined to form the ISQ.

The identification with school scale used in this study is an adaptation of the ISQ, with 11 of the 16 items from the ISQ comprising the scale. Some items that were similar were eliminated because district officials were concerned about the length of the student surveys.

Sample survey items from the student identification with school scale include:

- "I feel proud of being part of my school."
- "School is more important than most people think."

Student achievement data

Student achievement in this study was measured by data from the Virginia standards of learning (SOL) assessments in English and mathematics. Moderately strong correlations of construct validity were found between SOL assessments and Stanford 9 tests (Virginia Department of Education, 2009). Additionally, factor analyses have indicated strong levels of unidimensionality for SOL English and mathematics test forms. Mean scaled scores for each school were used for this analyses, and a composite mean score for achievement in English and mathematics was calculated for each school.

Data collection

The three constructs used for this study were included on a single survey form. Paper versions of the survey were delivered to the 49 schools in the study by central office personnel and administered to students by homeroom teachers in randomly selected third to 12th grade classrooms, comprising about half the classrooms at each grade level. Teachers instructed students on procedures, answered questions, and collected surveys upon completion. Students were informed that their participation was voluntary and that they could skip any survey items that they did not feel comfortable answering. Achievement data from students' SOL raw scores were provided by the school district.

Analytic technique

First, three exploratory factor analyses were performed for the student trust, the student identification with school, and SAP scales in order to determine the construct validity of each of these scales because two of the three measures were adaptations from other measures.

The unit of analysis was the school, thus individual student scores were aggregated to the school level. Because student surveys were anonymous and student SES and achievement data were only available as school means, it was not possible to nest students' scores within schools. However, because student identification, student trust in teachers, and student perceptions of press were conceived of as school properties we first calculated the intra-class correlations (ICC), to justify aggregation of our independent variables. We calculated both the ICC-1 and the ICC-2. ICC-1 represents the variance attributed to group membership whereas ICC-2 represents the within group agreement between students in the sample. Both ICCs were calculated using a random effects ANOVA which measures the reliability of the group means (Bliese, 2000).

Next the relationship between the three constructs; student trust in teachers, student identification with school, and SAP, were examined using descriptive and bivariate correlational analyses. A confirmatory factor analysis was performed to determine whether student trust in teachers, student academic press, and student identification with school would come together to create the latent construct referred to as student academic optimism. A structural equation multiple indicator multiple cause (MIMIC) model, using IBM SPSS AMOS Graphics 19, was performed to test the effects of the latent variable on a composite measure of achievement, aggregated to the school, while controlling for the effects of SES, as measured by the percent of students eligible for the free and reduced lunch program. Finally the χ^2 test of model fit, the root-mean-square-error of approximation (RMSEA), the Tucker-Lewis index (TLI), and the goodness-of-fit index (GFI) were used to assess our model fitness, along with G*Power 3.1 which was used to assess the power of our model to accurately reject the null hypothesis.

Results

This study examined the relationships between student trust in teachers, student identification with school, SAP, and a composite measure of English and math achievement measured by standardized state assessments. The effects of student perceptions of their schools have been relatively untested, therefore, this study sought to add to the research base by focussing on student trust in teachers, student academic press, and identification with school on achievement.

Exploratory factor analysis and Cronbach's α reliability

Our preliminary analysis included conducting three exploratory factor analyses to assess the construct validity of the three scales used in our study. We used principal axis factor analysis with varimax rotation in order to assess the factor loadings and dimensionality of our scales as well as to refine the measures. Additionally, a Cronbach's α coefficient of internal consistency was calculated to test for reliability.

Student trust in teachers. A factor analysis of the ten-item student trust scale indicated a one-dimensional scale measuring student trust in teachers based upon the five facets of trust. A single factor emerged which explained 95.5 percent of the

variance, with an eigenvalue of 12.41 and factor coefficients ranging from 0.96 to 0.99. The α coefficient for this sample was 0.93 (see Table I).

SAP. The eight-item scale measuring SAP was submitted to factor analysis, which resulted in a single factor with an eigenvalue of 5.30 that explained 75.8 percent of the variance, with coefficients ranging from 0.88 to 0.97. Reliability testing indicated an α coefficient of 0.96 (see Table II).

Student identification with school. A factor analysis of the 11-item scale measuring identification with school indicated that sense of belonging and valuing loaded on one factor. Only item number six (The only time I get attention at school is when I cause trouble) did not covary sufficiently with the other items to be considered valid and thus was removed. Factor analysis conducted for the ten remaining items resulted in a single factor that explained 78.5 percent of variance, with an eigenvalue of 7.85 and factor coefficients that ranged from 0.70 to 0.97. The α coefficient of reliability was 0.96 (see Table III).

ICC

We began our primary analysis with three random effects ANOVAs using SPSS 18 to estimate the extent to which our observed variables (student trust in teachers, student academic press, and identification with school) varied within and between schools. The ICC coefficients confirmed the nested nature of our variables. Our ICC-1's confirmed the school level variability in our observed variables. The χ^2 tests of

Facet	Item	Student trust in teachers, $\alpha = 0.93$	Factor 1
B/R	48	Teachers are always ready to help	0.99
O	50	Teachers are easy to talk to at this school	0.96
B	51	Students are well cared for at this school	0.97
C	52	Teachers always do what they are supposed to do	0.99
O	53	Teachers at this school really listen to students	0.98
H	54	Teachers at this school are always honest with me	0.99
C	55	Teachers at this school do a terrific job	0.99
C	58	Teachers at this school are good at teaching	0.99
C	59	Students learn a lot from teachers in this school	0.99
R	60	Students at this school can depend on teachers for help	0.98

Table I.
Analysis of trust items

Notes: $n = 49$. Eigenvalue 12.41. Cumulative variance explained 95.5. B, benevolence; R, reliability; C, competence; H, honesty; O, openness

Item	Student perceptions of academic press, $\alpha = 0.96$	Factor 1
1	Students respect others who get good grades	0.88
2	Students try hard to improve	0.94
3	This school is serious about learning	0.94
4	Students work hard to get good grades	0.97
14	The content of my courses are challenging	0.73
15	My teachers believe that I can learn	0.96
16	Good grades are recognized	0.92
26	I can get extra help at school if needed	0.87

Table II.
Analysis of student perceptions of academic press items

Notes: $n = 49$. Eigenvalues 6.54. Cumulative variance explained 81.8

Item	Student identification with school, $\alpha = 0.96$	Factor 1
5	I feel proud of being part of my school	0.93
7	School is one of my favorite places to be	0.87
8	School is more important than most people think	0.77
9	There are adults at school who are interested in me	0.89
10R	Most of the things we learn in school are worthless	0.91
12R	Going to school is a waste of time	0.86
28	I feel like I am a part of my school	0.97
29	My teachers care about me	0.94
32	I fit in with students at this school	0.70
45	Teachers respect me	0.95

Notes: $n = 49$. Eigenvalue 7.85. Cumulative variance explained 78.5. R, reverse coded; T, item removed due to conceptual similarity to trust

Table III.
Analysis of identification with school items

significance indicated that as expected the proportions of variance among schools in student trust (32 percent), student press (31 percent), and identification with school (20 percent) were statistically significant. Large ICC-2's for student trust in teachers (ICC-2 = 0.98, $p < 0.01$), student press (ICC-2 = 0.98, $p < 0.01$), and identification with school (ICC-2 = 0.97, $p < 0.01$) indicated strong within group agreement among students, that exceeded the 0.60 threshold recommended by Cohen *et al.* (2001) and Ostroff (1993). Together these results indicate a significant variance in student perceptions attributed to school differences as well as strong within group agreement among students. See Table IV for the results of this analysis.

Descriptive summary

Descriptive statistics were calculated for student trust in teachers, student identification with school, and SAP, as well as a composite measure of achievement measured by SOL assessments, and SES measured by the percent of students eligible for the free and reduced lunch program. Results of the three survey measures were aggregated to the school level (see Table V). The means ranged from 3.84 to 3.99 on a

Variable	ICC-1	χ^2	ICC-2	*F*-ratio
Student trust	0.32	2,737.65**	0.98	53.76**
Student press	0.31	2,359.09**	0.98	47.30**
Identification with school	0.20	1,471.58**	0.97	28.93**

Notes: $n = 49$ schools. $^{**}p < 0.01$

Table IV.
Intra-class correlation coefficients for observable properties of student academic optimism

Variables	*n*	Mean	SD	Range	Cronbach's α
Student trust in teachers	49	3.85	0.49	2.86-4.54	0.93
Student academic press	49	3.99	0.36	3.27-4.46	0.93
Identification with school	49	3.84	0.28	3.29-4.36	0.96
Student achievement	49	464.34	25.99	414.84-520.34	0.85-0.86
SES	49	61.32	18.38	22.35-97.17	–

Table V.
Descriptive analysis

five-point scale with SD that ranged from 0.28 to 0.49. For achievement, the mean of the 49 schools was 464.34 (SD = 25.99), where 400 equals a passing score and 600 rates a pass advanced. The mean proportion of students who qualify for free and reduced-priced lunch was 61 percent with a SD of 18 percent and a range from 22 to 97 percent.

Correlational analysis

The results of a correlational analysis indicated support for the hypothesis that student trust in teachers, student academic press, and student identification with school would be positively correlated with each other. Strong and significant relationships were found between all three of our observed variables: student trust in teachers and student academic press ($r = 0.96$, $p < 0.01$), student trust in teachers and student identification with school ($r = 0.96$, $p < 0.01$), and student academic press and student identification with school ($r = 0.97$, $p < 0.01$). All three variables were also significantly correlated with student achievement: student trust in teachers and student achievement ($r = 0.72$, $p < 0.01$), student academic press and achievement ($r = 0.67$, $p < 0.01$), and student identification with school and achievement ($r = 0.71$, $p < 0.01$). SES was significantly correlated only with student achievement ($r = -0.32$, $p < 0.01$) indicating that student achievement declined as the percent of students eligible for the free and reduced lunch program increased. The proportion of students on the free and reduced lunch program was uncorrelated with student trust, academic press, and student identification. See Table VI for the correlational analysis.

Measurement model: confirmatory factor analysis

To test *H2* that student trust in teachers, student academic press, and student identification with school would form a latent construct we called student academic optimism, we used IBM SPSS AMOS Graphics 19 to conduct a confirmatory factor analysis. The first step involved creating a measurement model to test the effects of three observed indicator variables (student trust in teachers, student academic press, and student identification with school) on an unobserved latent independent variable that we called student academic optimism. A confirmatory factor analysis using structural equation modeling (SEM) allowed us to determine whether the shared variance-covariance of these three variables define our latent construct and provided a more precise way to account for the error variances associated with our variables, which if untested could lead to biased parameter estimates (Schumacker and Lomax, 2010).

Indeed, our second hypothesis was confirmed. The factor score for student trust in teachers was 0.97, for student academic press was 0.98, and for identification with school was 0.98. Student academic optimism accounted for 95 percent of the variance

	2.	3.	4.	5.
1. Student trust in teachers	0.96**	0.96**	0.72**	0.08
3. Student academic press		0.97**	0.67**	0.08
2. Identification with school (7)			0.72**	0.06
4. Student achievement				−0.32*
5. SES				

Notes: $n = 49$. *$p < 0.05$; **$p < 0.01$

Table VI.
Bivariate correlational analysis

in student trust in teachers, 96 percent of the variance in student academic press, and 97 percent of the variance in identification with school. See Table VII for an explanation of the factor loadings and the explained variance of our confirmatory factor analysis.

Structural equation MIMIC model

Our structural equation MIMIC model consisted of three observed endogenous indicator variables (student trust in teacher, student academic press, and identification with school) that were used to define the latent endogenous variable student academic optimism, which was hypothesized to have a direct effect on student achievement. One exogenous observed control variable, SES (measured by the percent of students eligible for the free and reduced lunch program) was added to the model and hypothesized to have a direct effect on both student academic optimism and student achievement. Five unobserved exogenous error variables were added to the model to represent the variance in our endogenous observed indicator variables, our latent variable, and our endogenous dependent variable (Err_ST, Err_SP, Err_SID, Err_SO, and Err_AA). Maximum likelihood estimation was used to estimate the parameters of the variables in this study. See Figure 1 for a depiction of our structural model.

The second step in our structural model involved testing our theoretical model. Figure 1 depicts the SEM with the direct effects of our latent independent variable and our control variable on student achievement. Due to a non-significant path between SES and student academic optimism, that path was removed from our model yielding the final SEM presented in Figure 2.

Variables	Factor loadings	R^2
Student trust in teachers	0.97	0.95
Student academic press	0.98	0.96
Identification with school	0.98	0.97

Table VII.
Confirmatory factor analysis for student academic optimism

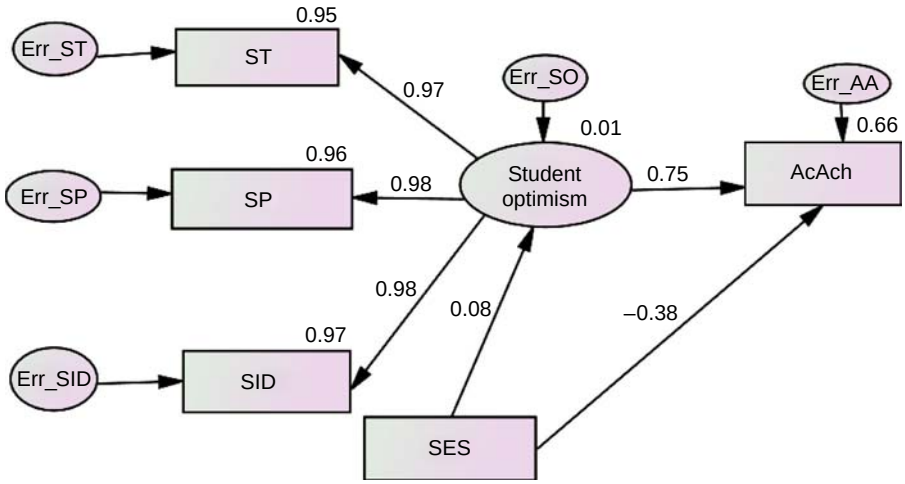

Figure 1.
Theoretical model – student optimism and academic achievement: confirmatory factor analysis – all paths

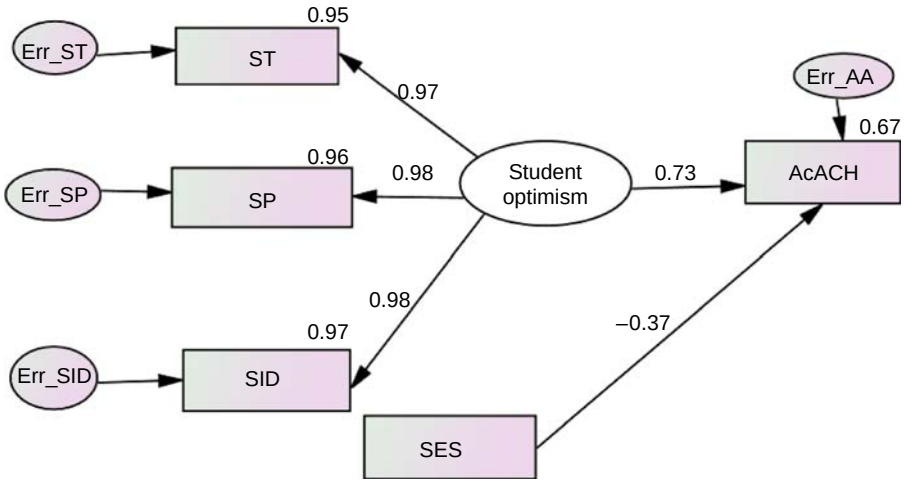

Figure 2.
Student academic optimism and academic achievement: confirmatory factor analysis – final paths diagram

H3 which stated "student *academic* optimism will explain a significant proportion of the variance in student achievement above and beyond the effects of SES" was confirmed. Student academic optimism had a significant direct effect on student achievement ($b = 0.73$, $p < 0.01$) while SES (percent of students eligible for the free and reduced lunch program) had a significant negative effect on student achievement ($b = -0.37$, $p < 0.01$). Together student academic optimism and SES explained 67 percent of the variance in student achievement with student academic optimism making the largest contribution to the explanation. See Table VIII for an explanation of the explained variance of our model.

Goodness-of-fit

To test the goodness-of-fit we used the χ^2 test of model fit. Schumacker and Lomax (2010) recommend this test as the best test of statistical significance to test the theoretical model. Our model had good model fit as evidenced by a non-significant χ^2 of 6.52. Several other measures also indicated good model fit; the RMSEA was 0.08. Schumacker and Lomax report that values of 0.05-0.08 indicate close fit. The TLI was 0.99 and the GFI was 0.99. Schumacker and Lomax report that for both TLI and GFI that values close to 0.90 or 0.95 reflect good model fit. Finally, we did a *post hoc* analysis of power using G*Power 3.1 to test the power of our theoretical model.

Table VIII.
Standardized and unstandardized regression weights

			Unstandardized estimate	Standardized estimate	SE	CR	*p*
Student trust	←	student optimism	1.00	0.97			
Student academic press	←	student optimism	0.73	0.98	0.033	22.13	***
Student identification	←	student optimism	0.58	0.99	0.025	23.42	***
Achievement	←	student optimism	40.54	0.73	4.82	8.41	***
Achievement	←	SES	−0.53	−0.37	0.121	−4.44	***

Note: ***$p < 0.001$

Using an NCP of 7.85 and five degrees of freedom the power of our model was calculated as 0.80, indicating that there was an 80 percent chance that we would correctly reject the null hypothesis.

We also note that our sample size of only 49 schools is less than the ideal of 20 subjects per variable or the recommended sample size of 100-200 by scholars such as MacCallum *et al.* (1999). However, Tabachnick and Fidell (2013) state that "the impact of sample size is reduced with consistently high communalities […] and well-determined factors. In such cases, samples well below 100 are acceptable" (p. 618). Furthermore, the results of our analyses indicate small standard errors of the parameter estimates (identification with school – 0.048, student trust – 0.003, and student press – 0.002), which yield narrow confidence intervals and are a good indication that these results provide good data to model fit and provide good estimates of factor loadings and structure coefficients. Costello and Osborne (2005) suggest that when conducting factor analysis strict rules regarding sample size have mostly disappeared and that sample size is largely dependent on the nature of the data.

Discussion

A number of strong and significant relationships were found in this study. Not only were the three independent variables, student trust, academic press, and student identification with school, strongly related to one another, they each were related to a composite measure of math and English achievement. Moreover, in our confirmatory factor analysis these factors came together to create the latent construct we refer to as student academic optimism. While this study is only representative of 49 schools in one large urban school district in the mid-Atlantic region of the USA, we are particularly pleased with the results that indicate that student academic optimism explained the largest proportion of the variance in student achievement, over and above the effects of SES. While we exercise caution in interpreting these findings, this is in line with a strong body of research on the effects of academic emphasis and trust that have also found these particular school conditions to have a significant effect on achievement over and above the effects of SES and student demographic characteristics (Alig-Mielcarek and Hoy, 2005; Hoy and Hannum, 1997; Hoy *et al.*, 1990; Hoy *et al.*, 1991; Goddard *et al.*, 2000; Mitchell *et al.*, 2008) leading us to consider the possibility that SES may not be as influential as once thought when other conditions of the school environment are taken into consideration.

Limitations

Because all three of the variables measuring student perceptions appeared on the same survey, there is the possibility that respondents were less likely to distinguish their responses between the different constructs, leading to common response bias and the overestimation of the strength of the relationships between these variables. In addition, the respondents were children between age eight and 17 taking the survey in a school setting, so their responses may have been biased in terms of what they perceived to be the "right" or desirable answers. The schools in this study were all within a single urban school district in a mid-Atlantic state, so the results should be generalized with caution. Because we did not have individually identified student achievement data, we were not able to conduct hierarchical linear modeling to examine the nested effects of our data. Finally, while our study yielded good data to model fit a larger sample size would have been preferable. Increased sample size generally can give better point estimates of parameters in the model, but again this is largely dependent upon the

characteristics of the data, which in this case yielded a good model fit despite the small sample size.

Implications for practice

The results of this study have strong implications for educators as they continue to grapple with ways to enhance student achievement. The construct of student academic optimism appears to have important and far-reaching implications for student learning and growth. To reap these substantial benefits, teachers must cultivate trust with their students, and schools must create a culture that celebrates academics and that fosters student identification with school.

Cultivating student academic optimism

Although trust between role groups is a reciprocal process, cultivating student trust requires that teachers first earn the trust of students by demonstrating caring and good will (Tschannen-Moran, 2004). At first, some students may engage in a process of discernment, weighing the risks and benefits associated with entering into this trusting relationship through a period of courtship (Bryk and Schneider, 2002; Owens and Johnson, 2009; Tschannen-Moran, 2004). Teacher caring must be unconditional and not be dependent upon students' ability to reciprocate, because some students will test the limits of trust, appearing to be defiant or disrespectful. This resistant behavior should be expected, however, especially among students who have previously experienced insecure attachments (Owens and Johnson, 2009). In light of some students' resistance to building trust, teachers will need to be persistent in their efforts at demonstrating benevolence and caring toward students, and that they are open and honest, that they can be counted on to behave in predictable and helpful ways, and that they have the competence students depend upon. Building trust is particularly crucial when working with economically disadvantaged students. Trust can mediate the effects of poverty on achievement (Goddard *et al.*, 2009) and is also a positive predictor of achievement outweighing the effects of poverty (Goddard *et al.*, 2001). School leaders need to set the tone for high-trust relationships with students through modeling such trust in their words, actions, and policies (Tschannen-Moran, 2004).

As we have seen in the results of this study, the school environment can affect how students feel about school in important and consequential ways. When students feel that they fit in and are a part of the school community, they begin to value school and school-related goals (Fredricks *et al.*, 2004; Finn, 1989). Therefore, explicit steps must be taken to create an environment that is welcoming and inclusive, one that extends a sense of belonging particularly for students at the margins. Examining classroom management and school discipline policies seems like a good place to start in this regard. Some schools and districts are turning to programs such as school-wide positive behavioral interventions and support systems to foster positive school social environments, reduce discipline incidents, and increase the focus on academics.

It is interesting how closely linked students' perceptions of trust and identification were to their perceptions that academics were taken seriously and that all students were held to high expectations. In lax or chaotic school environments where low expectations are the norm, students are not likely to trust their teachers, nor to feel that they belong or value the purposes of schooling. Conversely, school environments

characterized by academic press seem to influence positive teacher behavior and attitudes toward students, and in turn, become a catalyst that influences positive student beliefs as well (Goddard *et al.*, 2001). When students perceive that the learning environment is orderly and serious, and that academic success is regarded with respect, they are more likely to put forth the effort to achieve success themselves. Because students learn best in environments that offer challenging and interesting work, school leaders should be focussed on creating instructional conditions that respect and honor students' intelligence by requiring them to use their minds well (Bandura, 1986).

Teacher and principal preparation programs

In order to prepare educators to cultivate academic optimism among their students, teacher, and principal preparation programs should include coursework on socio-cognitive perspectives so that educators will gain a deeper understanding of their own role in influencing the social conditions in schools, children's cognitive development, and the link between these factors and achievement. Explicit skill-building exercises designed to bolster interpersonal relationships with students to promote a sense of belonging and to build trust would assist teachers to create the classroom conditions that foster academic optimism. In addition, novice teachers could be taught strategies for holding high academic expectations for all students, even those who are struggling or behind. These skills might be practiced as part of the pre-service teaching practicum that focussed on student-teacher relationship building, such as tutoring or mentoring a student or a small group of students. Structured journaling and reflection would allow students to appreciate the multifaceted role that they can play in influencing student achievement.

Educators preparing to be principals should also be informed of the importance of creating school conditions that foster academic optimism in their students. They should be taught explicit strategies for building a school culture with a strong emphasis on academics, where high academic achievement is recognized and celebrated. They also need to cultivate the skills necessary to create inclusive, welcoming environments, particularly in schools with diverse student populations. They may also gain new insight and understanding about student trust and achievement by examining linkages between student-teacher relationships and achievement at their own schools or within their academic department.

Professional development

Creating an environment that fosters student academic optimism should be part of the school vision, which can be transmitted to faculty and support personnel through an ongoing focus on professional development that helps to foster increased trust between teachers and students, a welcoming and caring school environment, and an emphasis on high academic expectations. Teachers and other staff must be provided with the practical tools that they need to be successful in their efforts at supporting the school's vision, including time to reflect and collaborate, administrative support, monitoring, and feedback. They must continuously be engaged with data, research, and case studies that illustrate the influence of school social conditions on student outcomes. Teachers who have been successful at building positive relationships with students could lead professional development by sharing their own experiences and presenting the strategies they have found to be successful in building relationships of trust with a strong focus on academics that leads to student identification with school.

It is clear from the enormous amounts of time, money, and effort that schools are expending that improving school social environment is a priority. Therefore, further research in the area of student academic optimism is needed in order to continue to develop, refine, and inform practices and procedures that schools put in place to hopefully improve student achievement.

Implications for future research

This research has presented the possibility of a new line of research examining the collective strength created by these three interrelated variables, student trust, SAP, and student identification with school. These three variables formed the latent variable of student academic optimism that had a substantial influence on student achievement. Many school districts looking to explore more comprehensive methods to increase academic success are looking beyond the three R's and are addressing the school environment. Research that addresses the school environment is timely and crucial, especially in urban areas, where issues associated with poverty can create social and academic challenges that have the potential to impede achievement.

One of the key dimensions of academic optimism is student trust in teachers. The results of this research are promising in gaining a fuller understanding of student trust and its correlates. Despite its strong relationship to student achievement, this is an under-researched construct. Although seminal work on cultivating trust has begun (e.g. Tschannen-Moran, 2004; Howes and Ritchie, 2002; Owens and Johnson, 2009; Watson, 2003), further research on student trust formation is needed. Research that helps to further refine and identify behaviors that encourage trusting relationships in schools could be used to develop teacher-specific and campus-wide actions that encourage positive change. Just as the exploration of race, class, and gender have more fully explicated other trust referents, further examination of student trust in light of student differences would also help to deepen the understanding of this construct.

Although over four decades of research has demonstrated the importance of teacher perceptions of academic press in fostering productive school environments, research on SAP is in its infancy. In light of the strong results in this current study, it is clear that more research into the dynamics that contribute to students' perceptions of the degree to which academics are taken seriously in their schools, as well as the consequences of these perceptions, is sorely needed. What are the aspects of the school culture that contribute to these perceptions? What are the differential effects of school leaders, teachers, and other students in contributing to a climate of strong academic press? What can be learned from schools that have transitioned from relatively low student academic press to high press?

The third variable that contributed to student academic optimism was student identification with school. While this construct has accrued a solid quantitative research base (Finn, 1989; Mitchell, 2006, 2012; Mitchell *et al.*, 2008; Voelkl, 1997), there is still more to be learned. Qualitative research that includes the voices of students, particularly students at the margins, about the factors that contribute to their sense of identification with school, and those dynamics that interfere with this identification would be very useful.

This study examined data that was aggregated from the individual to the school level, which did not take into account the full spectrum of variance in individual and classroom level scores. Examining within-school differences and gaining a fuller understanding of the variance in scores at the individual and classroom level would be

of particular importance for informing classroom practice, teacher and student improvement plans, and school-wide change efforts.

The promising results of this study offer new possibilities for combating low achievement in urban schools. These results are especially pertinent for school leaders and teachers as they continue to focus their efforts on the most effective ways to stimulate student learning and encourage high achievement. The findings suggest that educators need not only focus on curriculum and instruction as avenues to influence education outcomes, but can combine these efforts with an emphasis on developing the social conditions in schools between role groups that have an effect on achievement as well.

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