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The Impact of the Teacher-Student Relationship on Students' Educational Expectations

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THE IMPACT OF THE TEACHER-STUDENT RELATIONSHIP ON STUDENTS' EDUCATIONAL EXPECTATIONS

by

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ABSTRACT

Students benefit both academically and psychosocially from close, supportive relationships with their teachers. Students who have close relationships with their teachers tend to adjust better to school, perform better academically, and engage in fewer problem behaviors. These benefits begin as early as preschool and mitigate several barriers to educational success for students from low-resource environments. However, it is unclear how changes in these relationships over time differentially influence positive outcomes. In this study, I test how changes in relationship closeness between students and teachers influence students' expectations about future educational achievement. I also test how the strength of this association differs based on the academic expectations held by the student's parents, the socioeconomic status of the student, and the student's academic aptitude. Results indicate that changes in teacher-student closeness are positively related to changes in student educational expectations; this association is strongest for students whose parents hold low expectations, and/or for students with lower levels of academic aptitude. The results suggest that teacher-student relationship quality may be a beneficial intervention target for improving educational expectations in at-risk students.

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CHAPTER 1

INTRODUCTION

Research has well-established that children benefit from relationships with supportive, nonparental adults (e.g., Hagler & Rhodes, 2018). In particular, students benefit from positive, high-quality relationships with their teachers. Students who have high quality relationships with their teachers adjust better to school, get better grades, make choices that better support their health and well-being, and are generally happier than their peers who do not get along as well with their teachers (Chang et al., 2010; DuBois & Silverthorn, 2005; Hagler & Rhodes, 2018; Hurd & Sellers, 2013; Miranda-Chan et al., 2016). Furthermore, students who have positive relationships with their teachers often hold higher expectations for future educational attainment than students who lack these supportive relationships (Chang et al., 2010; Hurd & Sellers, 2013). Student-held expectations for educational attainment are meaningful indicators of later success, as they directly predict future degree attainment and indirectly predict adult income, health, and well-being (Adler & Newman, 2002; Kim et al., 2015; Princiotta et al., 2014).

Much is known about how students benefit from positive and supportive relationships with their teachers. Yet, less is known about how changes in closeness with teachers over time relate to changes in a young person's life. Such knowledge would inform the potential utility of these relationships as intervention targets. Further, examining the impacts of changes in these relationships is useful in determining who

benefits most from these relationships, and how strong the influence of these relationships is in comparison to other influential factors. The purpose of the current study is to examine how changes in student-reported closeness with teachers relate to changes in student-reported educational expectations. Further, I aim to examine whether or how this dynamic differs for students with varying levels of parent-reported educational expectations, socioeconomic backgrounds, and academic aptitudes, three key predictors of student-reported educational expectations. I hypothesize that change in closeness with teachers will positively predict change in educational expectations. I expect that this association will be strongest for students who are at-risk for low educational expectations (i.e., students whose parents hold low educational expectations for them; those from lower socioeconomic statuses; and those with lower academic aptitude levels).

Natural Mentorship

Youth who have positive relationships with non-parental adults tend to be more resilient to adversity than those who lack these relationships. The benefits of natural mentors-- non-parent adults who provide support and guidance to young people-- appear to be immediate and to persist into early adulthood (Hagler & Rhodes, 2018). Mentors develop mutually trusting relationships with young people and often share wisdom, encouragement, and guidance. Examples of natural mentors include religious leaders, coaches, and teachers (Hagler & Rhodes, 2018). A 2016 study found that, while only approximately 17% of young people have formal mentors, about 80% of adolescents have naturally occurring mentorship relationships (McLean et al., 1998; Miranda-Chan et

al., 2016). Provided that natural mentoring relationships are so prevalent, it is important to understand how young people benefit from them.

While not specific to natural mentoring, Rhodes and colleague's (2006) model of mentoring examines why mentees benefit from natural mentoring relationships. Three specific processes underlie positive change in mentoring relationships: socioemotional development, cognitive functioning, and identity development (Rhodes et al., 2006). Interpersonal mechanisms-- such as role modeling, advocating, and encouraging-- that occur within the mentoring relationship impact a young person across the three noted domains, subsequently resulting in a broad array of positive developmental outcomes (Rhodes et al., 2006). For example, mentees may learn social skills by watching their mentors model active listening and perspective taking. Similarly, mentors who encourage their mentees to participate in a variety of extracurricular activities may also allow a young person to identify and follow his or her interests. Well-developed socioemotional skills, cognitive functioning, and sense of self are crucial precursors to success during the transition from adolescence into adulthood (O'Connor et al., 2011). While the extent to which a mentee benefits from a mentoring relationship depends on the overall quality of that relationship, Rhodes and colleagues' (2006) model of mentoring is one way to understand the causal mechanisms behind youth mentoring.

While Rhodes and colleagues highlight change mechanisms in mentoring relationships more broadly, Granovetter's (1973) sociological theory of the strength of weak ties provides a framework for understanding why young people benefit from having natural mentors. Per Granovetter, natural mentors effect change because they are weak-tie connections, or connections that come from outside of a young person's close inner

circle. Weak-tie connections can be more effective than strong tie connections in promoting positive development because they can offer social capital (e.g., role modeling, vocational instruction, and social skills instruction) that the mentee's inner circle may lack (Granovetter, 1973; Hagler & Rhodes, 2018). This shared capital is valuable to young people, and even more so when adults within their inner circle may not be able to share it with them. Natural mentors bridge the gaps between youth and resources, experiences, and individuals typically outside of their reach.

Benefits of Natural Mentorship

Academic Benefits. Young people benefit from having natural mentors in many ways; one of these ways is through enhanced academic functioning. Youth with natural mentors outperform their non-mentored peers across several indicators of academic success. In a 2013 study of minoritized adolescents in the Midwestern United States, researchers found that students who reported high levels of connection to a natural mentor were more academically engaged than those who were not mentored, or those who reported relatively low levels of connection to their mentors (Hurd & Sellers, 2013). Another study found that youth with natural mentors had higher high school GPAs than peers who did not have mentors (Erickson et al., 2019). One longitudinal study examining the impacts of natural mentorship in a nationally representative sample of over 20,000 adolescents found that youth who had natural mentors were more likely to graduate from both high school *and* college than youth lacking natural mentors (DuBois & Silverthorn, 2005; Hagler & Rhodes, 2018). Further, another longitudinal study found that students who were mentored in high school had higher post-secondary grades than their peers without mentors (Chang et al., 2010). Evidence suggests enhanced academic

functioning across several indicators for youth with natural mentors compared to their non-mentored peers.

Psychosocial Benefits. In addition to benefiting academically from natural mentors, youth who have natural mentors also experience psychosocial benefits. Youth with natural mentors engage in lower levels of problem behavior than their peers without mentors; examples of these problem behaviors include, but are not limited to, substance use, violence, and theft (Chang et al. 2010; DuBois & Silverthorn, 2005; Hagler & Rhodes, 2018; Hurd & Sellers, 2013). One study found that youth with natural mentors report higher levels of optimism, life satisfaction, relational communication skills, and overall well-being than do their peers without natural mentors (Miranda-Chan et al., 2016). Furthermore, multiple studies of the impacts of natural mentorship relationships on civic engagement have found that youth with natural mentors during adolescence are more involved in their local communities (i.e., volunteering, serving as mentors themselves, etc.) during adulthood than their non-mentored counterparts, reflecting that the psychosocial benefits of natural mentorship may have cascading positive effects on a youth's community system (Hagler & Rhodes, 2018; MENTOR, 2018). While several characteristics of the mentoring relationship-- such as the mentor's role in the young person's life, the frequency of contact between the mentor and young person, the emotional closeness, and the duration of the relationship-- impact how much a young person benefits from natural mentoring, the array of positive outcomes associated with natural mentorship during and after the relationship indicate that these relationships are a valuable means through which we can increase positive outcomes for at-risk youth (DuBois and Silverthorn, 2005).

Teacher-Student Relationships

Early Benefits

Teachers play an important role in their students' lives as natural mentors. Students benefit from high-quality relationships with their teachers as early as preschool, and these benefits are longstanding. As young students navigate the classroom environment for the first time, their teachers serve as both a secure base and a regulatory function for their social and emotional development (Pianta & Stuhlman, 2004). It comes as no surprise that preschool students who have high quality relationships with their teachers-- characterized by high levels of teacher-student closeness and low levels of teacher-student conflict-- adjust better to the kindergarten environment better than their peers with lower quality teacher relationships (Pianta & Stuhlman, 2004). Close relationships with teachers can even serve as protective factors against early academic skill deficits for young children who have experienced trauma (Suntheimer & Wolf, 2020). One study of teacher-child relationships in early childhood found that early relationship quality can impact children years later; in this study, kindergarteners with poor teacher relationship quality demonstrated higher levels of problem behaviors up to two years later (Pianta et al., 1995). These findings were replicated in a more recent study, which found that students who have poor relationships with their teachers in first grade are more likely to demonstrate internalizing *and* externalizing problem behaviors (Pianta & Stuhlman, 2004). Because students' adjustment and performance during the first few years of school is predictive of later achievement (Alexander et al., 1988; Duncan et al., 2007; Romano et al., 2010), early teacher-student relationship quality can be make-or-break for students. The impact teachers have on their students as natural

mentors begins when children enter the school environment and has powerful implications for the student's future academic success.

Academic Benefits

Children continue to benefit academically from positive relationships with teachers as they progress through school. Students who have positive relationships with their teachers earn higher grades than students who have neutral or poor relationships with their teachers (Burchinal et al., 2002; McCormick et al., 2017; Pianta et al., 1997; Pianta & Stuhlman, 2004; Rucinski et al., 2017). While students greatly benefit from consistently high-quality relationships with their teachers, one study found that one single year of closeness with a teacher is enough to boost a student's academic performance (Cash et al., 2019). Another study that followed students from kindergarten through sixth grade found that students who felt more connected to their teachers were more motivated to succeed in school than students who reported low levels of connection to teachers; these students also reported higher levels of self-efficacy (Zee et al., 2020). Support from teachers is a notable antecedent to school engagement (Fredricks et al., 2004). Furthermore, because teacher closeness and support also contribute to a school's broader climate, positive relationships between teachers and students can have cascading positive effects on a student's entire school system (Fredricks et al., 2004).

Mental Health

Children also benefit emotionally from positive relationships with teachers. One longitudinal study of over 500 elementary school students found that teacher-student closeness in the spring predicted lower levels of student depressive symptoms in the spring (Rucinski et al., 2017). Similarly, a separate longitudinal study focusing on

adolescent mental health found that students were less likely to report suicidal ideation or suicide attempts if they felt that their teachers cared about them (McNeely & Falci, 2004). Researchers have even observed spillover effects of positive teacher-student relationships on students' family members. One study examining stress in the parents of children with high negative affect found that parents were least stressed when their children had high quality relationships with their teachers (Westerberg et al., 2020).

Risk Behavior

Students who feel supported by their teachers are less likely to engage in behaviors that are detrimental to their health and wellbeing than students who do not have these relationships. One longitudinal study found that students who felt that their teachers were fair and cared about them were less likely to smoke cigarettes, drink to the point of getting drunk, use marijuana, or engage in weapon-related violence (McNeely & Falci, 2004). These students also reported delayed first sexual intercourse compared to youth who did not feel as supported by teachers (McNeely & Falci, 2004). Notably, in this study, the teacher-student relationship was a much stronger protective factor against risk behavior than was social belonging (defined as feeling part of school and enjoying attending school; McNeely & Falci, 2004). Two more recent studies found that students who had natural mentors at school persistently reported lower substance use (cigarettes, marijuana, alcohol, and hard drugs) and violence perpetration/victimization than non-mentored peers (Bond et al., 2007; Black et al., 2010).

Benefits for At-Risk Youth

Because students benefit academically from close, supportive relationships with teachers, these relationships may be especially meaningful for those who are at-risk in

these domains, such as students from low resource backgrounds (McCormick et al., 2017). Hamre and Pianta's (2001) academic-risk hypothesis posits that teacher-student relationship quality is more important to learning processes and outcomes for at-risk students, such as those from low SES groups. All teachers have college degrees, therefore allowing them to share social capital pertinent to education to their students. This social capital can be helpful to students whose immediate inner circles may lack familiarity with higher education systems. Because of the social capital they provide, teachers can serve as protective factors for at-risk students. A 2002 study conducted by Burchinal and colleagues found that teacher-reported closeness with students was positively associated with growth in a student's reading abilities and receptive vocabulary skills from kindergarten to second grade, specifically for children of color and children with more authoritarian parents. McCormick and colleagues (2017) also found that teacher-student relationship quality moderated the relations between socioeconomic status (SES) and academic achievement in grades preschool through five, mitigating some of the challenges that low SES students face when it comes to educational success. Given the array of positive outcomes associated with positive teacher-child relationships, as well as the fact that these relationships could moderate effects of SES on achievement, perhaps the influence of these relationships could be harnessed to enhance academic engagement and achievement for at-risk students.

Educational Expectations

Importance of Educational Expectations

A student's expectations for their educational attainment are valuable indicators of future success. While student expectations are not always correlated with future

educational attainment, research consistently finds that students perform better academically when they have high expectations for themselves. Educational expectations set by students during middle and high school are positively related to later college enrollment, academic abilities, and college satisfaction, and negatively related to high school dropout (Fan & Wolters, 2014; Könings et al., 2008; Liu et al., 2009; Princiotta et al., 2014). These significant associations are present even after controlling for students' previous levels of educational attainment and family background (Schoon & Ng-Knight, 2017). Because obtaining a bachelor's degree can boost one's lifetime earnings by an average of 43-52% and promote long-term health and well-being, understanding how educational expectations influence later outcomes can help inform intervention efforts to increase future attainment levels (Adler & Newman, 2002; Kim et al., 2015).

The predictive utility of educational expectations is not surprising. Self-determination theory posits that individuals are more likely to succeed if they appraise themselves as competent enough to do so (Deci & Ryan, 1987). Students who hold high expectations for their educational attainment are more likely to take agency over these beliefs, backing them up with persistence and dedication to their academic performance (May & Witherspoon, 2019; Messersmith & Schulenberg, 2008). These links between expectations and student effort are even found in contexts in which attending college is the norm (Schoon & Ng-Knight, 2017). As such, empowering youth to hold higher expectations for themselves can promote higher attainment and achievement outcomes (Könings et al., 2008). Students who do not hold expectations for themselves to attend college are unlikely to take subsequent steps required to attain a degree in higher education. Because educational expectations are so strongly linked to later achievement,

some believe that socioeconomic-based achievement gaps can be traced back to differing educational expectations between low SES and high SES students (Aud et al., 2011; Kirk et al., 2011; Kremer et al., 2019). Enhancing students' expectations for themselves can subsequently influence their chances of educational attainment (Kremer et al., 2019). Understanding what impacts a student's expectations for him or herself is the first step in potentially targeting these expectations as a means to mitigate decreased achievement for at-risk groups. While the factors that impact expectations are innumerable, I will detail three of the largest influences noted in extant literature: parental expectations, socioeconomic status, and academic ability.

Influences on educational expectations.

Parental Expectations

Parental expectations are one of the strongest predictors of a student's educational expectations for themselves, and for subsequent educational attainment (Kremer et al., 2018; Mau & Bikos, 2000; Muller & Ellison, 2001). Parent-reported educational expectations for their children as early as first grade have been linked with that child's educational attainment at age 22. A longitudinal study of over 20,000 children from kindergarten to eighth grade found that parental educational expectations were key predictors of student expectations, even after controlling for factors such as the child's academic ability and demographic characteristics (Entwisle et al., 2005; Kremer et al., 2019). While a student's educational expectations are relatively stable from the sixth grade through secondary school (Kremer et al., 2019), changes in parental expectations often subsequently change student expectations; parental expectations have been found to both maintain a child's educational expectations over time as well as raise expectations of

a child with lower initial aspirations (Kao, 2002). In instances where parental expectations positively influence student expectations, parental influence has even been found to moderate the typical relations between academic abilities and educational expectations (Marjoribanks, 2003).

Researchers have identified several processes that underlie the link between parental and student expectations. In particular, family social capital plays a large role in a student's readiness and ability to attend college. Parents who have attended college themselves often hold higher aspirations for their children than parents who did not attend college; these families' educational attainment may afford them access to resources and to become more engaged in their children's education (Englund et al., 2004). Parental involvement is strongly related to boosts in student educational expectations, as engagement in their child's education conveys the message that education is important (Kirk et al., 2011). Parental expectations are also associated with the parent's perceived ability to pay for college, thus further highlighting the impact of family capital (Kirk et al., 2011). This may be why students' expectations are often congruent with their parents' social positioning (Goyette, 2008; Park et al., 2015). Beyond parent involvement and financial appraisal, parent and student expectations also may be linked because parents' appraisals of a student's abilities influence student self-appraisals of their academic competence (Kremer et al., 2019). Students' perceptions of their competence in school subsequently inform the expectations they form for themselves (May & Witherspoon, 2019).

While several factors, such as parents' social capital and educational background, influence their expectations for their children, parental expectations themselves are

valuable, distinct predictors of student expectations. This is because parental expectations are more malleable than social capital or previous educational experiences. Over the past two decades, educational expectations have increased on the whole for students (at a faster rate than attainment rates have) and have become less tied to SES (Goyette, 2008). Furthermore, extant research has established that early intervention with at-risk families can boost parents' educational expectations for their children (Loughlin-Presnal & Bierman, 2017; Purtell & McLoyd, 2013). Because parental expectations are so strongly related to student expectations and later attainment, it is worthwhile to investigate how they may be channeled to enhance outcomes for at-risk youth.

Socioeconomic Status

As mentioned above, deciding to attend college is the crucial first step in the process of eventually enrolling in higher education. Accordingly, many believe that discrepancies in college enrollment rates across students from differing SES backgrounds result from differences in educational expectations (Kremer et al., 2019). Students from low SES households compose one group of individuals with the lowest college enrollment rates in the U.S. (Kermer et al., 2019). This finding aligns with results from a national study indicating that youth from low SES households hold lower educational expectations than those from higher SES groups. Specifically, 92% of youth from the highest SES quartile in this study reported that they expected to complete a bachelor's degree or higher, whereas less than 60% of youth from the lowest SES quartile reported holding such expectations (Aud et al., 2011). Just as social capital provided by natural mentors can help promote positive outcomes, family capital—resources within the family system that permit children's success-- available to students from higher SES

backgrounds helps enhance achievement and educational expectations (Kirk et al., 2011). While the effects of SES on educational expectations could be influenced by a variety of factors, there is reason to believe that students from low SES backgrounds are at potentially much higher risk when it comes to their expectations for educational attainment.

Academic Ability/Aptitude

Another salient predictor of educational expectations is academic ability. Children who feel confident in their academic abilities have higher expectations for post-secondary education. It also appears that ability levels (i.e., as measured by standardized tests) predict how confident students feel in their academic ability. Thus, students who have stronger academic aptitude feel more confident about their ability to succeed academically, are likely to be more persistent with their schoolwork, and hold higher educational expectations than lower-ability peers (Kremer et al., 2019; Wigfield & Eccles, 2000). In addition to influencing feelings of competence, academic ability influences achievement levels. Academic achievement in high school is a determinant of a student's ability to be accepted to college. In turn, academic ability indirectly shapes a student's beliefs about what a realistic educational expectation would look like (May & Witherspoon, 2019). Given that high school GPA has been linked to educational aspirations in addition to future attainment, academic ability is very closely linked to student educational expectations (Hossler & Stage, 1992; Kremer et al., 2019).

In addition to influencing achievement and feelings of academic competency, academic ability can impact educational expectations by influencing parental and teacher expectations (Kremer et al., 2019). Just as a student's ability levels help inform him or

her appraisal of realistic expectations, teacher and parent appraisals of a student's abilities inform their expectations for that student (Kremer et al., 2019). Because parents are more likely to encourage high-achieving students than low-achieving students, these appraisals can have powerful implications for student expectations (Hossler et al., 1989). A student who can sense that his or her parents or teachers do not believe they can go to college will often adopt that mindset, resulting in a self-fulfilling prophecy for the student's future achievement and expectations. While academic ability is often positively related to SES, its influence on feelings of competence, achievement, and parental expectations indicates that it is likely a strong predictor of educational expectations regardless of a student's SES.

The Current Research Study and Hypotheses

Although the benefits of close, supportive teacher-student relationships are well established, little work exists investigating the role that teachers can have on changing a student's educational expectations. My study aims to close this gap in the literature by examining how a change in student-reported closeness with a teacher relates to change in educational expectations. Given the positive impact that natural mentorship has on life outcomes, I predict that change in closeness with a teacher will positively relate to change in educational expectations. Furthermore, I will examine whether the strength or direction of this association changes based on three moderating factors: parental expectations, socioeconomic status, and academic ability. Because students who are at-risk for low educational expectations are those whose parents hold low educational expectations, those coming from low SES backgrounds, and those who have relatively low levels of academic ability, I posit that the impact of teacher closeness on educational

outcomes will be strongest for these groups in particular. While closeness with a teacher can serve as a promotive factor for all students when it comes to setting educational expectations, I hypothesize it will be a protective factor when it comes to at-risk students' expectations for themselves.

Given that educational expectations indirectly predict adult income, health, and wellbeing (Adler & Newman, 2002; Kim et al., 2015; Princiotta et al., 2014), enhancing these expectations during adolescence may improve students' quality of life years later. Teacher-student relationships may be a means through which to change these expectations. While much is known about how students benefit from close, supportive relationships with their teachers, less is known about how changes in these relationships impact changes in educational expectations. This study aims to determine whether certain students (i.e., those who are more likely to hold low expectations for themselves) benefit from changes in these relationships more than others. By studying how students benefit from increased closeness with teachers, researchers, students, and school personnel may better understand how to use these relationships to their advantages through targeted interventions.

Data for this study came from the National Longitudinal Study of Adolescent to Adult Health (Add Health) dataset. The Add Health study followed a nationally representative sample of over 20,000 adolescents in the U.S. over the course of several years; for the purposes of this study, students' teacher-student relationship quality and educational expectations were measured during Waves I and II of data collection (measured one year apart). Several sociodemographic variables were also collected at Wave I (e.g., parental educational expectations at Wave I, household income, academic

aptitude) and will be used to test my research questions. The hypotheses for these research questions are as follows:

Hypothesis 1:

H_0: Student-reported closeness with a teacher at Wave I will not predict student-reported closeness with a teacher at Wave II ($\beta_1 = 0$).

H_a: Student-reported closeness with a teacher at Wave I will predict student-reported closeness with a teacher at Wave II ($\beta_1 \neq 0$).

Hypothesis 2:

H_0: Student-reported educational expectations at Wave I will not predict student-reported educational expectations at Wave II ($\beta_3 = 0$).

H_a: Student-reported educational expectations at Wave I will predict student-reported educational expectations at Wave II ($\beta_3 \neq 0$) .

Hypothesis 3:

H_0: Student-reported closeness with a teacher at Wave I will not predict student-reported educational expectations at Wave II ($\beta_4 = 0$).

H_a: Student-reported closeness with a teacher at Wave I will predict student-reported educational expectations at Wave II ($\beta_4 \neq 0$).

Hypothesis 4:

H_0: Student-reported educational expectations at Wave I will not predict student-reported closeness with teachers at Wave II ($\beta_2 = 0$).

H_a: Student-reported educational expectations at Wave I will predict student-reported closeness with teachers at Wave II ($\beta_2 \neq 0$) .

Hypothesis 5:

H_0: Student-reported closeness with a teacher at Wave I will equally predict student-reported educational expectations at Wave II for all children, regardless of parent-reported expectations (no moderation).

H_a: The effects of Wave I student-reported closeness with a teacher on Wave II educational expectations will be strongest for children with low parent-reported expectations, such that students with lower parental expectations will experience greater increases in expectations as a result of increasing closeness with teachers (moderation).

Hypothesis 6:

H_0: Student-reported closeness with a teacher at Wave I will equally predict student-reported educational expectations at Wave II for all children, regardless of SES (no moderation).

H_a: The effects of Wave I student-reported closeness with a teacher on student educational expectations at Wave II will be strongest for children with low SES backgrounds, such that students from low SES groups will experience greater increases in expectations as a result of increasing closeness with teachers (moderation).

Hypothesis 7:

H_0: Student-reported closeness with a teacher at Wave I will equally predict student-reported educational expectations at Wave II for all children, regardless of a student's academic aptitude (no moderation).

H_a: The effects of Wave I student-reported closeness with a teacher on Wave II student educational expectations will be strongest for children with low levels of academic aptitude, such that students with lower aptitude will experience greater increases in expectations as a result of increasing closeness with teachers (moderation).

CHAPTER 2

METHOD

Participants

Data for this study came from the National Longitudinal Study of Adolescent to Adult Health (Add Health) dataset. The Add Health study followed a nationally representative sample of adolescents for a total of 24 years. Data was collected from students at 80 U.S. high schools and 52 middle/junior high schools. Researchers began collecting data during the 1994-1995 school year and have collected five waves of data, with the most recent wave collected from 2016-2018. Data from Waves I and II of data collection, specifically, was used in this study. Wave I of data collection included a sample of 20,745 children in grades 7 through 12 (M age= 14.71 years, SD= 1.58 years). Children and their parents answered questions about a variety of topics, including about peer/familial relationships, academics, risk taking behavior, and physical health. Wave II of data collection occurred one year after Wave I and included a slightly smaller sample of children in grades 8 through 12 (n= 14,738 participants). There was a fairly even gender split across both waves of data collection, and the sample was representative in terms of racial/ethnic diversity (see Table 2.1). To examine potential moderators, data reported by participants' parents at Wave I of data collection was also used.

Table 2.1 Sample Demographics

Racial Identity	Number of Participants	Percent of Sample
White	5976	40.5%
Black/African-American	2416	16.4%
Asian or Pacific Islander	964	6.5%
American Indian or Native American	590	4%
Other	1106	6.8%
Ethnic Identity		
Hispanic or Spanish/Latin Origin	3525	16.99%
Not Hispanic or Spanish/Latin Origin	12158	82.71%
Gender (Wave I)		
Male	7190	48.8%
Female	7546	51.2%
Gender (Wave II)		
Male	7182	48.7%
Female	7556	51.3%

Measures

Add Health collected data from adolescents and their parents on a variety of domains, including about the family, neighborhood, community, school, friendships, peer groups, romantic relationships, risk taking behaviors, and health outcomes. Data from Waves I and II of data collection was used for this study.

Teacher-student relationship quality. To measure teacher-student relationship quality, I measured student-reported responses to the survey question "How much do you feel that your teachers care about you?". This Likert-style question had response choices anchored from 1 to 5, with a score of 1 indicating "Not at all" and a score of 5 indicating

"Very much." Adolescents answered this question during both Wave I and Wave II of data collection.

Student educational expectations. Students' educational expectations were measured by youth's responses to the question "On a scale of 1 to 5, where 1 is low and 5 is high, how likely is it that you will go to college?". Students answered this question during both Wave I and Wave II of data collection.

Parent educational expectations. Parental educational expectations for their children were measured through a parent-reported item collected during Wave I of data collection. Parents responded to the Likert-style question "How disappointed would you be if (insert child's name here) did not graduate from college?". Parents could choose response options 1-3, with 1 point= "Very disappointed," 2 = "Somewhat disappointed," and 3 = "Not disappointed."

Socioeconomic status. The socioeconomic status (SES) of participants in the study was measured by parent-reported household income at Wave I of data collection. Parents responded to the question "About how much total income, before taxes did your family receive in 1994? Include your own income, the income of everyone else in your household, and income from welfare benefits, dividends, and all other sources." This was chosen as an indication of SES instead of parental education level-- a commonly used metric for SES-- because I am interested in teasing apart parental expectations from the amount of capital available to adolescents. Using parental education level as a proxy for SES may be too closely related to parental expectations, as research indicates that parental expectations are strongly related to their own levels of educational attainment.

Academic ability/aptitude. Participants' academic ability level was measured through the Add Health Picture Vocabulary Test (an abridged version of the Peabody Picture Vocabulary Test). Participants completed this task during Wave I of data collection. Standardized scores were used for analysis as opposed to raw scores. This measure is recognized as an indication of educational aptitude (Hagler and Rhodes, 2018).

Table 2.2 Descriptive Statistics

Variable	Mean	Standard Deviation
Teacher-Student Relationship Quality (Wave I; *range: 1-5*)	3.52	1.01
Teacher-Student Relationship Quality (Wave II; *range: 1-5*)	3.53	1.04
Student Educational Expectations (Wave I; *range: 1-5*)	4.12	1.15
Student Educational Expectations (Wave II; *range: 1-5*)	4.02	1.23
Household Income	$46,060	$52,207
Parental Educational Expectations (*range: 1-3)*	1.7	0.72
Add Health Picture Vocabulary Test Standard Score	99.79	14.99

Data Analytic Plan

Each research question was answered using a cross-lagged regression model (see Figure 1). Cross-lagged regression models examine relations between multiple constructs at different points in time by considering both autoregressive effects and cross-lagged effects. Autoregressive effects refer to the stability of one construct over time; in other words, these effects account for how much an individual's scores on one construct change from one time point to another. Conversely, cross-lagged effects refer to the impact of a second variable on another variable measured at a later point in time after controlling for

the stability of this construct between time points (Selig & Little, 2012). Cross-lagged regression models allow one to examine the unique relations between changes in variables over time, while controlling for the stability of both variables over time. When applied to the current study, a cross-lagged regression model allows me to examine the amount of variance in student educational expectations at Wave II that is explained by teacher-student relationship quality at Wave I while also accounting for the stability of educational expectations and teacher-student relationship quality over time. In other words, I will test whether or not changes in relationship closeness affect later changes in educational expectations, or vice-versa. Hypotheses 1 and 4 were tested using the following formulae:

$$X_2 = \beta_1 Wave1TeacherCloseness + \beta_2 Wave1EdExpectations$$

Wherein X_2 represents the student-reported closeness with a teacher at Wave II. β_1 and β_2 represent the predicted net increase on the log likelihood of student-reported closeness with a teacher for each unit increase of the predictor.

Similarly, hypotheses 2 and 3 were tested using the following model:

$$Y_2 = \beta_3 Wave1EdExpectations + \beta_4 Wave1TeacherCloseness$$

Wherein Y_2 represents the student-reported educational expectations at Wave II. β_3 and β_4 represent the predicted net increase on the of student-reported educational expectations for each unit increase of the predictor.

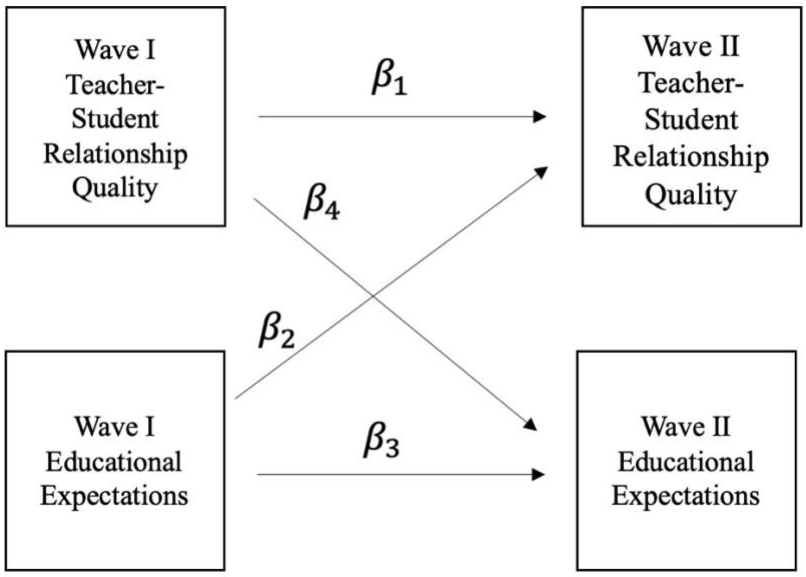

Figure 2.1 Cross-Lagged Regression Model

Hypotheses 5, 6, and 7 were tested using the same model as hypotheses 2 and 3. I completed three multi-group analyses to test the hypotheses related to moderation. Specifically, I used model constraints in Mplus to compare the difference between parameters between multiple groups. This approach to testing moderation tests the difference in coefficients between groups to determine whether parameters strength or direction are the function of a third variable. Groups were created based on parent reported expectations, SES, and academic aptitude. The multi-group analysis for the parent-reported expectations moderation compared three groups of participants: those whose parents reported that they would be very disappointed if their child did not graduate from college (High Expectations), those whose parents said they would be somewhat disappointed if their child did not graduate from college (Moderate Expectations), and those whose parents said they would not be disappointed if their child

did not graduate from college (Low Expectations). Given the continuous nature of the other moderation variables (SES and academic aptitude), multi-group analyses were completed comparing individuals across quartiles for these variables. Quartiles for SES split participants into the following four groups: those whose annual household income was less than or equal to $21,000, those whose annual household income fell between $21,001-$38,000, those whose annual household income fell between $38,001-$60,000, and those whose annual household income was greater than $60,001. The quartile groups for academic aptitude were created based on standard scores of the Add Health Picture Vocabulary test; individuals in the first quartile had standard scores less than or equal to 90, those in the second quartile scored between 91-100, those in the third quartile scored between 101-111, and those in the fourth quartile scored 112 or above. To test my hypotheses regarding the relative predictive strength of the teacher-student closeness for individuals with varying levels of parental expectations, SES, and academic aptitude, Likelihood Ratio tests were completed for each split-group analysis. These tests compared model parameters from split group analyses to determine whether or not the model parameters differed significantly across groups. I used Full Information Maximum Likelihood to estimate parameters.

CHAPTER 3

RESULTS

Data were cleaned and subset in R version 3.6.1 and analyzed in Mplus Version 8.2. By examining the first autoregressive pathway of the cross-lagged model (stability coefficients; β_1) to test Hypothesis 1, it was determined that student-reported closeness with teachers was relatively stable over time. Student reported closeness with teachers at Wave I was a significant predictor of student-reported closeness with teachers at Wave II; students who perceived strong relationships with teachers at Wave I were likely to have strong relationships with their teachers at Wave II, as well (β= 0.45, SE= 0.01, $p < 0.001$). The second autoregressive pathway (stability coefficient; β_3) was examined to test Hypothesis 2. Student-reported educational expectations remained relatively stable over time, with student-reported educational expectations at Wave I significantly predicting student-reported educational expectations at Wave II (β= 0.29, SE=0.01, $p < 0.001$). Those with higher expectations at Wave I were likely to have high expectations at Wave II; those with low expectations at Wave I were similarly likely to maintain these lower expectations at Wave II.

The cross-lagged effects of the model (β_4 and β_2) were analyzed to test Hypotheses 3 and 4. Student-reported closeness with a teacher at Wave I was a significant predictor of student-reported educational expectations at Wave II, after controlling for the stability of educational expectations (β= 0.3, SE= 0.01, $p <0.001$). Students who perceived strong relationships with their teachers at Wave I were likely to

hold high expectational expectations at Wave II. Student-reported educational expectations at Wave I also significantly predicted student-reported closeness with teachers at Wave II, but only slightly so (β= 0.05, SE= 0.01, p= 0.002). Specifically, as student-reported educational expectations at Wave I increased, so did student-reported closeness with their teacher at Wave II.

Table 3.1 Results of the cross-lagged regression examining the effects of variables on teacher-student relationship quality at Wave II

Variables	β	SE	t	p-value
Teacher-Student Relationship Quality (Wave I)	0.45	0.01	34.96	<0.001
Student Educational Expectations (Wave I)	0.04	0.01	3.1	0.002
Student Educational Expectations (Wave II)	0.15	0.02	8.56	<0.001

Table 3.2 Results of the cross-lagged regression examining the effects of variables on student educational expectations at Wave II

Variables	β	SE	t	p-value
Student Educational Expectations (Wave I)	0.29	0.009	31.64	<0.001
Teacher-Student Relationship Quality (Wave I)	0.30	0.008	36.87	<0.001
Teacher-Student Relationship Quality (Wave II)	0.15	0.02	8.56	<0.001

Multi-group analyses were completed to test Hypotheses 5, 6, and 7. For Hypothesis 5 (parent-reported expectations moderation), student-reported closeness with a teacher at both Wave I and Wave II were significant predictors of student-reported educational expectations at Wave II for students in all three groups (see Table 3.3). As

students perceived strong relationships with their teachers, their expectations for their educational attainment increased. Further, Likelihood Ratio tests indicated that Hypothesis 5 was supported; the impact of teacher-student relationship quality at Wave I on student educational expectations at Wave II was significantly stronger for students whose parents indicated low educational expectations compared to high educational expectations (B difference= -0.057, SE= 0.02, p= 0.001)**.**

Table 3.3 Results of the cross-lagged regression examining parent expectations as a moderator on student educational expectations at Wave II

Group	Variables	β	SE	t	p-value
High Expectations	Student Educational Expectations (Wave I)	0.54	0.01	56	<0.001
High Expectations	Teacher-Student Relationship Quality (Wave I)	0.05	0.01	4.41	<0.001
High Expectations	Teacher-Student Relationship Quality (Wave II)	0.14	0.01	10.54	<0.001
Moderate Expectations	Student Educational Expectations (Wave I)	0.54	0.01	52.17	<0.001
Moderate Expectations	Teacher-Student Relationship Quality (Wave I)	0.08	0.01	6.72	<0.001
Moderate Expectations	Teacher-Student Relationship Quality (Wave II)	0.15	0.01	10.23	<0.001
Low Expectations	Student Educational Expectations (Wave I)	0.56	0.02	35.19	<0.001
Low Expectations	Teacher-Student Relationship Quality (Wave I)	0.05	0.02	2.68	0.007
Low Expectations	Teacher-Student Relationship Quality (Wave II)	0.14	0.02	6.06	<0.001

Note: Likelihood Ratio tests were based on unstandardized parameter estimates

To examine the potential effect of SES as a moderator on student educational expectations at Wave II, multi-group analyses were also completed. Teacher-student relationship quality at Wave I and Wave II were significant predictors of students'

educational expectations at Wave II, regardless of participants' household incomes (see Table 3.4). Student expectations increased when their perceived closeness with their teachers increased. Likelihood Ratio tests suggested that Hypothesis 6 was not supported; there were no significant differences in the impact of Wave I teacher-student relationship quality on student educational expectations based on a student's household income. In other words, Wave I teacher-student relationship quality predicted student educational expectations at Wave II equally for all students, regardless of the student's socioeconomic status.

Table 3.4 Results of the cross-lagged regression examining household income as a moderator on student educational expectations at Wave II

Quartile	Variables	β	SE	t	p-value
First	Student Educational Expectations (Wave I)	0.52	0.01	35.62	<0.001
First	Teacher-Student Relationship Quality (Wave I)	0.07	0.02	3.9	<0.001
First	Teacher-Student Relationship Quality (Wave II)	0.14	0.02	6.96	<0.001
Second	Student Educational Expectations (Wave I)	0.54	0.01	38.7	<0.001
Second	Teacher-Student Relationship Quality (Wave I)	0.07	0.02	4.2	<0.001
Second	Teacher-Student Relationship Quality (Wave II)	0.17	0.02	9.05	<0.001
Third	Student Educational Expectations (Wave I)	0.57	0.01	43.08	<0.001
Third	Teacher-Student Relationship Quality (Wave I)	0.06	0.02	3.51	<0.001
Third	Teacher-Student Relationship Quality (Wave II)	0.14	0.02	7.28	<0.001
Fourth	Student Educational Expectations (Wave I)	0.58	0.01	45.28	<0.001
Fourth	Teacher-Student Relationship Quality (Wave I)	0.05	0.02	3.14	0.002
Fourth	Teacher-Student Relationship Quality (Wave II)	0.14	0.02	7.24	<0.001

Note: Likelihood Ratio tests were based on unstandardized parameter estimates

As for the impact of aptitude as a potential moderator of student educational expectations at Wave II, multi-group analyses reflected that teacher-student relationship quality at Waves I and II were significant predictors of student educational expectations at Wave II across all levels of academic aptitude (see Table 3.5). There was a positive association between teacher-student closeness and student educational expectations, such

that increases in student-teacher relationship quality predicted increases in student educational expectations. Likelihood ratio tests indicate that Hypothesis 7 was supported; the impact of Wave I teacher-student relationship quality on student educational expectations at Wave II was significantly stronger for students with lower academic aptitude (second to fourth quartile B difference= 0.06, SE= 0.02, $p< 0.001$; third to fourth quartile B difference= 0.06, SE= 0.02, $p< 0.001$). Specifically, as student academic aptitude increased, the influence of the Wave I teacher-student relationship quality on Wave II educational expectations decreased.

Table 3.5 Results of the cross-lagged regression examining aptitude as a moderator on student educational expectations at Wave II

Quartile	Variables	β	SE	t	p-value
First	Student Educational Expectations (Wave I)	0.47	0.01	34.22	<0.001
First	Teacher-Student Relationship Quality (Wave I)	0.06	0.02	3.94	<0.001
First	Teacher-Student Relationship Quality (Wave II)	0.13	0.02	7.49	<0.001
Second	Student Educational Expectations (Wave I)	0.58	0.01	50.49	<0.001
Second	Teacher-Student Relationship Quality (Wave I)	0.06	0.01	4.5	<0.001
Second	Teacher-Student Relationship Quality (Wave II)	0.16	0.02	8.92	<0.001
Third	Student Educational Expectations (Wave I)	0.58	0.01	49.16	<0.001
Third	Teacher-Student Relationship Quality (Wave I)	0.08	0.01	5.7	<0.001
Third	Teacher-Student Relationship Quality (Wave II)	0.14	0.02	8.16	<0.001
Fourth	Student Educational Expectations (Wave I)	0.58	0.01	48.35	<0.001
Fourth	Teacher-Student Relationship Quality (Wave I)	0.05	0.01	3.3	0.001
Fourth	Teacher-Student Relationship Quality (Wave II)	0.17	0.02	9.48	<0.001

Note: Likelihood Ratio tests were based on unstandardized parameter estimates

CHAPTER 4

DISCUSSION

In this study, I hypothesized that changes in teacher-student relationship quality would predict changes in student-reported educational expectations. I used the national Add Health dataset to determine the presence and direction of this association, as well as whether the strength or direction of this association differed based on a student's parental expectations, SES, and/or academic aptitude. The current analyses yielded several important findings. First, when students perceive strong relationships with their teachers, they are more likely to expect that they will enroll in college. This is an important finding because it expands upon the current research evidence highlighting how youth benefit from having teachers as mentors. Young people benefit academically from the presence of supportive nonparental adults; these youth are more academically engaged, earn better grades, and are more likely to graduate from high school *and* college (DuBois & Silverthorn, 2005; Erickson et al., 2019; Hagler & Rhodes, 2018; Hurd & Sellers, 2013). Children benefit even more academically when they find mentors in their teachers. Students who feel supported by their teachers demonstrate more self-efficacy, and that even one year of mentorship is enough to boost students' academic performance (Cash et al., 2019; Zee et al., 2020). The findings of this study highlight that one year of connection enhances more than just academic performance; it has the potential to influence students' expectations for their own educational attainment. Given that students who hold high expectations for themselves are more likely to pursue higher education

(Fan & Wolters, 2014; Könings et al., 2008; Liu et al., 2009; Princiotta et al., 2014), and that obtaining a bachelor's degree can enhance later quality of life (e.g., long-term health, well-being, lifetime earnings, etc.; Adler & Newman, 2002; Kim et al., 2015), these findings suggest one new pathway through which youth may experience lifelong benefits from supportive relationships with their teachers.

Another key finding of this study is that certain students benefit more than others from increases in teacher-student relationship quality. Specifically, students whose parents hold low expectations for their educational attainment are more likely to change their educational expectations as a result of increased closeness with their teachers. While teacher-student relationship quality is associated with increased student self-efficacy more broadly (Cash et al., 2019; Zee et al., 2020), it is possible that support from teachers is more meaningful and impactful for students whose parents would not feel disappointed if they did not attend college. Similar effects were found pertaining to academic aptitude. This is not surprising, given that students with lower academic aptitudes often experience lower self-esteem related to academics (Kremer et al., 2019; Wigfield & Eccles, 2000) and feel less supported academically by teachers and parents (Hossler & Stage, 1992). Students with lower levels of academic aptitude may have lower educational expectations for themselves as a result of low academic self-efficacy. As these students begin to feel more supported by their teachers, their self-efficacy may increase, resulting in increased educational expectations. Taken together, these results indicate that close, supportive relationships with teachers can be especially meaningful for students who are at-risk for low educational expectations.

While results from this study suggest that parental expectations and academic aptitude strengthen the relations between teacher-student relationship quality and student educational expectations, analyses did not indicate significant differences based on socioeconomic status. Descriptively, the impact of the teacher-student relationship decreased as student socioeconomic status increased; however, these differences were not statistically significant. This finding was contrary to my hypothesis that the impact of the teacher-student relationship on educational expectations would be strongest for students coming from lower socioeconomic backgrounds. It is possible that the influence of socioeconomic status on students' expectations for their educational attainment is so strong that one single year of increased closeness with a teacher is not enough to change it. This may be because students consider their ability to financially afford a college education when setting expectations for future enrollment. Alternatively, perhaps close and supportive relationships with their teachers may slightly boost students' academic self-efficacy, but not quite enough to change their minds about whether or not they will attend college.

Limitations

This study has several limitations. First, an issue related to measurement of teacher-student relationship quality might compromise the validity of the conclusions of this study. The Add Health questionnaire asked participants to indicate the quality of their relationships with their teachers with a single survey question ("How much do you feel that your teachers care about you?"). Given that several dimensions of the teacher-student relationship (e.g., the longevity of the relationship, frequency of contact between the teacher and student, etc.) may impact the way a student benefits from the relationship, it

is likely that this single question did not have adequately captured the nuances of the teacher-student relationship quality. Additionally, this question asked students to consider their relationships with multiple teachers. Because of the wording, students may have reflected on an average of their relationship quality with their teachers as opposed to the quality of their most meaningful relationship; or on the contrary, a poor or exceptional relationship with a single teacher may have skewed their responses. Better measurement of teacher-student relationship quality may have yielded more valid results. Furthermore, due to the longitudinal nature of this dataset, participant attrition from Wave I to Wave II limits scope of these results. Causal pathways may also not be determined from this study, as the design was not an experiment.

Conclusion and Future Directions

Limitations notwithstanding, the findings of this study offer implications for school personnel, students, and researchers. Past research has highlighted many ways in which students benefit from close, supportive relationships with their teachers. This study expanded on previous research by highlighting a new avenue of teacher influence: high quality teacher-student relationships are associated with higher expectations for their future educational attainment. Students who are typically at risk for holding low expectations in this regard—those whose parents hold low expectations for them and those who have lower levels of academic aptitude—may benefit even more from close, supportive relationships with their teachers.

Despite much research evidence surrounding the benefits of close, supportive teacher-student relationships, interventions targeting teacher-student relationship quality are nascent. Preliminary findings from the few existing interventions targeting teacher-

student relationships (Fawley et al., 2020; Lind et al., 2017; Ray et al., 2008) suggest that these interventions may effectively foster positive relationships while also improving students' goal setting abilities and positive behaviors. These interventions also have the potential to reduce teacher stress (Ray et al., 2008) and may be implemented at relatively little cost to teachers and school personnel (Lind et al., 2017). Existing interventions employ differing approaches to improving teacher-student relationship quality, such as by increasing positive student behavior or by changing teachers' classroom interaction styles. Recent literature on the impact of parent-teacher relationships on intervention outcomes suggests that multi-level intervention approaches may also be promising (Sheridan et al., 2017). Findings from the current study highlight the kinds of students who may benefit most from interventions aimed at increasing teacher-student relationship quality (those whose parents hold low expectations and those with lower levels of aptitude), as well as another way that these students might benefit from this kind of intervention (improved educational expectations). To harness and maximize the benefits that students receive from high quality relationships with their teachers, future research should focus on the development, refinement, and validation of interventions targeting the improvement of teacher-student relationship quality for at-risk students. Furthermore, future research should also focus on the measurement of the teacher-student relationship quality to more adequately capture how students experience and benefit from these relationships.

Ultimately, students play large roles in shaping their relationships with their teachers. While teachers should be aware of the ways they can shape their students' experiences in school, this information should be shared with students, as well. Other

adults in a young person's life—such as their parents, school counselors, or principals—might consider empowering students to take ownership of their relationships with their teachers. By encouraging students to take small steps forward to establish more positive relationships with their teachers (e.g., asking their teacher for help after class; encouraging the student to use better posture and eye contact when communicating with their teacher; etc.), these young people may develop increased academic self-efficacy and may begin to direct their experiences in school. Students and teachers both hold the power to enact changes by developing positive, supportive relationships.

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