Developmental Relationships and School Success: How Teachers, Parents, and Friends Affect Educational Outcomes and What Actions Students Say Matter Most

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Abstract

The current paper explores how students' relationships with their teachers, parents, and friends might differentially impact their academic experience and success, by presenting and integrating the results of two related studies. In the first study, survey methods and structural equation modeling are used to describe the similar and different effects that developmental relationships with teachers, parents, and friends seem to have on middle- and high-school students' academic motivation, GPA, and perceptions of school climate. Relationships with teachers directly predicted all three outcomes at the middle school level, and motivation and school climate at the high school level. Relationships indirectly predicted high school GPA, through motivation. Student-teacher relationships, and parent-teacher relationships, also indirectly predicted middle school GPA, through motivation. Relationships with parents directly predicted only motivation in middle school. Relationships with friends directly predicted school climate at both levels. The results from Study 1 showed the central importance of teacher-student relationships on student motivation and led the research team to qualitatively look in study #2 at *how* teachers build relationships that motivate students and how students experience those relationships. Study 2 used student focus groups and a grounded theory, open coding approach to analysis to identify commonly occurring themes describing what practices teachers used successfully, in students' eyes, to build strong relationships with students and boost their academic motivation. These practices focused on how teachers expressed care, provided support, challenged students to grow, shared power with them, and expanded their sense of possibilities. The mixed methods produce an overall study that uniquely captures both a global and more granular, practice-oriented view of the ways in which differing

developmental relationships in young people's lives affect their connection to and success in school.

Keywords: student-teacher relationships, parent relationships, peer relationships, academic motivation, school climate, mixed methods

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There is a rich history of research demonstrating the supportive role relationships play in positive youth development (Martin & Dowson, 2009; Pianta, Hamre, & Allen, 2012). In general, as the number of strong relationships in young people's lives increases, youth well-being (Benson et al., 2011) and resilience increase (Benson et al., 2006), and reports of high-risk behaviors decrease (Leffert et al., 1998). In academic settings, when the quality of a young person's relationship with their teacher increases over the academic year, these changes are also directly associated with increases in their academic motivation and perceptions of belongingness, and indirectly associated with GPA (Martin & Dowson, 2009; Pekel et al., 2018; Scales et al., 2019).

In their extensive review of how interpersonal relationships affect students' motivation, engagement, and achievement, Martin and Dowson (2009) noted that a number of influential motivational theories, including attribution theory, expectancy-value theory, goal theory, self-efficacy theory, self-worth theory, and especially, self-determination theory, conceptualize motivation in relational terms. Using self-determination theory, for example, Martin and Dowson described how high-quality relationships with teachers can help students meet basic human needs for autonomy, belonging, and competence. Together, these can promote students' effort, participation, cooperation, and self-regulation skills and strengthen academic performance.

Interventions to increase student motivation have often focused on changing the individual student's *internal* attitudes, values, and self-perceptions (e.g., efficacy beliefs, mindsets). For example, in their extensive review on achievement motivation, Wigfield, Eccles, Fredricks, Simpkins, Roeser, & Schiefele (2015) described several group, classroom, and school-based motivation interventions, with the focuses including malleable intelligence, developing self-efficacy and deeper appreciation for the relevance of the subject matter, and

promoting a school culture that emphasizes a mastery orientation over a performance orientation. They reported on studies showing, for example, that African American students taught a malleable view of intelligence had greater school engagement as a result, and that reading motivation and comprehension increased among students through developing their sense of self-efficacy and understanding of the importance of reading. In two other reviews of the motivation literature, both Lazowski and Hulleman (2016) and Marsh, Pekrun, Parker, Murayama, Guo, Dicke, & Arens (2019) summarized the literature's emphasis on autonomy and competence beliefs as levers of student motivation, within a context of students' interactions with parents, peers, and teachers. It is that framework of motivation, most closely aligned with self-determination theory (Ryan & Deci, 2000), that informs the current study.

Given the importance of positive relationships in young people's lives to support a range of positive outcomes, and given the amount of time they spend in school, it is imperative that we better understand how students' relationships with their teachers, parents, and friends might differentially impact their academic experience and success. The literature, however, contains only a small number of studies that examine all three of those relationships' effects on academic motivation. In addition, as we expand on below, most studies examine elementary, middle, or high school students, but rarely more than one level. Given the developmental differences of students in those differing levels, examining two levels together can provide a more thorough and nuanced understanding of potentially differing effects and mechanisms of how those relationships may differentially affect school outcomes by grade levels. For example, Nelson and DeBacker (2010) included both middle and high school levels and were able to thereby find that the degree of belongingness and positive classroom climate was significantly greater in middle school, helping to explain grade level differences in academic motivation. The measures of relationships used in previous research, moreover, tend to be conceptually limited, largely to aspects of teacher caring or support. Finally, beyond quantitative measures of how often students experience high-quality relationships with teachers, there is limited work on how

students actually experience those relationships, and their own insights about why those relationships may influence motivation and effort. The current research uses mixed quantitative and qualitative methods to describe two related studies that together address many of those gaps in the literature. It includes middle *and* high school students, uses a multi-dimensional quantitative measure of relationships, examines the effect of all three of student-teacher, parent-child, and friend relationships on motivation, school climate, and GPA, and explores more deeply the contextual aspects of those relationships through insights from focus groups with students who also participated in the quantitative study.

Despite the gaps noted, studies examining the influence of student-teacher relationships on academic success are plentiful. Many have focused on the association between student-teacher relationships and students' academic motivation, observing that stronger relationships are often associated with higher academic motivation (Maulana, Opdenakker, & Bosker, 2013). Strong student-teacher relationships have also been linked to reduced aggression, and improved attitudes towards school (McGrath & Van Bergen, 2015).

Research has found that positive relationships with teachers and peers also contribute to student perceptions of school climate that reflect a student's feeling of "fit" within a school. As Cohen et al. (2009) noted, school climate is both an individual's perception of the safety, fairness, and welcomingness of the total school environment and a group perception about those aspects of pervasive school culture that can be "reality" for sizable numbers and perhaps the majority of students, faculty, and other school staff. Thus, relationships within the school context can have an influence on both broad adjustment to school, such as school climate perceptions, and intra-individual strengths, such as how engaged and effortful students are. Thus, we examine the effects of differing relationship types on both students' perceptions of their fit with the broader school environment (school climate) and their reports of being academically motivated.

Quantitative studies have shown that academic motivation declines across development, as students move through elementary to middle and high school (Wang & Eccles, 2012), even within a school year (Kosovich et al., 2017, Author, 2019). This is problematic, because there is a large body of literature that links academic motivation to student success, be it grades, attendance, or sense of school belongingness, (e.g., Fredricks & Eccles, 2002; Gottfried et al., 2007).

Negative student-teacher relationships can lead to antisocial behavior, peer rejection, negative attitudes towards school, adjustment difficulties, lower school attendance, poorer academic engagement, and lower achievement (McGrath & Van Bergen, 2015). Yet, when students and teachers have strong relationships, these relationships can ameliorate the oft-observed decline in motivation and have a positive impact on academic achievement (Maulana, Opdenakker, & Bosker, 2013; Wentzel, 2009; 2012). Students who experience teachers and classrooms that are emotionally supportive often have more opportunities to develop autonomy, which is critical in building self-determination, and those students report academic year increases in their behavioral engagement and mastery motivation (Ruzek, Hafen, Allen, Gregory, Mikami & Pianta, 2016; Ryan & Deci, 2000).

For years, qualitative studies in education also have explored caring student-teacher relationships as a critical need for student development (Jeffrey, Auger, Pepperell, 2013; Noddings, 1984). Cothran and Ennis (2000) noted that students who felt a sense of care from their teachers were more likely to work harder in school, and conversely, students who did not feel a sense of care from their teachers tended to pay less attention (Cothran, Kulinna, & Garragy, 2003). Although caring is often cited as a key reason teachers go in to the profession and is foundational to building positive relationships, surprisingly little consideration has been given to understanding the factors that contribute to and sustain positive student-teacher relationships (Adler, 2002; Yu, Johnson, Deutsch, & Varga, 2018). Thus, although many of the cited studies are correlational and do not establish causation, the quantitative and qualitative

literatures together do highlight a strong potential link among the quality of students' relationships with their teachers, their sense of feeling positive about their school in general, their more focused level of academic motivation, and their performance.

But students' relationships with their teachers are not the only relationship that matters when it comes to academic success. Parents and peers also play crucial roles. For example, Shukla, Tombari, Toland, and Danner (2015) observed that when ninth graders feel that their parents are supportive of their learning, they tend to have higher mastery and performance-approach goals, than their peers who do not perceive parental support. Wentzel (2002) also found that effective teachers are very much like good parents in how the specific parenting/teaching dimensions of modeling motivation, exercising control, demands for student maturity, democratic communication, and nurturing behavior consistently predict positive or negative motivation, achievement, and social behavior. Moreover, these relationships are also systemically intertwined. For example, positive, adaptive relationships with parents have been found to predict positive relationships with teachers, albeit the link attenuates somewhat as students move through middle and high school (Sabol & Pianta, 2012). Studies also have linked positive peer relationships to academic motivation, achievement, and broad well-being (e.g., Wentzel, Muenks, McNeish, & Russell, 2017). Ladd, Herald-Brown, and Kochel (2009) noted that, despite a great deal of research on peers and academic achievement, considerably less research has been done on peer influence on academic motivation, and that peers may arguably be a stronger influence on school engagement even than teachers or parents.

The great majority of studies examining relationships' effects on academic outcomes are focused on one or two of student-teacher, parent-child, and peer relationships. A smaller number of these studies examine the differential effects of all three relationships in students' lives. Furrer and Skinner (2003) examined 3rd to 6th grade students' relationships with their parents, friends, and teachers, finding that each of these relationships uniquely predicted their engagement in school. For example, relatedness to parents and teachers more strongly

predicted behavioral engagement than did relatedness with peers; however, relatedness with peers and teachers more strongly predicted emotional engagement than did relatedness with parents. Ricard and Pelletier (2016) corroborated these findings with a high school population, observing that relationships with parents, friends, and teachers uniquely predict academic motivation. In a different study, also with a high school population, student-teacher relationships were the only type of relationship that predicted academic motivation, conceptualized as identified regulation (Guay, Denault, & Renauld, 2017). Martin, Marsh, McInerney, & Green (2009) studied a large high school sample, finding that student-teacher relationships were the strongest predictors of academic outcomes, followed by parent-child relationships, whereas peer relationships predicted nonacademic outcomes such as honesty and emotional instability self-concepts. Ryan, Stiller, and Lynch (1994) also found in an earlier study of middle school students that relationships with teachers and parents had stronger associations with school functioning, while relationships with friends were more connected to self-esteem outcomes than school outcomes. However, Nelson and DeBacker (2010) studied a smaller sample of both middle and high school students and did report that students reported higher achievement motivation if they felt valued and respected by their classmates. Wentzel (1998) also found that the three relational sources of support had differing effects on motivation and goal orientations, with peer support predicting prosocial goal pursuit, teacher support predicting motivation and social responsibility goals, and parent support predicting motivation and academic goals.

Studies investigating the differential impacts of various relational targets on students' academic success might diverge somewhat for two reasons. First, the age of the populations being studied varied across those studies, which could produce variation in results. Previous research has shown that the nature of a young person's relationships changes as they grow older, such as the influence of non-parental adults like teachers becoming more salient (e.g., Brown & Bakken, 2011; Sabol & Pianta, 2012). Second, the way relationships are measured in many studies varies widely, including student surveys, teacher observations, and independent

observer ratings. Finally, most studies examine what seems to occur in student-teacher relationships, but not how it happens, i.e., what are the specific teacher practices that define a developmentally meaningful relationship in contrast to one that is less developmentally influential?

Conceptualizing Developmental Relationships

Building on the work of Li and Julian (2012), Search Institute created the developmental relationships framework (Pekel et al., 2018), which names five interconnected elements that define a developmental relationship (see Table 1). In this framework, *expressing care* in a student-teacher relationship requires actions that show the students that they matter. *Challenging growth* involves the teachers' actions that push their students to keep improving. When a teacher helps their students complete tasks and achieve goals, they are *providing support*. When a teacher treats their students with respect and gives them a say in the classroom, they are *sharing power*. And finally, to *expand possibilities*, teachers connect their students with people, places, and ideas that broaden their worlds. Although rhetorically distinguishable for the sake of clearly identifying key features of developmentally-influential relationships, these features are understood as conceptually connected and overlapping to varying degrees with each other. Thus, for example, we have found in qualitative work that it is the overall relationship that youth experience, with these features of the relationship namable and describable, but not perceived as separate from each other (Scales et al., 2019).

Two recent studies have used this developmental relationship framework to track student-teacher relationships across one academic year. One study measured the quality of middle school students' relationships with their teachers at the beginning and end of one academic year, and the other followed both middle- and high-school students across the year. In the latter study, students' academic motivation had a downward trajectory (Scales et al., 2019), which is consistent with previous studies (Gillet et al., 2012; Wang & Eccles, 2012). However, when students reported an increase in the quality of their relationships with their

teachers, they also reported higher academic motivation, perceptions of school climate, instructional quality, and had higher GPAs at year end. It was rare for student-teacher relationship quality to improve across the academic year, and so most students could not benefit from this meaningful potential influence on motivation.

In the second study, student-teacher relationships were strongly related to academic motivation at both the beginning and end of the year, and directly predicted students' perception of school climate and belonging (Scales et al., 2020). Relationships indirectly predicted students' GPA. Student-teacher relationships declined more for students with financial strain that it did for students not facing financial strain. Interestingly, the negative association between financial strain and student-teacher relationships only emerged as the year progressed. In contrast, the same association of financial strain with academic motivation was present at the beginning of the academic year, but disappeared as the year went on, highlighting the importance of developmental relationships for these students.

The current study expands on this research. The previous studies that investigated the role of developmental relationships in a young person's academic experience have focused exclusively on student-teacher relationships. In contrast, the present study addresses this limitation by investigating how three influential relational targets in young people's lives (teachers, parents, and friends) impact students' educational experience. In addition, both Study 1 and 2 follow Wentzel's (2009) call, and employ a more comprehensive measure of student-teacher relationships than has been common in the literature. Indeed, Wentzel, Battle, Russell, and Looney (2010) subsequently reported that more comprehensive measures of teacher support than simply emotional support explained more variance in a variety of classroom outcomes.

These issues illustrate the complex natures of the various relationships in a young person's life, and highlight the need for more sophisticated quantitative and deeper qualitative study of these relationships. The current study was conceptualized in order to address these

concerns. The mixed methods approach was most appropriate because we had both specific hypotheses to test, suitable through quantitative methods, and broader research questions to explore for which previous research had provided limited answers, suggesting that a qualitative approach would have value to better understand the phenomena in question (Patton, 2002). The design is distinguished from multiple methods, which can include solely quantitative or qualitative approaches, because it meets the criteria described by the *Journal of Mixed Methods Research*, specifically, that mixed methods research is characterized by collecting and analyzing data, integrating the findings, and drawing inferences using both qualitative and quantitative approaches or methods.

Based on the literature reviewed here, it was hypothesized in Study 1, the quantitative study, that stronger ratings of overall student-teacher developmental relationships would be linked to both broad perceptions of feeling cared about and respected in the school context (school climate), and greater student confidence in the value of working hard and willingness to work hard on schoolwork (motivation), both of which would be associated with better grades (GPA). It also was hypothesized that developmental relationships with parents and peers would positively predict motivation and grades, but that only teacher and peer relationships, and not relationships with parents, would predict school climate. In Study 2, those data were explored more deeply through insights obtained from student focus groups, helping to increase understanding of what students want from their relationships with their teachers, and how these experiences motivate them. Study 2 provided more rich material than did Study 1 to answer these research questions:

1. How do students experience developmental relationships with teachers?
2. What do students say works to build both positive relationships *and* motivate them academically?
3. How do students talk about the connection between relationships and academic motivation?

Method

The overall study was conceived as a mixed methods longitudinal explanatory design, albeit not strictly a sequential design. Study 1 (quantitative) and Study 2 (qualitative) both began in Fall 2017. Then, when the results of Study 1 were analyzed, the data led to formulation of new protocol prompts to be used in the subsequent waves of focus groups in Study 2. Similarly, some of the themes yielded through analysis of wave 1 focus group data from the qualitative Study 2 prompted the insertion of new questions into subsequent waves of the survey used in Study 1.

Participants and Procedures

Students from one middle school (*N*=623), and one high school (*N*=672) from a large suburban community in the Midwest participated in this study. All students completed the initial wave 1 survey in October 2017. Students took the surveys on school-provided Chromebooks during the same class period over a several day span. The same process was used for wave 2 survey administration in May 2018. The schools purposefully selected core classes that all students took (English/Science) to administer the survey. The study received IRB approval from Advarra, an AAHRPP accredited, for profit IRB firm.

All students in the two participating schools were included in the sample (minus those who did not provide assent, or their parents did not consent). Participants provided informed consent to participate, with less than 1% of students or their parents declining participation. Demographic breakdown of the survey sample can be found in Table 2.

The qualitative study employed a parallel longitudinal design. Focus group data were collected from the same groups of students three times and were conducted at approximately at the same times the survey was administered over the 2017-2018 school years. One of the focus groups transitioned from middle school (8th grade) to high school (9th grade) and continued their participation. A foundational set of questions about student teacher relationships was asked at

each time point. The longitudinal nature of the study also allowed for the iterative building of themes and the creation of additional questions based on those themes during each wave of data collection. For example, the wave 2 and 3 protocol questions expanded upon themes from what participants shared in wave 1. The results of this study explicate the overall themes regarding teacher practice to build relationships and motivate students that surfaced across the three waves of data. However, a key longitudinal finding was that students did not change what they said was needed to build relationships and motivate them to do their best across the three waves of data collection (For more on longitudinal themes see Scales et al., 2019).

Three focus groups of students were recruited to participate in this study: one 6th/7th grade group (6 students), one 8th grade group (5 students) and one 9th-11th grade group (6 students) from the same schools that participated in the Study 1 surveys. In the interest of protecting confidentiality in such a small sample, these focus group participants were not asked for specific demographic information. However, a trusted school staff member recruited students for their representativeness of the overall school population, and also to reflect a range of academic performance. The intent was to ensure that not only students who were the most academically successful and "plugged in" to school participated, nor only students on the verge of dropping out. This trusted school staff member personally invited students to participate and emailed their parents/guardians about the opportunity. Parents/guardians gave their permission for students to participate, and students themselves also gave assent prior to participating. Focus groups lasted approximately one hour.

Measures

Descriptive statistics, including all items and measures, are found in Table 3. All appropriate CFAs were conducted for each of the scales listed below, with adequate findings, as shown in Appendix Table A. Two RMSEAs noted below were above the .10 level that is generally used to describe the cutoff for acceptable model fit. Those were assessed as outliers, for two reasons. Most important, the other indexes were within or quite close to conventional

cutoffs. Second, most methodologists caution that fit cutoff values are fairly arbitrary guidelines, not rigid boundaries to be strictly relied on (Kenny, 2015), and that "a model may fit the data even though one or more fit measures may suggest bad fit" (Schermelleh-Engle, Moosbruger, & Muller, 2003, p. 53).

Developmental relationships*.* Two different measures were used to assess students' relationships, a longer form of 32 items for relationships with teachers (the primary focus of the larger study), and a 5-item form for relationships with parents and friends. Each item is scored on a 5-point scale from Never to Very Often, or for some items, from Not at All Like My Teachers to Very Much Like My Teachers. The items were newly created by the authors, and tested across several studies of families, schools, and peer relationships prior to use in the current study (all described in Pekel et al., 2018). The sample size was inadequate to run a CFA on the full measure. Thus, we created a latent developmental relationships factor made up of the five elements, using the average scores from each of the five elements to create a unidimensional factor, *developmental relationships*. All four CFA goodness of fit indexes were acceptable.

The literature suggests that the aspects of relationships we measured are both connected (correlated with each other) and yet conceptually reflect distinguishable aspects or features of interactions (reviewed above and see also reviews in Martin & Dawson, 2009; Roorda et al., 2011; Wentzel, 2012). In another study of these same data, the five features of developmental relationships were found to be correlated from the .50s to .80s with each other across two waves of data (Scales et al., 2019). This suggests that although conceptually distinguishable, they share levels of variance ranging from meaningful to substantial. Qualitative work with focus groups of students and interviews with teachers also strongly suggested that students do not always experience the five features as separate entities, but in various combinations, with, for example, a teacher setting high expectations also being considered to demonstrate their caring for the student in so challenging them (Scales et al., 2019). Therefore,

there is substantial support for the validity of the unidimensional approach taken in the analysis, in both the literature and the intercorrelation results, for conceptualizing these features as distinguishable yet moderately to strongly related aspects of relationships, which makes it less likely that each feature would contribute unique variance to predicting dependent variables. In addition, because the theoretical framework of student-teacher developmental relationships involving these relationship features is extensively supported in the literature (reviewed above and see also reviews in Martin & Dawson, 2009; Roorda et al., 2011; Wentzel, 2012), specific hypotheses were posed to test in the quantitative study. Therefore, conducting an EFA was unnecessary, per the guidelines elaborated by Costello and Osbourne (2005).

Students' relationships with parents and friends were assessed using a shortened version of the student-teacher scale. Again, the overall relationship was assessed on a 5-point scale. However, in this version, only one item was used to assess each aspect of relationships. The friends measure showed acceptable CFA across all four goodness-of-fit indexes, and the parent measure across three (RMSEA was above .10; Appendix Table A).

School climate. The school climate (4 items, 5-point scale) measure was informed by the extensive literature in this area (e.g., Thapa et al., 2013) but consists of items newly created by the authors for previous research. The construct is related to a student's sense of "fit" within a school. All four CFA goodness-of-fit indexes were acceptable (Appendix Table A).

Academic motivation. The measure of academic motivation consisted of 16 items (each with a 5-point scale). Each item reflected one of five dominant theories of motivation in the literature: mastery/performance-approach orientation (how much is the student motivated by the intrinsic desire to learn the material, versus the desire to earn a good grade or outperform peers; Elliot & Church, 1997), growth mindsets (how much does the student have a belief in malleable intelligence; Dweck, 2015), academic self-efficacy (how confident is the student that they can do the required academic work at a competent level; Midgley et al., 2000), goal orientation (how much do academic and social goals motivate the student; Wentzel & Wigfield,

2009), and internal locus of control (how much does the student believe they can influence events in their lives; Shepherd et al., 2006).

As noted earlier, the literature consistently shows that motivation most often is conceptualized as reflecting a combination of the autonomy and competence needs described in self-determination theory, and either explicitly or implicitly also incorporating the need for belonging or relatedness (see Martin & Dowson, 2009). Because the independent variable is student-teacher developmental relationships, the dependent variable of motivation would have been confounded had we included relationship items in the motivation construct that developmental relationships were hypothesized to predict. Thus, in accordance with the motivation literature, the motivation construct for this study was limited to items reflecting only the autonomy (e.g., internal locus of control, mastery v. performance orientation, growth mindset) and competence needs (e.g., academic self-efficacy, goal orientation) of self-determination theory.

The full motivation CFA of 16 items did not produce acceptable results. Thus, an abbreviated measure of motivation was created from each individual's mean of the items for each of the five motivation theories represented. This abbreviated form had been employed in previous research when the sample size was inadequate or the degrees of freedom insufficient to use the full motivation construct (Scales et al., 2019). CFA results for the abbreviated form were largely adequate (CFI, TLI, and SRMR were adequate, but RMSEA was slightly above .10; Appendix Table A).

Socioeconomic status. Eligibility for free and reduced price meals (FRL) was used as the indicator of students' socioeconomic status, because that is the only SES variable on which the partner school district collects data. 58% of the students in the study were FRL eligible. There have been critiques of using free and reduced price lunch as a proxy for socioeconomic standing (see Harwell & LeBeau, 2010), and so analyses also were conducted controlling for students' perceived financial strain, and with differences in the results noted, where relevant,

depending on which measure of SES was employed. This was a single 4-point item that asks participants to reflect on their perception of their families' financial strain, from (1) "We have enough money to buy almost anything we want" to (4) "We can't buy the things we need sometimes." In previous research, very similar results were found whether using this as a measure of SES, or using a student's eligibility for free and reduced price meals. On average, participants' mean financial strain was 2.40 (SD = 0.79).

School records data. GPA was provided by the school district at the end of the first trimester. Participants' mean GPA was 2.91 (SD = 0.92) on a 4.0 scale.

Analytic Plan

A multi-group (middle and high school) structural equation model was conducted using MPlus 7.4 (Muthén & Muthén, 1998-2015). HLM was not used to account for clustering because the interest was in examining the school-wide, whole-sample effect of student-teacher developmental relationships on school success outcomes, not to examine how those associations may vary from classroom to classroom or teacher to teacher. No questions were asked about specific teachers, but rather questions were asked about all their teachers in general, nor did the students need to be surveyed in the same classes from wave to wave; for these reasons, HLM was unnecessary (Anderson, 2012). The three relationship types (teacher, parent, friend) were used to predict GPA, academic motivation, and school climate, while controlling for students' socioeconomic status. Full information maximum likelihood estimation was used to estimate the data. A value of $p < .01$ was used to mark statistical significance to reduce the chances of obtaining false positives. To test the significance of the indirect effects in the SEM, a bootstrapping procedure was employed, as recommended by Preacher and Hayes (2004), running 5,000 iterations. If the resulting CIs do not contain zero, the test is significant and mediation exists. Normality testing (Appendix Tables C1-B5) showed that the distributions of the study variables did not meet normality assumptions. However, Finch, West, & MacKinnon (1997) have shown through Monte Carlo simulations that parameter estimates are generally

unaffected by violations of normality or even small sample size, with small sample size being more worrying. The sample size of nearly 1300 students was many factors larger than the level which introduces concern for extra bias in parameter estimates. More recently, Finch (2005) has also shown that even when assumptions of normality are violated, parametric tests still outperform nonparametric tests in terms of Type I error and power, and others as well (see Hau and Marsh, 2010, and Blanca et al., 2013) have shown that normality is "not the rule with real data." Finally, Norman's (2010) review of the normality literature back to the 1930s also concluded that parametric data are "robust with respect to violations" of normality.

Prior to specifying the structural model, the factor structures of the latent constructs was determined (see Appendix Table A). Since it was believed that relationships impact the outcomes differently for middle and high schoolers, tests for measurement invariance also were conducted. Multi-group models were run where all parameters were freely estimated, and a final model was tested with loadings constrained to be equal across groups. These analyses are not reported here (available from authors), but the constrained and free models were significantly different ($\Delta\chi^2$ = 2301.666 - 2257.689 = 43.977; Δdf = 676 - 657 = 19; p=.01), suggesting that the response patterns for middle and high school were sufficiently different, such that the focus should be on the unconstrained model.

Analysis of the qualitative data used thematic analysis (Braun & Clarke, 2013; Clarke & Braun, 2013) informed by a grounded theory approach (Charmaz, 2008). Grounded theory was appropriate to guide analysis in a longitudinal qualitative design because it invites researchers to stay open to new ideas as they develop, "go back" to participants to ask additional questions, and supports iterative learning over time (Lingard & Levinson, 2008; Charmaz, 2008). Thematic analysis is a "theoretically flexible" analytic method, meaning, it can be paired with or informed by other qualitative methodology or theories such as grounded theory in this case. It guides the researcher through a process of familiarization, coding, and theme development (Clarke & Braun, 2013). This process was facilitated by NVivo software (version 11). The analysis

employed line-by-line coding of focus group and interview transcripts, identifying statements that illuminated our research questions. This process is often referred to as open coding, because the aim is to stay open to participants' interpretation of their experience, thereby allowing the data to take the researchers in any theoretical direction. Patterns in the open codes were identified, gathering similar ideas together in themes. The three wave 1 student focus group transcripts were coded independently by three researchers, who then came together to discuss similarities and differences in their coding, and developed a consensus theme structure. That structure guided coding of the wave 2 and 3 transcripts, with new ideas being added as they emerged. The researchers then came together to discuss, come to consensus, and finalize the themes presented here. This analytic process was augmented by member checks or "member reflections" (Tracy, 2010, p. 844) and "iterative questioning" (Shenton, 2004, p. 67) where researchers shared emerging themes from previous focus groups, thereby giving participants space to voice reflections and elaborations in order to enhance credibility and trustworthiness. Researchers analyzing the data also kept ongoing reflective memos to monitor emerging patterns in the data (Charmaz, 2008; Shenton, 2004.)

Results

The quantitative results are presented first, followed by the insights from the qualitative study.

The proposed, unconstrained model displayed adequate fit: X^2 (548) = 2257.689, $p < .001$, CFI = .92, RMSEA = .061 (.059 to .064), SRMR = .057. For both middle- and high-school students, the final models are presented in Figures 1 and 2. The manifest variables and their factor loadings on their respective latent variable were not included in the figures in order to reduce the overall complexity of the path diagrams. Across both groups, all manifest variable loadings were significant.

Invariance testing (Appendix Table B) showed that the measures of developmental relationships with parents and with peers, and the school climate measure, all had configural, metric, and scalar invariance across middle and high school students. The abbreviated form of the student-teacher developmental relationships measure, as well as the academic motivation variable had configural and metric invariance, but not scalar invariance (the longer 32-item form of this measure did have all three kinds of invariance, but was not used because the SEM could not run using the full measure). Because the focus of this research was on the patterns of connection among relationships and school outcomes in middle and high school, and not on comparing means between middle and high school, the lack of scalar invariance was not concerning (Putnick & Bornstein, 2016).

Middle School Students

Table 4 and Figure 1, for the middle school, show that each of the types of developmental relationships predicts one or more of the outcomes. Developmental relationships with both teachers and parents, but especially teachers, predict motivation. Developmental relationships with teachers and peers predict school climate. Finally, developmental relationships with teachers positively predict middle school students' GPA. Developmental relationships with parents, in contrast, have a negative relationship with GPA for middle school students. The indirect path results from bootstrapping show that developmental relationships with both teachers and parents positively predict GPA (teachers more strongly) through their strong association with students' academic motivation (albeit relationships with parents only at $p \leq .05$, not at the more stringent level of $p \leq .01$). Developmental relationships with peers do not have this significant indirect effect on GPA.

High School Students

For high school students (Table 4, and Figure 2), the associations between the three relational targets and the outcomes, although significant, are less strong than those for the middle school students, with some similarities and some differences in the overall patterns. At

the high school level, only developmental relationships with teachers predict motivation (not relationships with parents, which were significant for middle school students). Like the middle school students, however, both developmental relationships with teachers and with peers predicted high school students' perceptions of school climate. None of the types of relationships directly predicted high school students' GPA. The bootstrapped indirect path results for high school students, however, showed that developmental relationships with teachers did have an effect on GPA, through relationships' strong association with students' academic motivation, the same path found for middle school students. Unlike the middle school students, developmental relationships with parents did not have an indirect effect on GPA through motivation. As for middle school students, high school students' relationships with peers did not have a direct or indirect effect on GPA.

The Effect of SES

Table 4 shows that students' FRL eligibility is not related to motivation at either middle or high school, but is negatively related to GPA at both the high school and middle school levels. Lower-income students have worse GPAs (students' perceived financial strain also is negatively related to GPA at the high school level, but not at the middle school level; available from authors).

FRL eligibility is not related to developmental relationships with teachers or parents, or to students' perceptions of school climate (students' perceived financial strain does predict lower developmental relationships with parents, but only at the middle school level). Lower-income students report less developmental relationships with *peers* at both middle and high school levels, regardless of whether FRL or financial strain is the indictor of SES.

Student Experience of Developmental Relationships in a Classroom Setting

The qualitative findings illuminate what students want from their relationships with their teachers, demonstrating what developmental relationships that are motivating look like in the context of middle and high school classrooms. The overarching connection between motivation

and relationships was encapsulated well by one student's comment: "I work harder with a nicer teacher." More extensively, another student commented that:

> There's a teacher I had and we built a relationship over time. He would always start the day with, 'What did you do over the weekend?' so that built our relationship up. He also motivated me to do my best because he always pulled me aside and let me know, 'You're missing this and I want you to turn it in so you have a nice grade, I know you're not this kind of student,' cause' he knows what kind of student I am. It really motivated me to become a very good student.

Students experienced all five elements of a developmental relationship with certain teachers. They noted that these relationships kept them more motivated to do their best in the classroom. In the following section, students' experience of their developmental relationships with teachers is described, and presented thematically in order of the five developmental relationships elements in the framework. The section concludes with students' perceptions of the connections between motivation and building relationships.

Due to the confidentiality agreement with students, quotes are not attributed to a particular grade or school. However, the themes generated from the focus groups were tested with the wider student body in the survey described in Study 1 in the current paper, and the responses from middle school and high school students were separated, as depicted in Table 6. For a brief overview of the focus group themes, see Table 5.

Express Care

When students experienced care from their teachers, they felt connected, appreciated, and understood. Students noted several ways teachers expressed care, including:

Having a positive attitude, being willing to take (and make) a joke, and not taking things too seriously unless it was necessary. Students talked about how much more comfortable the classroom environment felt when the teacher wasn't "too serious" and could keep things light and positive. One student said, "...the more serious you are, the more boring

your class probably will be. Like, put in a few jokes and stories and connections in there...it definitely makes people pay attention more." Another noted how the "easygoing" atmosphere the teacher had created made them "not feel nervous" about presenting in front of their classmates. Some noted that although they enjoyed being able to joke with their teachers, it was not as crucial as the teacher keeping a "positive attitude."

Interestingly, students also noted that they were more inclined to respect teachers who had a positive light-hearted attitude, because when they became serious, students knew it was important and their change in demeanor had more impact. One participant said,

"...the teachers who joke a lot, they're not all jokes. If they see or hear something that's out of line, they will call you out on it, which is what I like about them...I think we take it more seriously when it's a teacher that we're more connected to, like one that's more positive and stuff like that." On the other hand, when a teacher was consistently strict and serious, students felt uncomfortable and unmotivated. One student noted that "…when a teacher gets angry that's always strict, you're like, "…they're angry ***again***, when aren't they?" Another participant noted that because one of their teachers "takes everything seriously and can't joke around" that they "really can't get close to them."

Getting to know students. Students experienced care from teachers who got to know them and learned about their interests. They noted that teachers who demonstrated care noticed when they were having a bad day, "checked up on them" and cared about their "home life." Teachers who expressed care listened, asked follow up questions and consistently used "words of encouragement" reminding students how much they believed in them. As one student noted, "When I look sad, they'll come right away and ask what happened, like really understanding."

Teachers telling their own stories. Students were motivated by teachers who shared brief and engaging personal stories. "[My teacher's] stories are fun, fun to listen to. They just tell a quick story but only if we work hard, because we like their stories so much." Others noted they

appreciated hearing about what teachers "did in their life." Yet, there was a "fine line" as some noted that when teachers "talked about themselves too much" without giving students a chance to share their own interests, it did not motivate them or engage them in the class.

Wiping the slate clean each day. Students experienced care and continued motivation when their teachers did not "hold a grudge" or let things that might not have gone well one day negatively impact the next day. One participant said, "...s/he never holds grudges. Every day is a new day and it's really great." Participants also noted numerous examples of when teachers did not "let things go" and how it negatively affected their experiences in the classroom. They acknowledged that starting fresh each day might not necessarily be easy, because sometimes students had rough days. Yet students still emphasized how important it was for teachers to employ this practice to keep them motivated in class.

Challenge Growth

When students felt challenged by their teachers, they worked harder and stayed engaged in class. Students experienced this growth in several ways, including:

Demonstrating clear and high expectations. Students greatly appreciated teachers who were consistent and clear about the expectations of their class and also let individual students know that they had "high expectations" for them. Teachers who challenged growth also nudged students by reminding them of their goals and what it would take to achieve them. One student participant noted, "There's a teacher that said to me, 'Would you want your doctor to have a C in language arts or math?' and I'm like, 'No, not when I think about it like that! [laughs]. So, I found that really motivational."

Pushing students to do their best and created opportunities to learn from mistakes. Teachers who challenged growth created opportunities for students to try again and learn from mistakes. One student noted that they appreciated when a teacher pushed them by telling them they "expected more" from them and asked them to retake a test. Another said, "They motivate me to do my best and keep telling me to try my best on things, that it's okay to

make mistakes." Students also said it helped them feel more comfortable in the classroom when teachers were willing to admit their own mistakes. One student gave an example. When everyone failed a particular test problem in their class, the teacher recognized it was written poorly and threw it out. The student noted "...it's a relief when teachers recognize and admit their mistakes."

Provide Support

Students who experienced support from their teachers felt more confident in their learning. They talked about not wanting to "let down" a teacher who was working hard to help them. Some also felt their grades were better as a result of a teacher's intentional support. Students talked about several ways they experienced support from their teachers including:

Responding to student learning needs. Teachers provided support by meeting student learning needs in creative ways such as engaging conversations, encouraging group work and scaffolded learning. One student talked about how a conversational classroom environment motivated them and said, "I learned so much history in that class. I remembered almost all of it, and it's because [the teacher] just gave you freedom to talk about whatever you want and to actually ask questions and learn." They also noted that the "less structured" conversational atmosphere helped everyone "have fun" and "actually learn things" and when they went to stricter teachers' classrooms they felt "suffocated." Another student talked about how their teacher motivated them through engaging work and said, "I'm motivated to do my best through creative projects and well-made activities." Another mentioned, "I didn't know where to find something besides the textbook and the teacher helped me, not by giving me an answer, but helping me find the information."

Not giving up on students. Students experienced the greatest support when they felt their teacher demonstrated that they would work with them to ensure success and "not give up." Teachers employed myriad approaches to helping students succeed, especially if they had fallen behind or were receiving a failing grade. They would find time for students to come in over

lunch or after school, have flexibility with deadlines when a student had difficult issues going on outside of school. One student gave an example where they had gone out of town at the beginning of the school year with their family and worried about getting behind. They noted that their teacher sat down with them and "gave some options" to catch up including which assignments the student could complete and one they could be exempt from.

Another participant mentioned that a teacher recognized they were having difficult issues at home and said to them, "I realize that you have a bad grade. I just want you to know I'm here to help you. You can come in after school and retake the test when you're ready."

That student expressed great relief that the teacher saw what they were "going through as a person" and not just as a student. This relationship and willingness on the teacher's part to work with the student to succeed kept them motivated to finish the course.

Share Power

Students were not able to give as many examples of teachers sharing power with them as they were with the other elements of developmental relationships. However, there were some salient examples that emerged and when teachers *did* share power, students felt respected and heard.

Giving opportunities to be part of decision-making and taking on leadership roles. Students appreciated being given choices and making decisions, even if in small ways, such as choosing which partner they could work with, what book they would read from that day, or deciding to stay inside or go outside to play a game. They also felt motivated when teachers asked them to take on leadership roles. As one student said, "…my junior year, there was a poetry/diversity club and [the teacher] made me one of the leaders. That was pretty cool." Another student said their teacher asked them to be a student ambassador and that made them feel "trusted to help out the school."

Acting on student suggestions. Teachers who shared power listened to students and acted on their suggestions. One participant noted, "I was describing this thing that I wanted to

do, and [my teacher] was like, super supportive of it, and they said, 'I think that's such a good idea!'" Other teachers that students appreciated gave surveys about the classroom environment and made changes to seating arrangements and assignments based on student feedback.

Showing respect by "putting students on the same level". Students felt motivated by teachers who related to them "more like an adult" and "don't talk down to you." They appreciated it when teachers treated them like "…someone you can have a conversation with." One student said, "I feel like we tend to like the ones that don't lower us to be less than them [agreement noises]." One participant mentioned that for them, "Trust comes from when [teachers] put you on the same level, instead of 'I'm the teacher and you're the student.'"

When teachers didn't engage students or ask for their ideas, students often felt unmotivated and disengaged. As one participant said, "They always teach class the same way, by just giving you a lecture, like they don't actually ask for your input or do any really fun activities. It's really boring." Students felt like teachers also put them "on the same level" when they showed respect by keeping certain conversations confidential. As one student explained, "most teachers talk to each other" and "share secrets" but one of their teachers "…[kept] everything in the low and actually between us…and it makes me feel more respected."

Expand Possibilities

When teachers expanded possibilities for students, they were able to take their goals to the next level and sometimes learn new things they did not expect. Students experienced expanded possibilities when their teachers in several ways:

Connecting students with opportunities in school beyond the classroom. Students appreciated it when their teachers broadened their horizons by connecting them with opportunities based on their interests in the school. Students talked about teachers who used their relationships in the school to connect them with sports teams, clubs and other leadership opportunities. When they saw leadership skills developing in a student, they recommended they

try student council. One student said that their teacher "...told me to go to the leadership program and it was fun."

Connecting students with opportunities outside the school. Teachers expanded possibilities for older students by connecting them with colleges and careers. One participant said, "They helped me grow into what I wanted to do." They motivated students by making them think about their future. "They talk about college and what you want to do when you grow up." Another student explained that their teacher pleasantly surprised them by following up when they expressed an interest in nursing. The student noted "I told her that I wanted to become a nurse, right, and she did all this research and stuff, and she came back and said, 'Hey, I found all this stuff for you.' You can't just look at that and be like, "Oh, I can let this person down," you want to work harder because this person's thinking about you and wants you to succeed in life."

Inspiring students to think about their futures. Students also noted that the teachers who were good at building relationships and motivating them inspired them to think about their futures. As one student noted, "When teachers say that college is gonna come harder and faster than you expect, that gives everyone a reality check, like "'Wow, I've really gotta start thinking about it.'"

Differences Between Middle and High School Students

Due to the confidentiality agreement with students, quotes were not attributed to a particular age group. However, there was an interest in seeing if focus group themes resonated with the broader student body in both middle school and high school and if there were marked differences between these age groups in their responses. Thus, in a subsequent survey students were asked about the themes generated from the first two waves of student focus group data about what students say they need from their teachers to build positive relationships and motivate them. A total of 1,746 students answered the items shown in Table 6. Themes were separated into three groups in the Fall 2018 survey; students were randomly assigned to one of the groups using the survey platform's built-in question randomizer. So, roughly 600

students saw and responded to each different set of questions. Students were able to check a box for every statement that resonated with them within the set of questions they were given (percentages are the total who agreed or strongly agreed with the statement).

The responses of middle school and high school students were often similar, but two items showed bigger differences: Larger percentages of high school students appreciated teachers who treated them more like adults, and who connected them to opportunities beyond the classroom.

Some of the things students appreciate may be teacher actions or qualities that can help *start* developmental relationships, such as not giving up on students and giving students choices. Other actions may be appreciated only once students feel they *already* have a good relationship with that teacher. For example, only slight majorities said they appreciate teachers who expect a lot from them (51% middle school, 60% high school). But in the focus groups, students said they really appreciated these actions from teachers with whom they already felt connected.

Connecting Relationships and Motivation.

"…once you get that connection with them, you start paying attention to the class more, you ask more questions, and you start doing the assignments harder and better and faster."

Students strongly agreed there was a connection between the ability of a teacher to create a positive relationship with them and how motivated they were in that teacher's class.

Participants noted that they worked harder for "nice, respectful" teachers. One participant noted "You don't wanna let them down, they're giving you all these resources, so why let them down?" Participants also noted that when teachers were "mean" it made them "not want to try." However, a few noted that sometimes "mean teachers" made them want to "prove the teacher wrong" which fueled their motivation to do well in the class; yet, when pressed, all participants said they preferred a "kind" teacher who could build relationships with students.

When students had built positive relationships with teachers, they were generally more comfortable in the classroom which often led them to being more engaged. As one student noted, "[When you have a relationship] it's definitely easier to ask [the teacher] questions, instead of sitting there, not knowing what to do. I think that's one of the biggest things: it's easier to talk to them." Students also said it made big difference in their interest in a particular subject if they had a positive relationship with the teacher. One student said, "I loved biology cause' I just loved the teacher that taught the class, and then, I had physics and I felt like the teacher didn't really care about my success or my education, so I didn't really do well in that class. So, yeah, I don't really like science like that anymore."

The "Art" of Balancing the Elements

Through the qualitative analysis it also became clear that different elements of the developmental relationships framework were often put into practice in various combinations. Sometimes teachers who built positive relationships and motivated students employed a balance of developmental relationship elements such as expressing care while challenging growth and providing support. This approach helped students succeed in spite of challenges they may have been facing in and out of school. One student shared:

> It really helps when a teacher just straight-out tells me they understand what is going on in your life, like my teacher knows I have a job and I have all these extracurriculars. You get to the point where you start sharing your life goals with them, and if your grade is not the way you want it to be, I find it motivational when they're like, 'So, you wanna go into the medical field, but your grade is over here. It's not as best as you could be doing.'

This student was able to take in healthy criticism from their teacher because they had already established care in the relationship. On the other hand, participants also gave examples showing that when care wasn't expressed, an element such as challenging growth could be ineffective on its own. For example, when students in this study talked about things that *didn't work* to build motivation and build relationships, they' would give an example such as, "[the

teacher] always 'called me out' in front of the class." That teacher may have been trying to challenge growth, but if that student did not experience the teacher "calling out" the student because they cared about their success and well-being, then it was read negatively and became demotivating. So, although the five elements of a developmental relationship can be distinctly defined to show how each is integral to growth, development, and positive long-term outcomes for youth, they are quite often combined in various ways in practice to greater effect.

Discussion

Study 1 examined how developmental relationships with teachers, parents, and friends might differentially contribute to students' academic motivation, perceptions of school climate, and GPA. Developmental relationships with teachers were found to directly and strongly predict motivation and school climate at both middle and high school levels, and, more weakly, GPA at the middle school level. Developmental relationships with teachers indirectly predicted GPA through a strong association with motivation at both middle and high school levels. For middle school students, developmental relationships with parents had a positive direct contribution to motivation, but, oddly, a negative (but relatively weak) direct association with GPA. However, the indirect effect of those relationships with parents on GPA was (weakly) positive, through the strong effect of relationships on motivation. Developmental relationships with friends did not predict motivation or GPA, but did predict perceptions of school climate (at a relatively weaker level than developmental relationships with teachers did), for both middle and high school students.

The finding of strong indirect paths on GPA through motivation is consistent with previous studies of student-teacher developmental relationships. In addition, developmental relationships with parents were important for middle school students' motivation, and indirectly, GPA. But relationships with parents were not significant predictors of the outcomes for high school students. This finding aligns with the developmental literature that has documented how

the salience of parental influence changes in some respects while that of non-parental adults often increases, as young people move through adolescence (Bowers et al., 2014; Sabol & Pianta, 2012; Varga & Zaff, 2017).

Study 2 illuminated specific teacher practices that build the kinds of relationships that motivate students to do their best in the classroom. It also provided a deeper examination of the ways in which teachers' behaviors and practices can either nurture those impactful relationships to flourish, or inhibit them from growing. Examples of all five of the elements of developmental relationships were evident in the comments students made in focus groups, although stories about teachers sharing power with students were less common. This is consistent with earlier survey methodology work that has shown that students report share power and expand possibilities as the least-experienced of the five elements (Pekel et al., 2018; Scales et al., 2019).

The overall sense communicated by the strategies teachers use is that these relationally-skilled teachers are telling students, "I will not give up on you, and I will give you the respect of being real with you." There are powerful meta-messages students perceived from teachers in those fundamental teacher practices:

- You can trust me to be here through your good and bad days, and for the long haul;
- I will share some of my self with you as a person so we get to know each other, even maybe make each other laugh once in a while;
- I will be and fair honest with you;
- I will be flexible with you when I can be while still expecting a lot from you;
- I will give you the support you need to succeed.

At a time when students are navigating increasing developmental demands, opportunities, and challenges as a result, those kinds of meta-messages may help to bolster students' mindsets and self-perceptions of self-efficacy, their ability to grow through self-

regulated effort (Yeager et al., 2014), and the sense that they have resources in their corners who care about them and will help them when they need it. It is no wonder then, that students who said they experienced such teacher practices also reported feeling more confident academically and wanting to work harder for those teachers.

These quantitative and qualitative results together suggest several broad conclusions. First, several types of developmental relationships, those with teachers, parents, and peers, have important contributions to different educational engagement, connectedness, and performance outcomes, but based on the standardized betas, relationships with teachers are consistently the strongest influence among the three types of relationships. Friends contribute to positive perceptions of school climate at both grade levels, but considerably more weakly than teachers do. Parents contribute to student motivation, strongly predict school climate for middle school students, and indirectly, GPA at the middle school level, albeit far more weakly than do teachers (it is not clear why the direct association of parent relationships with GPA was negative at the middle level; this requires further research but may simply be a spurious finding).

Teachers are important at both grade levels for all three outcomes—motivation, school climate, and GPA (albeit at the high school level, for GPA only indirectly, through motivation). Based on the standardized betas, the effects are strong for academic motivation and perceptions of school climate, and weaker for GPA. Thus, although developmental relationships with teachers are the strongest influence, nurturing each type of relationship matters for contributing to differing school-relevant outcomes, and this may be a phenomenon not limited to U.S. samples. These results showing differing effects of the different developmental relationships are similar to those reported in a study of Hong Kong high school students, where perceived academic support from teachers, parents, and friends (a more limited relationship measure than in the current study) was used (Chen, 2010), and where teacher relationships had the strongest impacts on engagement and performance, followed by parent support, and peer support having limited effects on achievement.

Second, lower-income students in this study were just as motivated to learn as were more affluent students. Moreover, they reported the same basic quality of relationships with their teachers and parents as did more affluent students. This suggests that low-income students care about their schooling as much as more affluent students do, that they see their parents attempting to be as attentive to them as affluent students see their parents, and that they perceive their teachers as trying to provide inclusive opportunity for them to benefit from strong relationships. Earlier studies had suggested that lower-income parents themselves reported being less able than more affluent parents to provide developmental relationships for their children (Pekel et al., 2015), so it is heartening that the students in Study 1 reported comparable levels of developmental relationships with parents, regardless of SES. It is also positive that FRL-eligible students reported the same level of relationships with teachers as did their more affluent peers. However, tempering that result is that a longitudinal analysis of these students found FRL students' relationships with teachers got significantly worse *over the school year* (Scales et al., 2019). Lower-income students did not have lower motivation than more affluent students, nor worse developmental relationships with teachers and parents. However, they did have worse relationships with friends, both at the middle and high school levels. Given that peer relationships at the middle school level indirectly affected GPA through motivation, poor relationships with peers may add a small negative influence on lower-income students' engagement and performance.

Third, despite the significant contribution of parents and friends to multiple outcomes, the path coefficients for parents and friends generally were relatively weak. Those significant results for parents and friends should not be ignored, but neither should they be over-emphasized, given the relatively small effect sizes. These results lead to the conclusion that developmental relationships with teachers clearly are the most important type of relationship, for both middle and high school students in this study, for all of these outcomes representing educational engagement, connectedness, and performance. Study 1 thus adds support to the research

showing the significant impact that high-quality student-teacher relationships can have on students' academic well-being, and sheds new light on the different pathways through which those relationships affect students at differing stages of development.

In different ways the qualitative and quantitative findings reveal that understandings of care in student teacher relationships may obscure other dimensions that are more difficult to name. Students may simplify relationships into a dichotomy of "Do they care about me or do they not?" and care becomes a "meta-construct" of sorts. Yet, Pekel et al. (2018) and Scales et al. (2019) have taken this meta-construct of care and deconstructed it into five distinct, yet interrelated elements that contribute to a relationship that promotes growth and positive outcomes for young people, a developmental relationship. When asked to specifically describe dimensions beyond care such as challenging growth, sharing power and expanding possibilities, students could share numerous illustrative examples and could connect those experiences to their positive growth. Thus, although the other elements may seem on the surface to be a part of caring practice, they are in fact, distinct practices that along with caring, support building developmental student-teacher relationships. In this respect, the qualitative research suggests that the experience of having a developmental relationship may be analogous to light having the properties of both particle and wave, or as alluded to in the discussion of the quantitative developmental relationships measure, as having properties of both uni- and multi-dimensionality.

Limitations

Although the study had a number of compelling features, there is a limitation to note, that the participants came from only two schools in one school district. The schools were reasonably large and diverse, as is their school district, but strictly speaking, the results cannot be generalized to other middle and high schools. It is possible that different results would have been obtained with differing schools. Nevertheless, the findings align well with and extend the literature on how important relationships influence school success.

Conclusion

The two studies presented in this paper provide differing but complementary perspectives on how developmental relationships in young people's lives operate to produce positive school outcomes. Although neither study establishes cause and effect, they both confirm what previous research has found regarding the importance of supportive relationships to school success, and extend the literature in multiple ways. Structural equation modeling showed that, of the three kinds of relationships studied (with teachers, parents, and peers), student-*teacher* relationships had the strongest effects on students' academic motivation, perception of school climate, and GPA.

This study extends previous work in three ways. First, it represents the first capturing of authentic student voices describing in their own words how they experience the elements of a new, theoretically and empirically-promising framework of developmental relationships. As such, it adds person-centered evidence of the framework's validity to the variable-centered survey data previously collected.

Second, the researchers are not aware of any other study that has both focused on all these elements of relationships and followed students over time. Here, the focus was on *what* students' experience in their relationships and *how teachers' practices* create high-quality or poor-quality relationships (Scales et al., 2019 focuses on how these relationships *change* over time).

Finally, the great majority of previous work on student-teacher relationships, whether quantitative or qualitative, has addressed a more limited range of relational constructs. In addition to the common emphasis on how teachers create a caring or supportive classroom, and the less common but still not unusual inclusion of promoting challenge or high expectations, and providing emotional support, the current study also reports students' perceptions of teacher efforts to expand student possibilities and share power with them, two developmentally crucial

experiences that are rarely addressed in studies of student-teacher relationships, and that students report less frequently experiencing.

The SEM results show the 30,000-foot patterns that developmental relationships, especially relationships with teachers, have significant, sometimes direct and sometimes indirect, paths of influence on these outcomes of academic motivation, perception of school climate, and GPA. But the focus group stories show the heart and soul of how teachers construct in daily practice this link between the relationships they build with their students and those students' school adjustment and academic outcomes.

The current paper thus provides two different kinds of useful evidence. First, it provides large-sample, empirical, quantitative evidence that policymakers, administrators, and parents may expect in order to strengthen the case for giving more explicit attention in professional development, curriculum and instruction, student services, and even staff hiring, to relationship-building in schools (i.e., such relationships matter for student connection to school, motivation, and performance).

Second, in students' own words, it provides granular and concrete evidence of specific practices teachers do to strengthen their students' feelings of fitting in at their school, their desire to work hard, and the grades they earn. Studies often provide global evidence that may point to clear policy implications, but not as often combine that with clear examples of specific implications for practice. The current study contributes to the literature by providing both policy-relevant and practice-inspiring evidence for helping students succeed more at school through strengthening student-teacher developmental relationships.

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Table 1

The Developmental Relationships Framework

Elements	Actions	Definitions
Express Care Show me that I matter to you.	**Be dependable**	Be someone I can trust.
	Listen	Really pay attention when we are together.
	Believe in me	Make me feel known and valued.
	Be warm	Show me you enjoy being with me.
	Encourage	Praise me for my efforts and achievements.
Challenge Growth Push me to keep getting better.	**Expect my best**	Expect me to live up to my potential.
	Stretch	Push me to go further.
	Hold me accountable	Insist I take responsibility for my actions.
	Reflect on failures	Help me learn from mistakes and setbacks.
Provide Support Help me complete tasks and achieve goals.	**Navigate**	Guide me through hard situations and systems.
	Empower	Build my confidence to take charge of my life.
	Advocate	Stand up for me when I need it.
	Set boundaries	Put in place limits that keep me on track.
Share Power Treat me with respect and give me a say.	**Respect me**	Take me seriously and treat me fairly.
	Include me	Involve me in decisions that affect me.
	Collaborate	Work with me to solve problems and reach goals.
	Let me lead	Create opportunities for me to take action and lead.
Expand Possibilities Connect me with people and places that broaden my world.	**Inspire**	Inspire me to see possibilities for my future.
	Broaden horizons	Expose me to new ideas, experiences, and places.
	Connect	Introduce me to people who can help me grow.

Note. Relationships are, by definition, bidirectional, with each person giving and receiving. So each person in a strong relationship both engages in and experiences each of these actions. However, for the purpose of clarity, this framework is expressed from the perspective of one young person.

Table 2

Sample Demographics

	Full Study Sample	Middle School	High School
Grade			
6	220 (16.7%)	220 (35.0%)	
7	219 (16.7%)	219 (34.8%)	
8	190 (14.5%)	190 (30.2%)	
9	161 (12.3%)		161 (23.5%)
10	231 (17.6%)		231 (33.7%)
11	154 (11.7%)		154 (22.5%)
12	139 (10.6%)		139 (20.3%)
Gender Identity			
Cis Female	647 (49.2%)	300 (51.1%)	325 (47.5%)
Cis Male	639 (48.6%)	322 (47.6%)	339 (49.6%)
Other	19 (1.4%)	3 (0.5%)	16 (2.3%)
Did not report	10 (0.8%)	5 (0.8%)	4 (0.6%)
Race			
Black	212 (16.5%)	117 (18.7%)	95 (14.4%)
Asian / Pacific Islander	119 (9.3%)	43 (6.9%)	76 (11.5%)
Native American	32 (2.5%)	15 (2.4%)	17 (2.6%)
White	368 (28.6%)	139 (22.2%)	229 (34.8%)
Mixed Race	256 (19.9%)	146 (23.3%)	110 (16.7%)
Other Race	299	167	132

	(23.2%)	(26.6%)	(20.0%)
Free/Reduced-Price Lunch Eligibility			
Not eligible for FRL	547 (41.8%)	213 (34.0%)	334 (48.9%)
Eligible for FRL	763 (58.2%)	414 (66.0%)	349 (51.1%)

Table 3

Descriptive Statistics of Study Variables

Measure	Item	α	ω_h	*M*	*SD*
Developmental Relationships with Teachers		.96	.89		
	My teachers are there for me when I need them.			3.29	1.14
	My teachers really listen to me when I talk.			3.91	0.88
	My teachers make me feel important.			3.09	1.18
	When I spend time with my teachers, we have fun together.			2.99	1.02
	My teachers praise me for working hard, even when I don't succeed.			3.28	1.10
	My teachers have high expectations for me.			3.90	1.04
	My teachers ask questions that help me find my own answers, rather than just telling me what to do.			3.75	0.98
	My teachers require me to take responsibility for my actions.			4.16	0.93
	My teachers encourage me to see failure as a chance to learn and get better.			3.62	1.14
	When I say I'll do something, my teachers expect me to do it.			3.97	1.02
	My teachers ask me to explain my thinking.			3.80	0.99
	My teachers challenge me to try things that are a little hard for me.			3.64	0.95
	When I have a problem at school, my teachers help me figure out who to talk to or what to do.			3.26	1.25
	I believe my teachers "have my back."			3.01	1.28
	My teachers show me how to stand up for myself in appropriate ways.			3.03	1.29
	My teachers do something when I am treated unfairly.			3.01	1.25
	My teachers help me work within the rules to get things done that are important to me.			3.34	1.17
	My teachers and I respect each other.			3.88	0.91
	When my teachers make decisions that affect me, my ideas are considered.			3.19	1.00
	My teachers and I solve problems together.			3.19	1.05
	My teachers sometimes put me in charge of important tasks.			2.92	1.20
	I can share my ideas with my teachers, even when we disagree.			3.49	1.08

	My teachers recognize my abilities as a leader.			3.02	1.25
	My teachers create opportunities for me to practice my leadership skills.			3.01	1.23
	My teachers help me discover new things that interest me.			3.06	1.09
	I am motivated by the example my teachers set for me.			3.27	1.11
	My teachers connect me to other adults who offer advice or ideas that I value.			2.57	1.13
	My teachers connect me to other adults who have a different cultural background than my own.			2.47	1.18
	My teachers connect me to other adults who help me explore different places in my community.			2.41	1.11
	My teachers connect me to other adults who show me how to find and use resources in my school or community.[a]			2.77	1.15
Developmental Relationships with Parents		.89	.75		
	How often do these people show you that you matter to them?			4.13	1.00
	How often do these people push you to be your best?			4.21	0.96
	How often do these people help you get things done?			3.70	1.17
	How often do these people listen to your ideas and take them seriously?			3.67	1.20
	How often do these people connect you with new people or places in your community?			3.18	1.29
Developmental Relationships with Peers		.91	.89		
	How often do these people show you that you matter to them?			3.47	1.09
	How often do these people push you to be your best?			3.30	1.14
	How often do these people help you get things done?			3.34	1.12
	How often do these people listen to your ideas and take them seriously?			3.38	1.12
	How often do these people connect you with new people or places in your community?			2.96	1.24

School Climate		.82	.80		
	School staff respect differences of opinion.			3.56	1.00
	Students are disciplined fairly at this school.			3.23	1.04
	Teachers at this school really care about me.			3.32	1.06
	Most students at this school care about each other, even people they do not know well.			3.06	1.04
Academic Motivation		.89	.69		
	I am certain I can master the skills taught in school this year.			3.64	0.94
	If I make a plan, I can usually make it work out			3.59	0.95
	I work hard on all assignments even if they won't affect my grade			3.58	1.02
	My main reason for working hard in school is to learn new knowledge and skills			3.71	1.03
	I set goals that are actually possible for me to reach.			3.68	1.05
	I can list specific goals I want to achieve in the next year			3.51	1.14
	I can get smarter by working hard.			3.97	0.93
	How well I do in school depends more on how hard I work than on how naturally smart I am.			3.75	0.97
	It is important to me to do better than the other students			2.95	1.27
	My goal in my classes is to get a better grade than most of the students			2.89	1.33
	It motivates me to outperform other students in my classes			2.78	1.33
	It is important to me to do well compared to others in my classes			3.13	1.28
	It is important for me to understand the content of my classes as much as possible			3.85	1.02
	I want to master the material presented in my classes			3.72	1.11
	I like classes that arouse my curiosity, even if they are hard			3.66	1.13
	I like classes that really challenge me so I can learn new things			3.39	1.16
Free or Reduced-Price Lunch		--	--	0.58	0.49
Financial Strain		--	--	2.40	0.79
GPA		--	--	2.91	0.92

[a] Examples might include using the public library, banking, applying for financial aid, or seeing a counselor.

Table 4

SEM Results (with Free/Reduced-Price Lunch)

	Middle School		High School	
Direct Effects	b [SE] (β)	95% CI of indirect effect	b [SE] (β)	95% CI of indirect effect
$DR_{teacher}$ → Motivation	0.88***		0.80***	
	[0.08]		[0.10]	
	(0.58)		(0.58)	
DR_{parent} → Motivation	0.25**		0.17*	
	[0.08]		[0.07]	
	(0.17)		(0.13)	
DR_{peer} → Motivation	0.38***		0.12	
	[0.10]		[0.08]	
	(0.12)		(0.09)	
$DR_{teacher}$ → School Climate	1.38***		1.30***	
	[0.12]		[0.16]	
	(0.71)		(0.71)	
DR_{parent} → School Climate	0.12		-0.02	
	[0.10]		[0.08]	
	(0.60)		(-0.01)	
DR_{peer} → School Climate	0.38***		0.40***	
	[0.10]		[0.11]	
	(0.20)		(0.22)	
FRL → $DR_{teacher}$	-0.10		0.07	
	[0.09]		[0.08]	
	(-0.05)		(0.04)	
FRL → Motiv	0.03		-0.13	
	[0.10]		[0.10]	
	(0.01)		(-0.05)	
FRL → DR_{parent}	-0.04		0.00	
	[0.08]		[0.08]	
	(-0.02)		(0.00)	
FRL → DR_{peer}	0.18*		0.20*	
	[0.09]		[0.08]	
	(0.09)		(0.10)	
FRL → School Climate	-0.07		0.03	
	[0.12]		[0.11]	
	(-0.02)		(0.01)	
FRL → GPA	-0.30***		-0.39***	
	[0.07]		[0.07]	
	(-0.16)		(-0.21)	
$DR_{teacher}$ → GPA	0.10		-0.06	
	[0.06]		[0.06]	
	(0.12)		(-0.06)	
DR_{parent} → GPA	-0.15**		-0.02	
	[0.05]		[0.04]	
	(-0.17)		(-0.02)	

DR_{peer} → GPA	-0.10*		-0.05	
	[0.05]		[0.05]	
	(-0.12)		(-0.05)	
Motivation → GPA	0.24***		0.24***	
	[0.04]		[0.04]	
	(0.41)		(0.36)	
$DR_{teacher}$ ↔ DR_{peer}	0.47***		0.55***	
	[0.04]		[0.04]	
	(0.47)		(0.55)	
$DR_{teacher}$ ↔ DR_{parent}	0.49***		0.46***	
	[0.04]		[0.04]	
	(0.49)		(0.46)	
DR_{peer} ↔ DR_{parent}	0.56***		0.42***	
	[0.04]		[0.04]	
	(0.56)		(0.42)	
School Climate ↔ GPA	-0.03		-0.09	
	[0.05]		[0.05]	
	(-0.03)		(-0.10)	
Indirect Effects				
$DR_{teacher}$ → Motiv → GPA	0.21***	0.14, 0.29	0.19***	0.12, 0.29
	[0.04]		[0.04]	
	(0.24)	(0.16, 0.32)	(0.20)	(0.12, 0.29)
DR_{parent} → Motiv → GPA	0.06*	0.02, 0.12	0.04*	0.01, 0.08
	[0.02]		[0.02]	
	(0.07)	(0.02, 0.12)	(0.04)	(0.01, 0.08)
DR_{peer} → Motivation → GPA	0.04*	0.01, 0.08	0.03	-0.01, 0.08
	[0.02]		[0.02]	
	(0.05)	(0.01, 0.09)	(0.03)	(-0.01, 0.08)

Note. Unstandardized coefficients are reported [S.E. in brackets] (Standardized coefficients in parentheses). Bootstrapped confidence intervals estimated using Mplus 7.2's bias-corrected bootstrapping procedure (BCBOOTSTRAP) with 5,000 draws.

*p≤.05; ** p≤.01; *** p≤.001.

Table 5

Brief Summary of Qualitative Themes Describing Effective Teacher Practice Organized by Developmental Relationship Element

Express Care	• Having a positive attitude, being willing to take (and make) a joke, and not taking things too seriously unless it was necessary • Getting to know students • Teachers telling their own stories • Wiping the slate clean each day
Challenge Growth	• Demonstrating clear and high expectations • Pushing students to do their best and created opportunities to learn from mistakes
Provide Support	• Responding to student learning needs • Not giving up on students
Share Power	• Giving opportunities to be part of decision-making and taking on leadership roles • Acting on student suggestions • Showing respect by "putting students on the same level"
Expand Possibilities	• Connecting students with opportunities in school beyond the classroom. • Connecting students with opportunities outside the school • Inspiring students to think about their futures

Table 6

What Middle and High School Students Say They Appreciate in Teacher Practices

I appreciate teachers who . . .	**Middle School**	**High School**
Have a positive attitude.	85%	91%
Don't give up on students.	83%	89%
Give students choices.	83%	87%
Can take (and make) a joke.	80%	89%
Help students learn from their mistakes.	82%	85%
Get to know students.	76%	82%
Find creative ways to help students succeed.	75%	83%
Don't take things too seriously unless it's necessary.	77%	77%
Don't hold grudges against students and start each day fresh.	70%	79%
Tell their own stories.	71%	77%
Treat students more like adults than kids.	63%	79%
Act on student suggestions.	66%	76%
Let students help make decisions in class.	69%	70%
Connect with opportunities beyond the classroom.	61%	74%
Expect a lot from me.	51%	60%

Appendix Tables

Table Appendix A1

Confirmatory Factor Analysis for Key Study Measures

CFA model for abbreviated relationships with teachers measure α=.92 ; ω_h=.90		
	Variable Name	**Standardized Factor Loading**
Express Care	EC	.87
Challenge Growth	CG	.75
Provide Support	PS	.90
Share Power	SP	.90

Expand Possibilities		EP	.77
Model Fit Indices	χ^2=16.79, df=5, p=0.005 ; RMSEA=0.06 ; CFI=1.00 ; TLI=.99 ; SRMR=0.01		

Unidimensional CFA model for academic motivation α=.81 ; ω_h=.73

	Variable Name	Standardized Factor Loading
Belief in Malleable Intelligence	BMI	.66
Goal Orientation	GO	.67
Performance Action Goals	PAG	.41
Mastery Goals	MG	.75
Academic Self-Efficacy	ASE2	.67
Intentional Locus of Control	ILC1	.67
Model Fit Indices	χ^2=85.42, df=9, p=0.000 ; RMSEA=0.11 ; CFI=.94 ; TLI=.89 ; SRMR=0.04	

CFA model for DR360 with parents α=.89 ; ω_h=.75

	Variable Name	Standardized Factor Loading
How often do your parents show you that you matter to them?	1	0.76
How often do your parents push you to be your best?	2	0.71
How often do your parents help you get things done?	3	0.86
How often do your parents listen to your ideas and take them seriously?	4	0.87
How often do your parents connect you with new people or places in your community?	5	0.69
Model Fit Indices	χ^2=207.91, df=5, p=0.000 ; RMSEA=0.18 ; CFI=.95 ; TLI=.89 ; SRMR=0.04	

CFA model for DR360 with peers α=.91 ; ω_h=.89

	Variable Name	Standardized Factor Loading
How often do your peers show you that you matter to them?	1	0.84
How often do your peers push you to be your best?	2	0.86
How often do your peers help you get things done?	3	0.83
How often do your peers listen to your ideas and take them seriously?	4	0.86
How often do your peers connect you with new people or places in your community?	5	0.71
Model Fit Indices	χ^2=20.30, df=5, p=0.001 ; RMSEA=0.05 ; CFI=1.00 ; TLI=.99 ; SRMR=0.01	

CFA model for School Climate α=.82 ; ω_h=.80

	Variable Name	Standardized Factor Loading
School staff respect differences of opinion.	1	0.71
Students are disciplined fairly at this school.	2	0.76
Teachers at this school really care about me.	3	0.77

Most students at this school care about each other, even people they do not know well.	4	0.68
Model Fit Indices	χ^2=10.73, df=2, p=0.004 ; RMSEA=0.06 ; CFI=1.00 ; TLI=.99 ; SRMR=0.01	

Table Appendix B1

Invariance Testing of Key Study Measures

Developmental Relationships with Teachers	**RMSEA**	**LCL**	**UCL**	**CFI**	**ΔCFI**
Configural	.086	.065	.108	.990	---
Metric	.082	.065	.101	.988	.002
Scalar	.111	.095	.126	.968	.020

Academic Motivation	**RMSEA**	**LCL**	**UCL**	**CFI**	**ΔCFI**
Configural	.094	.079	.111	.961	---
Metric	.088	.074	.102	.956	.005
Scalar	.093	.080	.106	.941	.015

Developmental Relationships with Parents	**RMSEA**	**LCL**	**UCL**	**CFI**	**ΔCFI**
Configural	.192	.171	.213	.936	---
Metric	.163	.146	.181	.935	.001
Scalar	.147	.132	.163	.931	.004

Developmental Relationships with Peers	**RMSEA**	**LCL**	**UCL**	**CFI**	**ΔCFI**
Configural	.049	.026	.073	.996	---
Metric	.045	.024	.065	.996	.000
Scalar	.038	.018	.057	.996	.000

School Climate	**RMSEA**	**LCL**	**UCL**	**CFI**	**ΔCFI**
Configural	.067	.034	.104	.993	---
Metric	.057	.030	.085	.991	.002
Scalar	.062	.040	.085	.985	.006

Table Appendix C1

Results of Tests for Assumptions of Normality for Developmental Relationships with Teachers

	Kolmogorov-Smirnov	Shapiro-Wilk
$DR_{teachers}$: Express Care	.057***	.988***
	(1298)	(1298)
$DR_{teachers}$: Challenge Growth	.085***	.965***
	(1298)	(1298)
$DR_{teachers}$: Provide Support	.074***	.980***
	(1298)	(1298)
$DR_{teachers}$: Share Power	.046***	.993***
	(1298)	(1298)
$DR_{teachers}$: Expand Possibilities	.075***	.991***
	(1298)	(1298)

Note. The Shapiro-Wilk statistic employs Lilliefors Significance Correction.

*p≤.05; ** p≤.01; *** p≤.001= (dfs in parentheses).

Table Appendix C2

Results of Tests for Assumptions of Normality for Academic Motivation

	Kolmogorov-Smirnov	Shapiro-Wilk
Belief in Malleable Intelligence	.156***	.932***
	(1254)	(1254)
Goal Orientation	.151***	.940***
	(1254)	(1254)
Performance Action Goal	.080***	.961***
	(1254)	(1254)
Mastery Goal	.098***	.961***
	(1254)	(1254)
Academic Self-Efficacy	.218***	.881***
	(1254)	(1254)
Intentional Locus of Control	.222***	.880***
	(1254)	(1254)

Note. The Shapiro-Wilk statistic employs Lilliefors Significance Correction.

*p≤.05; ** p≤.01; *** p≤.001= (dfs in parentheses).

Table Appendix C3

Results of Tests for Assumptions of Normality for Developmental Relationships with Parents

	Kolmogorov-Smirnov	Shapiro-Wilk
$DR_{parents}$: Express Care	.273***	.796***
	(1275)	(1275)

$DR_{parents}$: Challenge Growth	.291***	.778***
	(1275)	(1275)
$DR_{parents}$: Provide Support	.192***	.872***
	(1275)	(1275)
$DR_{parents}$: Share Power	.188***	.873***
	(1275)	(1275)
$DR_{parents}$: Expand Possibilities	.150***	.903***
	(1275)	(1275)

Note. The Shapiro-Wilk statistic employs Lilliefors Significance Correction.

*p≤.05; ** p≤.01; *** p≤.001= (dfs in parentheses).

Table Appendix C4

Results of Tests for Assumptions of Normality for Developmental Relationships with Peers

	Kolmogorov-Smirnov	Shapiro-Wilk
DR_{peers}: Express Care	.202***	.899***
	(1277)	(1277)
DR_{peers}: Challenge Growth	.182***	.909***
	(1277)	(1277)
DR_{peers}: Provide Support	.189***	.904***
	(1277)	(1277)
DR_{peers}: Share Power	.182***	.903***
	(1277)	(1277)
DR_{peers}: Expand Possibilities	.164***	.912***
	(1277)	(1277)

Note. The Shapiro-Wilk statistic employs Lilliefors Significance Correction.

*p≤.05; ** p≤.01; *** p≤.001= (dfs in parentheses).

Table Appendix C5

Results of Tests for Assumptions of Normality for School Climate actions

	Kolmogorov-Smirnov	Shapiro-Wilk
School staff respect differences of opinion	.213***	.885***
	(1251)	(1251)
Students are disciplined fairly at this school	.216***	.899***
	(1251)	(1251)
Teachers at this school really care about me	.203***	.900***
	(1251)	(1251)
Most students at this school care about each other, even people they do not know well	.220***	.907***
	(1251)	(1251)

Note. The Shapiro-Wilk statistic employs Lilliefors Significance Correction.

*p≤.05; ** p≤.01; *** p≤.001= (dfs in parentheses).

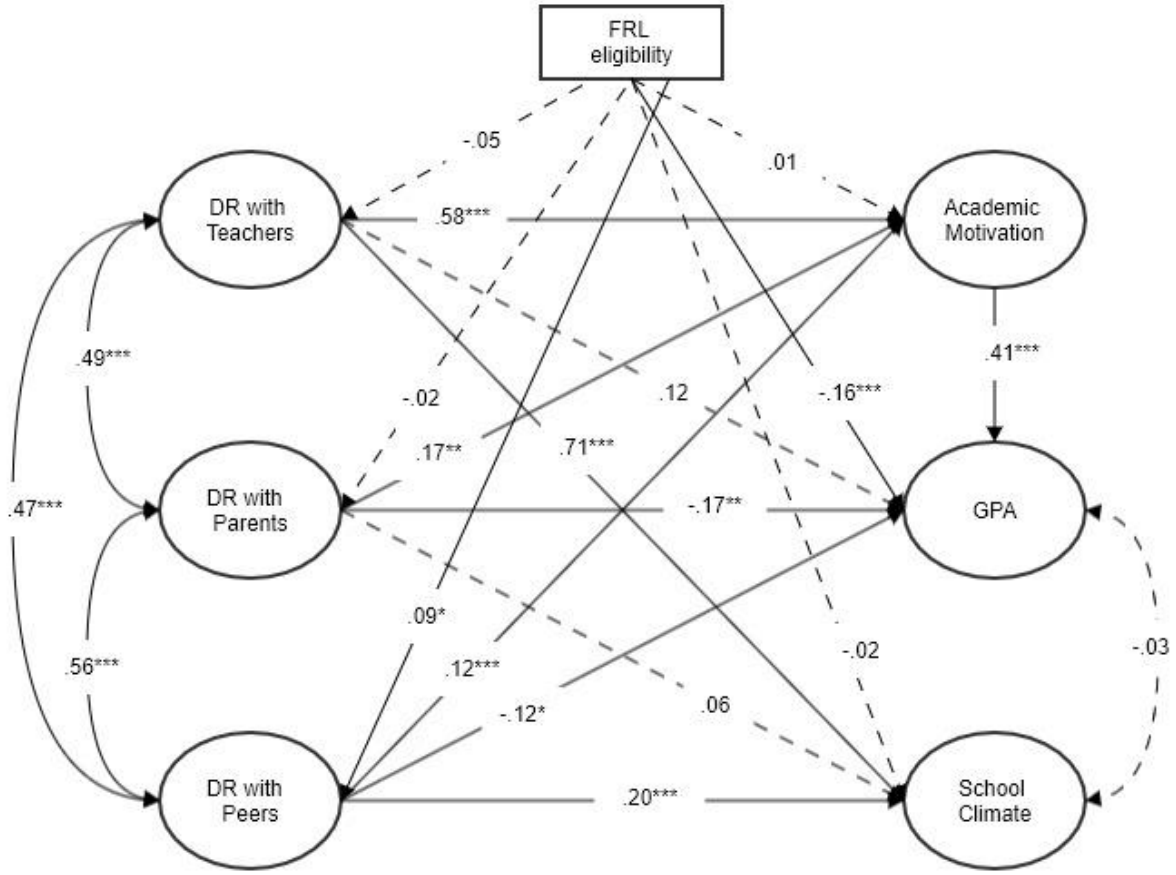

Figure 1. Path diagram illustrating the impact of Developmental Relationships on Academic Motivation, GPA, and School Climate controlling for Free/Reduced-price lunch eligibility at a Midwestern suburban middle school.

*Note. All reported estimates are standardized. Dashed paths are n.s. *p≤.05, ** p≤.01, *** p≤.001.*

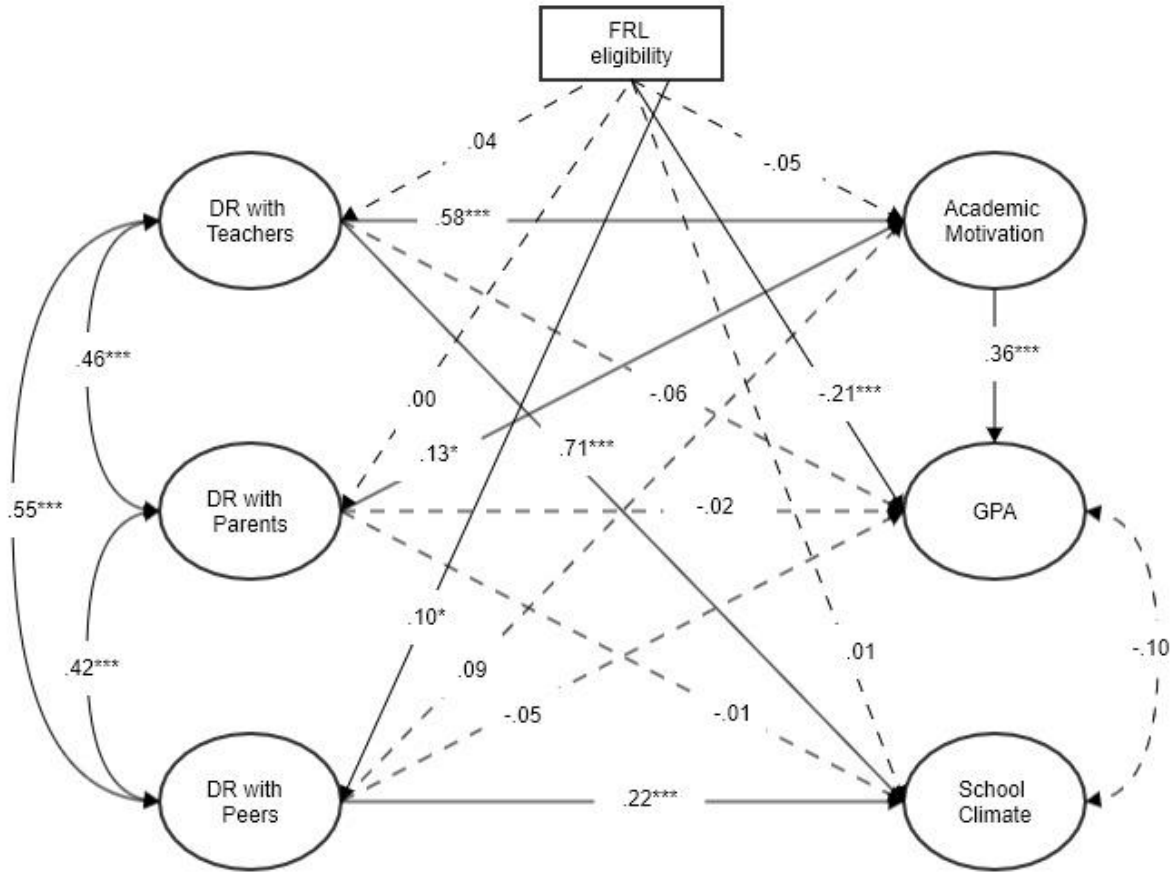

Figure 2. Path diagram illustrating the impact of Developmental Relationships on Academic Motivation, GPA, and School Climate controlling for Free/Reduced-price lunch eligibility at a Midwestern suburban high school.

*Note. All reported estimates are standardized. Dashed paths are n.s. *p≤.05, ** p≤.01, *** p≤.001.*