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SYSTEMATIC REVIEW

Teacher–Student Relationships, Student Engagement, and Academic Achievement for Non-Latino and Latino Youth

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Abstract Teacher–student relationships are crucial to engagement and school success for youth. However, forging caring and supportive teacher–student relationships can be challenging. Further, engagement appears to decline along with achievement. Regardless of limited research reviews on teacher–student relationships, engagement, and achievement for school-aged students, there is an urgent need for reviews focused on youth and Latino youth in particular. This study synthesized 26 studies on teacher–student relationships, engagement, and achievement for non-Latino (16 studies) and Latino youth (10 studies). The findings were similar for non-Latino and Latino youth, with positive associations and engagement as a mediator. Teacher–student relationships (emotional support, instrumental help, clear expectations, and classroom safety) and student engagement (behavioral, emotional, and cognitive) were defined as multidimensional constructs. The findings primarily focused on emotional support and behavioral engagement. Both bodies of literature were theoretically driven (self-determination theory, ecological theory), employed surveys as the primary measure and reliable measures. There was a lack of studies with experimental, longitudinal design, qualitative methods, random sampling, power analyses and reported validity of the measures. Major differences included mixed results for the moderation effect of gender among non-Latino youth. The quality of the literature for non-Latino youth was relatively more rigorous and stronger.

Keywords Teacher–student relationships · Student engagement · Academic achievement · Early adolescents · Latino

Introduction

Early adolescence is a key period for youth to develop skills, capacities, interests, and relationships that are foundational to healthy adjustment. Student engagement and academic achievement are crucial components of competence for youth that predict school success and future career opportunities (Roorda et al. 2011). Engagement has been related to a wide range of adolescent outcomes, such as academic success (Wang and Holcombe 2010), school dropout (Rumberger and Rotermund 2012; Wang and Fredricks 2014), and mental health (Bond et al. 2007). Unfortunately, student engagement appears to decline along with academic achievement (Mahatmya et al. 2012). It is estimated that 25–40% of youth show signs of disengagement (e.g., apathy, not paying attention, not trying hard; Yazzie-Minz 2007).

Staying engaged in school and thriving academically are challenging for early adolescents regardless of ethnic group, and Latino students are no exception. Suárez-Orozco et al. (2009) found significant but gradual declines to student engagement and academic achievement among Latino youth. Katz (1999) and Stanton-Salazar (1997) described how Latino students in a middle school setting struggled in relationships with teachers, which negatively impacted their engagement and academic performance. Further, there is a wide achievement gap between Latino students and their Caucasian peers. For instance, on the 2013 eighth grade National Assessment of Educational Progress (NAEP) in mathematics, 21% of Latino students performed at or above the proficient level, as compared to 45% for their Caucasian

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peers (National Center for Educational Statistics 2013). The underachievement of Latino youth is partially attributed to their poor engagement (Bingham and Okagaki 2012).

Teacher–student relationships have been recognized as one of the most important factors to engagement and school success for youth in general, as well as for students of diverse ethnic groups (Bingham and Okagaki 2012; Farmer et al. 2011). However, forging caring, trusting, and supportive teacher–student relationships can be challenging for both the students and their teachers. During early adolescence, relationships between teachers and students within the classroom context are disrupted (Davis 2003; Gehlbach et al. 2012). Middle school students typically perceive their teachers as less caring and supportive than their elementary school teachers (Davis 2003). As they make the transition from elementary to middle school, changes within the school context are often at odds with students' needs for developing relationships with their teachers (Eccles et al. 1993; Ryan et al. 2013). For instance, class size in middle schools is typically larger than in elementary schools and the teacher–student ratio increases. Unlike in elementary schools in which students typically stay with one primary teacher throughout the day, students in middle schools move from classroom to classroom. They must adapt to the teaching styles and expectations of different teachers as they rotate between classrooms. Further, individualized instruction in elementary school changes to "departmentalized" instruction. Although teacher–student relationships typically deteriorate during the transition, the need for caring and supportive relationships does not diminish (Pianta et al. 2012).

Teacher–student relationships may be particularly important for Latino students in promoting engagement and academic success. School cultures usually mirror the culture of the dominant society. However, for Latino youth, the cultural values at home may differ significantly from those of schools. Thus, they may need teacher support to successfully navigate school (Bingham and Okagaki 2012). Wentzel et al. (2012) point out that little is known about the reasons for underachievement among Latino youth; "…much less is known about those social factors that support Latino students who stay in school, display positive forms of behavior, and excel academically" (p. 609). Therefore, understanding the role of relationships with teachers in engagement and achievement among Latino youth is a valuable undertaking, given that their school success is foundational to their future developmental pathways and functioning as effective citizens in the twenty-first century.

A growing body of research demonstrates that teacher–student relationships play a pivotal role in engaging students to learn and promoting academic success (Pianta et al. 2012; Wentzel 2012). For example, a meta-analysis of 99 studies of school-aged students revealed substantial associations between teacher–student relationships, engagement, and academic achievement (Roorda et al. 2011). The associations between teacher–student relationships and student engagement ranged from medium to large in magnitude, whereas the associations between teacher–student relationships and academic achievement ranged from small to medium. In addition, stronger effects were found in higher grades. However, the meta-analysis did not explore the extent to which teacher–student relationships, student engagement, and academic achievement varied by students' developmental stages, especially for early adolescents. Nor did the study examine how such associations varied by students' ethnic backgrounds, especially for Latino youth.

Current Study

The challenges in developing teacher–student relationships faced by early adolescents, and Latino youth in particular, call for examination of the role of such relationships in student engagement and achievement. The purpose of this review was to synthesize research on teacher–student relationships, engagement and achievement for non-Latino and Latino youth. Specifically, the following questions were addressed: (a) to what extent are the associations conceptualized and operationalized for non-Latino youth?; (b) to what extent are the associations conceptualized and operationalized for Latino youth?; (c) to what extent are teacher–student relationships associated with engagement and achievement for non-Latino youth?; and (d) to what extent are teacher–student relationships associated with engagement and achievement for Latino youth?

Methods

To locate research, a broad search was conducted using the following sub-databases within the *EBSCOhost Education e-search database: Education Full Text, ERIC, PsychInfo, PsychArticles*, and *Families and Society Studies Worldwide*. The keywords used for the search included: "teacher–student relationships or teacher support", "engagement, student engagement, or school engagement", "achievement, academic achievement, or academic success", "early adolescents, youth, middle school students", and "Latino or Hispanic". All reference lists of retrieved documents were also checked for additional studies, and an effort was made to obtain those pieces. As the research was read, the search was restricted to peer-reviewed research studies dating back to 1988 which dealt with the present study and were conducted in the United States. The index of *Educational Psychology Review* and *Review of Educational Research* back to 2004 were also scanned.

The studies were analyzed systematically. First, as each study was read, notes were taken to reflect the key elements: theoretical framework, methodology, and findings. Second, findings were reviewed to see if there were themes in the research issues investigated. As themes emerged, codes were given to tentative topic clusters. Third, the studies were sorted into tentative clusters. Some studies fell into multiple clusters. Fourth, within each cluster, one at a time, themes were discerned by looking for similarities and differences in the results of the studies. Fifth, studies with similar findings were grouped together. In the meantime, patterns for theoretical framework and methods were examined. Finally, charts were made to reflect each cluster of studies.

Results

A total of 26 studies were included in the present review as the final sources of data, including 16 studies with non-Latino youth and 10 studies with Latino youth (see Tables 1, 2, 3 for summaries). Among the studies with non-Latino youth, although three studies (Conner and Pope 2013; Turner et al. 2014; Wentzel 1997) also involved a small percentage of Latino students, for the purpose of the present study, these studies have also been included in the group of studies with non-Latino youth.

Theoretical Frameworks

How researchers have situated their studies is in itself informative. Some studies did not provide a theoretical basis, and in some of those instances, a theoretical framework was not easily inferred. However, in general, the studies were situated in two theories: (a) self-determination theory; and (b) ecological theory.

Self-determination theory (Ryan and Deci 2000) identifies three universal psychological needs—autonomy, competence, and relatedness—that are essential to students' development (Deci and Ryan 2012). Autonomy reflects students' desire for self-initiation and self-regulation of their behavior (Skinner et al. 2008). The need for autonomy is likely to be met when students experience classroom contexts in which teachers provide choice, allow students to participate in shared decision making, give students relative freedom from teacher control, and design curriculum and instruction that are relevant to the students' interests and lives (Skinner et al. 2008; Wang and Eccles 2013). Competence refers to students' need to be effective in their pursuits and interactions with the environment (Elliot and Dweck 2005). That is, students believe that they can determine their success, know strategies to achieve desired outcomes, and feel efficacious in doing so. The need for competence is fostered when students are provided with adequate information for successfully accomplishing their goals (Skinner and Belmont 1993; Wang and Eccles 2013). Teachers can provide structure by setting clear expectations, providing consistent feedback, offering instrumental help, and adjusting teaching to the level of the students (Connell 1990; Urdan and Midgley 2003). Relatedness reflects students' need for supportive and caring relationships with others (Connell and Wellborn 1991; Ryan and Deci 2000). Teachers can support such need by showing involvement, such as expressing interest in, caring for, and respecting students. When classroom contexts fulfill students' psychological needs for autonomy, competence, and relatedness, engagement is likely to be promoted. Students exhibit engagement as a desired action, which in turn leads to desired outcomes including improved academic performance (Assor et al. 2002; Roorda et al. 2011; Shim et al. 2013; Skinner and Belmont 1993; Urdan and Midgley 2003; Wang and Eccles 2013; Wigfield et al. 2006).

Ecological theory posits that development involves an ongoing process of exchange between an individual and the environment. The environment is divided into five levels of systems: micro, meso, exo, macro, and chrono (Brofenbrenner and Morris 2006). The microsystem and macrosystem bear particular relevance to the present study. The microsystem is the most influential and the closest level to the individual. Teachers create and involve students in activities that carry meaning and purpose within the classroom microsystem, which influences student development through these activities as a means. The macrosystem refers to the overarching pattern of ideology and organization that characterizes the cultural context (Brofenbrenner 1993). The components within the macrosystem pertaining to the present study include: ethnicity, Latino cultural values, gender, socioecomonic status (SES), and geographic locale. These components ultimately affect the interactions between individual student and the teacher in the classroom microsystem.

With regard to ethnicity in the macrosystem, the present study focuses on Latino youth who face unique challenges of building relationships with their teachers. The schools in which Latino youth enroll may reflect the values of the dominant culture (Balagna et al. 2013) and they are likely to be taught by Caucasian teachers (Bingham and Okagaki 2012). If the teachers are unfamiliar with Latino culture, misunderstanding and conflicts may occur between the teachers and their students (Bingham and Okagaki 2012). In one study, Latino youth perceived that their Caucasian peers received more attention and support from teachers than they did (Valenzuela 1999). Such perceptions may lead them to believe that their teachers discriminate against them (Katz 1999). Further, many Latino youth are identified as limited English proficient, which makes it difficult for teachers to communicate with them and develop caring and supportive relationships (Suárez-Orozco et al. 2009). Finally, Latino youth are more likely to be taught by less-qualified

Table 1 Summary of studies selected for review on associations between teacher–student relationships, student engagement, and academic achievement among non-Latino youth

References	Theoretical framework	Methods	Key findings
Blumenfeld and Meece (1988) (task factors, teacher behavior, students' involvement of learning strategies in science)	(Perspective: Students develop knowledge and skills through working on and completing tasks, which include cognitive elements, format, and social organizations)	Design: mixed methods Sampling: convenience. Students were drawn from eight classrooms from four middle-class schools. Teachers volunteered to participate. For interviews, children were selected from those who scored in the top and bottom quartiles of the class on Harter's (1981) measure of intrinsic motivation Participants Sample size: (quantitative data) 194 students and 4 teachers; (qualitative data) 12 out of 194 students were interviewed, and the same 4 teachers and their 194 students were observed Ethnicity: NA Age/Grade: Grades 4–6 Gender: NA Geographic locale: NA SES: medium. ("middle-class schools") Measures TSRs (teacher behaviors were based on observations of lessons taught) TCE: clarity of directions during instruction, providing feedback. Teacher behavior of creating press for mastery by communicating that students were expected to assume an active role in learning activities and to understand lesson content (asking all students to justify and explain their answers and asking questions that forced students to go beyond memorization of facts or reliance on rote solution) TIH: explanation of concepts, use of advance organizers, modeling of cognitive strategies, questioning, and motivational techniques (task values, interest, or relation of content to students' experiences of current events). Teacher behavior of eliciting and maintaining student participation: checking on progress, reminding students about procedures, and prompting attention SE (student questionnaire and student interviews, drawn from existing measures) BE: task involvement in which students' attention was primarily focused on the task rather than on the self ($\alpha = 0.92$) CE: proportion of high-level strategies appropriate to the task that the child checked for each lesson, use of self-regulated learning strategies, such as attention, connecting, planning and monitoring along with use of help-seeking and effort-avoidant strategies. Includes both superficial form of engagement and high-level strategies (validity: cognitive engagement scores were positively correlated with reported intrinsic motivation in a previously existing study) AA: composite scores on standardized test of student achievement Data collection: (classroom observations and student questionnaires and interviews). Data were collected by graduate students in educational and clinical psychology. A total of 32 science lessons were observed over 3 months (4 lessons selected from 2 different units for each teacher). Students in each class completed a questionnaire after each of the four lessons that were observed. It took approximately 15 min to complete and was read to the entire class. If time permitted, interviews were conducted individually with four children following each lesson. Each interview lasted about 15–20 min Data analysis: quantitative: ANOVA. Qualitative: patterns of teacher behavior were identified by examining observation narratives (32 sessions, 4 teachers, 194 students) and students' responses to the interview questions (12 students selected)	Students reported greater use of learning and metacognitive strategies (i.e., cognitive engagement) in science when they were given challenging work and pressed for understanding by the teachers (clarity of directions during instruction, and providing feedback). (TCE – CE) Students reported greater use of learning and metacognitive strategies (i.e., cognitive engagement) in science when they were given challenging work and the teacher elicited and maintained student participation (checking on progress, reminding students about procedures, and prompting attention) (TIH – CE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Conner and Pope (2013) (contextual factors and consequences of full-engagement among student in high-performing schools)	(Self-determination theory not explicitly specified, but can be inferred in one statement concerning contextual factors that promote engagement)	Design: quantitative Sampling: convenience, non-random sampling for schools; both random non-random sampling for students within schools (13 schools chose to administer the survey to the entire student body, and two randomly selected 40–60% of their student body for participation) Participants Sample size: 6294 attending 15 different high-performing schools Ethnicity: 44% Caucasian, with the remainder of students reporting their ethnicity as Asian (34%), Hispanic (6%), African-American (4%), Native American (1%), or multi-ethnic (12%) Age/Grade: mean age = 15.3, 9% in middle school, 91% in high school Gender: 54% F, 46% M Geographic locale: NA SES: NA (82% reported that their parents were married.) Measures (drawn from existing measure, student reports) TSRs TES: perceptions that teachers really cared for students, valued and listened to students' idea, and tried to get to students personally. Scale devised by other researchers ($\alpha = 0.84$) SE BE: effort, hard work, mental exertion and completion of assignments (How often do you try as hard as you can?) ($\alpha = 0.79$) EE: students' levels of interest in and enjoyment in schoolwork (How often do you find schoolwork interesting?) ($\alpha = 0.82$) CE: students' attitudes toward schoolwork, its value and importance (How often do you find your schoolwork meaningful?) ($\alpha = 0.87$) AA: self-reported GPAs Data collection: students with active parent consent and self-assent completed a 40-min online survey during the school day. Staff at the school sites administered the survey. They read a common script to students prior to the survey administration, and project researchers were available to answer student questions during this time Data analysis: regression analysis [Gender, grade level, GPA, ethnicity (White vs. non-White), and other factors were held as constants]	Holding gender, grade level, GPA, and other factors constant, perceptions of teacher support (really care for students, value and listen to students' ideas, and try to get to know students personally) of students in high-performing schools were associated with students' behavioral (effort, hard work, mental exertion and the completion of assignments), emotional (levels of interest in and enjoyment of schoolwork), and cognitive (attitudes towards schoolwork, its value and importance) engagement. (TES – BE, TES – EE, TES – CE) Female students in high-performing schools tended to exhibit higher levels of behavioral, emotional, and cognitive engagement than male peers (Gender – BE, Gender – EE, Gender – CE) Grade level was positively and significantly related to emotional engagement, but negatively and significantly related to behavioral and cognitive engagement for students in high-performing schools (Grade – BE, Grade – EE, Grade – CE) Fewer Asian and non-Asian students of color reported full engagement (high behavioral, emotional, and cognitive engagement) than expected, while more White students did than expected (Ethnicity – SE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Dotterer and Lowe (2011) (classroom context, school engagement, and academic achievement)	Ecological theory	Design: quantitative (data drawn from a longitudinal study) Sampling: convenience. Phase III of longitudinal NICHD Study of Early Child Care and Youth Development (SECCYD) between 2000 and 2005. Phase I began in 1991. Families were recruited through hospital visits to mothers shortly after the birth of a child Participants Sample size: 1014. Struggling learners (n = 151, 15%) and non-struggling learners (n = 863, 85%) Ethnicity: 77% Caucasian, 23% other Age/Grade: average age = 11 years, Grade 5 Gender: 50% F, 50% M Geographic locale: urban (10 cities across the U.S.) SES: medium (Maternal education averaged 14 years. 15 years for non-struggling group and 13 years for struggling group) Measures (drawn from existing measures) TSRs (teacher reports) TES: teacher–student conflict (α = 0.90) SE BE: (classroom observations) degree to which students were actively engaged in learning (paying attention, on task) (α = 0.97) EE and CE: combined into psychological engagement (student reports). Affective engagement (connectedness and belonging) and cognitive engagement (perceived competence, motivation) (α = 0.76) AA: mean score of standardized test on reading math Data collection: for classroom observations, trained observers collected data between January and April. Students were interviewed at home. Teachers completed questionnaires Data analysis: multi-group structural equation model (Race, gender, and maternal education/SES were controlled for. Analysis was done for high- and low-performing students, respectively)	The indirect associations between classroom context (teacher–student conflict, instructional quality, social/emotional climate) and achievement (average scores in standardized reading and math tests) through student engagement as a mediator varied by achievement level For non-struggling students, school engagement (combined measure of emotional and cognitive engagement, or behavioral engagement) mediated the link between classroom context (teacher–student conflict, instructional quality, and social/emotional climate) and academic achievement. [TES − BE − AA, TES − (EE + CE) − AA] However, for struggling students, student engagement did not mediate the link between classroom context and academic achievement Regardless of the significant relationship between classroom context and behavioral engagement, behavioral engagement was not significantly associated with academic achievement for struggling students (TES − BE, no TES − BE − AA) Specifically, although combined emotional and cognitive engagement was significantly related to academic achievement for struggling students, classroom context did not contribute significantly to combined emotional and cognitive engagement. (n. s. TES − [EE + CE], n.s. TES − [EE + CE] − AA) The findings indicate that for struggling students, enhancing the classroom context with low teacher–student conflict, high quality instruction, and positive social and emotional classroom climate may not increase students' engagement and academic achievement. Dotterer and Lowe (2011) pointed out that other factors may need to be considered, such as instructional methods and other aspects of behavioral engagement (e.g., completion of homework)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Furrer and Skinner (2003) (sense of relatedness, academic engagement, and performance)	Self-system model	Design: quantitative, longitudinal Sampling: (part of a longitudinal project) Participants Sample size: 641 in elementary schools Ethnicity: 95% Caucasian, 5% other (for the sample for the whole project). Information for the present study was not reported Age/Grade: Grades 3–6, elementary schools (for the sample for the whole project. Information for the present study was not reported) Gender: 50% F, 50% M for the sample for the whole project (not this subset). Information for the present study was not reported Geographic locale: suburban-rural SES: low and medium. School district was comprised of mostly middle-class and working class families (for the whole project). Information for the present study was not reported Measures (α: 0.75–0.94) TSRs (student reports) TES: sense of belonging or relatedness to teachers (When I am with my teacher, I feel accepted. I feel like someone special. I feel ignored. I feel unimportant) SE (student-reports and teacher-reports) BE: perceptions of students' effort, attention, and persistence during the initiation and execution of learning activities (in teacher-reported questionnaire, when we start something new in class, this student participates in discussions. In my class, this student does just enough to get by. In student-reported questionnaire, I participate when we discuss new material. In class, I just act like I am working) EE: perceptions of students' emotional involvement during learning activities (in teacher-reported questionnaire, in my class this student is enthusiastic. When working in my class, this student appears frustrated. In student-reported questionnaire, when we start something new in school, I feel interested. When working on classwork, I feel mad) AA: average GPAs from student records, from classes focusing on verbal performance and math performance Data collection: trained interviewers collected data in three 45-min sessions. Students filled out the questionnaires as one interviewer read aloud each item and the other interviewer monitored understanding and answered questions. Teachers were not present. Teachers filled out their questionnaires while students were doing the questionnaires. Data were collected in October and again in May Data analysis: regression (Gender and grade were controlled for)	Students' feeling of relatedness to teachers predicted teacher-reported and student-reported students' behavioral engagement. (TES × Time − BE) Students' feeling of relatedness to teachers predicted teacher-reported and student-reported students' emotional engagement (TES × Time − EE) Teacher-reports and student-reports of total relatedness (to teachers, parents, and peers) in the fall was a unique predictor of changes in teacher-reports and student-reports of total engagement from the beginning to the end of the school year. [(TES + relatedness to parents and peers) × Time − (BE + EE)] Teacher-reports and student-reports of students' total engagement (behavioral and emotional) mediated the relationship between overall relatedness (to parents, teachers, and peers) and academic performance [(TES + relatedness to parents and peers) × Time − (BE + EE) × Time − AA) Girls felt significantly more related to their teachers than did boys (Gender − TES) Relatedness to teachers increased significantly between third and fifth grade. However, following the transition to middle school in sixth grade, children's sense of relatedness to teachers dropped significantly. (Grade × Time − TES) Teacher-reports and student-reports of behavioral and emotional engagement increased significantly between third and fifth grade. However, following the transition to middle school in sixth grade, children's sense of relatedness to teachers dropped significantly. (Grade × Time − BE. Grade × Time − EE) For relatedness to teachers and gender, significant interactions were found for teacher-reports of behavioral and emotional engagement as well as for child-reports of emotional engagement. The effect of relatedness to teachers on engagement was more pronounced for boys than girls. Girls' engagement varied to a less extent as a function of their relatedness to their teachers. (TES × Gender × Time − BE, TES × Gender × Time − EE) There was a significant interaction between grade and relatedness to teachers. The relationship between relatedness to teachers and teacher-reports of students' behavioral engagement was stronger for older students than younger students (TES × Grade × Time − BE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Goodenow (1993) (classroom belonging, motivation, and achievement)	Self-determination theory	Design: quantitative Sampling: convenience. (6th–8th grade students present on the last spring testing day) Participants Sample size: 353 students evenly distributed across the three grades Ethnicity: 93% Caucasian, 7% other (primarily Asian) Age/Grade: Age 11–15, Grades 6–8 Gender: 166 M, 187 F Geographic locale: suburban New England middle school SES: NA Measures (drawn from existing measure) TSRs (student reports) TES: perceptions of acceptance/inclusion vs. alienation from the teacher (my science teacher is interested in what I have to say. The teacher enjoys talking with students.) ($\alpha = 0.52$) SE (teacher reports) BE: students' effort in English class. ($\alpha = 0.93$) AA: (teacher reports) students' final grade in English Data collection: the questionnaire was administered by English teachers during regular English classes. Four parallel versions of the questionnaire were prepared concerning students' attitudes and experiences in their English, social studies, math, and science classes, respectively. They were identical in appearance, were mixed together and were distributed randomly. Student anonymity was preserved Data analysis: stepwise multiple regression (Grade and gender were controlled for)	The overall teacher emotional support (student's self-report of perceptions of acceptance/inclusion vs. alienation from the teacher) was positively related to the overall students' effort in English class. (TES-BE) The overall teacher emotional support (student's self-report of perceptions of acceptance/inclusion vs. alienation from the teacher) was positively and significantly related to effort in English class for six-grade students, but not for seventh- or eighth-grade students. (TES × Grade − BE) The teacher emotional support (student's self-report of perceptions of acceptance/inclusion vs. alienation from the teacher) was positively related to the overall students' final grade in English (TES − AA) The overall teacher emotional support (student's self-report of perceptions of acceptance/inclusion vs. alienation from the teacher) was positively and significantly related to final grade in English for six-grade students, but not for seventh- or eighth-grade students. (TES × Grade − AA)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Gregory et al. (2014) (effects of a professional development program on students' behavior engagement)	Self-determination theory Attachment theory	Design: quantitative, longitudinal, randomized controlled experimental design (year-long intervention, professional development program—the My Teaching Partner—Secondary program, designed to increase students' behavioral engagement) Sampling: stratified and random assignment. Teachers were grouped by district, school type (middle/high school), and their classroom subject (math/science, social studies/English). Teachers within each group were randomly assigned to the intervention or control group. Teachers and students participated in the study voluntarily Participants (intervention and control teachers did not significantly differ on sociodemographic characteristics—gender, ethnicity, years of teaching experience. Their focal classrooms did not significantly differ on sociodemographic characteristics—student baseline achievement level, ethnicity, gender, SES, etc) Sample size: 87 teachers in 12 different middle or high schools Ethnicity: majority of teachers and students were Caucasian Age/Grade: Teachers: 61% taught in middle schools and 39% taught in high schools. Students: average grade level—8th grade Gender: Majority of teachers were female. Students: 51% M, 49% F Geographic locale: VA SES: majority above low SES (On average, 39% eligible for subsidized lunch) Measures (interrater reliability: acceptable. Codes based on the same observations were within one point of each other 80% of the time) (validity: five dimensions of the measure were predictive of higher student achievement test scores at the end of the year in a previously existing study) TSRs (TCE + TIH + CS + TES) (ICC coefficient for inter-rater reliability: 0.64–0.78) (video recordings of instruction) five dimensions of the Classroom Assessment Scoring System—Secondary (CLASS-S) Three dimensions of the Emotional Support domain (TES + CS)—positive climate (respectful/warm communications, shared positive affect), teacher sensitivity (teacher responsiveness to student needs), regard for adolescents' perspectives (opportunities for students' active, leadership roles and exposure to relevant course content) One dimension from the Classroom Organization domain (TCE)—instructional learning formats (varied use of instructional modalities and strategies) One dimension from the instructional support domain (TIH)—analysis and problem solving (engagement in activities that require synthesis, evaluation, and novel application of knowledge) SE BE: (ICC: 0.66) (video recordings of instruction) Students are consistently active in discussion and classroom tasks—they volunteer, ask questions, show little off-task behavior Data collection: teachers in the invention group went through training and received on-going coaching. Teachers in both intervention and control groups videotaped their instruction. Coders were trained in coding the segments of the selected video recordings of instruction Data analysis: analyses used coding of one 40–60-min video recording of instruction at the beginning of the fall semester and one at the end of the spring. Each teacher's videotaped instruction was divided into two 20-min segments. Each segment was assigned randomly to two coders. Their four scores for fall and spring were then averaged	The teachers in the intervention group had significant higher increases in student behavioral engagement in their classrooms after 1 year of participation in the professional development program compared to the teachers in the control group. (Intervention Status × Time − BE) Two dimensions of teachers' interactions with students—their focus on analysis and problem solving during instruction and their use of diverse instructional learning formats—mediated their effects on increased students' behavioral engagement (Intervention Status × Time − TCE − BE, Intervention Satus × Time − TIH − BE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Patrick et al. (2007) (classroom social environment, motivational beliefs, and engagement)	Social-cognitive	Design: quantitative Sampling: (part of the young Adolescents' Motivation in Math Project) Participants Sample size: 602 Ethnicity: 95–98% Caucasian in the participating schools Age/Grade: 5th grade students from 31 classes in 6 elementary schools Gender: 49% M, 51% F Geographic locale: IL SES: Medium. Predominantly middle class schools, 0–12% eligible for free or reduced lunch in the participating schools Measures TSRs (student reports, one of six scales assessing students' perceptions of classroom social environment) (drawn from existing measures, reliability and validity reported in previous studies) TIH: teacher academic support, perceptions that the teacher cared about how much the student learned and wanted to help him or her to learn TES: belief that the teacher cared about and liked the student as a person SE: (student-reports) (drawn from existing measures, reliability and validity reported in previous studies) BE: task-related interaction, the extent to which students answered questions, explained content, and shared ideas about math with classmates CE: self-regulation strategies, the extent to which students plan, monitor, and regulate their cognition AA: students' final 4th- and 5th-grade math grades from their records Data collection: Surveys were administered by trained research assistants in pairs. Students' participation was voluntary and confidentiality was protected Data analysis: SEM (Gender and prior achievement were controlled for)	Belief that the teacher cared about and liked the student as a person contributed to students' task-related interaction (extent to which students answered questions, explained content, and shared ideas about math with classmates), which in turn was related to later math achievement (TES – BE – AA) Belief that the teacher cared about and liked the student as a person contributed to students' self-regulation strategies (extent to which students plan, monitor, and regulate their cognition). (TES – CE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Ryan and Patrick (2001) (classroom social environment and changes in motivation and engagement)	Stage-environment fit	Design: quantitative, longitudinal Sampling: convenience. For the large study, students were recruited in 5th grade and 83% of them had permission from parents to participate Participants Sample size: 233 (from a subsample of the total sample for a large-scale longitudinal study and they were from 30 different math classes taught by 15 teachers) Ethnicity: 45% Caucasian, 55% African American Age/Grade: 7th grade (Weave 1), 8th grade (Weave 2) Gender: 43% M, 57% F Geographic locale: three ethnically diverse middle schools in two Midwest school districts SES: majority above low SES. (40% of the students in the participating schools were eligible for free or reduced lunch) Measures TSRs (student reports) TES: perceptions of the extent to which their teacher promoted teacher–student relationships SE (student reports) BE: disruptive behavior and negative conduct in math class (I disturb the less in math class, I behave in a way that annoys my math teacher, and I do not follow my math teacher's directions) ($\alpha = 0.86$) CE: self-regulated learning, extent to which students plan, monitor, and regulate their cognition (When I'm working on a math problem, I think about whether I understand what I'm doing. When I finish my math work, I check to make sure it's done correctly) ($\alpha = 0.76$) AA: students' math grades from the final semester of 7th grade, from school records Data collection: surveys were administered to students in groups of 25–45 in the school library or cafeteria by trained research assistants in the spring of 7th grade (Weave 1) and in the fall of 8th grade (Weave 2). Students' participation was voluntary and confidentiality was protected Data analysis: hierarchical multiple regression (Gender, race, prior engagement, and prior achievement were controlled for)	Holding gender, race, prior achievement and prior engagement in 7th grade constant, perceptions of the teacher as supportive in 8th grade predicted decreased disruptive behaviors from 7th to 8th grade (TES × Time − BE) Holding gender, race, prior achievement and prior engagement in 7th grade constant, increased self-regulated learning from 7th to 8th grade was associated uniquely with teacher support in 8th grade (TES × Time − CE) Neither gender nor race predicted changes in behavioral or cognitive engagement (Gender × Time − BE, Gender × Time − CE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Skinner and Belmont (1993) (reciprocal effects of teacher behavior and student engagement across school year)	Self-system processes	Design: longitudinal quantitative Sampling: NA Participants Sample size: 144 children and 14 female teachers Ethnicity: 94% Caucasian, 6% predominantly African American Age/Grade: age 8–12, Grades 3–5 (participants were equally divided by gender and grade) Gender: 50% F, 50% M Geographic locale: rural-suburban school district in upstate New York SES: medium (Low middle to middle class) Measures (teacher reports and student reports, drawn from existing measures) TSRs (average $\alpha = 0.84$, range 0.79–0.90) Teacher involvement (TIH and TES): teacher affection (liking, appreciation, and enjoyment of the students), attunement, dedication of resources (aid, time, and energy), and dependability Structure (TCE and TIH): teacher clarity of expectations, contingency (consistency and predictability of response), instrumental help and support, and adjustment of teaching strategies Autonomy support (CS and TES): teacher coercive behavior, respect, choice, and relevance SE (average $\alpha = 0.83$, range 0.79–0.88) BE: students' effort, attention, and persistence during learning activities EE: students' interest, happiness, anxiety, and anger in the classroom Data collection: questionnaires were administered by trained interviewers during 3 40-min sessions in their normal classrooms in October and April of the school year. Teachers completed their questionnaire while students were completing theirs Data analysis: time-lagged path analysis	Students' behavioral and emotional engagement were influenced both by their perceptions of teachers and directly by teachers' actual behaviors Students' behavioral engagement (student report) in spring was primarily a function of student perceptions of teacher structure in fall. Students who experienced their teachers as providing clear expectations, contingent responses, and strategic help were more likely to be more effortful and persistent. [(TCE + TIH) × Time − BE] Students' emotional engagement (student report) in spring was primarily a function of student perceptions of teacher involvement in fall. When students experienced their teachers as warm and affectionate, students felt happier and more enthusiastic in class [(TIH + TES) × Time − EE] Teacher perceptions of both behavioral and emotional engagement were influenced uniquely by teacher involvement and autonomy support (coercive behavior, respect, choice, relevance) [(TIH + TES) × Time − BE/EE, (CS + TES) × Time − BE/EE]

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Turner et al. (2014) (effects of intervention student engagement)	Self-determination theory	Design: mixed methods, longitudinal, quasi-experimental (3-year long intervention) Sampling: (All 32 teachers in one middle school participated in the intervention.) Two teachers from each of four content areas (math, language arts, social studies, and science) were randomly selected for classroom observation (n = 8) Participants Sample size: six teachers with complete data across 3 years (two out of eight dropped out) (number of student participants unknown.) Ethnicity: (student body in the school) 84% Caucasian, 5% multi-ethnic, 5% African American, 3% Hispanic, and 3% Native American Age/Grade: Grades 6–8 Gender: teachers: 5 F, 1 M (three in upward group, three in stable group) Geographic locale: public school, rural, northern IN SES: majority of the students above low SES. (34% eligible for subsidized lunch.) Measures (observation instrument was developed by researchers. Average inter-rater reliability Kappa = 0.74 for all categories across 3 years) TSRs TCE + TIH + CS + TES: observation categories for motivational support—belongingness (feeling of mutual respect in classroom, evidence of productive collaboration among students), competence (focus on improvement and self-evaluation, provision of challenging work with support for student effort), autonomy (opportunities for decision making and multiple interpretations), and meaningfulness (knowledge constructed through inquiry, focus on deep understanding, and elaborated responses required) ($\alpha = 0.95$) SE BE: (called "student engagement" by researchers) observation categories for student engagement—behavioral engagement (on task behavior), responsive assistance for procedures, responsive assistance for thinking, quality/quantity of student talk, student providing of and taking up opportunities for wok with others, and student providing of and taking up opportunities for wok on content. ($\alpha = 0.91$) Data collection: the teachers were observed four times each year for 3 years. Each 60-min observation coded when observers were on site. Each observation was also videotaped and coded by trained observers Data analysis: Quantitative (on-site observations)—state space grid (SSG) technique and unit analysis. Qualitative (on-site observations and videotapes to provide examples)—the third observation from Year 3 was analyzed. These analyses (a total of six sessions from six teachers) focus on the observation categories	For the upward group, teacher motivational support and student engagement increased across 3 years, whereas in the stable group, teacher motivational support and student engagement showed stable or declining trajectories over 3 years [(TCE + TIH + CS + TES) × Time − BE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Turner et al. (1998) (context for involvement in mathematics)	(Conceptual framework for involvement and scaffolding)	Design: mixed methods Sampling: Six student participants were randomly selected by gender from each participating classrooms from those who agreed to participate Participants Sample size: 42 students and their 5th- and 6th-grade teachers (7 total) Ethnicity: NA Age/Grade: Grades 5 and 6 Gender: Students: 50% F, 50% M. Teachers: 6 F, 1 M Geographic locale: seven classrooms in three elementary schools in a small, mostly Caucasian, middle-class town in rural PA SES: medium. middle –class town Measures (average inter-rater $\alpha = 0.87$ for coding classroom observations) TSRs (audiotaped classroom discourse during regular mathematics instruction, classroom observation instrument) TES: encouraging and respecting students' ideas TIH: providing help during instruction, scaffolding, negotiating understanding SE (response log of students' perceptions of instructions) EE: feelings (happy/sad, involved-uninvolved, lonely—part of the group) CE: being strategic about learning math Data collection: all authors except one conducted the observations for a total of 34 mathematical sessions during a mathematics unit during spring. Classroom discourse was audiotaped. Classroom observation instrument was also used to provide additional information (descriptions of instructional activities that could not be deduced from audiotape recordings). Response logs were given to students during the last 5 min of each observation day Data analysis: Quantitative data analysis (observations and students' logs): ANOVA. Qualitative data analysis (observations): six a priori categories were used for coding whole-class discussions (34 sessions, 7 teachers, 42 students)	When teachers were both emotionally supportive and presented intellectually challenging work, students showed higher levels of both emotional engagement and cognitive engagement (i.e., were more strategic about learning math; Turner et al., 1998). If teachers only presented challenging work, pressed for understanding, and supported autonomy, but did not provide emotional support, students were less likely to be emotionally engaged. On the contrary, if teachers focused only on the emotional support but neglected creating an intellectually challenging environment, students were less likely to be engaged cognitively (TES – EE, TES – CE, TIH – EE, TIH – CE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Wang and Eccles (2012) (effects of social support on 3 dimensions of school engagement)	Bio-ecological theory	Design: quantitative, longitudinal Sampling: stratified sampling for participant selection. Part of an ongoing longitudinal study. Participants were recruited from 23 schools in a single large and ethnically diverse county near Washington, DC. A stratified sampling procedure was followed to obtain a representative sample Participants Sample size: 1479 students Ethnicity: 54% African American, 36% Caucasian, (10% biracial or other, not included in the sample for the study) Age/Grade: mean age between 13 and 17 years, Grades 7–11 Gender: 52% F, 48% M Geographic locale: urban, 23 schools in a single large and ethnically diverse county near Washington, DC SES: medium. Annual income ranged from $5000 to above $75,000, mean between $45,000 and $49,999, 54% caregivers had high school education and 40% college education (SES was about the same for both ethnic groups) Measures (drawn from well-established measures with good internal consistency and validity) TSRs (teacher reports) TES: teacher social support (How often do you help this student out when he or she has a personal or social problem at school? How often do you talk to this student about how things are going in his or her life? How often do you really understand how this student feels? How often do you really respect this student's opinions?) ($\alpha = 0.74$) SE (student reports) BE: student self-reported school compliance (extent to which the students engaged in misconduct and had trouble getting homework done, $\alpha = 0.76$) and participation in extracurricular activities ($\alpha = 0.75$) EE: school identification (sense of school belonging and valuing of education). Scale focused on students' feelings about school, the degree to which they felt part of their school, and felt it important to go to school (In general, I like school a lot. I have to do well in school if I want to be a success in life) ($\alpha = 0.75$) CE: subjective value of learning (perceived motivation focusing on learning, personal improvement, and mastery of content and tasks) (I go to school because I enjoy my classes/learning makes me smart/I like what I am learning) ($\alpha = 0.79$) Data collection: participating students were given a $20 compensation during each wave of data collection Administrators consisted of primarily women with bachelor's degrees. The race of the administrator was matched with the race of the student. The questionnaire took about 30 min to complete. During the same testing periods, teachers completed assessments of relationships with the students and classroom interactions with each student. Data were collected for Waves 1 (7th grade), 2 (8th–9th grade), and 3 (11th grade) Data analysis: multilevel growth modeling (Gender, ethnicity, SES, and prior achievement were controlled for. Moderators: ethnicity, gender)	Supportive teachers played a particularly important role in reducing the declines in school compliance, sense of school identification, and subjective valuing of learning at school across the secondary school years Increases in social support from teachers were related to higher school compliance from 7th to 11th grades. A standard deviation increase in teacher social support was linked to a reduced rate of decline of 0.37 standardized deviation in students' school compliance (TES × Time − BE) There was no significant relationship between teacher social support and changes in students' participation in extracurricular activities from 7th to 11th grades (TES x Time − BE) Students were more likely to identify themselves with schools when they had increased social support from teachers from 7th to 11th grades. With one standard deviation increase in teacher support, students experienced a reduced decrease of 0.58 in school identification (TES × Time − EE) Increases in social support from teachers were associated with reduced decreases in subjective task valuing from 7th to 11th grades. A one standard deviation increase in teacher support reduced the decline of students' subjective valuing of learning by 0.42. (TES x Time − CE) There were gender differences inseventh-grade level of school compliance, extracurricular activities, school identification, and subjective valuing of learning in 7th grade, but not in the rate of change. Boys reported less school compliance, participated in less extracurricular activities, lower levels of school identification, and subjective valuing of learning than did girls in 7th grade. There were no moderation effects of gender on the relation between teacher social support and school engagement (Gender − BE, Gender − EE, Gender − CE, Gender × Time − BE, Gender × Time − EE, Gender × Time − CE, Gender × TES × time − BE, Gender × TES × Time − EE, Gender × TES × Time − CE) There were ethnic differences in seventh-grade level of school compliance but not in the rate of change. African American students reported less school compliance and less extracurricular activities, but higher levels of school identification and subjective valuing of learning than did Caucasian students in 7th grade. There were no moderation effects of ethnicity on the relation between teacher social support and school engagement (Ethnicity − BE, Ethnicity − EE, Ethnicity − CE, Ethnicity × Time − BE, Ethnicity × Time − EE, Ethnicity × Time − CE, Ethnicity × (TIH + CS + TES) × Time − BE, Ethnicity × TES × time − EE, Ethnicity × TES × Time − CE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Wang and Eccles (2013) (school context, achievement motivation, and academic engagement)	Self-determination theory Stage environment fit theory	Design: quantitative, longitudinal Sampling: stratified sampling for participant selection. Part of an ongoing longitudinal study—Maryland Adolescent Development in Context Study. Participants were recruited from 23 schools in a single large and ethnically diverse county near Washington, DC. Students were recruited through letters to their parents. Participation was voluntary Participants Sample size: 1157 students Ethnicity: 56% African American, 32% Caucasian, and 12% biracial or other, not included in the sample for the study Age/Grade: Grades 7–8 Gender: 52% F, 48% M Geographic locale: urban, 23 schools in a single large and ethnically diverse county near Washington, DC SES: medium. Annual family income ranged from $5,000 to above $75,000, mean was between $45,000 and $49,999 Measures (student reports, drawn from well-established measures with good internal consistency and validity) TSRs TCE + TIH: school structure. Teacher clarity of expectations, consistency and predictability of response, instrumental support, and adjustment of teaching strategies (How often do you know what your teacher expects of you in school?) TES: student perceived level of care and support from teachers (How often can you depend on teachers to help you out when you have a personal or social problem at school?) SE BE: the extent to which students follow the school rule and participation in activities in school (How often do you get schoolwork done on time? How often do you participate in class discussion actively?) EE: feelings of acceptance, interest, and enjoyment at school (I find schoolwork interesting. I feel excited by the work in school) CE: use of self-regulated learning strategies such as self-monitoring and evaluation to help understand learning materials (How often do you make academic plans for solving problems? How often do you try to relate what you are studying to other things you know about?) Data collection: a questionnaire was administered to the students at home during Wave 1 (early fall of 7th grade) and Wave 2 (end of 8th grade) of data collection. The questionnaire took about 30 min to complete. Participating students were given a $20 compensation during each wave of data collection Administrators consisted of primarily women with bachelor's degrees. The race of the administrator was matched with the race of the student Data analysis: SEM [control variables: ethnicity (African American vs. Caucasian), gender, SES, prior academic achievement, prior behavioral/emotional/cognitive engagement. Moderators: ethnicity, gender]	Students' perceptions of school structure at the beginning of seventh grade were positively associated with students' behavioral and emotional engagement at the end of eighth grade [(TCE + TIH) × Time − BE, (TCE + TIH) × Time − EE) Teacher emotional support at the beginning of 7th grade was positively associated with students' behavioral and emotional engagement at the end of 8th grade (TES × Time − BE, TES × Time − EE) There were no significant differences in gender or ethnicity in the relationships between teacher–student relationships (TCE, TIH, and TES) and changes in students' engagement (behavioral, emotional, and cognitive) from beginning of 7th grade to the end of 8th grade [Gender × (TCE + TIH) × Time − BE/EE/CE, Gender × TES × Time − BE/EE/CE, Ethnicity × (TCE + TIH) × Time − BE/EE/CE, Ethnicity × TES × Time − BE/EE/CE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Wang and Holcombe (2010) (school environment, engagement, and academic achievement)	Self-determination theory Self-system theory	Design: quantitative, longitudinal Sampling: stratified sampling for participant selection. Part of an ongoing longitudinal study—Maryland Adolescent Development in Context Study. Participants were recruited from 23 schools in a single large and ethnically diverse county near Washington, DC. Students were recruited through letters to their parents. Participation was voluntary Participants Sample size: 1046 students Ethnicity: 56% African American, 32% Caucasian, and 12% biracial or other, not included in the sample for the study Age/Grade: Grades 7–8 Gender: 52% F, 48% M Geographic locale: 23 schools in a single large and ethnically diverse county near Washington, DC SES: medium. Annual family income ranged from $5000 to above $75,000, mean was between $45,000 and $49,999 Measures TSRs (student reports, drawn from well-established measures with good internal consistency and validity) TCE + TIH: school mastery goal structure (students' perceived level of how much their teachers emphasized task mastery and self-improvement) and school performance goal structure (students' perceived level of how much their teacher emphasized comparison, competition, and high grades) TES: teacher social support (students' perceived level of care and support from teachers) SE (student reports, drawn from well-established measures with good internal consistency and validity) BE: school participation (students' level of distraction in school, the extent to which students were distracted in classes and had trouble getting schoolwork done) (How often do you have trouble in school because it is hard for you to sit in your seat for a long time?) EE: school identification (students' sense of school belonging and valuing of school, i.e., feelings about school, the degree to which they feel part of their school, and the degree to which they feel it is important to go to school) (in general, I like school a lot. I have to do well in school if I want to be a success in life) CE: perceived use of a strategic approach to learning (How often do you try to relate what you are studying to other things you know about?) AA: averaged GPAs in 8th grade from school records (average of students' grades in the core academic subjects, including English, math, science, and social sciences) Data collection: a questionnaire was administered to the students at home during Wave 1 (early fall of 7th grade) and Wave 2 (end of 8th grade) of data collection. The questionnaire took about 30 min to complete. Participating students were given a $20 compensation during each wave of data collection Administrators consisted of primarily women with bachelor's degrees. The race of the administrator was matched with the race of the student Data analysis: SEM (Ethnicity, gender, SES, and prior GPA were controlled for)	Students' perceptions that teachers promoted mastery goals at the beginning of 7th grade were positively related to school participation, school identification, and use of self-regulation strategies at the end of 8th grade, while perceived promotion of performance goals at the beginning of 7th grade was negatively associated with school participation and school identification, and negatively associated with use of self-regulation strategies at the end of 8th grade. [(TCE + TIH) × Time − BE, (TCE + TIH) × Time − EE, (TCE + TIH) × Time − CE) Students' perceptions of teachers' social support at beginning of 7th grade were positively related to students' school participation and school identification at the end of 8th grade (TES × Time − BE, TES × Time − EE, n.s. TES × Time − CE) Students' perceptions that teachers promoted mastery goals and teacher social support at the beginning of 7th grade positively contributed to GPA at the end of 8th grade, while perceptions of teacher promotion of performance goals at the beginning of 7th grade negatively contributed to GPA at the end of 8th grade. [(TCE + TIH) × Time − AA, TES × Time − AA) Student level of school participation and school identification in 8th grade partially mediated the associations of promotion of performance goals, mastery goals, and teacher social support in 7th grade to academic performance in 8th grade. The effects of teacher emphasis of achievement goal structures and teacher social support on student academic performance were partially explained by the degree to which students actively participated in school or identify with school [(TCE + TIH) × Time − BE − AA, (TCE + TIH) × Time − EE − AA, TES × Time − BE − AA, TES × Time − EE − AA, n. s. TES × Time − CE − AA) Student level of use of self-regulation strategies in 8th grade partially mediated the associations of promotion of performance goals and mastery goals in 7th grade to academic performance in 8th grade. The effects of teacher emphasis of achievement goal structures on student academic performance were partially explained by the degree to which students use self-regulation strategies [(TCE + TIH) × Time − CE − AA)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Wentzel (1997) (pedagogical caring and student motivation)	Pedagogical caring	Design: quantitative, longitudinal Sampling: convenience. Students were recruited through letters to their parents. Participation was voluntary Participants Sample size: 248 students Ethnicity: 92% Caucasian 2% African American, 2% Latino, 3% Asian American, and 1% other Age/Grade: Grades 6–8 (followed from 6th to 8th grade) Gender: 123 F, 125 M Geographic locale: a suburban middle school in a mid-Atlantic state SES: NA Measures (α 0.83–0.91) TSRs (student reports, drawn from existing measure) TES: perceived caring from teachers (My teacher really cares about me. My teacher cares about how much I learn) (average social and academic caring score in 6th and 8th grade) SE BE: academic effort (How often do you really try in each of these classes? How often do you really pay attention during each of these classes?) AA: Averaged end-of-year cumulative GPAs obtained from student files Data collection: the author administered all measures during regular class sessions in late spring Data analysis: hierarchical regression (motivation, behavior in 6th grade, gender, and other variables were controlled for)	Changes in students' academic effort from sixth to eighth grade was partially explained by students' perceptions of their eighth-grade teachers' caring, even after past behavior, students' gender, psychological distress, and control beliefs were taken into account (TES × Time − BE)

Table 1 (continued)

References	Theoretical framework	Methods	Key findings
Wentzel et al. (2010) (social support from teachers and peers and academic and social motivation)	(Theories to support four dimensions of social support from teachers and peers) Ecological theory Self-system processes Social cognitive theory Self-determination theory	Design: quantitative Sampling: NA Participants Sample size: 358 (120 6th graders, 115 7th graders, and 123 8th graders) Ethnicity: 75% Caucasian, 22% African American, 3% other Age/Grade: Grades 6–8 Gender: 50% F, 50% M Geographic locale: a suburban middle school in a mid-Atlantic state SES: majority above low SES (17% were eligible for free or reduce price lunch.) Measures (student reports, drawn from existing measures, α 0.68–0.89) TSRs TCE: expectations for positive social behavior (in this class, the teacher wants me to share ideas and materials with other students.) and expectations for academic engagement (The teacher calls on me to answer questions. The teacher expects me to learn new things) (0.68) TIH: instrumental help (My teacher helps me so I can get done quicker. My teacher lends me things if I need them) (0.89) CS: safety, reflecting criticism (My teacher makes me feel bad when I don't have the right answer) (0.72) TES: emotional support, how much the student perceived the teacher to like and care about him/her (My teacher really cares about me. My teacher likes me as much as he/she likes other students) (0.82) SE BE: pursuit of social goals reflecting prosocial and compliant behaviors (How often do you try to share what you've learned with your classmates? How often do you try to do what your teacher asks you to do?) (0.84) EE: interest in class (I really enjoy being in this class. I really don't care what happens in this class) (0.87) Data collection: the author administered all measures during regular social studies class sessions in late spring Data analysis: hierarchical regression (Gender, grade level, teacher, and classroom were controlled for)	Teacher emotional support and classroom safety significantly predicted sixth through eighth grade students' social goal pursuit. (CS – BE, TES – BE) Each type of teacher–student relationships positively and significantly predicted sixth through eighth grade students' interest in social class (TCE – EE, TIH – EE, CS – EE, TES – EE) Girls reported more frequent social goal pursuit, higher level of emotional support from teachers, higher levels of safety with teachers, and stronger expectations from teachers for socially competent behaviors than boys (Gender – BE, Gender – TCE, Gender – CS, Gender – TES) Sixth graders reported the highest levels of emotional support and expectations for social behavior from teachers (Grade – TCE, Grade – TES) Compared to boys, girls reported greater interest in class in 7th grade but less interest in 8th grade, more teacher support in 6th grade and 8th grade but not in the 7th grade, less criticism from teachers in 6th grade and 8th grade but more criticism in 7th grade, and less help from teachers in 7th grade but more help from teachers in 8th grade (Gender × Grade – EE, Gender × Grade – TIH, Gender × Grade – CS, Gender × Grade – TES)

TSRs teacher–student relationships, *TCE* teacher clear expectations, *TIH* teacher instrumental help, *CS* classroom safety, *TES* teacher emotional support, *SE* student engagement, *BE* behavioral engagement, *EE* emotional engagement, *CE* cognitive engagement, *AA* academic achievement

Table 2 Summary of studies selected for review on associations between teacher–student relationships, student engagement, and academic achievement among Latino early adolescents

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Balagna et al. (2013) (school experiences for early adolescent Latino students at risk for emotional and behavioral disorders)	Theory: NA (Cultural factors were discussed a little bit in rationale, findings, and discussions)	Design: qualitative Sampling: convenience sampling (screened in a large study focusing on implementing positive behavior intervention supports in secondary settings. Identified in 6th grade as being at risk for emotional or behavioral problems) Participants Sample size: 11 (who were identified as being at risk for emotional or behavioral problems in sixth grade) Ethnicity: Latino (Latino/a students at risk for emotional and behavioral disorders) Age: 11–13 Gender: 8M, 3F Geographic locale: Midsized city in the U.S. intermountain west SES: NA Place of birth: 5/11, U.S. English language fluency: 11/11 Spanish language fluency: 10/11 Primary language spoken at school: English Spanish as primary or exclusive language spoken at home: primary for four homes, exclusive for four homes Parents: parents were born in Mexico or Central America. All (20/20) of the parents spoke Spanish. 4/20 spoke English fluently, and 17 of the 20 parents moved to the U.S. as adults, 3 of the 20 parents attended school in the U.S. as children Interview language: English Measure: (student-reports) (interview) In-depth, open-ended, semi-structured, qualitative interviews of school experiences with individual Latino student (reliability and validity: good. Questions were verified and pilot was done. Initial interpretations were conducted followed by home visits for confirmation and follow-up questions) Data collection: data were collected during the 6th-grade year and beginning of the 7th-grade year Data analysis: interpretative phenomenological analysis	Latino students were more likely to attend classes regularly, pay attention during class, follow class rules, and complete homework when their teachers were flexible and provided choice (e.g., allowing extra time, allowing students to make up assignments and correct previous work) and instructional help (e.g., sitting down one on one with the student and explaining things, coming over and helping students during class) (TIH – BE) Latino students were more likely to enjoy the teachers and classes when their teachers provided instructional help (e.g., telling life stories and experiences, making the content meaningful) (TIH – EE) Latino students were more likely to pay attention during class when teachers were active, engaging, energetic, upbeat, creative, and fun. Students felt relaxed in the safe classroom environment. (CS – BE) Latino students were more likely to enjoy the classes and the teachers who were active, engaging, energetic, upbeat, creative, and fun. Students felt relaxed. On the contrary, Latino students were more likely to clash with or dislike teachers who were angry or yelled at the students, or treating students differently from students of other races (CS – EE) Latino students were more likely to attend classes regularly, stick to the rules of the classroom, and pay attention during class when they had teachers who demonstrated emotional support (e.g., showing kindness and understanding, taking time to get to know students individually, not being hard, and being understanding). On the contrary, Latino students were more likely to skip classes, act out, or refuse to do the class work or what the teachers told them to do when they had teachers who did not like them or understand them. (TES – BE) Latino students were more likely to enjoy teachers and classes when they had teachers who demonstrated emotional support (e.g., showing kindness and understanding, taking time to get to know students individually, not being hard, and being understanding). On the contrary, Latino students tended to be depressed when they had teachers who did not like or understand them, or embarrassed them (TES – EE) Latino students were more likely to participate in classroom activities when their teachers provided instructional help. Their behavioral engagement, in turn, led to better grades (TIH – BE – AA) Latino students were more likely to like teachers when their teachers provided instructional help. Their emotional engagement, in turn, led to better grades (TIH – EE – AA) Latino students were more likely to attend class regularly when their teachers provided emotional support. Their behavioral engagement, in turn, led to better grades. On the contrary, when teachers disliked the students, the students tended to skip classes or did not want to do what the teachers told them to, which in turn contributed to poor grades (TES – BE – AA) Latino students were more likely to like teachers when their teachers provided emotional support. Their emotional engagement, in turn, led to better grades. On the contrary, when teachers disliked the students, the students were more likely to dislike the teachers, which in turn contributed to poor grades (TES – EE – AA) The students spoke frequently about social interactions (e.g., with teachers) and infrequently of personal issues. This appears to reflect one of the Latino cultural values *personalismo* (emotional support, connection, and encouragement between people). Teachers who acknowledged and incorporated the cultural values (e.g., *respeto* and *familism*) in their interaction with Latino students promoted support relationships with students. Lack of interpersonal connections with teachers indicated a lack of *respeto* (interpersonal respect) (Culture)

Table 2 (continued)

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Brewster and Bowen (2004) (teacher support and school engagement of Latino middle and high school students at risk of school failure)	Ecological theory Social capital theory (importance of teacher understanding of Latino culture included)	Design: quantitative Sampling: convenience? (sample was a subset of a larger dataset comprising 5,016 students from middle and high school, and from multiple races and ethnic backgrounds. These students were identified as at risk of school failure.) Participants Sample size: 633 (30% or 189 in middle school, grades 6–8; 70% or 444 in high school, grades 9–12, at risk of school failure) Ethnicity: Latino Grade: grades 6–12 (middle and high school) Gender: 49% M, 51% F Geographic locale: 53 middle and high schools in 10 states (e.g., 38% FL, 17% NC, 17 PA; and 14% KS.) SES: low, 65% received free or reduced lunch. About 43% of the students lived with two parents; 57% lived with one parent, lived alone, or lived in another situation Measures (student-reports) [existing measure—School Success Profile (SSP) survey, rigorously tested diagnostic tool] TSRs TES: teacher support, degree to which students perceive their teachers as caring, encouraging, respectful, and willing to work with them (my teachers really care about me. My teachers really listen to what I have to say. My teachers care about whether or not I come to school. My teachers are willing to work with me after school. I received a lot of encouragement from my teachers. I am respected and appreciated by the teachers.) One of the items concerns cultural differences: "My teachers understand racial and cultural differences". ($\alpha = 0.81$) SE BE: problem behavior in school (Items related to attendance or negative behavior at school: cut at least one class. Showed up for school late unexcused. Fought, have been suspended) EE: perceived school meaningfulness. (I find school fun and exciting. I look forward to learning new things at school. I look forward to going to school.) ($\alpha = 0.77$) Data collection: Feb. 11, 1998–Oct. 31, 2000 Data analysis: hierarchical linear regression [School level (high school vs. middle school), gender, and SES were controlled for]	Perceived teacher emotional support (caring, encouraging, respectful, and willing to work with them) significantly influenced Latino students' affective engagement and behavioral student engagement at school, beyond the influence of demographic factors and parental support (TES − BE, TES − EE) There were no significant interaction effects between teacher emotional support and gender/SES/school level on problem behavior and perceived school meaningfulness (TES × Gender − BE, TES × SES − BE, TES × School Level − BE)

Table 2 (continued)

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Crosnoe et al. (2004) (intergenerational bonding in school: the behavioral and contextual correlates of student–teacher relationships)	Social bond theory Ecological theory	Design: quantitative, longitudinal Sampling: stratified sampling based on data from the National Longitudinal Study of Adolescent Health (Add Health), an ongoing nationally representative study of American adolescents in Grades 7–12 that began in 1994 Participants Sample size: 10,991 adolescents in 126 schools Ethnicity: Caucasian (54%), African American (22%), Latino (16%), and other (8%) Age/Grade: Grades 7–12 Gender: 48% F, 44% M (excluding other ethnicities) Geographic locale: NA SES: parental education (mean = 4.99, almost completed a GED) Measures (student-reports) (two waves of In-Home interview) (drawn from existing measure, from Add Health) TSRs TES: "teacher bonding", from Add Health, Wave I of In-Home Interview (extent which student had trouble getting along with teachers, felt that teacher cared about them, and believed that teachers treated them fairly in their school) ($\alpha = 0.68$) SE BE: disciplinary problems (In Waves I and II, whether or not they had ever been suspended or expelled from school, or in the past year.) AA: self-reported averaged GPAs (Waves I and II. Math, science, English, and social studies) Data collection: dataset from Add Health (2 waves of in-home interview for the study) Data analysis: linear regression modeling and multilevel modeling (Grade level, gender, ethnicity, and SES were controlled for)	All students were less likely to get in trouble in school when they had more positive views of teachers in terms of emotional support. Stronger intergenerational bonding at school in Wave I was associated with a lower likelihood of disciplinary problems in Wave II, especially for White girls than White boys and students of other ethnic groups. (TES × Time – BE) Stronger intergenerational bonding at school in Wave I was associated with high academic achievement (GPA across subject areas) in Wave II, especially for Hispanic American girls. (TES × Time – AA) In comparison with White girls, Hispanic American girls tended to perceive their teachers with a higher level of emotional support. However, Hispanic American boys did not differ from White girls in perceptions of level of teacher emotional support. (Ethnicity × Gender – TES) Students in seventh grade were more likely to perceive that their teachers were caring and supportive emotionally than the comparison group of students in tenth grade. (Grade Level – TES) Higher SES was positively and significantly related to higher level of perceived teacher emotional support (SES – TES) The association between teacher-bonding and the racial-ethnic composition of the student body was mostly strongly positive among Hispanic American girls. They felt most positively about their teachers when they attended schools with a larger number of other Hispanic American students. Such association was significant for Hispanic girls as compared to White girls, the control group, but not significant for Hispanic boys. (Ethnicity × Gender × Culture – TES) The association between the proportion of White teachers and teacher emotional support was not significantly different between White girls and Hispanic American girls or boys (Ethnicity × Gender × Culture – TES)

Table 2 (continued)

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Garcia-Reid (2007) (social capital as a mechanism for improving school engagement among low income Latino girls)	Ecological theory Social capital theory (Importance of understanding Latino culture for teachers was mentioned briefly as a component when social support as a measure of social capital and mechanism for improving engagement was discussed. The statement focused on that many teachers were not prepared to educate children from cultural backgrounds that were different from their own)	Design: quantitative Sampling: convenience? Subset of a larger dataset. Hispanic students in the school were asked to participate in a study that focused on identifying risk and protective factors for school engagement. The sample setting was chosen because it was one of the top 30 poorest districts in NJ. Approximately 30% (480/1600) of the students in the middle school were assigned to the health portion of a gym/health requirement, part of a study focused on identifying risk and protective factors for school engagement. About 53% (253/480) of these students completed the survey. Of these 253 students, 226 (90%) were of Latino students, 133 (59%) were female, 93 (41%) were male. The study focused exclusively on the 133 Latino female students Participants N = 133 Ethnicity: Latino Age: 13–14 (53%) (middle school) Grade: 7th Gender: F Geographic locale: in a large middle school in Northern New Jersey (among the top 30 poorest districts in the state) SES: low. 87% school lunch recipients Country of birth: Slightly more than 2/5 were born in the U.S Measures (student-reports) (drawn from existing measure, SSP) TSRs TES: students' reports of teachers' attitudes and behaviors toward them. ($\alpha = 0.77$) SE EE: students' commitment in the school process (finding school fun and exciting, looking forward to learning new things at school, looking forward to going to school) ($\alpha = 0.75$) Data collection: Fall of 2002 Data analysis: SEM	Compared to support from parents and friends, teacher support offered the greatest contribution to school engagement among Latino girls residing in marginalized environment. Teacher emotional support (e.g., caring, encouragement, respect, appreciation, and praising) was directly and significantly related to emotional engagement (e.g., finding school fund and exciting, looking forward to learning new things at school, looking forward to going to school) among Latino middle school girls (TES – EE)

Table 2 (continued)

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Garcia-Reid et al. (2005) (school engagement among Latino youth in an urban middle school context: valuing the role of social support)	NA	Design: quantitative Sampling: convenience? Subset of a larger dataset. Hispanic students in the school were asked to participate in a study that focused on identifying risk and protective factors for school engagement. The sample setting was chosen because it was one of the top 30 poorest districts in NJ. Approximately 30% (480/1600) of the students in the middle school were assigned to the health portion of a gym/health requirement, part of a study focused on identifying risk and protective factors for school engagement. About 53% (253/480) of these students completed the survey. Of these 253 students, 226 (90%) were of Latino students. The study focused exclusively on these 226 Latino students Participants Sample size: 226 Ethnicity: Latino Age: 13–14 (55%) (middle school) Grade: 7th Gender: 93 (41%) M, 133 (59%) F Geographic locale: in a large middle school in Northern New Jersey (among the top 30 poorest districts in the state) SES: low. 85% received subsidized lunch. Nearly 2/3 were living in two-parent households. About 93% of participants had at least one parent being gainfully-employed Country of birth: Almost 2/5 were born in the U.S Measures (student-reports) (drawn from existing measure, SSP) TSRs TES: students' reports of teachers' attitudes and behaviors toward them. ($\alpha = 0.77$) SE EE: students' commitment in the school process (finding school fun and exciting, looking forward to learning new things at school, looking forward to going to school) ($\alpha = 0.75$) Data collection: Fall of 2002 Data analysis: SEM	Teacher emotional support (e.g., caring, encouragement, respect, appreciation, and praising) was directly and significantly related to emotional engagement (e.g., finding school fund and exciting, looking forward to learning new things at school, looking forward to going to school) among Latino middle school students (TES – EE)

Table 2 (continued)

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Green et al. (2008) (supportive adult relationships and academic engagement of Latin America immigrant youth)	NA	Design: quantitative, longitudinal Sampling: convenience sampling. Subset of Longitudinal Immigration Student Adaptation (LISA) participants, 408 newly-arrived immigrant youth from Central America, China, the Dominican Republic, Haiti, and Mexico. Participants in the present study were recruited from several public school districts in the San Francisco area because these districts had high densities of immigrant students. LISA study focused on youth who had immigrated within 5 years prior to the first interview (1997–1998). The present study used data collected during the third weave through fifth and final weave of collection for the LISA study. Youth were required to have spent at least 2/3 of their lives in the country of origin. In the first year of the LISA study, on average, 80 students were selected from each cultural group. The attrition rate was about 5% on average annually Participants N = 139 (Power analyses indicated that with repeated measures on 139 students, it would be reasonable to expect power to be well over 0.80 to detect an alpha of 0.05) Ethnicity: Latino Age: 11–16, grades 5–10 (1999–2000 academic year, first year of data collection for the current study); age 14–19, grades 7–12 (third and final year of data collection) Gender: 49% M, 51% F Geographic locale: San Francisco area from several public school districts SES: low. (About 25% were at the lowest income bracket with household making under $20,000 yearly. 75% or more of household incomes $10,000–$50,000. Majority of the participants lived in families with two parents during the third and final year of study. Average household size: 6.4. Parental educational level: Latino students born in Central America: 17% of mothers and 24% of fathers completed high school. Latino students born in Mexico: 30% of mothers and 18% of fathers completed high school. Employment outside the home: Latino students born in Central America: 87% of mothers and 67% of fathers. Latino students born in Mexico: 70% of mothers and 66% of fathers) Country of birth: 76 born in Mexico, 63 born in Central America Measures: from LISA study, Behavioral and Relational Engagement (Support from Adults and Teachers at School Scale; Academic Engagement Scale) TSRs TES + TIH: students' perceptions of being supported by teachers and staff at school, including emotional and academic needs (there is at least one adult in school I can always count on. Teachers do not treat me with respect.) (α = 0.80, 0.84, and 0.76 for Y1, Y2, and Y3 of the current study) SE BE: finishing homework, turning in homework on time, and paying close attention in class (α = 0.69, 0.80, and 0.73 for Y1, Y2, and Y3 of the current study) Data collection: three weaves across three academic years, once a year. Bilingual and bicultural research assistants interviewed each student individually at school or after school. It was done orally in the student's language(s) of choice. Each interview took 1.5–2 h Data analysis: HLM (control variables: age, study completion. Variables that remain constant: gender, average teacher–student relationships over three years)	The relationships between the average amount of school-based support perceived over 3 years and youths' engagement differed somewhat for boys and girls. For girls, support was positively associated with initial engagement, whereas for boys, it was positively associated with changes in engagement. [(TES + TIH) × Gender − BE, (TES + TIH) × Gender × Time − BE] Rather than adhering to linear trajectories, perceptions of support from teachers and adults at school fluctuated from year to year. These fluctuations were associated with youth's engagement in school that year. Higher levels of support were associated with higher engagement. Lower levels of support were associated with lower engagement [(TES + TIH) − BE]

Table 2 (continued)

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Mireles-Rios and Romo (2010) (maternal and teacher interaction and student engagement in math and reading among Mexican American girls from a rural community)	NA	Design: quantitative Sampling: convenience sampling. (Mexican American girls were recruited from a community-based youth organization and from two after-school programs.) Participants Sample size: 69 Ethnicity: Latino (Mexican American) Age: 8–13., mean = 10 Grade: grades 3–6 Gender: F Geographic locale: agricultural community in CA. (Half of the residents were Latino. About 88% of the students in the two schools identified as Latino. About 45 and 33% of the Latino students performed below grade level in reading and in math, respectively, as compared to 13 and 10% for Caucasian peers) SES: low. Two-thirds of the students in the two schools qualified for reduced or free lunch Measures (student-reports) (survey) TSRs TES: perceptions that teachers cared about their education, perceptions of teacher friendliness, and perceptions of teacher communicating about college. (My teacher cares about my class work. My teacher cares about my homework. My teacher cares about me getting a good education. My teacher cares about me getting good grades in math/reading.) (α = 0.94) TES: teacher friendliness. (My teacher is friendly/a good listener) (α = 0.73) TIH: teacher communication about college (My teacher talks to me about college and getting a career/about where to get help for college) (α = 0.94) SE EE: academic subject likeability (how much students liked math and reading) AA: academic self-reported grades: current grades in reading and math Data collection: Testing was conducted either in at a youth organization or at an elementary after-school program. The interviewers, the author, and two other graduate students helped them read and understand the questions Data analysis: regression analysis for quantitative data	Perceived teacher caring significantly and positively predicted Latino female students' self-reported math grades. Student reporting high math grades perceived that their teachers cared more about their education than student with low grades. Student with higher reading grades also perceived their teachers to be more friendly. (TES – AA) For subject likeability, students who liked math and reading reported that their teachers talked little about college (TIH – EE)

Table 2 (continued)

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Murray (2009) (parent and teacher relationships as predictors of school engagement and functioning among low-income urban youth)	Attachment theory	Design: quantitative Sampling: convenience sampling Participants Sample size: 104 Ethnicity: 91% Latino, 4% African American, and 5% Caucasian Grade: grades 6–8 Gender: 46% M, 54% F Geographic locale: a low-income low-performing middle school in a large Midwestern city SES: low (about 99% of the students in the school qualified for free or reduced lunch) Approximately 11% of the participants received special education services for learning disabilities. About 65% of the students at the school performed below national averages. Latino students accounted for 90% of all students in the school Measures (Measures for TSRs and SE were drawn from existing measure Research Assessment Package for Schools [RAPS]) TSRs (student reports) (Three dimensions were based on attachment theory) TES: closeness-trust. e.g., The teachers are fair with me. The rules in my classroom are clear ($\alpha = 0.75$) TES: positive involvement. e.g., My teachers like to be with me. My teachers care about how I do in school. ($\alpha = 0.71$) TCE: unclear expectations. e.g., My teachers don't explain why we have to learn certain things at school. My teachers are not fair with me ($\alpha = 0.71$) SE (student reports) BE: behavioral engagement (I work very hard on my school work) ($\alpha = 0.75$) AA: (teacher-reports) final grades in language arts and math, and achievement scores on Iowa Test of Basic Skills obtained from school records Data collection: survey was administered by two graduate assistants. All items were read aloud Data analysis: MANOVA (control vs. for the model involving engagement as the DV: achievement and parent relationships)	After controlling for achievement and parent–child relationships, the set of teacher–student relationships variables accounted for a significant amount of variance in students' perceptions of engagement, language arts grade, mathematics grades, and mathematics achievement. Positive aspects of relationships with teachers such as closeness-trust made the greatest unique contributions to student adjustment and functioning. Students' scores on this variable accounted for almost half the variance in their own rating of engagement in school. Student with higher closeness-trust with teachers had greater school engagement than did students with lower rated closeness-trust with teachers (TES – BE) Students with greater unclear expectations scores had low engagement than did students with lower unclear expectations. (TCE – BE) Students' perceptions of teacher relationships made a small but significant contribution to student grades in language arts and mathematics. Positive involvement with teachers made a marginally significant contribution to language arts grades. Students who reported greater positive involvement with teachers had higher language arts grades than did student with lower positive involvement (TES – AA) Closeness-trust made a significant contribution to mathematics grades. Students who reported greater closeness-trust with teacher had greater mathematics than did students with lower closeness-trust (TES – AA) Unclear expectations made a significant unique contribution to achievement in reading (TCE – AA) Closeness-trust made a significant and positive contribution to math grades and students' performance on math standardized test (TES – AA)

Table 2 (continued)

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Valiente et al. (2008) (prediction of children's academic competence from their effortful control, relationships, and classroom participation)	(No theoretical framework explicitly specified. Research evidence was discussed regarding relations between children's relationships/classroom participation and academic competence)	Design: quantitative, longitudinal Sampling: convenience. Participants were recruited from two schools. Participation was voluntary. Information sent to parents was available either in English or Spanish. Sample represents gender and ethnic composition of the classrooms Participants Sample size: 264 students and 22 teachers from 22 regular education classrooms Ethnicity: 47% Latino, 30% Caucasian, 5% African American, 8% Native American, and 10% other Age/Grade: age 7–12 Gender: 122 M, 142 F Geographic locale: 2 schools in a SW U.S. city SES: low. Mean range of family income was $15,000 to $150,000 per year, mean range $30,000 to $50,000 Measures (drawn from existing measures) TSRs (teacher reports and student reports) (Student–Teacher Relationship Scale which was a questionnaire) TES: closeness and conflict of TSRs (teacher reports $\alpha=0.90$; student reports $\alpha=0.92$) SE BE Classroom participation (teacher reports and student reports). Teacher reports (This child follows instructions. This child challenges him/herself to do well. Student rated classroom participation using an age-appropriate version). Student reports (I follow my teacher's instructions). (teacher reports 0.94; student reports $\alpha=0.67$) Absences, official school records of averaged full school days missed and tardies from fall to spring AA: averaged fall and spring GPAs in language, vocabulary, and math from official school records Data collection: All questionnaires were completed between March and April. Questionnaires for students were administered by a research assistant in their classrooms during the school day Data analysis: mixed model regressions (fall GPA, absence, gender, and SES were controlled for.)	Teacher–student relationships (emotional support) were negatively related to spring absences beyond fall GPA or absences, gender, SES, and effortful control. (TES × Time – BE) Teacher–student relationships (emotional support) were positively related to spring GPA beyond fall GPA or absences, gender, SES, and effortful control. (TES × Time – AA) There was no significant difference between Latino students and Caucasian students on spring absences (Ethnicity – BE) There were no significant interactions between ethnicity and teacher emotional support on spring absences or GPA. (Ethnicity × TES – BE, Ethnicity × TES – AA) There was no significant difference between Latino students and Caucasian students on spring GPA (Ethnicity – AA) There was no significant difference between girls and boys on spring absences (Gender – BE) There was no significant difference between girls and boys on spring GPA (Gender – AA) There was no significant difference between low- and high-SES on spring absences (SES – BE) SES was positively related to spring GPA (SES – AA)

Table 2 (continued)

References	Theoretical framework including attention to cultural factors	Methods	Key findings
Woolley et al. (2009) (social context of school success for Latino middle school students: direct and indirect influences of teachers, family, and friends)	Ecological theory Social capital theory Cultural constructs? (Note that the authors used the cultural factors to discuss parents' role in particular, not teacher–student relationships)	Design: quantitative Sampling: convenience sampling. (Subset from the School Success Profile study) Participants Sample size: 848 Ethnicity: Latino Age: 11–14 Grade: grades 6–8 Gender: 431 M, 417 F Geographic locale: across 318 schools across seven states SES: low (about 76% received free or reduced lunch. About 75% had two parents in the home. About 90% had an adult at home working.) Twenty-one percent repeated one or more grades 752 completed SSP in English and 95 in Spanish Measures (student-reports) (SSP) TSRs TES: teacher support (My teachers care about me) (α = 0.82–0.83 for total sample, English and Spanish items) SE BE: school behavior (I cut at least one class. I got in a physical fight with another student. I was given an out-of-school suspension) (α = 0.66–0.75 for total sample, English and Spanish items BE: time on homework EE: school satisfaction (I enjoy going to this school) (α = 0.49–0.70 for total sample, English and Spanish items) AA: (student reports) grades from most recent report cards Data collection: 2001–2005 Data analysis: SEM (control Vs: gender, SES, grade repeat)	Perceived teacher emotional support (caring, encouraging, respectful, and willing to work with them) was positively and indirectly linked to Latino students' academic achievement (grades from the most recent report cards) through behavioral engagement (school behavior) as a mediator (TES – BE – AA) Perceived teacher emotional support (caring, encouraging, respectful, and willing to work with them) was positively and indirectly linked to Latino students' academic achievement (grades from the most recent report cards) through emotional engagement (school satisfaction) as a mediator (TES – EE – AA)

TCE teacher clear expectations, *TIH* teacher instrumental help, *CS* classroom safety, *TES* teacher emotional support, *BE* behavioral engagement, *EE* emotional engagement, *AA* academic achievement, *CE* (cognitive engagement) did not apply to the findings

Table 3 Associations between teacher–student relationships and student engagement and academic achievement that were examined or not examined in the literature

	BE	EE	CE	AA	BE – AA	EE – AA	CE – AA
TES							
Non-Latino youth	√	√	√	√	√	√	×
Latino youth	√	√	×	√	√	√	×
TIH							
Non-Latino youth	√	√	√	×	×	×	×
Latino youth	√	√	×	√	√	√	×
TCE							
Non-Latino youth	√	√	√	×	×	×	×
Latino youth	√	×	×	√	×	×	×
CS							
Non-Latino youth	√	√	×	×	×	×	×
Latino youth	√	√	×	×	×	×	×

TSRs teacher–student relationships, *TES* teacher emotional support, *TIH* teacher instrumental help, *TCE* teacher clear expectations, *CS* classroom safety, *BE* behavioral engagement, *EE* emotional engagement, *CE* cognitive engagement, *AA* academic achievement, "√" denotes that at least one study examined the associations. "×" denotes that no study examined the associations

teachers than White youth (Adamson and Darling-Hammond 2012; Suárez-Orozco et al. 2009). The teachers are often ill-equipped with knowledge and strategies needed to work with Latino students (Green et al. 2008). Therefore, challenges in developing teacher–student relationships among Latino youth draw attention to an examination of the role of such relationships in these students' engagement and academic success.

Latino cultural values may play a significant role in teacher–student relationships for Latino youth. Failure to incorporate such values into practice may negatively impact teachers' relationships with Latino students. Teachers need to become familiar with the subtle nuances and explore how these values influence teacher–student relationships. Within the macrosystem of Latino youth, one distinctive cultural value is *respeto* (Woolley et al. 2009). Within the Latino culture, respeto implies deference to authority or those of higher status based on age, gender, or authority status (Halgunseth et al. 2006). This value may influence the quality of interactions between teachers and students. For example, as a sign of respeto, Latino students may not question or openly express disagreement with their teacher for fear of being perceived as disrespectful toward the teacher. The teacher may interpret the students' reactions as not assertive or interested in school activities. The predominant White culture promotes individualism and the teacher may try to provide freedom and choice to the students to promote student autonomy. However, the same practice may not work for Latino students as they may want to have less autonomy, but to passively receive information from the teacher. For example, the teacher may want to encourage the students to participate in shared decision making, whereas the Latino youth may not be actively involved. While the teacher may perceive these students as being passive and uninterested, the students may feel disrespectful toward the teacher if they share their own opinions. Such conflicts may impede the development of positive teacher–student relationships (relatedness in self-determination theory), which in turn negatively impacts engagement and academic success for Latino youth.

Another significant cultural value held by Latino youth is *familisimo* (Woolley et al. 2009). Familisimo is manifested by strong family ties and a strong sense of interdependence and loyalty (Halgunseth et al. 2006). Latino students look to their families as the primary source of decision making as they believe families contribute to their sense of identity and purpose. They often place the needs of their families above their own needs. For example, when they make decisions to attend college, they may not only think about their own qualifications and academic backgrounds, but take their families' needs into consideration. If their families need them to find jobs to help support the families and take care of the siblings, the Latino youth may decide not to go to college even if they are academically prepared. However, the Latino cultural value of familisimo is at odds with the values in the dominant White American culture. Unlike familisimo, independence and individualization are highly valued. But such an orientation may be perceived as selfish by Latino youth and their families. The teacher wants to help Latino youth realize the importance and benefit of pursuing specific goals such as going to college, whereas the Latino students may perceive this as being at odds with their strong family values. The teacher may try to promote competence for them by providing helpful information in support of decisions and choices, whereas Latino youth may not receive teachers' help well and thus may not feel emotionally connected to the teacher. If teachers did not recognize or value the

important role of family in the individual Latino student's life, it might cause conflicts between teachers and students. This may negatively impact Latino students' interest in engaging at school and success in academics. Therefore, given the importance of these values in the Latino culture and the potential these values may have to produce differential meanings for relationships between teachers and Latino youth, there is a need to further understand the associations between relationships with teachers and engagement and academic achievement among Latino youth in particular.

In addition to ethnicity in the macrosystem, gender, SES, and geographic locale are also factors that may impact teacher–student relationships. Male and female students may respond differently to teacher caring. Female students tend to relate to their teacher emotionally more easily than male students. Thus, female students may perceive their relationships with their teachers to be more positive than male students (e.g., Wentzel et al. 2010). Students' SES backgrounds may also influence the development of teacher–student relationships. It is likely that students with high SES are taught by teachers who are highly qualified and better equipped with professional knowledge and experience in working with early adolescents. In contrast, students of low SES may not be as fortunate as those of high SES. They may attend schools that are understaffed with teachers who are less experienced in interacting with students (Adamson and Darling-Hammond 2012). Finally, geographic locale may also impact relationships between teachers and early adolescents. It is likely that schools in urban and rural areas tend to be equipped with students from low SES backgrounds and less qualified teachers; whereas suburban schools are more likely to have students of high SES backgrounds and highly-qualified teachers. Thus, students from suburban schools may perceive their relationships with their teachers to be more positive than students from schools in urban or rural areas (Gallagher et al. 2013). As for Latino youth, they tend to come from low SES backgrounds and live in urban or rural areas. Latino students are more likely to be taught by less qualified teachers lacking knowledge and experience in developing positive relationships with these students (Adamson and Darling-Hammond 2012).

Of the 16 studies with non-Latino youth, 13 specified theoretical frameworks. Only Wentzel et al. (2010) incorporated self-determination theory and ecological theory jointly. A strong feature of the other studies that specified theoretical frameworks was their reliance on self-determination theory (n = 7). While half of the studies adopted only self-determination theory, only two (Dotterer and Lowe 2011; Wang and Eccles 2012) adopted solely ecological theory. In contrast, a strong feature of the studies with Latino youth that specified theoretical frameworks (n = 5) is their reliance on ecological theory (Brewster and Bowen 2004; Crosnoe et al. 2004; Garcia-Reid 2007; Woolley et al. 2009).

Conceptualization of Teacher–Student Relationships and Student Engagement

Teacher–Student Relationships

Teacher–student relationships were defined as either a multidimensional or unidimensional construct with a primary focus on teacher emotional support and classroom safety being the least frequently examined dimension. Among the studies with non-Latino youth, about half specified teacher–student relationships as a multidimensional construct. Wentzel et al. (2010) theorized four dimensions of teacher–student relationships that have the potential to promote school outcomes especially for early adolescents, including teacher emotional support, instrumental help, clear expectations, and classroom safety. Students are more likely to engage in school and experience academic success when (a) they feel being cared about, liked, and valued as individuals; (b) their efforts to meet the expectations are facilitated with teachers' help, advice, and instruction; (c) messages of classroom expectations are clearly delivered from the teachers; and (d) their efforts are promoted by a safe classroom environment (Wentzel et al. 2010). The other studies (n = 7, Blumenfeld and Meece 1988; Gregory et al. 2014; Patrick et al. 2007; Skinner and Belmont 1993; Turner et al. 1998; Wang and Eccles 2013; Wang and Holcombe 2010) included only two or three of the four dimensions or combinations of multiple dimensions. Specifically, Blumenfeld and Meece (1988) and Patrick et al. (2007) defined teacher–student relationships as a two dimensional construct involving either teacher instrumental help and clear expectations, or teacher instrumental help and emotional support. For the remaining studies, teacher–student relationships involved at least one combination of the four dimensions. For instance, in the Turner et al. (2014) study, although teacher observations on motivational support were coded into categories (belongingness—teacher emotional support and classroom safety, competence—instrumental help and clear expectations, autonomy—instrumental help, and meaningfulness—instrumental help), the quantitative analyses did not explore these distinct dimensions separately, but instead, combined these categories into one representing motivational support. The other half of the studies with non-Latino youth treated teacher–student relationships as a single construct (n = 8; Conner and Pope 2013; Dotterer and Lowe 2011; Furrer and Skinner 2003; Goodenow 1993; Ryan and Patrick 2001; Turner et al. 2014; Wang and Eccles 2012; Wentzel 1997).

Among the studies with Latino youth, the majority (n = 8) considered teacher–student relationships as a unidimensional construct. Only two considered it as a two-dimensional

construct involving emotional support and clear expectations (Murry 2009), or emotional and instrumental help (Mireles-Rios and Romo 2010).

Student Engagement

Like teacher–student relationships, student engagement was also conceptualized as a multidimensional or unidimensional construct, and with a primary focus on behavioral engagement. Of the studies with non-Latino youth, only a few (n = 4; Conner and Pope 2013; Wang and Eccles 2012, 2013; Wang and Holcombe 2010) specified student engagement as a three-dimensional construct, including behavioral, emotional, and cognitive engagement. Behavioral engagement draws on the idea of participation. It includes students' involvement in school-based academic, social, or extracurricular activities (Finn 1993), positive conduct such as following school and classroom rules and norms (Connell 1990), and absence of disruptive behaviors (Connell 1990). Emotional engagement emphasizes students' affective reactions to teachers, classmates, academics, or school (Skinner and Belmont 1993). Emotional engagement is also conceptualized as sense of identification with school (e.g., feeling of being important to school, valuing of achieving school-related goals; Finn 1989; Voelkl 1997). Cognitive engagement refers to the extent to which students invest in learning. It involves being strategic and willing to make an effort to comprehend complex ideas and master difficult skills (Corno and Mandinach 1983; Fredricks et al. 2004; Meece et al. 1988). The three dimensions of student engagement are embedded within each student, and characterize the way students act, feel, and think (Eccles 2004; Ryan and Deci 2000; Skinner and Wellborn 1994; Wang and Eccles 2013).

Half (n = 8; Blumenfeld and Meece 1988; Dotterer and Lowe 2011; Furrer and Skinner 2003; Patrick et al. 2007; Ryan and Patrick 2001; Skinner and Belmont 1993; Turner et al. 1998; Wentzel et al. 2010) of the studies defined student engagement as a two-dimensional construct, with a primary focus on behavioral engagement. The majority (n = 6) conceptualized student engagement as behavioral and emotional engagement (n = 3; Furrer and Skinner 2003; Skinner and Belmont 1993; Wentzel et al. 2010), or behavioral and cognitive engagement (n = 3; Blumenfeld and Meece 1988; Patrick et al. 2007; Ryan and Patrick 2001). Interestingly, Dotterer and Lowe (2011) combined emotional and cognitive engagement into psychological engagement, and defined student engagement as behavioral engagement and psychological engagement. Additionally, Turner et al. (1998) did not include behavioral engagement, but just addressed emotional and cognitive engagement. In four studies, student engagement was conceptualized as a unidimensional construct (i.e., making an effort in class discussions) (Goodenow 1993; Gregory et al. 2014; Turner et al. 2014; Wentzel 1997).

Most (n = 8) of the studies with Latino youth defined student engagement as a unidimensional construct. The other studies defined if as a two dimensional construct involving behavioral and emotional engagement.

Teacher Emotional Support, Student Engagement, and Academic Achievement

For studies involving non-Latino youth, the majority of employed solely quantitative methods. About half were longitudinal and half were cross-sectional studies. Sample size for student participants ranged from 12 to 6,294. Sample size for teacher participants ranged from 4 to 135. Student participants were predominantly Caucasian, accounting for 44–98% of the participants. They ranged from 7 to 17 years old, in third through twelfth grade; about half were male. The studies were conducted in various regions of the United States and mostly in suburban settings. Students' SES ranged from low to middle, with the majority from low SES backgrounds.

For the ten studies that focused on Latino youth, the methodology was primarily quantitative. Three employed a longitudinal design and seven used a cross-sectional design. The majority (n = 7) focused solely on Latino students. In most of the other studies (n = 3) that involved both Latino students and students of other ethnic groups, the participants were primarily Latino. One exception is that in Crosnoe et al. (2004) study, the participants were primarily Caucasian (54%). Although Latino students accounted for only 16% of the participants, the total number of participants was considerably large (10,991), therefore, the total number of Latino participants was fairly large as well (about 1759). The sample size for Latino students in the quantitative studies ranged from 11 to 1759. Half (n = 5) of the studies included middle school students only; participants' age ranged from 9 to 18 years, and grade level ranged from three to twelve. The majority of the studies included both male and female students. The majority of the participants came from low SES backgrounds. The studies were conducted in various locations. Half identified the setting, with the majority (n = 4) in cities and one in a rural area.

Teacher Emotional Support, Student Engagement, and Academic Achievement

Teachers have the potential to create classroom contexts characterized by emotional support that promote social and academic adjustment (Connell and Wellborn 1991; Wentzel 2009; Wentzel et al. 2010). For example, teachers provide emotional support through caring about students, showing respect to students' opinions, and developing personal

relationships with students. Emotional support is critical to early adolescents as they transition to middle school. They need continued emotional support in order to succeed in school (Wentzel et al. 2010). Twelve studies investigated the associations between teacher emotional support and student engagement for non-Latino youth. About half (n = 5) also investigated teacher emotional support as related to academic achievement. Several aspects of emotional support were examined. From students' perspective, emotional support included students' perceptions of their teachers' liking and caring about them (e.g., Patrick et al. 2007; Wentzel et al. 2010), valuing and respecting students' ideas (e.g., Conner and Pope 2013; Wang and Eccles 2013), trying to establish personal relationships with the students (Conner and Pope 2013; Ryan and Patrick 2001), and students' feeling of being emotionally accepted or alienated from the teachers (e.g., Goodenow 1993). Teacher-reports of teacher emotional support focused on their perceptions of teacher–student conflict (e.g., Dotterer and Lowe 2011).

Nine studies investigated teacher emotional support in relation to student engagement or academic achievement for Latino youth. Several aspects of emotional support were examined, and mostly from students' perspectives, including teachers' caring about students; friendliness and respectfulness toward and encouragement of students; and willingness to work with their students. Teachers' perspectives on emotional support focused on closeness and conflict between the teacher and the students. Of the three dimensions of student engagement, behavioral engagement and emotional engagement have been examined.

Teacher Emotional Support and Student Engagement

As for engagement, the studies paid most attention to behavioral engagement but there was good representation for emotional and cognitive engagement.

Behavioral Engagement Of the studies with non-Latino youth, 11 examined the relationship between emotional support and behavioral engagement (Conner and Pope 2013; Dotterer and Lowe 2011; Furrer and Skinner 2003; Goodenow 1993; Patrick et al. 2007; Ryan and Patrick 2001; Wang and Eccles 2012, 2013; Wang and Holcombe 2010; Wentzel 1997; Wentzel et al. 2010). Aspects of behavioral engagement included behavioral involvement in learning activities (e.g., effort, persistence, attention, Furrer and Skinner 2003; Ryan and Patrick 2001), school compliance (e.g., positive conduct such as following the rules and adhering to classroom norms, absent of disruptive behaviors, Wang and Eccles 2012), and participation in school activities (e.g., Wang and Eccles 2013). Notably, the focus in the literature was on behavioral involvement during learning activities.

Emotional support in relation to behavioral involvement in learning activities was investigated in seven studies, including two longitudinal (Furrer and Skinner 2003; Wentzel 1997) and five cross-sectional studies (Conner and Pope 2013; Dotterer and Lowe 2011; Goodenow 1993; Patrick et al. 2007; Wentzel et al. 2010). Results from the longitudinal studies (Furrer and Skinner 2003; Wentzel 1997) suggested that sixth- through eighth-grade White students perceived that teacher caring (Wentzel 1997) or their sense of relatedness to teachers (feeling being accepted and like someone special when being with the teacher, Furrer and Skinner 2003) were positively and significantly associated with changes in their behavioral engagement over time, after controlling for previous behavioral engagement. Furrer and Skinner (2003) followed 641 third- through sixth-grade students across one school year, whereas Wentzel (1997) followed 248 sixth-grade students for 3 years through eighth grade. Wentzel's (1997) findings indicated that increases in students' academic effort (trying hard in class, paying attention) across 3 years was partially explained by students' perceptions of their teachers' social and academic caring even after students' past behavior, gender, psychological distress, and control beliefs were taken into account. In contrast, in Furrer and Skinner's (2003) study, although relatedness to teachers increased significantly between third and fifth grade, following the transition to middle school in sixth grade, students' sense of relatedness to teacher and students' behavioral involvement in learning dropped significantly. Furthermore, contrary to expectation, relatedness to teachers was a more salient predictor of students' behavioral involvement in learning for older students compared to younger students.

The cross-sectional studies (Conner and Pope 2013; Dotterer and Lowe 2011; Patrick et al. 2007; Goodenow 1993; Wentzel et al. 2010) had similar findings as the longitudinal findings regarding the associations between teacher emotional support and students' behavioral involvement in learning among typically developing (Goodenow 1993; Patrick et al. 2007; Wentzel et al. 2010), high-achieving (Conner and Pope 2013; Dotterer and Lowe 2011), as well as academically struggling (Dotterer and Lowe 2011) youth. Specifically, students (predominantly in sixth through eighth grade) who perceived that their teachers cared about them, liked them as a person, and tried to get to know students as a person were more likely to be actively engaged in learning in various subjects (English, math, and social studies, Goodenow 1993; Patrick et al. 2007; Wentzel et al. 2010). Students tended to try harder, pay more attention in class, and make more effort in doing assignments than did their peers who perceived their teachers as less supportive emotionally.

Unlike the sample included in most studies, the sample in Conner and Pope (2013) was drawn exclusively from high-performing schools (6294 students from 15 middle and high

schools). The sample was mostly comprised of Caucasian (44%) and Asian (34%) students. Holding school type (i.e., middle or high) and individual factors (gender, grade level, GPA, and academic worry) constant, emotional support (e.g., caring for students, valuing and listening to students' idea, and trying to get to know students) was strongly positively associated with behavioral engagement (effort, hard work, mental exertion and completion of homework).

While Conner and Pope (2013) involved only students in high-performing schools, Dotterer and Lowe (2011) conducted a study with a large sample (1014) of high-performing and academically struggling students as well, from both middle and high schools. These investigators examined the broader classroom context of teacher emotional support in relation to students' behavioral engagement. The classroom context included teacher–student conflict, instructional quality, and social/emotional climate. Teacher–student conflict was assessed using teachers' self-reports, whereas instructional quality was assessed by classroom observations. Social/emotional climate was measured by students' self-reports. The results showed that high-achieving as well as academically struggling students in classrooms characterized by less conflict with teachers, high instructional quality, and positive social/emotional climate were more attentive during class and engaged in learning.

School compliance (e.g., following school and school rules and policy, obeying teachers' disciplines) is another component of behavioral engagement that was examined in five studies (Ryan and Patrick 2001; Wang and Eccles 2012, 2013; Wang and Holcombe 2010; Wentzel et al. 2010). Of these five studies, four were longitudinal (Ryan and Patrick 2001; Wang and Eccles 2012, 2013; Wang and Holcombe 2010) and one was cross-sectional in design (Wentzel et al. 2010). In all studies, teacher emotional support was positively and significantly associated with school compliance for non-Latino youth.

Findings from the longitudinal studies (Ryan and Patrick 2001; Wang and Eccles 2012, 2013; Wang and Holcombe 2010) revealed that students' perceptions of teacher caring about and liking their students in seventh grade predicted student's school compliance (following rules and avoiding misconduct) in eighth grade (Ryan and Patrick 2001; Wang and Eccles 2013; Wang and Holcombe 2010) and 11th grade (Wang and Eccles 2012).

In Wang and Eccles' (2012) longitudinal study, 1479 students and 135 teachers were followed from seventh through 11th grade with three waves of data collection. Although the trajectories of student's school compliance (absent of misconduct, not having trouble getting homework done) declined, increases in social support (understanding students' feelings, respecting students' opinions, talking to students, helping students with personal or social problems) from the teachers were significantly associated with reduced decrease in students' school compliance from seventh to 11th grade. Specifically, a standard deviation increase in emotional support was linked to a reduced rate of decline of 0.37 standard deviation in youth's school compliance.

With respect to school compliance in the cross-sectional studies, only Wentzel et al. (2010) examined teacher emotional support as associated with sixth through eighth graders' compliant behaviors (e.g., trying to do what the teacher asks to do). School compliance was assessed along with students' involvement in learning activities during social science class using one measure. Results revealed a positive and significant relationship between teacher emotional support and students' behavioral engagement as a whole.

Finally, Wang and Eccles (2012) were the only researchers who investigated another aspect of behavioral engagement—participation in school activities. The trajectories of students' participation in extracurricular activities declined from 7th to 11th grade. Unexpectedly, increases in teacher social support (students' perceptions of teacher caring, trying to talk to students and understand them, and respecting students' opinions) in 7th grade were not a significant predictor of students' participation in extracurricular activities in 11th grade. Instead, support from parents and peers were significantly associated with these students' increased participation in school extracurricular activities. The investigators did not interpret this finding but it may be the case that teachers were not as directly involved in youth's extracurricular activities as parents (e.g., providing advice in choosing extracurricular activities, providing transportation) and peers (e.g., cheering for peers).

Approximately half (n = 6) of the studies examined the relationship between teacher emotional support and behavioral engagement for Latino youth (Balagna et al. 2013; Brewster and Bowen 2004; Crosnoe et al. 2004; Murray 2009; Valiente et al. 2008; Woolley et al. 2009). Several aspects of behavioral engagement were examined, including attending class regularly, exhibiting problem behaviors, paying attention in class, completing homework, and making an effort at school work. The studies predominantly focused on class attendance (Balagna et al. 2013; Brewster and Bowen 2004; Valiente et al. 2008; Woolley et al. 2009) and problem behaviors (Balagna et al. 2013; Brewster and Bowen 2004; Crosnoe et al. 2004; Woolley et al. 2009). However, the studies that involved at least two aspects of behavioral engagement did not tease out a single aspect of engagement in relation to teacher emotional support.

Overall, findings from the studies revealed positive relationships between teacher emotional support and behavioral engagement for Latino youth. That is, Latino youth who perceived that their teachers cared about and respected them were more likely to attend classes regularly, exhibit fewer behavioral problems, pay attention in class, complete homework in a timely manner, and work

hard at school work. For example, findings from the year-long study by Valiente et al. (2008) suggested that after controlling for fall GPA, absences, gender, SES, and effortful control, perceived positive teacher–student relationships in the fall were positively related to behavioral engagement (e.g., attending class regularly and paying attention to class) in the following spring.

In another longitudinal study (Crosnoe et al. 2004), a much larger sample (n = 10,991) drawn from a large scale national research project was included. The sample was primarily Caucasian students (54%) and Latino students accounted for 16% of the participants. Results suggested that on the whole, after controlling for grade level, ethnicity, gender, SES, and behavioral problems at Time 1, students who perceived that their teachers cared about them and treated them fairly at Time 1 were less likely to have disciplinary problems at Time 2.

Among the cross-sectional studies, most used quantitative methods. Woolley et al. (2009) conducted a study with 848 Latino students in sixth through eighth grade across schools in seven states. They found that Latino students who perceived that their teachers were caring, encouraging, respectful, and willing to work with them were less likely to have absences in school. Murray (2009) conducted a study with 104 students in a low-income low-performing middle school. Latino students accounted for the majority (91%) of the participants. Students who perceived their teachers treated them fairly and liked them tended to work hard on school work. In the study conducted by Brewster and Bowen (2004), however, the participants were identified as at risk of school failure from both middle and high schools. Results revealed a positive relationship between teacher emotional support and Latino students' school attendance regardless of school level (middle school vs. high school).

In the cross-sectional study using qualitative methods, Balagna et al. (2013) also conducted a study with non-typically developing Latino youth. These researchers interviewed 11 sixth-grade Latino students diagnosed as being at risk for emotional and behavioral disorders. The interview data were coded and one of the themes concerned teacher emotional support and behavioral engagement for Latino youth. Latino students were more likely to attend class regularly, avoid behavioral problems, and follow teachers' instruction in class, when they reported that their teachers communicated with a sense of warmth and caring. On the contrary, the Latino students who perceived that their teachers disliked them were more likely to skip classes, have behavioral problems, and disobey the teachers in class. For instance, one student said that she had difficulties in class until a teacher gave her more individual attention. The teacher talked to her about improving her behaviors. After the talk, the Latino student started cleaning up the classroom and being nice to others.

Only a few studies (Furrer and Skinner 2003; Wang and Eccles 2012, 2013) explored the moderating effects of gender on the relationships between teacher emotional support and behavioral engagement among non-Latino peers, and the results from these longitudinal studies were mixed. Wang and Eccles (2012, 2013) reported no significant differences between boys' and girls' perceptions of teacher emotional support in relation to their behavioral engagement over time. In contrast, Furrer and Skinner (2003) found that although boys reported a lower level of teacher emotional support than girls, boys showed stronger effects of emotional support on their behavioral engagement. Only one study explored the moderation effect of ethnicity (Latino vs. Caucasian) on emotional support in relation to student engagement, with results showing that Latino students did not differ from their Caucasian peers (Valiente et al. 2008).

Emotional Engagement Seven studies examined the relationships between teacher emotional support and emotional engagement for non-Latino youth. Aspects of emotional engagement focused on emotional reactions toward the school and the teacher (e.g., interest, enjoyment, boredom, happiness, sadness; Conner and Pope 2013; Furrer and Skinner 2003; Turner et al. 1998; Wang and Eccles 2013; Wentzel et al. 2010). In addition, Wang and Eccles (2012) and Wang and Holcombe (2010) investigated identification with school (sense of attachment one has with the school), which involved sense of belonging to school (perception of school membership) and valuing of school (appreciation of success in school-related outcomes). On the whole, teacher emotional support was positively associated with youths' emotional engagement.

One strong feature of these studies is that the majority (n = 5; Conner and Pope 2013; Furrer and Skinner 2003; Wang and Eccles 2012, 2013; Wang and Holcombe 2010; Wentzel et al. 2010) had fairly large sample sizes from large scale research projects, mostly ranging from 358 to 1500 student participants. Conner and Pope (2013) had an extremely large number of students (6294), although the entire sample was drawn from high-performing schools. Additionally, in the Turner et al. (1998) study, for the quantitative data, surveys from a small sample of students (n = 42) were collected; for the qualitative data, classroom observations were conducted for a total of 34 sessions with seven teachers and 42 of their students.

Students' emotional reactions toward the school and the teacher were investigated in five studies, including two longitudinal (Furrer and Skinner 2003; Wang and Eccles 2013) and three cross-sectional studies (Conner and Pope 2013; Turner et al. 1998; Wentzel et al. 2010). Results from the longitudinal studies (Furrer and Skinner 2003; Wang and Eccles 2013) suggested that holding previous emotional engagement constant, third- through eighth-graders'

perceptions of their teachers as caring and warm (Wang and Eccles 2012) or students' sense of relatedness to their teachers (Furrer and Skinner 2003) were significant predictors of students' emotional reactions toward the school and the teacher. For example, Furrer and Skinner (2003) followed 641 third- through sixth-grade predominantly Caucasian students from fall to spring across the school year. They found that although students' emotional engagement (both teacher-reports and student-reports) in the spring was uniquely predicted by feeling of relatedness toward each social partner (teachers, parents, and peers) in the previous fall, students' emotional engagement depended on most heavily on relatedness to teachers. Students who felt appreciated by teachers were more likely to perceive academic activities as interesting and fun, and that they felt happy and comfortable in the classroom. On the contrary, students who felt unimportant or ignored by their teachers reported that they felt bored, unhappy, and angry when they participated in learning activities.

In the other longitudinal study (Wang and Eccles 2013) of 1157 seventh graders from 23 schools who were followed for 2 years through eighth grade, holding students' prior emotional engagement constant, students who perceived that their teachers were emotionally supportive at the beginning of seventh grade were more likely to report that at the end of eighth grade, they felt schoolwork was interesting and exciting.

Results of the cross-sectional studies (Conner and Pope 2013; Turner et al. 1998; Wentzel et al. 2010) revealed a positive link between teacher emotional support (liking and caring about students, valuing and listening to students' ideas, and trying to get to know students personally) and emotional reactions toward school and teachers (e.g., interest and enjoyment in schoolwork, feeling happy, sad, involved or uninvolved in class) for typically developing early adolescents as well as for high-achieving youth. Students in sixth through eighth grade who perceived that their teachers cared about and liked them reported that they enjoyed being in the social studies class and cared what happened in the class (Wentzel et al. 2010). Similarly, for students in high-performing middle and high schools, students' perceptions of their teachers as caring, and as valuing and listening to their ideas, and trying to get to know them personally, were positively associated with students' levels of interest in and enjoyment of schoolwork (Conner and Pope 2013).

The observational study by Turner et al. (1998) illustrated the benefit to strategic learning of a socially supportive and intellectually challenging environment for fifth- and sixth-graders in math classes. Using mixed methods (both quantitative and qualitative), the study involved 42 students and seven teachers. Data sources included audiotaped classroom discourse during instruction, classroom observations, and students' response logs. Interestingly, in classrooms in which teachers created an emotionally supportive environment (e.g., respectful and encouraging), pressed for mastery of knowledge, and provided autonomy support, students were more emotionally engaged and were more strategic in learning. If the teachers focused only on creating a positive social environment but not academic support, students were more likely to be emotionally engaged and less likely to be strategic in learning. On the contrary, if teachers focused on academic support but failed to attend to emotional support, students were more likely to experience emotional disengagement. The findings suggested that both positive social environment and academic support were necessary in promoting engagement.

Only two studies have explored teacher emotional support in relation to identification with school for non-Latino youth. Youth in seventh grade who perceived that their teachers cared about students, talked to students, tried to understand students, and respected students' opinions reported higher levels of sense of belonging to school and valuing of learning in 8th (Wang and Holcombe 2010) or 11th (Wang and Eccles 2012) grade. For instance, a one standard deviation increase in teacher emotional support was associated with a reduced decrease of 0.58 standard deviation in identification to school (Wang and Eccles 2012).

Dotterer and Lowe (2011) combined emotional and cognitive engagement into psychological engagement. They also included teacher–student conflict, instructional quality, and social/emotional climate to represent classroom context. They found that classroom context was positively and significantly related to psychological engagement for high-achieving students, but not for academically struggling students. The results suggested that for academically struggling students, high quality classroom contexts were not sufficient to promote their psychological engagement. Dotterer and Lowe (2011) pointed out that other factors such as instructional methods (whole class vs. small group) needed to be taken into consideration. Small group provided struggling learners a less risky environment for making an effort in learning, whereas whole class instruction discouraged them from trying hard because they wanted to avoid negative evaluations (Dotterer and Lowe 2011).

Attention to gender differences in the relationship between teacher emotional support and emotional engagement was minimal, with mixed findings (Furrer and Skinner 2003; Wang and Eccles 2012, 2013). Results from two studies (Wang and Eccles 2012, 2013) revealed no significant differences between boys and girls, but Furrer and Skinner (2003) found that girls' emotional engagement varied to a lesser extent as a function of their relatedness to their teachers, as compared to boys.

Half (n = 5) of the studies examined the relations between emotional support and emotional engagement for Latino youth (Balagna et al. 2013; Brewster and Bowen 2004;

Garcia-Reid 2007; Garcia-Reid et al. 2005; Woolley et al. 2009). Emotional engagement focused on students' perceived school meaningfulness (e.g., finding school exciting, looking forward to learning new things at school, enjoying going to school).

All studies were cross-sectional in design. Most (n = 4) of the studies utilized quantitative method and one employed qualitative methods. A strong feature of these studies is that the participants included in each study were solely Latino students. On the whole, teacher emotional support was positively associated with emotional engagement among Latino youth. Latino students who perceived that their teachers cared about them and showed respect toward them were more likely to find school meaningful. Among the quantitative studies, while Brewster and Bowen (2004) involved Latino students at risk of school failure, Garcia-Reid et al. (2005) and Woolley et al. (2009) did not specify whether the Latino samples included were at risk of school failure. Garcia-Reid (2007) included only female Latino students who struggled at school.

Balagna et al. (2013) were the only researchers who employed qualitative methods. Through in-depth open-ended semi-structured interviews with 11 Latino sixth graders at risk of emotional and behavioral disorders, the researchers found that Latino youth were more likely to enjoy teachers and classes when they had teachers who demonstrated emotional support. For instance, Latino youth preferred teachers who were "nice", demonstrated kindness and understanding, got to know students individually, and had a sense of humor. They disliked teachers who were "angry" and yelled at them. One student felt his teacher embarrassed her and did not take a personal interest in him. So he did not want to get to know the teacher either.

Cognitive Engagement Six studies examined the relations between emotional support and cognitive engagement for non-Latino youth, including three longitudinal (Ryan and Patrick 2001; Wang and Holcombe 2010; Wang and Eccles 2012) and three cross-sectional studies (Conner and Pope 2013; Patrick et al. 2007; Turner et al. 1998). Aspects of cognitive engagement focused on students' use of self-regulated strategies in learning (n = 4). The other studies examined the psychological investment in learning such as subjective value of learning (perceived motivation focusing on learning, personal improvement, and mastery of content and tasks, Wang and Eccles 2012) and attitudes toward schoolwork, its value and importance (Conner and Pope 2013).

Findings from three longitudinal studies of associations between emotional support and cognitive engagement among non-Latino youth were mixed. Ryan and Patrick (2001) followed 233 middle school students in 30 different math classes from seventh to eighth grade. Students' increased use of self-regulated learning strategies across 2 years was uniquely associated with their greater perceptions of teachers' emotional support. Similarly, Wang and Eccles (2012) found that increases in social support from the teachers were significantly associated with reduced decreases in students' subjective value of learning from seventh through 11th grade. On the other hand, Wang and Holcombe (2010) did not find significant associations between students' perceived teacher emotional support at the beginning of seventh grade and their use of self-regulated learning strategies at the end of eighth grade. As stated by Wang and Holcombe (2010), it may be that the social aspect of teacher support was emphasized while the academic support was ignored.

Of the cross-sectional studies (n = 3), Patrick et al. (2007) conducted a study with 602 predominantly Caucasian fifth-graders from 31 classes in six elementary schools in a Midwestern state. Findings indicated that students' perceived teacher liking and caring about the students as a person were positively and significantly associated with students' use of self-regulation strategies in learning. Similar results were reported in a study with 6294 students attending 15 high-performing middle and high schools (Conner and Pope 2013). Students who perceived that their teachers cared about, valued and listened to students' ideas, and tried to get to know students personally were more likely to show positive attitudes toward schoolwork, its value and importance.

Interestingly, Turner et al. (1998) found that both emotional support and challenging schoolwork were necessary to promote students' cognitive engagement in math class. When teachers were perceived to be emotionally supportive and to present intellectually challenging work, students showed higher levels of both emotional and cognitive engagement (being strategic in learning math). However, if teachers only presented challenging work, pressed for understanding, supported autonomy, but ignored emotional support, students were more engaged cognitively but less emotionally engaged. If teachers only provided emotional support but did not present intellectually challenging work, students were less cognitively engaged but more emotionally engaged.

Two longitudinal studies (Wang and Eccles 2012, 2013) examined the moderation effects of gender on the relationships between teacher emotional support and cognitive engagement among non-Latino youth. Results revealed no significant differences between boys and girls over time.

Teacher Emotional Support and Academic Achievement

Four studies (Dotterer and Lowe 2011; Goodenow 1993; Patrick et al. 2007; Wang and Holcombe 2010) investigated the relationship between teacher emotional support and academic achievement for non-Latino youth. There were direct and indirect relationships between teacher emotional

support and youth's academic achievement; for the indirect relationships, behavioral and emotional engagement served as mediators.

Longitudinal analyses from one study (Wang and Holcombe 2010) revealed that students who perceived greater caring and support from teachers in seventh grade had higher GPAs in eighth grade. For indirect relationships between teacher emotional support and youth's academic achievement, Wang and Holcombe (2010) found that student levels of school participation and school identification in eighth grade mediated the associations between perceived teacher emotional support in seventh grade and students' academic performance in eighth grade. That is, students who perceived their teachers to be emotionally supportive at the beginning of seventh grade were more likely to be actively engaged in school (behavioral engagement) and to show a strong feeling of school identification (emotional engagement) at the end of eighth grade. This in turn, was positively associated with these students' averaged GPAs across academic subjects at the end of eighth grade.

Results from the cross-sectional studies supported a direct relationship between teacher emotional support and academic achievement. Fifth through eighth graders who perceived greater acceptance, inclusion, caring, and liking from teachers earned higher final grades in math or English (Goodenow 1993; Patrick et al. 2007). Patrick et al. (2007) also found cross-sectional support for engagement as a mediator. Students' belief that the teacher cared about and liked them as a person positively and significantly contributed to students' task-related interaction (behavioral engagement, such as the extent to which students answered questions, explained content, and shared ideas with classmates). This in turn, was positively related to math achievement.

However, the mediation effects of student engagement on the associations between teacher emotional support and academic achievement differed for high-achieving students and struggling students (Dotterer and Lowe 2011). High-achieving students in classrooms characterized by less teacher–student conflict, high instructional quality, and positive social and emotional climate were more likely to achieve higher scores in reading and math. Further, behavioral and psychological engagement mediated the link between classroom context and academic achievement. These students tended to be more actively engaged in learning, feel more connected to school, and more competent and motivated in school. This in turn, promoted their academic success. In contrast, for struggling learners, engagement did not mediate the link between classroom context and academic achievement. Although classroom context was significantly associated with behavioral engagement, there were no significant relationships between behavioral engagement and achievement. It may be that behavioral engagement was not sufficient to improve students' academic performance. For psychological engagement, although struggling learners' perceived classroom context was positively associated with their academic achievement, classroom context was not related significantly to psychological engagement. As Dotterer and Lowe (2011) pointed out, it may be that for these students, high quality classroom contexts were not sufficient to increase their psychological engagement.

Approximately half (n = 6) of the studies (Balagna et al. 2013; Crosnoe et al. 2004; Mireles-Rio and; Romo 2010; Murray 2009; Valiente et al. 2008; Woolley et al. 2009) with Latino youth investigated the relationship between emotional support and achievement. The majority explored direct relationships between emotional support and academic achievement (Crosnoe et al. 2004; Mireles-Rio and; Romo 2010; Murray 2009; Valiente et al. 2008); two (Balagna et al. 2013; Woolley et al. 2009) investigated the indirect relationships between emotional support and achievement through engagement (behavioral or emotional) as a mediator.

The majority of these studies were cross-sectional; only two involved a longitudinal design. Findings from the longitudinal studies suggested that after controlling for students' GPA at Time 1, perceived teacher emotional support (caring about students, treating students fairly, having fewer conflicts with students) at Time 1 significantly predicted Latino youth's academic achievement at Time 2 (Crosnoe et al. 2004; Valiente et al. 2008). A strength in these studies is that academic achievement was examined at two time points. Prediction of Latino youth's academic competence at Time 2 was examined while controlling for their academic competence at Time 1. By controlling for grades at Time 1 when examining the contribution of teacher emotional support to Latino youth's grades at Time 2, the investigators assessed how teacher emotional support related to academic achievement beyond Latino youth's preexisting academic ability. A major limitation of these studies is that teacher–student relationships were assessed at Time 1 only, which did not allow for testing for changes in teacher–student relationships in relation to changes in academic achievement over time.

Findings from the cross-sectional studies indicated that teacher emotional support was positively associated with Latino youth's academic achievement directly (Mireles-Rios and Romo 2010; Murray 2009) as well as indirectly through their behavioral or emotional engagement as a mediator (Balagna et al. 2013; Woolley et al. 2009). With regard to the direct associations, Latino students who perceived that their teachers cared about how they were doing in school, were friendly toward them, and treated them fairly tended to perform higher in academics (Murray 2009). The findings also apply to Latino girls (Mireles-Rios and Romo 2010). As for the indirect associations between teacher emotional support and Latino early adolescents' academic achievement through their behavioral or emotional engagement as a mediator, Latino youth who reported that their teachers

were caring, encouraging, respectful, and willing to work with them and liked them were more likely to attend class regularly less likely to be involved in physical fights with other students, and more satisfied with school. This in turn, was positively associated with higher grades in school (Balagna et al. 2013; Woolley et al. 2009). The findings highlight the importance of teacher–student relationships for academic success in low-income low performing schools or for girls only among Latino youth.

Among the quantitative studies involving Latino students and their Caucasian peers, Valiente et al. (2008) were the only researchers who explored the moderation effect of ethnicity (Latino vs. Caucasian) on teacher emotional support in relation to academic success. Findings suggested that Latino students did not differ from their Caucasian peers in the associations between teacher–student relationships and academic achievement.

Teacher Instrumental Help, Student Engagement, and Academic Achievement

In the classroom, teachers may contribute to student engagement and academic success by providing instrumental help. Instrumental resources may include information and advice, learning opportunities and experiences, modeled behavior, or direct instruction of social behaviors (Wentzel 2009; Wentzel et al. 2010). Students rank their teachers as the most important source of instrumental help and informational guidance compared to parents and peers (Wentzel 2012). Teacher instrumental help and emotional support are two distinct dimensions of teacher–student relationships, as demonstrated by factor analyses (Patrick et al. 2007) and classroom observations (e.g., Patrick et al. 2001). However, researchers often incorporate instrumental help into emotional support because instrumental help and emotional support tend to be highly correlated (Blumenfeld and Meece 1988; Gregory et al. 2014; Wentzel 1997, 2012). Only three studies (Blumenfeld and Meece 1988; Gregory et al. 2014; Wentzel et al. 2010) investigated the relationship between instrumental help and engagement. Instrumental help focused on teachers' help during the instruction; provision of resources was studied to a lesser extent (Wentzel et al. 2010).

Overall, findings suggested that youth who perceived that their teachers provided instrumental help were more likely to be actively engaged behaviorally, emotionally and cognitively. For example, Gregory et al. (2014) involved a longitudinal study with a randomized controlled design in which 87 teachers participated in year-long professional development on promoting students' behavioral engagement. Control teachers received regular professional development, whereas intervention teachers were oriented to special coaching through a workshop aimed at promoting their interactions with students. The teachers and their students were observed during math, science, social studies, and English classes. The teachers in the intervention group showed significant increase in their abilities to facilitate their students' higher-order thinking skills (analysis and problem solving) than those teachers in the control group. Such changes in turn, promoted students' behavioral engagement. The study is among the few randomized control trials to rigorously test whether personalized coaching and systematic feedback on teachers' interactions with students increase behavioral engagement.

In a non-experimental, longitudinal study, Wentzel et al. (2010) found that sixth- through eighth-graders who perceived that their teachers provided instructional assistance and resources reported greater interest in class. Interestingly, Blumenfeld and Meece (1988) found that both instrumental help and challenging task were necessary to promote middle school students' cognitive engagement. That is, students reported greater use of self-regulated learning strategies in science class when their teachers provided help during instruction and presented intellectually challenging tasks. Instructional help may include explaining concepts, modeling cognitive strategies, motivating, checking on progress, and reminding students about procedures.

Only one study (Murray 2009) examined teacher clear expectations in relation to behavioral engagement and academic achievement for Latino youth. The results suggested that students who perceived that their teachers provided clear expectations tended to work hard on school work and succeed in academics.

Teacher Clear Expectations, Student Engagement, and Academic Achievement

Teachers communicate their expectations for specific academic and behavioral outcomes to students on a daily basis (Wentzel 2009; Wentzel et al. 2010). They communicate expectations by enforcing rules, encouraging students to share ideas, and asking students about their opinions and feelings (Elias and Schwab 2006; Skinner and Belmont 1993). Teachers also communicate their values for academic activities by demonstrating their passion for the subject area (Wentzel 2012). By doing so, teachers provide structure to the organization of classroom experience so students know what is expected and how to achieve the goals (Skinner and Belmont 1993; Wang and Eccles 2013). Clear expectations support greater participation in academic tasks, promote students' attitude toward school, and facilitate self-regulated learning (Connell 1990; Urdan and Midgley 2003; Wang and Eccles 2013).

A small number of studies (Blumenfeld and Meece 1988; Gregory et al. 2014; Wentzel et al. 2010) explored clear expectations as related to engagement for non-Latino youth. Aspects of clear expectations included expectations

for positive social behavior (e.g., sharing ideas with others) and academic engagement (e.g., learning new things), directions during instruction, providing feedback, and instructional formats. Both clear expectations and engagement were measured by student surveys or classroom observations. The reliabilities of these measures ranged from low to excellent (0.64–0.92), while information about validity of these measures was limited. Gregory et al. (2014) validated the measures for dimensions of teacher student relationships including clear expectations by showing that these dimensions were predictive of students' achievement. Blumenfeld and Meece (1988) specified that the measure for cognitive engagement was valid through a correlation study between cognitive engagement and intrinsic motivation.

Teacher clear expectations were positively and significantly associated with students' behavioral, emotional, and cognitive engagement among non-Latino youth. For example, sixth- through eighth-grade students who perceived that their teachers were clear in their expectations for positive social behavior and for academic engagement were more likely to be interested in class (Wentzel et al. 2010). In the longitudinal study with a randomized controlled design, Gregory et al. (2014) found that the teachers in the intervention group showed significant increase in their abilities to use varied instructional formats than those teachers in the control group. Such positive changes in turn, promoted students' behavioral engagement (constantly active in discussions and classroom tasks). An interesting finding from Blumenfeld and Meece's (1988) study was that teacher clear expectations and challenging task were both necessary in promoting fourth- through sixth-grade students' cognitive engagement in science class. When the teachers were clear in their expectations and provided constructive and timely feedback during instruction, as well as presented intellectually challenging tasks, students reported greater use of self-regulated learning strategies in class.

Classroom safety focused on teachers' providing a safe and risk-free environment for students so the students could be engaged in classroom activities. As Latino youth adjust to the mainstream classroom setting, which is different from their home culture, it's likely that they make unintentional mistakes due to cultural differences and limited English proficiency. They constantly adapt their behaviors from their home culture to what's considered acceptable behaviors in the U.S. classroom. They feel apprehensive about making mistakes in front of the teacher and their Caucasian peers and are afraid of being ridiculed. Therefore, creating a safe and risk-free classroom environment is especially important of Latino youth.

However, Balagna et al. (2013) were the only researchers who investigated the associations between classroom safety and engagement among Latino youth. Both behavioral and emotional engagement were explored. Balagna et al. (2013) coded the interview data with 11 Latino students at risk for behavioral and emotional disorders. Results suggested that when Latino students perceived the classroom environment being safe and risk-free, they tended to pay more attention during class and enjoy classes and teachers more. On the contrary, Latino students were more likely to clash with teachers who were angry at them, or treating students differently.

Classroom Safety, Student Engagement, and Academic Achievement

Classroom safety is a dimension that has not been traditionally explored by researchers. Nevertheless, teachers' efforts to create a safe classroom environment are critical for students' physical, psychological, and emotional health (Wentzel 2009). Students are more likely to feel they are being cared about when they feel safe in the classroom (Crosnoe et al. 2004). In contrast, students may feel alienated when they are criticized or ignored by their teachers (Wentzel 1997). Although research implies that peers might be the primary source of threat to students' well-being and functioning in the classroom, teachers can help avoid harm or alleviate negative impact on students' social and emotional functioning afterwards through creating a safe classroom environment (Wentzel 2009).

Wentzel et al. (2010) were the only researchers who investigated the role of classroom safety in behavioral and emotional engagement for non-Latino youth. Wentzel et al. (2010) found that middle school students who perceived their teachers to be less criticizing tended to exhibit higher levels of prosocial and compliant behaviors (behavioral engagement) and stronger interest in class (emotional engagement).

Combinations of Dimensions of Teacher–Student Relationships, Student Engagement, and Academic Achievement

In addition to a single dimension of teacher–student relationships, a small number of studies (n = 4) also involved a combination of at least two dimensions of teacher–student relationships in their studies with non-Latino youth (Skinner and Belmont 1993; Turner et al. 2014; Wang and Eccles 2013; Wang and Holcombe 2010). Four types of combinations have been investigated: (a) instrumental help and clear expectations (Skinner and Belmont 1993; Wang and Eccles 2013; Wang and Holcombe 2010), (b) emotional support and instrumental help (Skinner and Belmont 1993), (c) emotional support and classroom safety (Skinner and Belmont 1993), and (d) emotional support, instrumental help, clear expectations, and classroom safety (Turner et al. 2014). The combination of instrumental help and clear expectations

were examined in more studies than the other types of combinations. In Wang and Eccles (2013) and Wang and Holcombe (2010) studies, in addition to combination of instrumental help and clear expectations, emotional support was also examined as a single dimension.

All four studies focused on student engagement, whereas only one study (Wang and Holcombe 2010) also examined academic achievement. Because a combination of dimensions of teacher–student relationships were examined as a whole instead of each dimension in particular, the extent to which any single dimension was associated with engagement and achievement for youth could not be inferred.

In addition to the studies that focused on a single dimension of teacher–student relationships among Latino youth, one study (Green et al. 2008) examined the combination of two dimensions of teacher–student relationships [i.e., emotional support (treating students with respect) and instrumental help (having at least an adult in school students can count on)] and behavioral engagement. However, Green et al. (2008) did not tease out each dimension in the analysis but instead examined the combination of these dimensions as a whole.

Combinations of Dimensions of Teacher–Student Relationships and Student Engagement

Findings from four studies suggest that there was a positive relationship between combinations of dimensions of teacher–student relationships and student engagement (behavioral, emotional, and cognitive) for non-Latino youth. With regard to teacher instrumental help and clear expectations in relation to students' behavioral, emotional, and cognitive engagement, students' perceptions of teacher provision of structure (teacher clarity of expectations, contingency, and instrumental help and support, and adjustment of teaching strategies) in fall significantly predicted behavioral engagement (effort, attention, and persistence during learning) for eighth through twelfth graders in spring (Skinner and Belmont 1993). Similarly, Wang and Eccles (2013) followed 1157 students from seventh to eighth grade. They found that students who had teachers providing structure in seventh grade were more likely to follow school rules and participate in school activities (behavioral engagement) and have feelings of acceptance, interest, and enjoyment at school (emotional engagement) in eighth grade. Using the same dataset, Wang and Holcombe (2010) found that students' perceptions of teachers as promoting mastery goal structure in seventh grade were positively related to their school participation (behavioral engagement), school identification (emotional engagement), and use of self-regulation strategies (cognitive engagement) in eighth grade. In contrast, students' perceptions of teachers as promoting performance goal structure in seventh grade were negatively related to their school participation (behavioral engagement), school identification (emotional engagement), and use of self-regulation strategies (cognitive engagement) in eighth grade.

As for combined teacher emotional support and instrumental help, Skinner and Belmont (1993) found that students with teachers who showed liking, appreciation, and enjoyment of the students, and who offered dedicated resources in the fall were more likely to show effort, attention, and persistence in learning (behavioral engagement), as well as interest and feel happy in class (emotional engagement) in the following spring. Skinner and Belmont (1993) also examined combined emotional support and classroom safety in relation to behavioral and emotional engagement. When the teacher was less coercive but more respectful toward the students, and provided choice and related to the students' lives in the fall, the students were more likely to be actively engaged behaviorally (e.g., effort, attention, and persistence during learning activities) or emotionally (e.g., interest and happiness in the classroom) in the following spring.

Finally, in terms of the combination of all four dimensions of teacher–student relationships, Turner et al. (2014) conducted a longitudinal study with six teachers and their students from sixth through eighth grade. A professional development intervention on promoting students' behavioral engagement was provided to these teachers. Results showed that three of the six teachers displayed an upward trend in motivational support over time, whereas the other three showed a downward or flat trajectory. Teachers in the upward group improved their motivational support, which in turn, contributed to their students' behavioral engagement. Motivational support included four categories: support for belongingness, competence, autonomy, and meaningfulness. Dimensions of teacher–student relationships were embedded in these categories and were therefore drawn from these categories for the present review, including emotional support (e.g., being kind), instrumental help (e.g., provision of challenging and meaningful work with support for student effort), clear expectations (e.g., providing feedback), and classroom safety (being respectful or disrespectful to students). Students' behavioral engagement was reflected by students' behaviors such as being on task, providing responsive assistance for procedures or thinking, and providing and taking up opportunities to work with others or on content.

In the Green et al. (2008) longitudinal quantitative study, 139 seventh through twelfth grade Latino students from several school districts in the San Francisco area were followed for 3 years and assessed at three time points. The sample was drawn from a subset of the LISA study. The Behavioral and Relational Engagement Scale from the LISA study was used to measure teacher–student relationships and Latino youth's behavioral engagement at school. Findings suggested that rather than adhering to linear trajectories,

perceptions of combination of teacher emotional support and instrumental help fluctuated from year to year. These fluctuations were associated with Latino youth's behavioral engagement in school (e.g., paying close attention in class, finishing homework) that year. That is, higher levels of combination of teacher emotional support and instrumental help were associated with higher levels of behavioral engagement; lower levels of combination of teacher emotional support and instrumental help were associated with lower levels of behavioral engagement. Additionally, the relationships between the average amount of perceived teacher–student relationships (i.e., combination of teacher emotional support and instrumental help) over 3 years and Latino youths' behavioral engagement differed somewhat for boys and girls. For girls, perceived average teacher–student relationships were positively associated with initial behavioral engagement, whereas for boys, perceived average teacher–student relationships were positively associated with changes in their behavioral engagement over time.

Combinations of Dimensions of Teacher–Student Relationships and Academic Achievement

Only one study investigated combinations of dimensions of teacher support and academic achievement for non-Latino youth (Wang and Holcombe 2010). Students who perceived that their teachers promoted a mastery goal structure (task mastery and self-improvement) and provided social support (e.g., caring) in seventh grade tended to perform better academically in eighth grade. In contrast, students who perceived that their teachers promoted a performance goal structure (comparison, competition, and high grades) and provided social support in seventh grade tended to perform poorly in eighth grade. Further, both of these associations were partially mediated through students' school participation (behavioral engagement), sense of school identification (emotional engagement), and use of self-regulation strategies in learning (cognitive engagement) in eighth grade.

Summary

On the whole, various dimensions of teacher–student relationships were positively associated with student engagement for non-Latino youth. Teacher–student relationships were also positively associated with academic achievement, either directly or indirectly through student engagement as a mediator. Specifically, all four dimensions of teacher–student relationships were positively related to behavioral and emotional engagement. There was very limited evidence suggesting that there was not a significant relationship between teacher emotional support and behavioral engagement represented by participation in extracurricular activities. Three out of the four dimensions of teacher–student relationships (except classroom safety) were also positively related to cognitive engagement. Teacher emotional support was positively and directly related to academic achievement, as well as indirectly related to academic achievement through behavioral and emotional engagement as a mediator. Additionally, a number of combinations of dimensions of teacher–student relationships were positively associated with dimensions of student engagement. As well, combinations of dimensions of teacher–student relationships were positively associated with academic achievement directly and indirectly through dimensions of student engagement as a mediator. Another additional finding indicated that the mediation effects of engagement on the associations between high quality classroom contexts and achievement differed for high-achieving students and academically struggling students, with all three dimensions of engagement serving as a mediator for high-achieving students, but not for academically struggling students. On the whole, there was more evidence for teacher–student relationships in relation to engagement than teacher–student relationships in relation to achievement. One exception was that results from one study revealed no significant relationships between emotional support and cognitive engagement. Teacher–student relationships focused primarily on emotional support, and engagement focused primarily on behavioral engagement. Classroom safety and cognitive engagement were the least frequently explored dimensions.

Limited evidence regarding the moderation effects of ethnicity suggested that teacher–student relationships, student engagement, and academic achievement among early adolescents did not differ for Caucasian students and African American students. There was limited evidence showing the moderation effects of gender on teacher–student relationships and student engagement for early adolescents were mixed; where differences were found that boys showed stronger effects of teacher emotional support on behavioral and emotional engagement than girls, whereas no differences were found between boys and girls in terms of teacher emotional support in relation to behavioral, emotional, and cognitive engagement.

On the whole, results from limited research suggested that various dimensions of teacher–student relationships were positively associated with student engagement for Latino youth. Teacher–student relationships were also positively associated with academic achievement either directly or indirectly through student engagement as a mediator. Specifically, all four dimensions of teacher–student relationships were positively related to behavioral engagement; three of the four dimensions of teacher–student relationships (except teacher clear expectations) were also positively related to emotional engagement. There was very limited evidence indicating no significant associations between teacher instructional help and emotional engagement.

Teacher emotional support, instrumental help, and clear expectations were positively and directly related to academic achievement. Teacher emotional support and instrumental help were also positively and indirectly related to academic achievement through behavioral and emotional engagement as a mediator. Additionally, combination of dimensions (teacher emotional support and instrumental help) of teacher–student relationships was positively associated with behavioral engagement. There was more evidence for teacher–student relationships in relation to student engagement than teacher–student relationships in relation to academic achievement. Teacher–student relationships focused primarily on teacher emotional support, and student engagement focused on behavioral and emotional engagement. Classroom safety was the least frequently explored dimension of teacher–student relationships in the literature. Limited evidence suggested that Latino students did not differ from their Caucasian peers in the associations between teacher emotional support and behavioral engagement.

Discussion

There is a growing consensus that positive teacher–student relationships play a critical and central role in engaging students in school and their school success, for non-Latino youth as well as students of minority groups (Bingham and Okagaki 2012). The present study synthesized the research literature on teacher–student relationships in relation to student engagement and academic achievement for non-Latino and Latino youth. In general, findings were more similar than different for non-Latino youth and Latino youth in particular, with positive associations between teacher–student relationships (emotional support, instrumental help, clear expectations, and classroom safety) and student engagement (behavioral, emotional, and cognitive) and academic achievement. The results on the moderation effect of gender for non-Latino youth were mixed. The quality of the literature for early adolescents tended to be more rigorous and stronger, although both bodies of literature featured theoretical framework and reasonably rigorous methodologies. The results of the current review raise two critical issues, with one issue concerning the findings, and the other issue regarding the quality of the literature.

Teacher–Student Relationships, Student Engagement, and Academic Achievement

Overall Findings

The overall findings support the notion that teacher–student relationships provide a significant platform for student school outcomes (e.g., Roorda et al. 2011). Moreover, different from the previous review by Roorda et al. (2011), the present review focused on non-Latino and Latino youth. The findings suggest that teachers play an important role in engaging youth in school and promoting their academic success through supportive relationships for both groups. For many students, early adolescence is a period of declines in engagement and achievement. Early adolescence is also a period during which youth place more attention on relationships with adults, especially teachers, outside of the home and seek support and guidance from them (Murray 2009; Wang and Eccles 2012). However, relationships with their teachers are often disrupted as youth transition from elementary to middle school (Davis 2003; Gehlbach et al. 2012). Research has shown that despite these challenges, compared to parents and peers, teachers play a particularly important role in reducing declines in school compliance (behavioral engagement) and sense of school identification and school meaningfulness (emotional engagement; Wang and Eccles 2012) for non-Latino youth. The findings of the present review are particularly important considering that early adolescents are commonly believed to be strongly influenced by their peers. Students who attend large and impersonal middle schools, in particular, can benefit from supportive relationships with their teachers in meeting their needs for autonomy, competence, and relatedness, which promotes their engagement in school (Wang and Eccles 2012) and academic success (Wang and Holcombe 2010). The positive associations between teacher–student relationships and engagement and achievement for Latino youth suggest that relationships with teachers may be especially important for these students as teachers help them navigate middle school in which the culture is different from their home culture.

The overall findings revealed that research had not paid comparable attention to associations between teacher–student relationships and achievement as to associations between teacher–student relationships and engagement. Indeed, as Wang and Holcombe (2010) have pointed out, while most of the literature on teacher social support examines engagement as an outcome, little is known about whether the relationships between emotional support and engagement lead to other distal outcomes of interest, such as academic achievement. There is a dire need for research to focus on the correlates of academic success among Latino youth, given the persistent lower levels of academic achievement. Further, given that engagement and achievement both tend to decline during early adolescence, and challenges youth face during transition to middle school especially for Latino youth, it is essential to study processes associated with Latino youth's academic outcomes, especially teacher–student relationships and engagement, in order to understand the most effective preventative interventions for promoting positive academic outcomes among these students. For example, future research could

use an experimental design to examine causal relationships between teacher–student relationships and academic achievement through student engagement. Findings can help educators develop effective intervention strategies to foster teacher–student relationships so as to promote youth's academic achievement through engagement.

Moderation Effects

The mixed results from a few studies regarding gender as a moderator for the associations between emotional support and engagement are interesting. On the one hand, limited evidence from the current review indicated that there were no gender differences in teacher emotional support and the three dimensions of student engagement for non-Latino youth. Girls typically reported more positive perceptions of relationships with teachers than boys. This difference may reflect gender socialization process and differential expectations from teachers (Eccles 2007; Wang and Eccles 2012; Wilkinson and Marrett 1985). For example, teachers may respond to boys and girls differently, leading students to believe that different behavioral patterns associated with gender are expected by teachers (Eccles 2007; Wang and Eccles 2012). Teachers may expect girls to display more emotional relatedness with teachers than boys, which may lead girls to engage in school more than boys. Boys may believe that it is not socially acceptable to admit higher levels of emotional connection to teachers. On the other hand, unexpectedly, although girls perceived more positive relationships with their teachers than boys for non-Latino youth, teacher–student relationships were a more salient predictor of behavioral and emotional engagement for boys. It may be that boys tended to have troublesome relationships with their teachers. Their teachers may have paid more attention and effort in developing supportive relationships with them. Given the limited evidence from the literature for early adolescents with respect to the moderation effect of gender on teacher–student relationships in relation to student engagement and achievement, future research could explore this issue further, for non-Latino as well as Latino youth. For example, as boys tend to show less positive perceptions of relationships with teachers than girls, research could focus on effective intervention strategies to promote boys' relationships with teachers.

Acknowledging and accounting for the diversity that exists in non-Latino and Latino youth with respect to SES and geographical locale is critical for understanding these early adolescents' experiences. There is a considerable need to understand students of different SES backgrounds. For example, the studies included in the review for Latino youth involved Latino students from low SES backgrounds only. However, the majority of Latino youth in the United States are not living in poverty. Our knowledge of the experiences about Latino youth from other SES backgrounds is vastly limited. It is important to understand the experience with teachers for Latino youth from other SES backgrounds and how the experience contributes to their engagement and academic success. In addition to SES, researchers must consider the geographical locale that shapes early adolescents' experiences at school. Gallagher et al. (2013) found that students in urban and rural schools were more likely to be taught by less qualified teachers than students in suburban schools. Experiences with teachers are likely different in the unique geographic contexts and perhaps have different implications. For instance, it would be helpful to examine whether findings with Latino youth in New York would replicate with Latino adolescents living in Texas, as the dominant Latino population in New York is of Dominican origin as compared to the dominant presence of Mexican origin in Texas.

In addition to SES and geographic locale, Latino cultural factors especially respeto and familisimo were not studied as moderators in the literature for Latino youth. Although Latino youth are typically close to their families, their parents, especially if they are recent immigrants with language barriers, may not have sufficient knowledge about the American schooling system. Thus, Latino youth and their parents may turn to teachers as a vital source for information about schooling. Teacher–student relationships may complement the role of relationships with their parents for Latino youth. During the interactions with Latino youth, teachers need to take into consideration the Latino cultural values such as respeto and familisimo. Failing to do so may lead to conflicting relationships with the students. For example, as compared with their Caucasian peers, Latino youth may appear to be quiet in class as a way to show respect (respeto) to their teachers. But if their teachers are not aware of their cultural value of respeto, they may interpret students' behaviors as passive and disengaging. Latino youth also hold strong family values (familisimo). When making a decision to going to college, they may put their family needs first and choose to stay at home and take care of their siblings. When advising these students, it is important for the teachers to keep familisimo in mind to understand the Latino youth's decisions due to this cultural value. Researchers could conduct in-depth interviews with Latino students to explore their perceptions about the role of their cultural values especially respeto and familisimo in their relationships with teachers through their lived experience. Understanding Latino students' lived experiences is essential especially when teachers are not familiar with or have misunderstandings about Latino students' cultural backgrounds (Smith 2010). A better understanding of their cultural values can decrease the risks of failing school for Latino youth (Smith 2010). Findings could provide guidance for researchers in designing and coordinating systematic professional development with teachers focused on culturally relevant strategies aimed at specific Latino

cultural values such as respeto and familisimo in order to enhance teachers' knowledge and skills in working with Latino youth. Also, if significant moderation effect of Latino cultural factors on the associations between teacher–student relationships and engagement and achievement were found, the overall findings for non-Latino and Latino youth could be different due to the significance of Latino cultural factors as a moderator. Thus, it might be important to explore this moderation effect as Latino cultural factors appear to be the major differences between these two groups.

A cautionary note when examining Latino cultural values (respeto and familisimo) as the moderator is that it is important to assess variability in their endorsement of cultural values among Latino youth. For example, depending on factors such as Latino youth's place of birth, length of stay in the United States, immigration generational status, English language proficiency level, individuals among Latino youth may vary in the extent to which they endorse particular cultural values in their relationships with teachers. If a Latino student was born in the United States and has been educated in all English mainstream classrooms, it is likely that the student has been assimilated by the predominant cultural values which are different from their home cultural values. For second or third generation Latino students, Latino cultural factors are likely to have less impact on their relationships with their teachers than for Latino students who are first generation immigrants (Suárez-Orozco and Suárez-Orozco 2001, 2013). Therefore, there is a need for future research on the extent to which variability in Latino youths' endorsement of cultural values affects teacher–student relationships.

Quality of the Literature

Theoretical Framework

Overall, the evidence was limited in supporting an integrated framework involving self-determination theory and ecological theory, and each body of literature tended to focus on one of these theories. This gap in the literature points to a need to integrate self-determination theory and ecological theory in research on the associations between teacher–student relationships and engagement and achievement for non-Latino and Latino youth. Specifically, research for non-Latino youth needs to include ecological theory, and research for Latino youth needs to involve self-determination theory. The value in integrating these theories is that the integrative framework conceptualizes not only the mechanisms between teacher–student relationships and engagement and achievement (self-determination theory), but also the role of environmental factors (teachers, ethnicity, gender, SES, geographic locale, and Latino cultural factors). This integrative theoretical framework provides a comprehensive picture for how all these elements work together as the environmental factors within the macrosystem affect the interactions between teachers and students in the microsystem (i.e., classroom).

Findings support the contention that self-determination theory applies to Latino youth as related to teacher–student relationships. Such findings add to the literature that self-determination theory developed from research with Caucasian students applies not only to students of Eastern cultural backgrounds (Jang et al. 2009), but also Latino youth. Future research could explore similarities or differences between youth from Eastern cultures and Latino youth when applying self-determination theory to these populations as related to teacher–student relationships. Although these two populations tend to share a collectivist cultural value, there may be cultural nuances to the salience of specific relational concerns. For instance, Chang (2015) explored the interplay between collectivism and social support processes among Asian and Latino American college students. Findings suggest that although both Asian and Latino American participants shared some similarities in utilizing social support, there were some differences as well. Both groups tended to underutilize social support and rely on themselves, expressed a need for emotional reassurance from their parents, and preferred seeking advice or comfort from others who went through similar situations. Asian American participants were motivated primarily to save face, whereas Latino American participants were most concerned about maintaining harmony. While Asian American participants were advised by their parents to seek self-control, Latino American participants were encouraged by their parents to ask for support. It is possible that Latino youth may reach out to their teachers for help more than their Asian peers, fulfilling the need for autonomy through developing positive relationships with their teachers and ultimately promoting engagement and achievement.

Multidimensionality of Teacher–Student Relationships

The findings support the utility of a four dimensional definition of teacher–student relationships. The findings support the notion that a multidimensional model of teacher–student relationships provides a more comprehensive picture of the social affordance from the teacher in the classroom than do unidimensional models that focus solely on teacher emotional support. In line with prior research in this area, results of the current review provide further evidence that emotional support from teachers is an important, positive predictor of student engagement and academic achievement (e.g., Roorda et al. 2011; Wentzel et al. 2010). However, the three additional aspects (instrumental help, clear expectations, and classroom safety) of teacher–student relationships were also shown to positively predict student engagement and academic achievement. Therefore, aspects of student

engagement and academic achievement appear to be contingent upon a set of beliefs that reflect not only emotional support characterized by caring about and respecting students, but also provision of instrumental help, communication of high expectations for school engagement, and a safe and risk-free classroom environment.

In addition to contributions of each dimension to student engagement or academic achievement, to what extent the dimensions are correlated with each other needs to be explored. The four dimensions are likely to be intertwined. For example, as the teachers provide assistance to students during the classroom instruction, it's mostly effective if the teachers care about the students and are interested in their success, explicitly tell the students about the expectations in a non-threatening and nurturing environment. Future research could conduct factor analysis by involving all four dimensions in the same model to explore the extent to which each dimension uniquely contributes to teacher–student relationships. Findings could be used to revisit the specification of the dimensions of teacher–student relationships, as well as to guide interventions of promoting engagement and achievement by focusing on the most effective aspect of teacher–student relationships.

Multidimensionality of Student Engagement

The results of the review support the multidimensionality of student engagement as well. The fusion of all three aspects of student engagement presents a richer characterization of students in how they behave, feel, and think, than is possible in research on single component especially behavioral engagement. However, research has not benefited fully from the potential of student engagement as a multidimensional construct that encompasses behavior, emotion, and cognition. The present literature has treated student engagement primarily as a unidimensional construct focused on behavioral engagement. Findings from the present review support the notion that behavioral engagement makes significant contributions to student engagement or academic achievement. However, behavioral engagement reflects only how students behave, not how they feel or think. Future research could explore the contributions of teacher–student relationships to other aspects of student engagement (emotional and cognitive engagement), or how these dimensions predict students' academic achievement. Moreover, to what extent the three aspects of student engagement are correlated with each other needs to be examined as well. It's likely that a student interested in school (emotional engagement) also makes an effort in following the school rule, attending classes, and monitoring himself or herself in learning (behavioral and cognitive engagement). Additionally, when examining teacher–student relationships in relation to cognitive engagement, it might be helpful to take tasks difficulty level into consideration. Research shows that when teacher instrumental help and challenging tasks were paired, early adolescents were more likely to be engaged cognitively (Blumenfeld and Meece 1988).

Methodological Issues

One gap in the literature concerning research design is the lack of longitudinal studies. The few studies with longitudinal designs included in this review enabled the researchers to examine changes in teacher–student relationship, student engagement, and academic achievement over time. There was also limited evidence suggesting that the associations between teacher–student relationships and engagement and achievement for Latino youth over time were non-linear. The trajectory did not follow a linear relationship, but actually fluctuated from year to year. Going forward, more research is needed with a longitudinal design by following the participants at multiple time points in order to examine changes over time. It would also be helpful to collect at least three waves' data in order to test for linear or non-linear relationships for changes in teacher–student relationships in relation to engagement and achievement.

Similarly, with few exceptions, the studies were mostly nonexperimental correlational studies, which does not allow for determining causal relationships. An implication of this shortcoming is that more experimental studies are needed to identify the extent to which the positive changes in engagement and achievement are due to the intervention. Furthermore, findings from the studies could be used to design intervention strategies to promote engagement and academic success through supportive teacher–student relationships. For example, both experimental studies (Gregory et al. 2014; Turner et al. 2014) involved interventions through teacher professional development programs to improve relationships with students and student engagement. The teachers in the intervention group showed significant increase in their abilities to facilitate their students' higher-order thinking skills (analysis and problem solving) than those teachers in the control group. Such changes in turn, promoted students' behavioral engagement. These findings indicate that teacher–student relationships can be enhanced through professional development. In addition to the need for longitudinal and experimental design, the use of qualitative methods may be an important step by those interested in examining how contexts for teacher–student relationships contribute to engagement and achievement and qualitative methods could be used to complement quantitative methods.

With respect to sampling, the lack of random sampling suggests that generalizability of the findings to the target population was limited. Going forward, a critical step for future research is to employ random sampling more to increase the generalizability of the findings to the target

population. It would also be helpful for researchers to conduct power analysis to detect the extent to which the sample size is sufficient. As for participants' characteristics, in addition to SES and geographic locale discussed earlier, for studies of Latino youth, research needs to report these students' English language proficiency levels, because research shows that immigrant youth with limited English language proficiency were less likely to be engaged behaviorally and emotionally, which in turn, lead to lower academic performance over time (Kim and Suárez-Orozco 2015).

There is a need for future research to assess the match of ethnicity between teachers and students on Latino youth's relationships with their teachers, engagement, and achievement. As noted earlier, the Latino early adolescent population has been growing dramatically. However, teachers in public schools are predominantly White (U.S. Department of Education, 2007). Crosnoe et al. (2004) found that the proportion of White teachers in the school was positively related to White adolescents' ratings of emotional engagement, but was negatively related to Latino young girls' ratings of emotional engagement. As Bingham and Okgaki (2012) have pointed out, matching ethnicity between teachers and students may benefit minority students in their engagement and academic success. Matching on ethnicity for Latino students and their teachers may provide a common ground and increase comfort and feelings of belonging for Latino youth, while mismatches may hinder the ability of Latino youth and teachers to connect (Crosnoe et al. 2004). One possible mechanism driving the positive associations between teacher–student ethnicity matching and Latino youth's school outcomes is that a Latino teacher may be able to help the Latino youth better understand the cultural norms at school and differences between their home culture and the mainstream culture at school. The Latino teacher may be more tolerant of the Latino students who act in accordance with the Latino cultural norms (Crosnoe et al. 2004).

Findings have highlighted the need to include reports from multiple informants, because results from different reporters of the same construct may vary. Although including multiple reporters is time-consuming and labor-intensive, the benefits are worth the costs. Thus, there is a need for future research to disentangle when certain informants will be most informative for the research question of interest, and when perhaps the distinct perspectives on the same issue uniquely inform developmental outcomes and relevant processes.

Another concern is the common use of student or teacher surveys as the measures for teacher–student relationships and engagement. This suggests a need for use of multiple methods as measures to enhance our understanding of how and why teacher–student relationships contribute engagement and achievement. For example, the observational study by Gregory et al. (2014) that explored the effects of professional development with teachers on promoting relationships with students was critical for knowing where and how to intervene.

Finally, the lack of information about validity of the measures and measurement equivalence in the studies points to a need to report such information for future research. Further research should report validity of the measures to test the degree to which the measures succeed in describing or quantifying what they are designed to measure. Ways to evaluate measurement validity may include content validity, criterion-related validity, and construct validity. For studies involving students of diverse ethnic backgrounds (especially Caucasian, Latino ethnic groups), it is important to test measurement equivalence to examine the appropriateness of the measures for teacher–student relationships, engagement, and achievement developed initially for Caucasian students when applied to Latino students. A demonstration of measurement equivalence provides evidence that measured constructs represent similar entities across non-Latino and Latino youth. The absence of measurement equivalence may lead to biased results. One common method is to examine the factorial structure of existing measures to help in the interpretation of findings (Knight and Hill 1998; Michaels et al. 2007). When the factor structure (i.e., factor loadings and intercepts) can be constrained to equality across ethnic groups, there is evidence that the same construct is being measured in each group. For studies involving both English and Spanish versions of the measures for teacher–student relationships, student engagement, and academic achievement, future research should empirically evaluate the cross-language measurement equivalence of translated scales.

Conclusion

The findings were similar for non-Latino and Latino youth, with positive associations between the teacher–student relationships (emotional support, instrumental help, clear expectations, and classroom safety), student engagement (behavioral, emotional, and cognitive), and academic achievement, with engagement as a mediator. The findings primarily reflected the associations between teacher emotional support and behavioral engagement. Both bodies of literature were theoretically driven (self-determination theory and ecological theory), employed surveys as the primary measure and reliable measures. Teacher–student relationships and engagement were defined as unidimensional constructs. There was a lack of studies with experimental, longitudinal design, qualitative methods, random sampling, power analyses and reported validity of the measures. Major differences included mixed results for the moderation effect of gender among non-Latino youth. The quality of the literature for non-Latino youth was relatively more rigorous and stronger.

There is a solid base of research that has theoretical and methodological strengths concerning the associations between teacher–student relationship and student engagement and academic achievement for non-Latino and Latino youth. But researchers need to build on this base in ways to address significant gaps in the overall findings and quality of the literature. The present review provides evidence that teacher–student relationships are positively associated with student engagement and academic achievement for both groups. The present review also reveals gaps in the research literature, especially in terms of examination of associations between teacher–student relationships and academic achievement, exploration of moderation effects, and adhering to the integrative theoretical framework and teacher–student relationships and student engagement. There is also a need for longitudinal, experimental, and qualitative research design, random sampling and power analysis, examining participants' characteristics especially SES, geographic locale, and Latino cultural factors, and reporting validity of measures. It is my hope that this review helps us better understand the associations between teacher–student relationships and student engagement and academic achievement for non-Latino and Latino youth, and prompts researchers to further explore this important topic along the paths for future research as the findings of the review suggest.

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Compliance with Ethical Standards

Conflict of interest The author reports no conflict of interests.

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