ROLE OF PROVISIONS OF MENTOR SUPPORT ON ADOLESCENTS' SCHOOL FUNCTIONING

A Dissertation

by

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ABSTRACT

Mentoring relationships can have important effects on adolescents' psychosocial and academic outcomes; however, the transactions within these relationships that may account for this impact are not well understood. The present study investigated the influence of natural mentor provisions of Academic Support, Trust, and Warmth, on adolescent school functioning (e.g., reading and math achievement, academic self-efficacy, behavioral engagement, school belonging, conduct problems) during the following year. Regression analyses revealed that mentor Warmth and Academic Support were unique predictors of increased reading achievement and student-reported behavioral engagement, respectively. Unexpectedly, mentor Trust was negatively related to academic self-efficacy. Additionally, Natural mentoring relationship characteristics (e.g., access to mentors, mentor role, mentor occupation) were examined for sex and ethnic differences. Results revealed no sex differences; however, White youth mentors were less likely to be relatives and more likely to be familial friends, compared to Black or Hispanic youth mentors. Furthermore, White adolescents reported having mentors whose occupations were characterized as requiring more education or skill, while Black and Hispanic adolescents' mentors were more often unskilled. There were no significant differences between Black and Hispanic mentors' role or occupation. Study limitations, future research directions, and implications for optimizing student services through Response-to-Intervention, professional development, and school policy are discussed.

This dissertation is lovingly dedicated to my son, William, who has brought a deeper sense of purpose and happiness to my life than I thought was possible; and to my partner and husband, Matt, who has provided me with endless support and inspired my dreams.

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INTRODUCTION AND LITERATURE REVIEW

Resiliency in Academically At-Risk Youth

Poor academic achievement and school engagement contribute to a host of negative outcomes, including school dropout, substance abuse, low career attainment, (Bond et al., 2007; Rumberger, 1987) and criminal delinquency (Maguin & Loeber, 1996). Risk factors for poor achievement and engagement have been studied extensively and include poor academic readiness skills, socioeconomic status, race/ethnicity, and sex (Alexander, Entwisle, & Horsey, 1997; Rumberger, 1987). Fortunately, resiliency buffers the effects of risk factors and enhances an individual's adaptability, enabling one to persevere in academic and other pursuits. Research on resiliency and low academic achievement has identified the positive effects of child and contextual characteristics, such as prosocial behavior (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000) and positive interpersonal relationships with parents, teachers, and peers (Hamre & Pianta, 2001; Ryan, 2001). Lessard, Butler-Kisber, Fortin, and Marcotte (2014) found that students who completed high school were better able to identify support from others when facing a challenge, when compared to dropouts in an ethnically-matched study of students. Social support may be provided in the form of mentoring relationships; therefore, mentoring is an important potential strategy for providing support and enhancing academic resiliency.

A mentor is defined as a nonparental adult with whom a youth shares a close, trusting relationship and the mentor provides guidance and encouragement (Rhodes, 2002; Rishel, Cottrell, Stanton, Cottrell, & Branstetter, 2010). Mentoring relationships can be formal, in which the mentor is assigned to a youth participating in a mentoring program, or natural relationships, in which the mentor provides support and guidance in the youth's life independent of a structured program. Prior research on mentoring has focused on formal mentoring (e.g., DuBois, Holloway, Valentine, & Cooper, 2002; Rhodes, Grossman, & Resch, 2000; Sipe, 2002). However, natural mentoring relationships are more common than formal mentoring relationships (DuBois & Silverthorn, 2005b; Zimmerman, Bingenheimer, & Behrendt, 2005), and due to their potential for longer duration and higher frequency of contact, may be especially influential in youths' lives. The present study investigates the effect of natural mentors on academic outcomes of adolescents previously identified as at-risk for low academic achievement, based on scoring below the median on a test of literacy in first grade. This study addresses several gaps in the literature on natural mentoring, including an emphasis on academic outcomes and a longitudinal design that controls for youths' prior academic functioning. Additionally, the study examines processes within the mentoring relationship that may account for its benefits.

Mentoring Relationships: Formal and Naturally Occurring

Mentoring relationships are characterized as existing over a period of time and providing a sense of trust and closeness, as well as a sharing of information between both parties. Such relationships may be described by the means through which the

relationship was established, either formally or naturally. Formal mentoring relationships are established through a program (e.g., Big Brothers Big Sisters), and youth are assigned a mentor during their participation. In contrast, a natural mentoring relationship is formed organically, stemming from an existing relationship and does not require the assistance of an agency matching process. That is not to say that natural mentoring relationships cannot be intentionally fostered. Within some cultures it is common for parents to seek mentors or role models for their children, and this is consistent with the natural process through which relationships are established. Natural mentors are nonparental adults and may include extended family members, family friends, teachers, coaches, and religious leaders, among others. As such, the adolescent may not necessarily define the relationship as one of mentoring, but rather a close relationship. As natural mentoring relationships occur without agency assistance, they can be fostered with any adolescent, regardless of risk status, as opposed to formal programs that utilize selection criteria. Accordingly, natural mentoring relationships have been found to occur more often than formal mentoring, having accounted for 71% of adult-reported youth mentoring relationships (MENTOR, 2006). Natural mentoring relationships also often have greater longevity, as the mentor may be a family member or close family friend. Given the potential for longer duration, greater frequency of their occurrence, and the lack of constraint in youth selection, natural mentoring relationships may be an especially effective means of preventing academic failure. The following review will focus exclusively on research on natural mentoring, unless otherwise specified.

Natural Mentors

Studies of natural mentoring have examined individuals most likely to fulfill natural mentoring roles in youths' lives. DuBois and Silverthorn (2005a) established three categories to which natural mentors may belong: family (e.g., grandparent, aunt/uncle, older sibling), informal (e.g., coach, employer, co-worker, neighbor, etc.), and professional (e.g., teacher, counselor, minister, doctor, social worker). Other studies have examined mentor role using a binary distinction of familial or nonfamilial relation (Chang, Greenberger, Chen, Heckhausen, & Farruggia, 2010; Sánchez, Esparza, & Colón, 2008). The mentor's role is suggestive of unique assets for the relationship. For instance, relationships with family members tend be more permanent, more affective, and address more diverse issues in the youth's life (Beam, Chen, & Greenberger, 2002; Wellman & Wortley, 1990). A family member, however, experiences similar stressors and often has access to similar social capital. Alternatively, a nonfamilial mentor promotes skills related to the mentor's background (Rhodes, 2002) and may have the potential to expose the youth to new information and networks, thus enhancing that adolescent's social capital (Darling, Hamilton, & Niego, 1994). These relationships have also been found to provide instrumental support with a specific focus (Beam et al., 2002; Wellman & Wortley, 1990). For instance, DuBois and Silverthorn (2005a) found that natural mentors of an educational or helping profession were more effective in promoting the likelihood of college attendance and decreasing risks associated with substance abuse. Yet, these relationships are typically more temporary in nature than that of a family member.

Self-Determination Theory

The mechanisms through which natural mentoring relationships foster change in an adolescent's development can be understood within the context of self-determination theory (Deci & Ryan, 2000). As proposed by this perspective, an individual's intrinsic motivation is enhanced when a context provides for that individual's autonomy, competence, and psychological relatedness. Within effective mentoring relationships, provisions of support (i.e., the act of the mentor providing the mentee with specific types of support, assistance, or comfort) address these needs. These relationships are most often characterized by fulfilling psychological relatedness and competence needs, through provisions of support and guidance. Rhodes (2005) found that a strong interpersonal connection is a requirement for a mentor to positively influence youth outcomes. The relationship is founded on mutual trust and respect, which allows for social and emotional development. Mentoring interactions provide opportunities for positive modeling, as well as direct instruction of emotional regulation, empathy, communication, and problem solving strategies, which may then be generalized by the youth to other social relationships (Rhodes, 2002, 2005; Rhodes, Spencer, Keller, Liang, & Noam, 2006). The positive exchange in mentoring relationships may also lead youth to be more goal oriented and have more positive self-appraisal and confidence in their abilities (Kogan, Brody, & Chen, 2011; Rhodes et al., 2006). An individual's sense of competence may be further enhanced by mentors through exposure to opportunities for learning, intellectual challenge, and promotion of academic success (Rhodes et al., 2006). While most research (including the present study) has focused on relatedness and

competence, self-determination theory states that the needs of autonomy must also be addressed to foster individual development.

Current Literature on Natural Mentoring

Research on natural mentoring has examined its role in promoting positive youth development (e.g., well-being, optimism, identity development) as well as preventing negative psychosocial outcomes (e.g., depression, anxiety, behavioral delinquency). This research has yielded inconsistent findings, and similarly lacked consistency with including factors related to outcomes, such as mentor role and the categorization of mentor role. Rhodes, Ebert, and Fischer (1992) found that youth with natural mentors reported less depression, as well as more optimism, attitudes regarding career attainment, and social support, than those without mentors. Similarly, Hurd and Zimmerman (2010a, 2010b) found that the presence of a natural mentor was associated with fewer depressive symptoms for adolescents over a five-year trajectory. Other studies, however, reported no association between natural mentors and adolescents' internalizing symptoms (Chang et al., 2010; DuBois & Silverthorn, 2005b; Zimmerman, Bingenheimer, & Notaro, 2002). Furthermore, Chang, Greenberger, Chen, Heckhausen, and Farruggia (2010) found that mentor role (i.e., familial, nonfamilial) had no influence on depressive symptoms. In examining delinquency, studies have demonstrated that adolescents with natural mentors exhibit less gang affiliation, violent and nonviolent problem behaviors, and risky sexual behaviors (Beier, Rosenfeld, Spitalny, Zansky, & Bontempo, 2000; DuBois & Silverthorn, 2005a, 2005b; Zimmerman et al., 2002). Findings related to substance abuse, however, have proven inconsistent (Beier et al.,

2000; DuBois & Silverthorn, 2005a, 2005b; Hurd & Zimmerman, 2010b). DuBois and Silverthorn (2005a)'s investigation also included mentor role and found that having a mentor in a professional role, as opposed to informal, was associated with less drug use.

Studies have also examined natural mentoring associations with academic outcomes. The literature indicated positive associations with educational pursuit, and attainment (e.g., high school graduation, college attendance; DuBois & Silverthorn, 2005b; Klaw, Rhodes, & Fitzgerald, 2003), as well as school attitudes (e.g., school attachment, school importance, academic efficacy; Sánchez et al., 2008; Zimmerman et al., 2002). DuBois & Silverthorn (2005a) found that having a mentor in an informal or professional role was more strongly associated with completing high school than familial mentors. Associations with grades, however, have been inconclusive. For instance, Chang et al. (2010) found positive associations between grades and natural mentoring relationships for adolescents, wherein Sánchez, Esparza, and Colón (2008) failed to detect any relationship. Chang et al.'s (2010) study further revealed that mentor role (i.e., familial, nonfamilial) had no influence on grades.

Populations Examined

The relation of natural mentoring relationships to positive and negative youth outcomes has been examined in a variety of youth populations. Studies have primarily focused on the impact of natural mentoring relationships for youth at-risk for negative trajectories, including racial/ethnic minorities and adolescent mothers. This literature has indicated that natural mentoring relationships are common among Black youth (Hurd & Sellers, 2013; Hurd & Zimmerman, 2010b; Klaw et al., 2003) and are associated with

more positive school attitudes (Zimmerman et al., 2002) and negatively related to problem behaviors (Taylor, Casten, & Flickenger, 1993). Furthermore, Rhodes et al., (1992) found positive effects on psychosocial outcomes (e.g., reduced depression, as well as increased optimism, attitudes regarding career attainment, and social support) in Black adolescent mothers, though no effects were found for anxiety or somatization.

Studies of Hispanic youth have been inconsistent with regard to the probability of having natural mentoring relationship, as Sánchez and Reyes (1999) reported these relationships were common in their sample, while others' have shown less likelihood (Rhodes, Contreras, & Mangelsdorf, 1994; Sánchez et al., 2008). Nevertheless, research has indicated positive effects for these individuals. For instance, Sánchez and colleagues (2008) revealed that natural mentor support was associated with greater school belonging and expectations for success for Hispanic adolescents from low-income neighborhoods. In addition, Rhodes, Contreras, and Mangelsdorf (1994) examined mentoring relationships within Hispanic adolescent mothers, and found several positive effects (e.g., decreased depression, anxiety, greater satisfaction with social support).

Given the preponderance of research with *at-risk* youth, Beam, Chen, and Greenberger (2002) examined mentoring relationships in a normative, ethnically-diverse (e.g., geographically matched to the city's composition of White, Hispanic, Black, Asian, bi-racial population) sample of eleventh graders attending an urban high school. Their results indicated fostering a mentoring relationship is a normative process in adolescent development and beneficial regardless of risk factors for negative academic or behavioral trajectories.

Sex differences. Sex differences are well established with respect to the nature and sources of social support. For example, adolescent girls' friendships are characterized by greater intimacy, often providing mutual support, while boys' friendships focus on shared interests (Caldwell & Peplau, 1982; Frey & Röthlisberger, 1996). Additionally, boys receive more support from parents and nonfamilial adults than girls (Colarossi, 2001; Cumsille & Epstein, 1994; Frey & Röthlisberger, 1996), but girls have a greater network of social support, including peers and adults (Blyth, Hill, & Smith Thiel, 1982).

Less research exists on sex differences in access to, role of, and occupation of natural mentors, and the available literature has been largely inconsistent. For instance, Greenberger, Chen, and Beam (1998) found that girls were more likely than boys (83% vs. 68%) to report having a natural mentor. In contrast, Casey-Cannon, Pasch, Tschann, and Flores, (2006) found that girls and boys were equally likely to indicate having a mentoring relationship and had a similar number of mentors. In examining sex differences in mentor role, research findings are also contradictory. In one study of college students, females were more likely to identify a familial natural mentor, while males more often identified institutional figures (e.g., pastor, academic advisor; Sánchez, Reyes, & Singh, 2006). Similarly, in a study of adolescents, Casey-Cannon et al. (2006) examined sex differences in mentor role and found that girls were more likely to identify a female family member or family friend, while boys were more likely to identify a male family member or coach. Alternatively, Greenberger et al. (1998) noted that the most common role of a mentor was a family member for boys and girls. With regard to

natural mentor occupation, researcher failed to find any studies that examined sex differences. Accordingly, there is a need to provide greater clarity on the role of sex differences in mentoring and this study will examine differences in access to, role of, and occupation of mentors by sex.

Ethnic differences. There is a dearth of studies examining ethnic differences in access to natural mentoring relationships and mentor characteristics. Hurd, Stoddard, Bauermeister, and Zimmerman (2014) explored ethnic differences in access to natural mentors within a sample predominantly composed of White upper-middle class emerging adults. Using White participants as their reference group, results indicated no differences for Black versus nonBlack and Hispanic versus nonHispanic, though Asians were less likely to report having a mentor than nonAsians. Other studies reported no ethnic differences in having a mentoring relationship in samples of White and Hispanic youth (Casey-Cannon, Pasch, Tschann, & Flores, 2006) and White, Black, and Asian youth (Chang et al., 2010). Looking more broadly at networks of social support, Koniak-Griffin, Lominska, and Brecht (1993) compared White, Hispanic, and Black pregnant adolescents and alternatively found that Blacks reported less social support than Hispanics, and Hispanics reported less support than Whites.

To the researcher's knowledge, studies have not examined ethnic differences on the varied roles of natural mentors outside of the familial/nonfamilial binary distinction. In this realm, Chang and colleagues (2010) noted an increased likelihood for White youth to have nonfamilial mentors, compared to other ethnicities (e.g., Hispanic, Asian). Studies of Black (Hurd & Sellers, 2013; Hurd & Zimmerman, 2010a) and Hispanic

youth (Sánchez & Reyes, 1999; Sánchez et al., 2006) have similarly reported a higher probability for family members serving as mentors. One study has also examined ethnic differences in natural mentor education and occupation, noting across Hispanic, Asian, and White youth, Hispanic students' mentors had lower educational attainment, and occupational prestige (i.e., was greater for Asian students' mentors (Haddad, Chen, & Greenberger, 2011). The present investigation will address the lack of attention to ethnic differences, as they relate to access to natural mentors, as well as the role and occupation of these mentors.

Provisions of Support in Mentoring Relationships

To date, the literature on natural mentoring has focused on the association of structural aspects of the relationships (e.g., mentor role, the frequency of contact and longevity of the relationship) with various psychosocial and academic outcomes (DuBois & Silverthorn, 2005a; Rishel et al., 2010; Sánchez et al., 2008). The importance of quality in natural mentoring relationships has also been noted (DuBois & Silverthorn, 2005a; Rhodes, Ebert, & Fischer, 1992); however, there has been a lack of attention given to the transactions within these relationships that make natural mentoring effective, specifically the various provisions or types of support garnered from mentors. Extant research has provided descriptive data which revealed youth measure the importance of their mentor as a function of that individual's provisions of certain types of support (e.g., school or learning, interpersonal problems, personal development, activities and interests, financial, companionship, self-disclosure and intimacy, affective and caring, role model, respect for individuality), yet further analyses on the effects of

these provisions on outcomes were not conducted (Beam et al., 2002; Greenberger, Chen, & Beam, 1998). The lack of research in this area may due in part to the lack of established measures for assessing the support provisions that occur in mentoring relationships.

Natural mentoring research has indicated the importance of *warmth* in a relationship, as it relates to increased quality (DuBois & Silverthorn, 2005a; Rhodes et al., 1992). In addition, literature on teacher-student relationships and formal mentoring relationships suggests the provisions of *trust* and *academic support* are also be influential in positive school functioning. Next, support for each of the three provisions (e.g., warmth, trust, and academic support), as related to school functioning, will be reviewed.

Warmth. One would expect relationships that provide positive relatedness to be more effective, as is posited by self-determination theory. The development of an emotional bond is considered necessary for mentors to have a positive influence on the youth mentee (Rhodes, 2002). Accordingly, warmth has been widely regarded as the most important component of natural mentoring (Dubois & Silverthorn 2005a; Greenberger et al., 1998; Rhodes, 2002; Rhodes et al., 1992).

Drawing from research on parent-child, teacher-student, and peer relationships, warmth is important not only to psychosocial well-being, but also for academic outcomes. For instance, Wang and Eccles (2012) found social support from teachers reduced the decline in school compliance, school belonging, and subjective value of learning that occurs during adolescence. Similarly, Furrer and Skinner (2003) analyzed

children's sense of relatedness to parents, teachers, and peers from third to sixth grade and found that children who reported higher relatedness demonstrated greater emotional and behavioral engagement in school, and relatedness uniquely contributed above the effects of perceived control. Teacher relatedness was most strongly associated with emotional engagement, and it was a more influential predictor during middle school, as opposed to elementary school. Furthermore, Wentzel (1997) found that student-report of teacher caring predicted changes in motivational outcomes over two years, controlling for previous academic performance and perceived control.

Trust. A sense of trust in relationships is foundational to the development of a strong attachment (Bowlby, 1988). As adolescents gain increased independence from their parents and broaden their social networks, nonparental adults may function as secondary attachment figures and provide additional opportunities for adult relatedness (Ainsworth, 1989; Rhodes et al., 2006; Van Ryzin, 2010). Accordingly, Rhodes (2005) proposed that trust, along with mutuality and empathy, in natural and formal mentoring relationships is a prerequisite to fostering change in youth that leads to positive outcomes. The level of trust in formal mentoring programs is predictive of positive psychosocial and academic outcomes, above the effects of relationship longevity (Rhodes, Reddy, Roffman, & Grossman, 2005).

Within the school context, the extent of interpersonal trust has been critical to fostering change (Bryk & Schneider, 2002). Teacher-student relationships, one form of natural mentoring relationships, characterized by trust, promote safe learning environments, in which an openness in communication exists and students feel secure in

asking questions and receiving feedback (Frymier & Houser, 2000). Furthermore, adolescents' trust in teacher-student relationships predicted students' school adjustment and academic motivation (Lee, 2007).

Academic support. Academic support is defined as transmitting the value of education, showing an interest in school, assisting with school tasks, and providing support for educational pursuits. Beyond provisions of affective support, including warmth and trust, one would expect academic support to also be a unique predictor of school functioning.

For example, parental involvement in academics, including discussing school activities, has a strong positive impact on academic achievement (Sui-Chu & Willms, 1996). Nonparental adults, such as teachers, also provide academic support that can enhance school functioning. Wentzel, Battle, Russell, and Looney (2010) examined various dimensions of teacher support and found that academic support (e.g., academic expectations and values, provisions of help), safety, and emotional nurturing were all unique predictors of interest in academics. Research on teacher-student relationships has further noted that adolescent-reports of teacher educational expectations predict school belonging (Cham, Hughes, West, & Im, 2014) and academic motivation (Legault, Green-Demers, & Pelletier, 2006), above the effects of warmth in the teacher-student relationship. Natural mentors providing academic support have been found to have similarly positive impact on academic outcomes. Sánchez et al. (2008) analyzed high school Hispanic students and found that among those that indicated they had a mentor, higher educational support (e.g., encouragement, interest, direct assistance, financial

support) was associated with higher grades, a greater sense of school belonging, and less absenteeism.

Synergistic effects. In addition to the likelihood of warmth, trust, and academic support provisions having a main effect on school functioning, one would anticipate synergistic effects. For example, perhaps academic support is more helpful when provided in the context of a mentor relationship high in warmth than one low in warmth. Related literature on parenting provides evidence of the synergistic effects of demands and responsiveness in childcare practices, in that the levels of demands and responsiveness interact to predict child socialization (Baumrind, 1967). Specifically, Baumrind (1991) reported parenting style characterized by high levels of demand (i.e., high standards for behavior and firm enforcement of rules) predicts child social responsibility and achievement orientation only in the context of high parental responsiveness (i.e., warmth, open communication, and respect for the developmental needs of the child). Furthermore, in a large-scale study of adolescents, an authoritarian parenting (high demand, low responsiveness) was associated with low grades, whereas a parenting characterized by high levels of demand and high levels of responsiveness (termed authoritative parenting) was positively associated with grades (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987).

Limitations in Current Literature

This review has demonstrated there is less research on effects of mentoring on academic outcomes, as compared with psychological well-being and behavioral outcomes. When examined, studies considering academic outcomes had important

limitations, including an inadequate breadth of academic outcomes. Regardless of outcomes examined, extant studies have contained methodological limitations, such as cross-sectional design and a lack of control for prior levels of variables.

Longitudinal examinations of mentoring are needed, which would allow an assessment of changes in academic outcomes while controlling for prior performance and other relevant child characteristics, thereby minimizing the effect of unmeasured confounds on outcomes (i.e., missing variable bias). These characteristics, such as a high level of prosocial behavior, may not only impact the interpretation of results, but also may explain a selection bias in mentoring relationships. As opposed to formal mentoring programs that minimize the issue of selection bias through formal assignment of an adult, natural mentoring relationships are likely to be influenced by selection bias such that children with certain characteristics (e.g., interpersonal warmth, openness to feedback and guidance from others, willingness to share personal information), are more likely to establish and maintain a natural mentoring relationship than children who lack these interpersonal assets. Accordingly, a finding that children with natural mentors have higher levels of social, behavioral, or academic functioning may be a result of these child characteristics rather than the mentoring relationship.

Furthermore, prior research has analyzed relationship quality, and structural aspects of the relationships such as frequency and longevity, but has not examined the various provisions of support that impact functional outcomes. To the researcher's knowledge, no study has examined the extent to which natural mentors provide academic support (e.g., assistance with academic tasks, valuing education), a sense of

trust (e.g., sharing intimate or private information), and warmth (e.g., respect, inspiration, closeness). Identifying these provisions could point to strategies for enhancing the impact of these relationships and promoting academic achievement.

Purpose

The purpose of this study is to extend understanding on the influence of a natural mentoring relationship on adolescents previously identified as academically at-risk. As academically at-risk students are more likely to leave school prior to high school graduation, the potential to mitigate risk factors and increase protective factors has particularly important individual and societal implications. Natural mentoring relationships will be examined during middle school, as academic achievement and engagement during these years are at risk of decline and such levels predict later academic engagement and attainment (Janosz, Archambault, Morizot, & Pagani, 2008). Provisions of support, including Academic Support, Trust, and Warmth, will be examined for their effect on future school functioning outcomes (e.g., academic achievement, academic self-efficacy, school belonging, behavioral engagement, school conduct problems), while controlling for prior levels of these variables. This study will control for the effects of child characteristics through the use of covariates, improving the methodological approach to examining mentoring utilized in the extant literature. Additionally, the effect of students' prior performance on the outcome variables will be statistically controlled. Prior performance on the outcome is a strong covariate for minimizing the effect of between-child characteristics that may influence the outcome. In addition, the diverse sample will be analyzed for sex and ethnic differences in access

to mentors and mentor role and occupation. Finally, the sample and longitudinal nature of this study will generalize results beyond the populations previously examined and indicate the degree of improvement in outcome measures that may be related to mentor support.

Research Questions and Hypotheses

Three research hypotheses are posited for this examination on the role of natural mentoring provisions on adolescents' school functioning. First, it is anticipated that girls will be more likely to have a natural mentor than boys. No hypothesis regarding sex differences in the role or occupation of mentors is proffered. Exploratory analyses will examine ethnic differences regarding access to natural mentors, as well as the role and occupation of natural mentors. Second, it is expected that each provision of mentoring support, including Academic Support, Trust, and Warmth will predict higher levels of academic engagement, behavioral conduct, academic self-efficacy, school belonging, and reading and math achievement. Finally, synergistic effects across the three mentoring provisions are hypothesized, such that academic support will be most effective in the presence of a warm and trusting relationship.

CHAPTER II

METHOD

The present study was conducted within a larger longitudinal research project (*N*=784) on the effects of grade retention (Hughes, Luo, Kwok, & Loyd, 2008). This longitudinal study spanned 16 years and collected demographic, cognitive, academic achievement, social, emotional, and behavioral data from students, parents, teachers, and peers. The breadth of these data generated numerous research questions examining factors that influence students' psychosocial well-being and academic success. The question of the influence of natural mentors, arose during the course of data collection.

The Method section outlines the composition of the study sample, as it was derived from the larger research project, and statistically significant effects of attrition and missing data. The assessment procedures for gathering the student and teacher data utilized in this study, as well as fidelity assurances, are then discussed. Each of the measures are reviewed, providing a conceptual overview, the theoretical alignment with this study's purpose, and the reliability within the sample. Finally, data analytic procedures are outlined, as they align with the study's hypotheses.

Participants

Participants in the current study were originally enrolled in a larger longitudinal study (*N*=784). The present analyses included data from 459 students (53.6% male). As part of the longitudinal study, students were initially recruited in the fall of 2001 or 2002 when they were in first grade in one of three school districts in Texas. Of these three

districts, one district was within a suburb of a metropolitan region encompassing approximately 6.5 million in population, (United States Census Bureau, 2014) and the other two districts were located in two small cities with populations of approximately 80,000 and 100,000 (United States Census Bureau, 2014). Individuals were invited to participate in the larger study on the basis of having scored below the median on a district-administered test of literacy during the spring of kindergarten or fall of first grade. Additional inclusionary criteria were speaking English or Spanish, not receiving special education services other than speech and language services, and not having been previously retained in first grade. Additional detail on the recruitment of the participants in the larger study is reported in Hughes and Kwok (2006).

Students were re-consented to maintain participation at the completion of the first five years of the study. Parental consent for continued participation was obtained for 569 of the 784 students, with the large majority of nonconsent due to nonresponse. Of the 569 students, the 459 students in the current study were selected for having data on the Mentor Support Provisions Scale at Year 6, when most students were in Grade 6. Outcome data were collected at Year 7. At Year 7, the 459 students had a mean age of 13.57 (SD = 0.37). The ethnic composition of the sample was 35.9% White, 35.9% Hispanic, 25.3% Black, and 2.9% other (i.e., Asian, Native American, or Pacific Islander). At Year 7, the participants were enrolled in 62 schools in four school districts (i.e., the original three districts and one additional). The expansion in the number of schools is due to student mobility across seven years.

An attrition analysis was conducted to determine if the 459 students in the current study differed from the 325 attrited subjects on a wide range of relevant variables at Year 1, when participants were recruited into the longitudinal study in first grade. According to t-tests that applied the Bonferroni correction and chi-square difference tests, statistically significant differences were not observed on the following variables: age, sex, parent education level, scores on the school district literacy test, reading achievement, IQ, ethnicity, and economic disadvantage status (based on eligibility for free or reduced lunch) (all p values < 0.05). A statistically significant difference was found for math achievement (t (754) = -3.99, $p < 0.01$), in which students included in the current study had a higher Broad Math W score (mean = 464.43; SD=12.42) compared to attrited students (mean = 460.53; SD=14.23). Of the 459 students in the current study, 41 (8.9%) were missing data on student-rated outcome measures and 109 (23.7%) were missing data on teacher-rated outcome measures. The same attrition analysis procedures were used to determine if students missing data on the outcome measures differed from those with complete data. There were no statistically significant differences observed for students with missing data on any of the Year 1 variables (i.e., age, sex, parent education level, literacy scores, reading achievement, math achievement, IQ, ethnicity, and economic disadvantage status).

Assessment Procedures

Data for the current study were measured annually at Year 6 and 7 (year corresponds to grade for continuously promoted students). Year 6 data were collected with two cohorts of students during the 2006-2007 or 2007-2008 school years. Data

collected during Year 7 served as the outcome data for this study, and were collected with the two cohorts during the 2007-2008 and 2008-2009 school years. Gathering data during grades 6 and 7 provided insight on the role of natural mentoring relationships during adolescents' transition to middle school. Covariate and baseline data were collected at Year 4 during the 2004-2005 or 2005-2006 school years, prior to the middle school transition for all students.

Student assessments were conducted between October and May, with a minimum 8-month period between annual individual assessment sessions at school. All students were individually administered a measure of academic achievement, as well as a questionnaire directed at assessing perceptions of their academic self-concept, school belonging, and behavioral engagement, among other variables relevant to the larger study. The students also completed a semi-structured interview and questionnaire related to their interactions with a natural mentor. Teacher questionnaires examining student participants' classroom engagement and school conduct were administered annually during the spring as a part of a larger assessment battery and teachers were paid $25 for completing each questionnaire. Primary classroom teachers served as the respondents for elementary school students, while the students' language arts teachers served as respondents for middle school students.

Trained graduate and undergraduate students who had demonstrated proficiency in administration conducted all assessments, including administration of the Woodcock Johnson Tests of Achievement, Third Edition (Woodcock, McGrew, & Mather, 2001) and student questionnaires. Trainees received a minimum of 18 hours of classroom

instruction and passed a practice examination on each measure prior to administering measures in the school, and their protocols were checked and corrected, as needed, on a weekly basis.

Students who spoke any Spanish were administered the Woodcock–Muñoz Language Survey (Woodcock & Muñoz-Sandoval, 1993) to determine if they were more proficient in Spanish or English. Children more proficient in Spanish were administered all tests in Spanish by bilingual examiners. Once a child demonstrated equal or greater proficiency in English for two consecutive years, they were tested in English. Spanish versions of student questionnaires, including the Mentor Support Provisions Scale, were created by native bilingual speakers who first translated the questionnaire into Spanish before a second bilingual speaker back-translated it into English.

Measures

Socio-Demographic Variables

Students' age, sex, ethnicity, and economic disadvantage status (defined as eligible for free or reduced-price lunch) information was obtained through school records. Parent education level was determined through questionnaires that were mailed to students' parents and guardians. The questionnaires included an item asking them to indicate the highest level of education of any adult living in the home, from 1 (elementary school) to 10 (Ph.D., MD, or equivalent), with a score of "4" representing a high school diploma. If any Spanish was spoken in the home, the questionnaires were sent in both English and Spanish.

Language Proficiency

Student language dominance was measured using the Woodcock-Muñoz Language Survey (Woodcock & Muñoz-Sandoval, 1993) for those students with limited English proficiency. This assessment measures language proficiency in both English and Spanish. The resulting language dominance, in either English or Spanish, dictated the language of the annual student-administered assessment battery.

Nonparental Adult Interview

The Nonparental Adult Interview was used to determine if students had an existing natural mentoring relationship. This semi-structured interview was developed for the purpose of the longitudinal study, and questions were based on extant research on natural mentors (DuBois & Silverthorn, 2005a; Greenberger et al. 1998; Rhodes et al., 1994; Rhodes et al., 1992; Zimmerman et al., 2002). Students were initially asked to identify an adult (i.e., individuals over the age of 18 and not a parent or guardian) who is important to them and someone with whom they feel close or on whom they can depend. The identified mentor had to be at least seven years older than the student. If a student did not name such a person, the interviewer asked the student to think about the adults in his or her life-including family friends, teachers, relatives, pastors, coaches, and neighbors. For those students with identified natural mentors, subsequent questions were posed regarding the role of the individual (i.e., sex, ethnicity, age, occupation, relation to student) and broad dimensions of the relationship (i.e., longevity of relationship, frequency of contact, shared activities). For the purpose of this study, data regarding the existence of a mentoring relationship were coded (i.e., yes, no), as were

five categories for mentor occupation (i.e., helping professional, management, skilled worker, unskilled worker, other), and four categories for mentor role (i.e., family member, familial friend, school-related adult, extracurricular activity-related adult). As opposed to the binary distinction of familial or nonfamilial relation, or DuBois and Silverthorn's (2005a) classification of mentor roles (i.e., family, informal, professional), these four mentor role categories provide greater detail on the sources of natural mentoring relationships.

Mentor Support Provisions Scale

The Mentor Support Provisions Scale (MSPS) was developed by J. N. Hughes in 2006 (J. N. Hughes, personal communication, March 25, 2015) for the purpose of the longitudinal study, with the aim of establishing a measure to examine the transactions that occur within mentoring relationships that may be predictive of positive school functioning. The MSPS is a 24-item adolescent-report questionnaire that was designed for use once the adolescent has defined a single mentoring relationship. The measure assesses an adolescent's perceptions of a current mentoring relationship and the type and level of support provided by their mentor. Fifteen items were drawn from the Network of Relationships Inventory (NRI, Buhrmester & Furman, 1987) and address affective support. The NRI drew on Robert Weiss's (1974) conceptualization of social needs and social provisions (Furman & Buhrmester, 1985). Respondents rate the extent to which individuals in their social network (e.g., parents, siblings, and best friend) meet each social support provision (affection, reliable alliance, enhancement of worth, intimacy, instrumental help, companionship, and nurturance). The MSPS did not include NRI

items assessing companionship or instrumental help, based on the decision that these items were not relevant to mentoring relationships in early adolescence. Nine items pertaining to academic support were added to the 15 NRI social support items to comprise the 24-item MSPS. These items assess social support specific to academic achievement (i.e., encouragement to try hard and to do well in school, assistance with school work, confidence in one's choices and abilities). Items were designed as statements to which students indicated their agreement on five-point Likert-type scales (1 = strongly disagree; 5 = strongly agree). Appendix A contains a complete list of the original MSPS items.

Prior exploratory and confirmatory factor analyses (Allee-Smith, Clemens, Im, & Hughes, 2015) with the MSPS revealed three distinct factors: Academic Support, Trust, and Warmth. See Figure 1. The Academic Support factor contained six items. Items within the factor included, "How much does this person tell you to try hard at school" and "How much does this person talk about what you learned in school." The Trust factor contained three items such as "How much do you tell this adult everything" and "How much do you share your secrets and private feelings with this adult." Finally, the Warmth factor contained 13 items. Example items include, "How much can you count on this person to be there for you" and "How much does this person believe in you and care deeply about you."

The three factors demonstrated strong internal consistency, ranging from 0.86 to 0.93. Trust was moderately correlated with both Academic Support (0.60) and Warmth (0.61), and Warmth was highly correlated with Academic Support (0.82). Measurement

invariance was tested across different groups (i.e., male versus female for students' sex; White versus Hispanic versus Black for ethnicity). The MSPS was found to have scalar invariance across both student sex and student ethnicity, indicating that the MSPS had the same measurement structure in males and females, as well as Whites, Hispanics, and Blacks.

The criterion-related validity of the MSPS was analyzed by examining bivariate correlations between the three factors and measures of academic self-efficacy and school belonging. Across all bivariate relationships, correlations were found to be weak, suggesting that each of the factors has minimal dependence or relationship with the school functioning variables. Within academic self-efficacy, correlations ranged from -0.02 to 0.08 and within school belonging correlations ranged from -0.05 to 0.15. Bivariate correlations of each factor with each outcome were examined, as were the unique contributions of each factor on each outcome when the three factors were considered simultaneously. Results revealed that Academic Support and Warmth were significantly correlated with academic self-efficacy (Academic Support = 0.15, SE = 0.05, $p < 0.01$; Warmth = 0.11, SE = 0.05, $p < 0.05$); however, Trust was not a significantly unique predictor of academic self-efficacy. All three factors were found to be unique and statistically significant predictors of school belonging (Academic Support = 0.21, SE = 0.05, $p < 0.001$; Trust = 0.13, SE = 0.05, $p < 0.001$; Warmth = 0.28, SE = 0.04, $p < 0.001$).

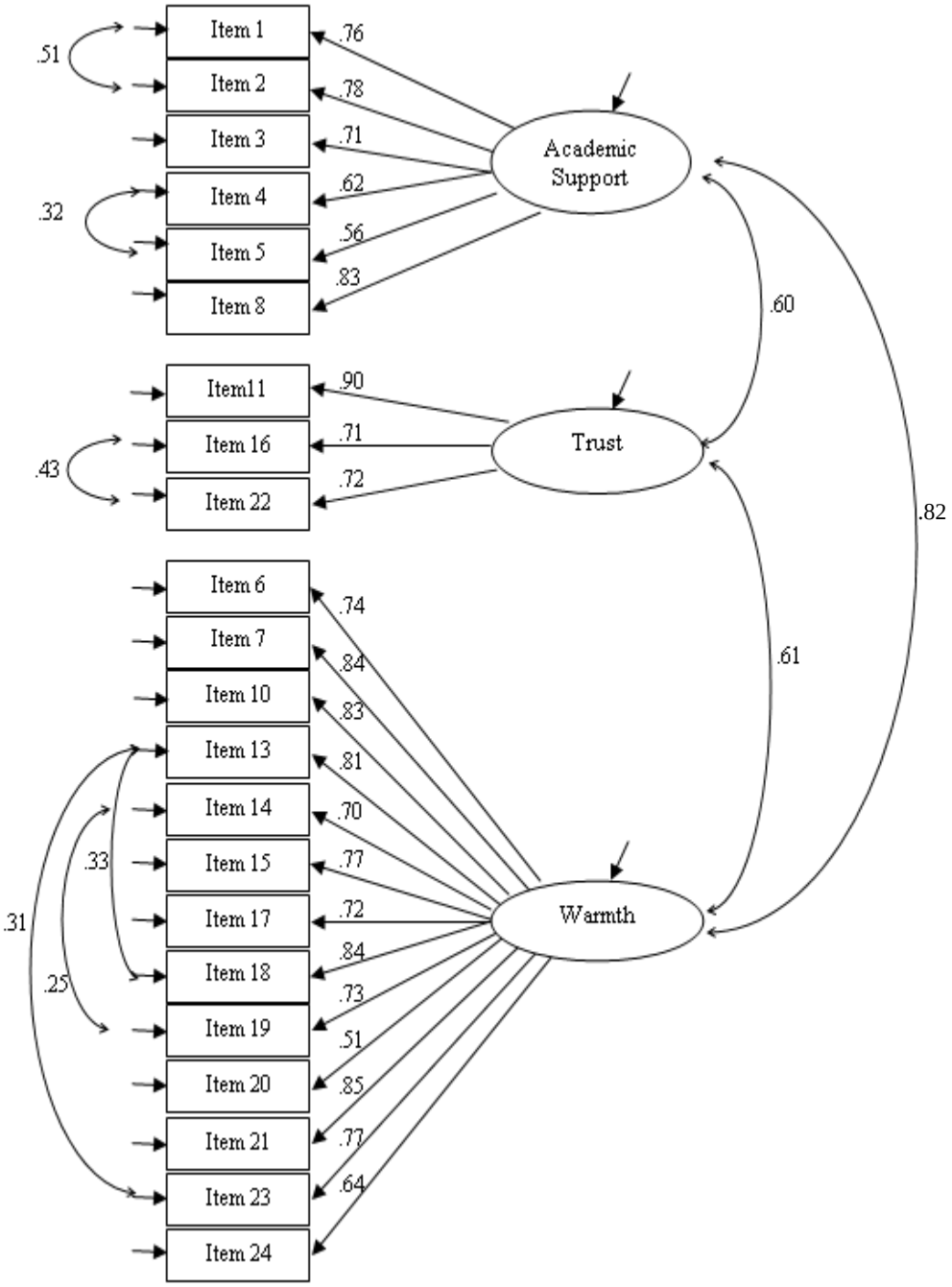

Figure 1. Confirmatory Factor Analysis of the Mentor Support Provisions Scale. χ^2 (200) = 377.416, $p < 0.001$; CFI = 0.95; RMSEA = 0.06; SRMR = 0.05. All coefficients are standardized estimates and significant at $p < .05$ (two-tailed). A list of the items is presented in Appendix A.

Academic Achievement

The Woodcock-Johnson Tests of Achievement, Third Edition (WJ III ACH; Woodcock et al., 2001) is an individually administered measure of academic achievement for use with individuals of age two to adulthood. For the purposes of the current study, students' WJ III ACH Broad Reading age standard scores and their WJ III ACH Broad Math age standard scores were used. The WJ III ACH Broad Reading W Scores were comprised of the Letter-Word Identification, Reading Fluency, and Passage Comprehension subtests. The WJ III ACH Broad Math W Scores were comprised of the Calculations, Math Fluency, and Math Calculation Skills subtests. For students with Spanish language dominance, the Batería III Woodcock-Muñoz (Batería III; Woodcock, Muñoz-Sandoval, McGrew, Mather, & Schrank, 2004) was administered. The Batería III is the comparable Spanish version of the WJ III ACH and similarly yields W scores for Broad Reading and Broad Math. WJ III ACH Broad Reading and Broad Math W scores are computer generated and internal consistency is not generated. Extensive research documents the reliability and construct validity of the WJ-III ACH (Woodcock & Johnson, 1989; Woodcock et al., 2001).

Academic Self-Efficacy

Student perceptions of their academic self-efficacy were evaluated through the 45-item Self-Perception Profile for Adolescents (Harter, 1985). This measure examines perceptions in the areas of scholastic competence, social acceptance, athletic competence, physical appearance, job competence, romantic appeal, behavioral conduct, close friendships, and self-worth. Five items pertain to perceived scholastic competence.

Students' are given a choice between two statements (e.g., "Some teenagers do very well at their classwork but other teenagers don't do very well at their classwork") and asked to decide whether the chosen statement is "Sort of true for me" or "Really true for me." Cronbach's α for the current sample at Year 7 was 0.79. The scholastic competence score was created by calculating the mean item score of the five corresponding items. Scores on the scholastic competence scale have been associated in expected directions with students' academic achievement (Kelly & Jordan, 1990).

School Belonging

The 18-item Psychological Sense of School Membership Scale (Goodenow, 1993) assessed students' perceived acceptance, feelings of inclusion, respect, and encouragement for participation on a 5-point Likert-type scale. An example item states, "I feel like a real part of this school." Cronbach's α for the current sample at Year 7 was 0.88. Students' school belonging score was calculated as the mean item score. Prior research has indicated that higher school belonging scores are related to increased school attendance, higher grades, more positive self-concept, greater time spent completing homework, and better social-emotional adjustment (Goodenow, 1993; Hagborg, 1998).

Student-Rated Behavioral Engagement

Student-rated classroom behavioral engagement was measured using the Student Engagement Questionnaire. This 18-item measure was based on Skinner, Zimmer-Gemback, and Connell (1998) and the 6-item Behavioral Engagement scale was used in the current study. An example item states, "When I am in class, I work as hard as I can." Responses are indicated on a 4-point Likert-type scale. Cronbach's α for the current

sample at Year 7 was 0.82. High behavioral engagement has been found to predict student learning, grades, achievement, and retention (Skinner, Furrer, Marchand, & Kindermann, 2008).

Teacher-Rated Behavioral Engagement

Teacher-rated classroom behavioral engagement was measured through an 11-item questionnaire. Questionnaire items were adapted from both the teacher and the student ratings of students' engagement (Skinner et al., 2008). Items used a 4-point Likert-type scale and examined perceptions of classroom engagement, including effort, persistence, concentration and interest. An example item states, "Concentrates on doing work." Cronbach's α for the current sample at Year 7 was 0.92. These 11 items demonstrated good factorial validity (Wu, Hughes, & Kwok, 2010). Prior research has indicated that higher behavioral engagement is related to children's academic expectations, long-term academic achievement and school completion (Connell, Spencer, & Aber, 1994; Skinner, Zimmer-Gembeck, & Connell, 1998).

Teacher-Rated School Conduct Problems

Student conduct problems, a sign of negative behavioral engagement, were measured using the Conduct Problems scale of the teacher-rated Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). This 5-item scale is derived from the 25-item, 5-scale measure examining the positive and negative attributes of children's behavior. Items used a 3-point Likert-type scale. An example item states, "Often fights with other children or bullies them." The results of a confirmatory factor analysis support the five-factor structure of the SDQ (Hill & Hughes, 2007). Cronbach's α for

the current sample at Year 7 was 0.81. Scores on the teacher-rated Conduct Problems scale are correlated with parent scores on a parallel form of the SDQ and peer nominations of aggression (Hill & Hughes, 2007).

Data Analyses

The present study utilized descriptive and correlational analyses, as well as multiple linear regression. Descriptive and correlational analyses were conducted using IBM SPSS Statistics (version 22, IBM Corp., 2013). Descriptive data were reviewed for predictors and outcome measures (e.g., mean, standard deviation, alpha). Correlational analyses demonstrated relationships between child characteristics and mentor access, among predictors and between predictor (i.e., provision mean item scores) and outcome variables. Descriptive data on natural mentor demographic characteristics were also examined. To address the first hypothesis on the likelihood of girls reporting mentoring relationships more often than boys, complete data were used (N=784), and chi-square analyses were employed. Both sex and ethnic differences in access to a natural mentor, as well as the role and occupation of the mentor, were investigated.

The second and third hypotheses (i.e., the effects of main and interactive mentor provision support), were subsequently analyzed on the sample of 459 participants with natural mentors, using multiple linear regression in M*plus* (version 7, Muthén & Muthén, 1998-2012). Following the recommendations of Cohen, Cohen, West, and Aiken (2003), continuous independent variables were centered, while dichotomous variables (i.e., sex, economic disadvantage) and a multiple category ethnicity variable were dummy-coded. The models in the study were tested using full information

maximum likelihood to provide proper adjustment on outcome measures with data missing at random (Enders, 2010). Aforementioned in the Participants Section, approximately 8.9% of students were missing data on student-rated outcome measures and 23.7% were missing data on teacher-rated outcomes measures; however, analyses revealed no statistically significant differences between those with and without complete data. The data had a nested structure with students nested within 62 schools during Year 7. Although differences in the grade composition of these schools was not investigated in analyses, the TYPE=COMPLEX procedures in combination with the CLUSTER function were employed to adjust standard errors of the estimated coefficients as well as take into account the data dependency (i.e., students nested within schools). Standard errors typically are smaller within schools, as opposed to between schools; thus, this nested structure provided more appropriate tests of statistical significance. Main and interaction effects of the provisions of support were examined as predictors. Interaction terms for mentor provisions were created by using the multiplicative of the standard mean item scores on the respective scales. Each outcome (i.e., math, reading, academic self-efficacy, school belonging, student-rated behavioral engagement, teacher-rated behavioral engagement, and teacher-rated school conduct problems) was analyzed in a separate regression model. Following the step-down approach proposed by Aiken and West (1991), in the course of examining the first model, if interaction terms were not statistically significant, they were removed and the model results were not reported.

CHAPTER III

RESULTS

Preliminary Analyses

Descriptive and Correlational Analyses

Table 1 reports the descriptive statistics for all predictor variables, including the covariates. The identified child covariates included sex, ethnicity, economic disadvantage, and parent education level. Dummy variables were created for sex (0 = female, 1 = male), economic disadvantage (0 = nondisadvantaged, 1 = disadvantaged), and ethnicity with White serving as the reference group (Black: 0 = White, 1 = Black; Hispanic: 0 = White, 1 = Hispanic). First, the relationships between mentor access and the child covariates were examined to identify selection bias. None of the correlations between the covariates (i.e., sex, ethnicity, economic disadvantage, and parent education) and mentor access were statistically significant. Thus, there was no need to control for an influence of child characteristics on access to a mentor in later multiple regression analyses. The covariates were then examined for their relationships with other predictor variables. Table 1 reports the means and standard deviations for the predictor variables and their bivariate correlations. Sex, ethnicity, economic disadvantage, and parent education were all statistically significantly correlated in expected directions with school functioning measures (National Center for Education Statistics, 2015). Based on these results, these variables were entered as covariates in the regression analyses subsequently reported.

Table 1

Descriptive statistics and correlations among predictor variables, excluding MSPS composites

		1	2	3	4	5	6	7	8	9	10	11	12
1	Y4 WJ Math												
2	Y4 WJ Read	0.59*											
3	Y6 Academ Self-Effic	0.38*	0.32*										
4	Y4 School Belonging	0.04	-0.01	0.13*									
5	Y4 SR Behave Engage	-0.04	-0.02	0.11*	0.32*								
6	Y4 TR Behave Engage	0.31*	0.25*	0.13*	0.22*	0.20*							
7	Y4 Conduct Problems	-0.20*	-0.26*	0.01	-0.14*	-0.09	-0.51*						
8	Sex	0.00	-0.06	0.00	-0.07	-0.14*	-0.22*	0.20*					
9	Black	-0.31*	-0.38*	-0.09	0.10*	0.19*	-0.24*	0.39*	-0.02				
10	Hispanic	-0.03	0.09	-0.13*	-0.01	-0.06	0.12*	-0.19*	-0.02	-0.45*			
11	Econ Disadvantage	-0.29*	-0.28*	-0.19*	0.01	0.04	-0.13*	0.22*	0.08	0.31*	0.26*		
12	Parent Education	0.36*	0.26*	0.20*	-0.02	-0.07	0.10	-0.18*	0.01	-0.20*	-0.26*	-0.57*	
	Mean	496.33	487.99	2.89	3.89	3.50	2.83	0.33	0.54	0.26	0.37	0.62	2.95
	SD	10.50	18.71	0.68	0.66	0.43	0.67	0.47	0.50	0.44	0.48	0.49	1.13

Note: Y4 and Y6 refer to Year 4 and 6, respectively. WJ Math and WJ Read are WJ-III Broad Reading and Broad Math W scores, respectively. Academ Self-Effic is student-rated academic self-efficacy. School Belonging is student-rated school belonging. SR Behave Engage is student-rated behavioral engagement. TR Behave Engage is teacher-rated behavioral engagement. Conduct Problems is teacher-rated school conduct problems. Sex was coded as 1 for male and 0 for female. Black is coded as 1 for Black and 0 for White. Hispanic is coded as 1 for Hispanic and 0 for White. Econ Disadvantage was coded as 1 for economically disadvantaged and 0 for nondisadvantaged. Parent Education is the highest educational level in the home.

* $p < .05$ (two-tailed).

Table 2 presents the bivariate correlations among all analysis variables, as well as descriptive information (i.e., mean, standard deviation, and alpha). All variables were screened for normality and outliers, which revealed that all data were within the normal range, defined as less than 2 for skewness and 7 for kurtosis (West, Finch, & Curran, 1995). The MSPS composite scores were moderately intercorrelated (*rs* = 0.53 – 64; *p*s < .05). With regard to the outcome variables, statistically significant correlations revealed that more Academic Support from a mentor was weakly associated with lower academic achievement (WJ Math: r = -0.22, WJ Read: r = -0.24), decreased teacher-rated behavioral engagement (r = -0.14), and increased teacher-rated school conduct problems (r = 0.17). Greater levels of Trust were weakly related to lower achievement (WJ Math: r = -0.19, WJ Read: r = -0.16), and decreased academic self-efficacy (r = -0.10). Alternatively, both Academic Support and Warmth were weakly associated with increased school belonging (Academic Support: r = 0.15, Warmth: r = 0.18; *p*s < .05). Across outcome measures, correlations were statistically significant and in expected directions, in that more school functioning variables were positively interrelated, with the exception of the negative associations with teacher-rated school conduct problems.

Table 2

Descriptive statistics and correlations among MSPS composites and outcome measures

		1	2	3	4	5	6	7	8	9	10
1	Y6 Academic Support	0.86									
2	Y6 Trust	0.53*	0.86								
3	Y6 Warmth	0.64*	0.56*	0.93							
4	Y7 WJ Math	-0.22*	-0.19*	-0.09	[a]						
5	Y7 WJ Read	-0.24*	-0.16*	-0.06	0.71*	[a]					
6	Y7 Academ Self-Effic	0.02	-0.10*	0.04	0.35*	0.25*	0.79				
7	Y7 School Belonging	0.15*	0.06	0.18*	0.10*	0.09	0.40*	0.88			
8	Y7 SR Behave Engage	0.09	0.01	0.04	0.07	0.03	0.37*	0.56*	0.82		
9	Y7 TR Behave Engage	-0.14*	-0.06	-0.03	0.25*	0.26*	0.22*	0.25*	0.23*	0.92	
10	Y7 Conduct Problems	0.17*	0.09	0.09	-0.23*	-0.23*	-0.05	-0.09	-0.05	-0.62*	0.81
	Mean	3.71	2.82	4.19	515.60	514.98	2.94	3.88	3.18	2.72	0.31
	SD	0.87	1.19	0.72	11.55	21.28	0.70	0.65	0.52	0.68	0.43

Note: Internal consistency (Cronbach's alpha) is reported along the diagonal. Y6 and Y7 refer to Year 6 and 7, respectively. Academic Support, Trust, and Warmth are mean item composite scores. WJ Math and WJ Read are WJ-III Broad Reading and Broad Math W scores, respectively. Academ Self-Effic is student-rated academic self-efficacy. School Belonging is student-rated school belonging. SR Behave Engage is student-rated behavioral engagement. TR Behave Engage is teacher-rated behavioral engagement. Conduct Problems is teacher-rated school conduct problems.

[a]Woodcock Johnson W scores are computer generated and internal consistency is not generated.

* $p < .05$ (two-tailed).

Hypothesis Testing

Mentor Access

As shown in Table 3, of the 542 study participants that completed the Nonparental Adult Interview, 459 (84.7%) reported having a mentor. Contrary to the first hypothesis, which anticipated girls would be more likely to have a natural mentoring relationships than boys, there were no statistically significant differences between females and males in access to a mentor [$\chi^2(1) = 1.75$, *ns*]. There were also no statistically significant differences among the three primary ethnic groups (i.e., White, Black, and Hispanic) [$\chi^2(2) = 5.35$, *ns*] on mentor access. In other words, the likelihood of a student having a mentor was not associated with the student's sex or ethnicity.

Table 3
Mentor access by sex and ethnicity

		Sex		Ethnicity			
Natural Mentor	Total N = 542	Female (*n* = 245)	Male (*n* = 297)	White (*n* = 190)	Black (*n* = 131)	Hispanic (*n* = 204)	Other (*n* = 17)
Yes	459 (85%)	213 (87%)	246 (83%)	165 (87%)	116 (89%)	165 (81%)	13 (76%)
No	83 (15%)	32 (13%)	51 (17%)	25 (13%)	15 (11%)	39 (19%)	4 (24%)

Characteristics of Natural Mentors

Natural mentors ranged in age from 18 to 93 (mean = 39.46, SD = 15.77, median = 35), with the majority (52%) of mentors' age falling between 21 and 40 (18-20 = 11%, 41-60 = 25%, 60-93 = 12%). A total of 176 females (82.6%) and 124 males (51.2%)

reported having a same-sex natural mentor, with statistically significant sex congruence [$\chi^2(1) = 56.84$, $p < 0.01$]. Similarly, students' mentors were more likely to belong to their same ethnic group than to another ethnic group. Specifically, the number of same-ethnic mentors was 129 for White (95.6%), 69 for Black (73.4%), and 110 for Hispanic (80.3%) youth. Chi-square difference testing indicated these results were statistically significant [$\chi^2(4) = 436.74$, $p < 0.01$] and post-hoc analyses revealed that all pairwise comparisons of three ethnic groups for both mentors and students were statistically significant at the Bonferroni corrected p value of < 0.0056.

Mentor role. The association of sex and ethnicity with mentor role was subsequently explored. As presented in Table 4, the majority of mentoring relationships across all participants were fostered with relatives. Familial friends and school-related mentors accounted for a smaller number of relationships and extra-curricular adults (e.g., youth group leader, coach, club leader) rarely served as natural mentors. Results revealed no significant differences between females and males on their mentor's role [$\chi^2(3) = 1.19$, *ns*].

When examining differences between the three primary ethnic groups, a statistically significant chi-square result [$\chi^2(6) = 24.84$, $p < 0.01$] warranted post-hoc analyses with Bonferroni corrected p values. These analyses indicated that White students had more familial friends [$\chi^2(1) = 16.89$, $p < 0.00625$] and fewer relatives [$\chi^2(1) = 8.41$, $p < 0.00625$] that served as mentors compared to Black students, as well as more familial friends [$\chi^2(1) = 10.89$, $p < 0.00625$] and fewer relatives [$\chi^2(1) = 9.49$, $p <$

0.00625] than Hispanic students. There were no statistically significant differences between Black and Hispanic students.

Table 4
Mentor role by sex and ethnicity

		Sex		Ethnicity			
Role	Total (*n* = 448)	Female (*n* = 207)	Male (*n* = 241)	White (*n* = 161)	Black (*n* = 111)	Hispanic (*n* = 163)	Other (*n* = 13)
Relative	293 (65%)	133 (64%)	160 (66%)	88 (55%)	80 (72%)	116 (71%)	9 (69%)
Familial friend	92 (21%)	41 (20%)	51 (21%)	52 (32%)	12 (11%)	27 (17%)	1 (8%)
School-related	51 (11%)	27 (13%)	24 (10%)	15 (9%)	16 (14%)	18 (11%)	2 (15%)
Extracur-related	12 (3%)	6 (3%)	6 (2%)	6 (4%)	3 (3%)	2 (1%)	1 (8%)

Mentor occupation. Finally, the mentor's occupation was examined by sex and ethnicity in an exploratory manner. As depicted in Table 5, the most common occupation was helping professional (e.g., teacher, doctor, nurse, youth director, member of clergy, social worker), though unskilled workers (e.g., farm laborer, menial service worker) were also a prominent occupation. Few mentors had management or other occupations. Results indicated no significant differences between females and males on their mentor's occupation [$\chi^2(4) = 6.57$, *ns*]. Differences between the three primary ethnic groups revealed a statistically significant chi-square result [$\chi^2(8) = 29.65$, $p < 0.01$], which warranted post-hoc analyses with Bonferroni corrected *p* values. These analyses indicated that White students had fewer mentors that were unskilled workers [$\chi^2(1) = 6.97$, $p < 0.005$] than Black students, as well as fewer unskilled workers [$\chi^2(1) =$

16.00, $p < 0.005$] than Hispanic students. There were no statistically significant differences between Black and Hispanic students in terms mentors' occupation.

Table 5
Mentor occupation by sex and ethnicity

		Sex		Ethnicity			
Role	Total *n* = 282	Female (*n* = 130)	Male (*n* = 152)	White (*n* = 102)	Black (*n* = 69)	Hispanic (*n* = 103)	Other (*n* = 8)
Helping professional	105 (37%)	58 (45%)	47 (31%)	38 (37%)	33 (48%)	28 (27%)	6 (75%)
Management	36 (13%)	15 (12%)	21 (14%)	21 (21%)	5 (7%)	9 (9%)	1 (13%)
Skilled worker	55 (20%)	25 (19%)	30 (20%)	24 (24%)	7 (10%)	24 (23%)	0 (0%)
Unskilled worker	72 (26%)	27 (21%)	45 (30%)	13 (13%)	20 (29%)	38 (37%)	1 (13%)
Other	14 (5%)	5 (4%)	9 (6%)	6 (6%)	4 (6%)	4 (4%)	0 (0%)

Effect of Mentor Support Provisions on School Functioning Outcomes

Multiple linear regression analyses were utilized to test the second and third research hypotheses: 1) each provision of mentoring support will have an effect on school functioning, and 2) provision interactions will also have an impact on school functioning. Two separate regression models were investigated for each of the seven school functioning outcomes (i.e., math achievement, reading achievement, academic self-efficacy, school belonging, student-rated behavioral engagement, teacher-rated behavioral engagement, and teacher-rated school conduct problems). Mentor provision composite scores (i.e., Academic Support, Trust, Warmth) as well as interaction terms

created by using the multiplicative of the standard composite scores of the respective scales (i.e., Academic Support x Trust, Academic Support x Warmth) served as predictors. When interaction terms were not statistically significant, the model was re-run without the interaction terms. Within each regression, the Year 7 outcome was predicted by the Year 6 provision composite scores and interaction terms, as well as covariates (i.e., baseline score for the outcome measure at Year 4, sex, ethnicity, economic disadvantage, and parent education). Results are presented in Table 6. In accordance with the step-down approach proposed by Aiken and West (1991), interaction terms are not reported in Table 6, as they were not statistically significant for any of the seven outcomes and were thus trimmed from the analysis.

Academic achievement. As hypothesized, mentoring Warmth during Year 6 had a statistically significant positive effect on Year 7 reading achievement scores (β = 0.06, $p < 0.05$, Table 6), above several statistically significant covariates, including baseline reading scores, student sex, ethnicity, and parent education. However, there were no statistically significant effects for mentoring Academic Support, Trust, or provision interactions on reading achievement outcomes. Furthermore, mentoring support provisions did not have a statistically significant effect on the subsequent year's math achievement, above the effects of the relevant covariates. There were neither main effects nor interaction effects on subsequent math achievement.

Student-rated school functioning. Consistent with hypotheses, mentoring Academic Support during Year 6 was positively related to increased student-rated behavioral engagement (β = 0.08, $p < 0.05$, Table 6) during Year 7, above statistically

significant baseline scores, and the effects of sex and Black ethnicity. There were no statistically significant effects for Trust, Warmth, or provision interactions. Alternatively, mentoring Trust during Year 6 had a statistically significant negative association with academic self-efficacy (β = -0.12, $p < 0.05$, Table 6), above significant effects of baseline scores. There were no effects for Academic Support, Warmth, or the interaction terms on academic self-efficacy. Additionally, there were neither main nor interactive effects of mentoring support provisions on the subsequent year's student-rated school belonging, above the effects of the relevant covariates.

Teacher-rated school functioning. Teacher-rated school functioning was examined using teacher-rated behavioral engagement, and teacher-rated school conduct problems. Contrary to hypotheses, there were neither main nor interactive effects of mentoring during Year 6 on these Year 7 variables, above relevant covariates.

Table 6

Multiple regression of school functioning with MSPS (Mentor Support Provisions Scale) composites

Outcomes	Y7 WJ Math	Y7 WJ Read	Y7 Self-Effic	Y7 Sch Bel	Y7 SR BE	Y7 TR BE	Y7 Cond Pr
Effect	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
MSPS composites							
Y6 Acad Sup	0.00 (0.05)	-0.05 (0.03)	0.07 (0.08)	0.13 (0.08)	0.08 (0.04)*	-0.03 (0.06)	-0.04 (0.07)
Y6 Trust	-0.03 (0.02)	-0.03 (0.02)	-0.12 (0.04)*	-0.10 (0.06)	-0.07 (0.05)	-0.04 (0.08)	0.01 (0.04)
Y6 Warmth	-0.01 (0.07)	0.06 (0.03)*	0.05 (0.07)	0.11 (0.07)	-0.05 (0.06)	0.01 (0.05)	0.05 (0.04)
Covariates							
Sex	-0.04 (0.03)	-0.06 (0.02)*	0.01 (0.07)	-0.14 (0.04)*	-0.12 (0.03)*	-0.18 (0.04)*	0.08 (0.02)*
Black	-0.10 (0.07)	-0.08 (0.04)*	0.11 (0.06)	-0.04 (0.05)	0.18 (0.07)*	0.03 (0.07)	0.04 (0.04)
Hispanic	-0.03 (0.04)	-0.10 (0.03)*	0.00 (0.05)	-0.11 (0.04)*	0.09 (0.06)	0.03 (0.08)	0.01 (0.05)
Econ Disad	-0.03 (0.03)	-0.02 (0.03)	0.01 (0.05)	0.06 (0.04)	0.00 (0.07)	-0.17 (0.07)*	0.14 (0.06)*
Parent Ed	0.06 (0.05)	0.11 (0.04)*	0.11 (0.07)	0.15 (0.06)*	0.11 (0.07)	0.07 (0.06)	-0.07 (0.06)
Y4 WJ Math	0.75 (0.02)*	---	---	---	---	---	---
Y4 WJ Read	---	0.77 (0.03)*	---	---	---	---	---
Y4 Self-Effic	---	---	0.48 (0.05)*	---	---	---	---
Y4 Sch Bel	---	---	---	0.32 (0.04)*	---	---	---
Y4 SR BE	---	---	---	---	0.25 (0.03)*	---	---
Y4 TR BE	---	---	---	---	---	0.28 (0.06)*	---
Y4 Cond Pr	---	---	---	---	---	---	0.39 (0.09)*
R^2	0.68 (0.03)*	0.76 (0.03)*	0.28 (0.04)*	0.19 (0.04)*	0.13 (0.02)*	0.20 (0.04)*	0.25 (0.08)*

Note: MSPS composites were entered and analyzed simultaneously. Based on standardized parameter estimates (β). Number in parenthesis (SE) is standard error of corresponding standardized estimates. Y7, Y6, and Y4 refer to Year 7, 6, and 4, respectively. Acad Sup, Trust, and Warmth are mean item composite scores. WJ Math and WJ Read are WJ-III Broad Reading and Broad Math W scores, respectively. Self-Effic is student-rated academic self-efficacy. Sch Bel is student-rated school belonging. SR BE is student-rated behavioral engagement. TR BE is teacher-rated behavioral engagement. Cond Pr is teacher-rated school conduct problems. Sex was coded as 1 for male and 0 for female. Black is coded as 1 for Black and 0 for White. Hispanic is coded as 1 for Hispanic and 0 for White. Econ Disad was coded as 1 for economically disadvantaged and 0 for nondisadvantaged. Parent Ed is the highest education level in the home.

* $p < .05$ (two-tailed).

CHAPTER IV

CONCLUSIONS

Discussion

Availability of Natural Mentors

Within the sample of 542 students, neither sex nor ethnicity demonstrated significant differences for the 459 students who reported having a natural mentor. These findings were in contrast to the hypothesis that girls would report greater access to natural mentors. It is plausible that the equal availability of mentors for boys and girls is a function of the nature of this academically at-risk sample. Boys who are low achieving or on the cusp of low achievement may elicit (either intentionally or unintentionally) support from nonparental adults, eager to support them and thwart potential for a negative trajectory. The samples of prior studies examining sex differences in adolescents with natural mentors (Casey-Cannon et al., 2006; Greenberger et al., 1998) were not selected for risk of low achievement; thus, the influence of this factor cannot be confirmed within extant literature. This study's examination of the association of mentor access and ethnicity was exploratory, given the lack of research on this topic. Though findings were consistent with the prior studies (Casey-Cannon et al., 2006; Hurd, Stoddard, Bauermeister, & Zimmerman, 2014), those samples were substantively different and require an alternative framework for understanding results. Similar to student sex, the role of achievement risk may best explain the lack of relation between student ethnicity and mentor access in the present study.

Student sex was also unrelated to mentor role and occupation, yet statistically significant results were found for ethnicity in both of these analyses. Results indicated that mentors of White students were less likely to be relatives and more likely to be familial friends, compared to Black or Hispanic students. Furthermore, White students reported having mentors whose occupations were characterized as requiring more education or skill, while Black and Hispanic students' mentors were more often unskilled. There were no significant differences between Black and Hispanic students' mentors' role or occupation. Research has demonstrated implications for youth school functioning related to these mentor characteristics. For instance, DuBois and Silverthorn (2005a) found that within a nationally representative sample of adolescents and young adults, those with nonfamilial mentors were more likely to complete high school than those who identified a familial mentor. Chang et al., (2010) examined the role of mentor education level and found positive associations with educational expectations and post-secondary grades for emerging adults, above the effects of prior levels, and to a greater extent than familial/nonfamilial relations or relationship duration. These results suggest the potential for mentors to provide increased social capital, in the form of exposure to novel attitudes and perspectives, behaviors, and experiences, and the present study indicated that White students are most often selecting and capitalizing on these opportunities.

Natural Mentoring Effects on School Functioning

Bivariate correlations. Bivariate correlations demonstrated that more Academic Support was related with poorer school functioning (i.e., weaker math and reading

achievement, less teacher-rated behavioral engagement, and more teacher-rated conduct problems). Similarly, increased Trust was associated with weaker achievement and academic self-efficacy. Provisions of academic support may be child-driven, in that youth with higher academic needs elicit more support. These youth may also have other needs related to positive identity development and autonomy, which lead them to rely on their natural mentors for intimacy and disclosure. Alternatively, both Academic Support and Warmth were positively related to increased school belonging. The value of school projected through academic support from a mentor may manifest itself in an adolescent's greater value for school membership. Furthermore, the mutual respect and acceptance that occurs in warm relationships may prime youth for feelings of acceptance in school, particularly if mentors are adults in their school. These relationships cannot address the role of mentor provisions on changes in students' academic functioning; thus, longitudinal regression analyses were needed to better understand the role of mentor support provisions on changes in students' academic functioning, controlling for selected variables that may be related to both mentor provisions and academic outcomes.

Predictive effects. Regression analyses confirmed that adolescent-perceived mentor warmth and academic support were uniquely important to adolescents' school functioning, as they related to reading and student-reported behavioral engagement, respectively. As expected, Warmth was a statically significant predictor of students' reading achievement during the following year, above baseline levels of achievement and relevant covariates. This finding is consistent with extant studies demonstrating the impact of warmth or affective support garnered from mentors and teachers on reading

achievement. For instance, Farruggia, Bullen, and Davidson (2012) examined the association between adolescent perceived mentor, parent, and peer warmth and academic achievement (e.g., performance on three nationally standardized tests) in reading and math on a sample of 11 to 13-year olds in Auckland, New Zealand. Results revealed that mentor warmth was the strongest predictor of reading and math achievement, above the warmth of parents and peers. Furthermore, mentor warmth explained more total variance in achievement than the mere presence of a mentor. Similarly, Connor, Son, Hindman, and Morrison (2005) examined the role of teacher warmth and responsivity on first grade students' early reading skills. Across various measures of teacher qualifications and classroom practices, more teacher warmth was associated with stronger early reading skills (e.g., vocabulary and decoding), in addition to the effects of prior letter-word recognition, family learning practices, and socioeconomic status. The results of the present study validate these important findings and demonstrate that affectively supportive relationships with nonparental adults are an academic asset for adolescents.

Also aligned with hypotheses, Academic Support was a statistically significant predictor of student-reported behavioral engagement during the following year, above baseline levels of engagement and relevant covariates. Intuitively, one would expect that receiving consistent messages related to the value of education and importance of academic work ethic, coupled with receiving instrumental support with schoolwork, from a respected adult would translate into improvements in students' perceptions of their effort in school. However, the effect of mentor academic support on students'

behavioral engagement has been understudied. As aforementioned in the literature review, the role of academic support from parents, teachers, and natural mentors in school functioning has indicated positive influence on achievement (Sánchez et al., 2008; Sui-Chu & Willms, 1996), academic interest (Wentzel, Battle, Russel, & Looney, 2010), school belonging (Cham et al., 2014; Sánchez et al., 2008), motivation (Legault et al., 2006), and attendance (Sánchez et al., 2008). The present study expands this knowledge to include positive effects for behavioral engagement in a manner that is predictable and theoretically aligned.

The significant negative predictive association between Trust and adolescent academic self-efficacy during the following year (above prior level of academic self-efficacy) was not expected. One possible explanation for this finding is that this type of intimacy (i.e., the sharing of private thoughts and feelings) in relationships is not normative for early adolescents. The literature has suggested that early adolescence (i.e., approximately age 12 to 16; Kagan & Coles, 1972) is a period when youths' needs for intimacy are primarily met through peer relationships (Berndt, 1982; Brown & Larson, 2009). Nonparental adult mentors do not serve in these best friend roles and thus, this overdependence on a nonparental adult may be indicative of a developmental immaturity that underscores school functioning, particularly academic self-efficacy. Alternatively, Beam and colleagues' (2002) exploratory examination of the nature and quality of mentor relationships with eleventh grade adolescents suggested that youth disclosed (i.e., shared private thoughts or experiences) to nonparental adults at a similar rate to peers, and higher rate than to parents. Youth reported feeling less judged by mentors for

making these disclosures, compared to parents, and felt mentors were more capable in providing guidance than peers. Beam et al., (2002) proposed that mentors may offer a means of fulfilling a need for relatedness to adults, without imposing on youths' emerging sense of autonomy. Examining adolescents' trust in adult leaders in youth programs, Griffith and Larson (2015) found that trust (i.e., confidence in one's care and support for needs and goals) magnified youth motivation and engagement, and thus, learning outcomes. While this definition of trust was comparatively broad, intimacy was noted as a specific process through which trust benefited youth. Additional studies are needed to clarify the need for closeness in adolescent mentoring relationships, and how the presence of emotional closeness, or intimacy, relates to school functioning.

Although this study appears to be the first to demonstrate the differential positive impact of adolescent-perceived mentor Warmth and Academic Support provisions on reading achievement and student-reported behavioral engagement, respectively, others have examined the combined effect of these provisions of support and found similar relations to school functioning. Hamre and Pianta (2005) noted that in first grade classrooms where teachers provided strong warmth (e.g., greater teacher sensitivity, less detachment) and academic support (e.g., instructional conversation, encouragement of child responsibility), academically at-risk students achieved at a level similar to their low-risk peers. In addition, Wentzel (1997) found that teacher support (e.g., using democratic interaction styles, creating individualized expectations for behavior, modeling a caring attitude toward their own work, providing constructive feedback) predicted academic effort in eighth grade, above the predictive effects of sixth grade

academic motivation. Taken together, results suggest that natural mentoring relationships are most advantageous to school functioning when both warmth and academic support are present.

Limitations and Future Directions

These findings of this study must be considered in light of several limitations. First, the sample consisted of students previously identified as academically at-risk. Based on research reporting that at-risk students are more strongly affected by relational supports than are their lower-risk peers (Baker, 2006), mentor support provisions may be more strongly related to academic outcomes than would be the case in a sample representative of high and low risks students. Yet, these are also the students who are of higher risk of educational failure and, therefore, of great concern to educators and policy makers. Whereas this sample was diverse with regard to sex and approximately equal representation of three main ethnic/racial groups, further replication is necessary to generalize these findings to other samples.

An important limitation in this study is the limited scope of the provision of Trust on the MSPS, which exclusively examined the sharing of private thoughts and feelings. The finding that Trust was related to a decline in academic self-efficacy was likely due to this construct's narrow definition. Future examinations of the MSPS should seek to broaden the composite to include other developmentally appropriate dimensions of trust, including benevolence, integrity, reliance, and care (Dunn & Schweitzer, 2005; Griffith & Larson, 2015; Rotenberg, 2010). Additional items might include, "How much can you depend on this adult?" and "How much does this adult have your best interests at

heart?". Should future researchers prefer to use the MSPS in its current form, it is recommended that the Trust composite be more appropriately termed Intimacy.

Future studies are needed to address research questions that were outside the scope of the current study. For instance, the impact of mentoring support provisions on adolescent school functioning should be analyzed in conjunction with additional relationship characteristics. For example, the present study did not consider the interaction between structural aspects of natural mentoring relationships (e.g., frequency of contact, relationship longevity) and mentoring support in explaining effects on school functioning. Furthermore, although descriptive information on the natural mentors identified by youth was reviewed, an analysis on these characteristics of the natural mentors' impact on mentoring support provisions and school functioning was not undertaken due to limited statistical power. It is plausible that helping professionals, such as teachers, serving as natural mentors may provide more academic support; similarly, school-based mentors could have a larger influence of student's sense of school belonging. Additionally, one might anticipate differentiated effects on the basis of familial or nonfamilial mentoring relationships, with the assumption that mentors outside of the family system may increase a youth's social capital.

Furthermore, in this study's efforts to examine the details of a single natural mentoring relationship, the design did not recognize the interconnected nature of various supportive relationships in an adolescent's life. Dishion and Stormshak (2007), in their ecological family intervention, have emphasized the effect of linkages across parental, peer, and numerous nonparental adult relationships on youth functioning. This topic is

understudied, yet in a cross-sectional study, Sánchez et al., (2008) reported positive associations between the number of mentors and improved school absenteeism, educational expectations, and school belonging. It would be important to examine the influence of the collective support available to an individual, as well as the differentiated role and quantity of each source of support. These contributions would continue to enhance our understanding of the ways in which natural mentoring relationships influence adolescent school functioning and broader well-being.

Implications

This investigation into natural mentoring yields important implications. The longitudinal nature, improved methodology (i.e., controlling for child covariates and prior functioning) and examination of a variety of academically related outcomes increase our understanding of the relationship between natural mentoring and school functioning. Although few studies of natural mentoring have collected data regarding types of mentor support (Beam et al., 2002; Greenberger et al., 1998), they have been used to explain why a mentor is viewed as important to the youth, rather than examined for their influence on academic outcomes. This study posits there is unique value in both perceived Academic Support and Warmth, as they influence positive school functioning, albeit in different ways. Finally, this study's exploration of sex and ethnic differences in natural mentor characteristics (e.g., role, occupation) and findings related to ethnic group differences contributed to the limited research on cultural differences in natural mentor availability.

Within practice, school psychologists are well positioned to utilize these findings to serve students within the context of a Response-to-Intervention framework. As proposed by Dishion and Stormshak (2007), an ecological assessment of the sources of support available to a child or adolescent serves as the foundation for decision making and case conceptualization, identifying both areas of deficit and strength to guide systemic, developmentally-appropriate intervention planning. Beginning with a prevention approach, one might use the MSPS (once validated for use in a general population), in conjunction with other academic and social-emotional screeners, to identify students on the cusp of being at-risk for poor school functioning.

At a Tier 2 or Tier 3 level, data derived from the MSPS may also prove useful in analyzing identified problems, providing partial explanations. For those students able to identify a natural mentor, the MSPS could provide additional data regarding the nature of mentoring support. This study revealed that distinct provisions of support are differentially related to student outcomes. The unique contribution of Academic Support on student-reported behavioral engagement, as well as Warmth on reading, indicate that relationships that offer multiple provisions of support may offer the most significant benefits to adolescents' school functioning. Students whose mentoring relationships lack these provisions, as well as students unable to identify a natural mentor, could be considered for an intervention aimed at natural mentoring, or effort to enhance an existing relationship. School psychologists, through their partnership with parents, can advocate for the importance of youth having access to natural mentors and explain the unique positive influence of these individuals.

School psychologists also have access to school personnel who may serve as youth mentors (e.g., teachers, coaches, counselors). These individuals may be particularly important, given their position as a nonfamilial helping professional and their accessibility to students. As noted previously, research has demonstrated the value of nonfamilial natural mentors (DuBois & Silverthorn, 2005a) and those with higher education (Chang et al., 2010) to youth school functioning, and the current study illustrated the greater likelihood for White youth to engage in natural mentoring relationships that enhance their social capital, compared to Black and Hispanic adolescents. School psychologists could be instrumental in the development of policies and leading professional development activities aimed at supporting school personnel in fostering natural mentoring relationships with diverse students and guiding their interactions.

Natural mentoring can also be targeted within the structure of existing child interventions, such as Check and Connect (C&C, Christenson, Stout, & Pohl, 2012) or Check In Check Out (CICO, also known as the behavior education plan; Crone, Horner, & Hawken, 2003). School psychologists can support the C&C mentors or CICO coordinators, to ensure they are cultivating affective and academically focused relationships. These relationships more closely align with the definition of formal mentoring, as coordinators are assigned; yet, there are likely multiple benefits for youth derived from ensuring such provisions are occurring. The MSPS might be used to monitor these relationships to ensure the youth perceives these provisions. Natural mentoring could also be highlighted within the context of other social-emotional

interventions, such as Circles: Intimacy & Relationships, Level 1 (Champagne, & Walker-Hirsch, 1983). A school psychologist or social worker could identify opportunities for encouraging youth to initiate natural mentoring relationships within their social support network. Furthermore, questions probing the expectations and values of these identified mentors may lead youth to seek both warmth and academic support. If a school has an existing formal mentoring program, the MSPS might be used to monitor the provisions of support perceived in these relationships and target means to enhance the effects of these programs.

Natural mentoring is a valuable strategy for providing adolescents with support and enhancing academic resiliency. The organic nature of these relationships permits youth, regardless of risk status, to obtain and sustain benefits over time. For these reasons families, communities, and schools must embrace philosophies and practices that will promote the cultivation of these relationships between adults and youth.

REFERENCES

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

Ainsworth, M. S. (1989). Attachments beyond infancy. *American Psychologist, 44*, 709-716. doi:10.1037/0003-066X.44.4.709

Alexander, K. L., Entwisle, D. R., & Horsey, C. S. (1997). From first grade forward: Early foundations of high school dropout. *Sociology of Education, 70*, 87-107. doi: 10.2307/2673158

Allee-Smith, P.J., Clemens, N., Im, M.H., & Hughes, J. (2015, March). *Mentor support provisions: Associations with adolescents' school engagement.* Poster presented at the 2015 Society for Research in Child Development Biennial Meeting, Philadelphia, PA.

Baker, J. A. (2006). Contributions of teacher-child relationships to positive school adjustment during elementary school. *Journal of School Psychology, 44*, 211-229. doi:10.1016/j.jsp.2006.02.002

Baumrind, D. (1967). Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs. 75*(1), 43-88.

Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *The Journal of Early Adolescence, 11*, 56-95. doi:10.1177/0272431691111004

Beam, M. R., Chen, C., & Greenberger, E. (2002). The nature of adolescents' relationships with their "very important" nonparental adults. *American Journal of Community Psychology, 30,* 305-325. doi:10.1023/A:1014641213440

Beier, S. R., Rosenfeld, W. D., Spitalny, K. C., Zansky, S. M., & Bontempo, A. N. (2000). The potential role of an adult mentor in influencing high-risk behaviors in adolescents. *Archives of Pediatrics & Adolescent Medicine, 154*, 327-331. doi:10.1001/archpedi.154.4.327

Berndt, T. (1982). The features and effects of friendship in early adolescence. *Child Development, 53*, 1447-1460. doi:10.2307/1130071

Blyth, D. A., Hill, J. P., & Smith Thiel, K. S. (1982). Early adolescents' significant others: Grade and gender differences in perceived relationships with familial and nonfamilial adults and young people. *Journal of Youth and Adolescence,11*, 425-450. doi:10.1007/BF01538805

Bond, L., Butler, H., Thomas, L., Carlin, J., Glover, S., Bowes, G., & Patton, G. (2007). Social and school connectedness in early secondary school as predictors of late teenage substance use, mental health, and academic outcomes. *Journal of Adolescent Health, 40,* e9-e18. doi:10.1016/j.jadohealth.2006.10.013

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. New York, NY: Basic Books.

Brown, B. B., & Larson, J. (2009). Peer relationships in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology, Vol. 2: Contextual*

influences on adolescent development (3rd ed., pp. 74-103). Hoboken, NJ: John Wiley & Sons Inc.

Bryk, A., & Schneider, B. (2002). *Trust in schools: A core resource for improvement*. New York, NY: Russell Sage Foundation.

Buhrmester, D., & Furman, W. (1987). The development of companionship and intimacy. *Child Development, 58,* 1101-1113. doi:10.2307/1130550

Caldwell, M. A., & Peplau, L. A. (1982). Sex differences in same-sex friendship. *Sex Roles, 8,* 721-732. doi:10.1007/BF00287568

Caprara, G. V., Barbaranelli, C., Pastorelli, C., Bandura, A., & Zimbardo, P. G. (2000). Prosocial foundations of children's academic achievement. *Psychological Science, 11,* 302-306. doi:10.1111/1467-9280.00260

Casey-Cannon, S., Pasch, L. A., Tschann, J. M., & Flores, E. (2006). Nonparent adult social support and depressive symptoms among Mexican American and European American adolescents. *The Journal of Early Adolescence, 26,* 318-343. doi:10.1177/0272431606288592

Cham, H., Hughes, J. N., West, S. G., & Im, M. H. (2014). Assessment of adolescents' motivation for educational attainment. *Psychological Assessment, 26,* 642-659. doi:10.1037/a0036213

Chang, E., Greenberger, E., Chen, C., Heckhausen, J., & Farruggia, S.P. (2010). Non-parental adults as social resources in the transition to adulthood. *Journal of Research on Adolescence. 20,* 1065-1082. doi:10.1111/j.1532-7795.2010.00662.x

Champagne, M. P., & Walker-Hirsch, L. (1983). *Circles: Intimacy & Relationships*. Santa Monica, CA: Stanfield Film Associates.

Christenson, S., Stout, K., & Pohl, A. (2012). *Implementing Check & Connect with fidelity: What is Check & Connect? How is Check & Connect implemented?* Minneapolis, MN: University of Minnesota, Institute on Community Integration.

Connell, J. P., Spencer, M. B., & Aber, J. L. (1994). Educational risk and resilience in African-American youth: Context, self, action, and outcomes in school. *Child Development, 65*, 493-506. doi:10.2307/1131398

Crone, D. A., Horner, R. H., & Hawken L. S. (2003). *Responding to problem behavior in schools: The behavior education program.* New York, NY: Guilford.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (Third ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Colarossi, L. G. (2001). Adolescent gender differences in social support: Structure, function, and provider type. *Social Work Research, 25*, 233-241. doi:10.1093/swr/25.4.233

Connell, J. P., Spencer, M. B., & Aber, J. L. (1994). Educational risk and resilience in African-American youth: Context, self, action, and outcomes in school. *Child Development, 65*, 493-506. doi:10.2307/1131398

Connor, C. M., Son, S., Hindman, A. H., & Morrison, F. J. (2005). Teacher qualifications, classroom practices, family characteristics, and preschool experience: Complex effects on first graders' vocabulary and early reading

outcomes. *Journal of School Psychology, 43*, 343-375. doi:10.1016/j.jsp.2005.06.001

Cumsille, P. E., & Epstein, N. (1994). Family cohesion, family adaptability, social support, and adolescent depressive symptoms in outpatient clinic families. *Journal of Family Psychology, 8*, 202-214. doi:10.1037/0893-3200.8.2.202

Darling, N., Hamilton, S. F., & Niego, S. (1994). Adolescents' relations with adults outside the family. In R. Montemayor, G. R. Adams, T. P. Gullotta, R. Montemayor, G. R. Adams, T. P. Gullotta (Eds.), *Personal relationships during adolescence* (pp. 216-235). Thousand Oaks, CA: Sage Publications, Inc.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268. doi:10.1207/S15327965PLI1104_01

Dishion, T. J., & Stormshak, E. A. (2007). *Intervening in children's lives: An ecological, family-centered approach to mental health care*. Washington, DC: American Psychological Association.

Dornbusch, S. M., Ritter, P. L., Leiderman, P. H., Roberts, D. F., & Fraleigh, M. J. (1987). The relation of parenting style to adolescent school performance. *Child Development, 58*, 1244-1257. doi:10.2307/1130618

DuBois, D. L., Holloway, B. E., Valentine, J. C., & Cooper, H. (2002). Effectiveness of mentoring programs for youth: A meta-analytic review. *American Journal of Community Psychology, 30*, 157-197. doi:10.1023/A:1014628810714

DuBois, D. L., & Silverthorn, N. (2005a). Characteristics of natural mentoring relationships and adolescent adjustment: Evidence from a national study. *The Journal of Primary Prevention, 26*, 69-92. doi: 10.1007/s10935-005-1832-4

DuBois, D. L., & Silverthorn, N. (2005b). Natural mentoring relationships and adolescent health: Evidence from a national study. *American Journal of Public Health, 95*, 518-524. doi:10.2105/AJPH.2003.031476

Dunn, J. R., & Schweitzer, M. E. (2005). Feeling and believing: The influence of emotion on trust. *Journal of Personality and Social Psychology*, 88, 736. doi:10.1037/0022-3514.88.5.736

Enders, C. K. (2010). *Applied missing data analysis*. New York, NY, US: Guilford Press.

Farruggia, S. P., Bullen, P., & Davidson, J. (2012). Important nonparental adults as academic resource for youth. *Journal of Early Adolescence, 33*, 498-522. doi:10.1177/0272431612450950

Frey, C. U., & Röthlisberger, C. (1996). Social support in healthy adolescents. *Journal of Youth and Adolescence, 25*, 17-31. doi:10.1007/BF01537378

Frymier, A. B., & Houser, M. L. (2000). The teacher-student relationship as an interpersonal relationship. *Communication Education, 49*, 207-219. doi:10.1080/03634520009379209

Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology, 21,* 1016-1024. doi:10.1037//0012-1649.21.6.1016

Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology, 95*, 148-162. doi:10.1037/0022-0663.95.1.148

Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *Journal of Early Adolescence, 13*, 21-43. doi:10.1177/0272431693013001002

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*, 581-586. doi:10.1111/j.1469-7610.1997.tb01545.x

Greenberger, E., Chen, C., & Beam, M. R. (1998). The role of "very important" nonparental adults in adolescent development. *Journal of Youth and Adolescence, 27*, 321-343. doi:10.1023/A:1022803120166

Griffith, A. N., & Larson, R. W. (2015). Why trust matters: How confidence in leaders transforms what adolescents gain from youth programs. *Journal of Research on Adolescence, 26*, 790-804. doi:10.1111/jora.12230

Haddad, E., Chen, C., & Greenberger, E. (2011). The role of important non-parental adults (VIPs) in the lives of older adolescents: A comparison of three ethnic groups. *Journal of Youth and Adolescence, 40*, 310-319. doi:10.1007/s10964-010-9543-4

Hagborg, W. J. (1998). An investigation of a brief measure of school membership. *Adolescence, 33*, 461-468.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72,* 625-638. doi:10.1111/1467-8624.00301

Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development, 76,* 949-967. doi:10.1111/j.1467-8624.2005.00889.x

Harter, S. (1985). *The self-perception profile for children: A revision of the perceived competence scale for children.* Denver, CO: University of Denver.

Hill, C. R., & Hughes, J. N. (2007). An examination of the convergent and discriminant validity of the Strengths and Difficulties Questionnaire. *School Psychology Quarterly, 22,* 380-406. doi:10.1037/1045-3830.22.3.380

Hughes, J. N., & Kwok, O. M. (2006). Classroom engagement mediates the effect of teacher–student support on elementary students' peer acceptance: A prospective analysis. *Journal of School Psychology, 43,* 465-480. doi:10.1016/j.jsp.2005.10.001

Hughes, J. N., Luo, W., Kwok, O., & Loyd, L. K. (2008). Teacher-student support, effortful engagement, and achievement: A 3-year longitudinal study. *Journal of Educational Psychology, 100,* 1-14. doi:10.1037/0022-0663.100.1.1

Hurd, N. M., & Sellers, R. M. (2013). Black adolescents' relationships with natural mentors: Associations with academic engagement via social and emotional development. *Cultural Diversity and Ethnic Minority Psychology,19,* 76-85. doi:10.1037/a0031095

Hurd, N. M., Stoddard, S. A., Bauermeister, J. A., & Zimmerman, M. A. (2014). Natural mentors, mental health, and substance abuse: Exploring pathways via coping and purpose. *American Journal of Orthopsychiatry, 84*, 190-200. doi:10.1037/h0099361

Hurd, N. M., & Zimmerman, M. A. (2010a). Natural mentoring relationships among adolescent mothers: A study of resilience. *Journal of Research on Adolescence, 20*, 789-809. doi:10.1111/j.1532-7795.2010.00660.x

Hurd, N., & Zimmerman, M. (2010b). Natural mentors, mental health, and risk behaviors: A longitudinal analysis of African American adolescents transitioning into adulthood. *American Journal of Community Psychology, 46*, 36-48. doi:10.1007/s10464-010-9325-x

IBM Corp. (2013). *IBM SPSS Statistics for Windows, Version 22.0*. Armonk, NY: IBM Corp.

Janosz, M., Archambault, I., Morizot, J., & Pagani, L. S. (2008). School engagement trajectories and their differential predictive relations to dropout. *Journal of Social Issues, 64*, 21-40. doi: 10.1111/j.1540-4560.2008.00546.x

Kagan, J., & Coles, R. (1972). *12 to 16: Early adolescence.* New York, NY, US: WW Norton & Co., Inc.

Kelly, K. R., & Jordan, L. K. (1990). Effects of academic achievement and gender on academic and social self-concept: A replication study. *Journal of Counseling and Development, 69*, 173-177.

Klaw, E. L., Rhodes, J. E., & Fitzgerald, L. F. (2003). Natural mentors in the lives of African American adolescent mothers: Tracking relationships over time. *Journal of Youth and Adolescence, 32*, 223–232. doi:10.1023/A:1022551721565

Kogan, S. M., Brody, G. H., & Chen, Y. F. (2011). Natural mentoring processes deter externalizing problems among rural African American emerging adults: A prospective analysis. *American Journal of Community Psychology, 48*, 272-283. doi:10.1007/s10464-011-9425-2

Koniak-Griffin, D., Lominska, S., & Brecht, M. L. (1993). Social support during adolescent pregnancy: A comparison of three ethnic groups. *Journal of Adolescence, 16*, 43-56. doi:10.1006/jado.1993.1004

Lee, S. J. (2007). The relations between the student–teacher trust relationship and school success in the case of Korean middle schools. *Educational Studies, 33*, 209-216. doi:10.1080/03055690601068477

Legault, L., Green-Demers, I., & Pelletier, L. (2006). Why do high school students lack motivation in the classroom? Toward an understanding of academic motivation and the role of social support. *Journal of Educational Psychology, 98*, 567-582. doi:10.1037/0022-0663.98.3.567

Lessard, A., Butler-Kisber, L., Fortin, L., & Marcotte, D. (2014). Analyzing the discourse of dropouts and resilient students. *The Journal of Educational Research, 107*, 103-110. doi:10.1080/00220671.2012.753857

Maguin, E., & Loeber, R. (1996). Academic performance and delinquency. *Crime and Justice, 20*, 145-264.

MENTOR/National Mentoring Partnership. (2006). *Mentoring in America 2005*. Boston, MA: MENTOR/National Mentoring Partnership. Retrieved March 6, 2015 from http://www.mentoring.org/downloads/mentoring_333.pdf

Muthén, L. K., & Muthén, B. O. (1998-2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.

National Center for Education Statistics, 2015. The Nation's Report Card. Retrieved December 11, 2016 from http://nces.ed.gov/nationsreportcard/about/

Rhodes, J. E. (2002). *Stand by me: The risks and rewards of mentoring today's youth*. Cambridge, MA: Harvard University Press.

Rhodes, J. E. (2005). A Model of Youth Mentoring. In D. L. DuBois, M. J. Karcher, D. L. DuBois, M. J. Karcher (Eds.), *Handbook of youth mentoring* (pp. 30-43). Thousand Oaks, CA: Sage Publications Ltd.

Rhodes, J. E., Contreras, J. M., & Mangelsdorf, S. C. (1994). Natural mentor relationships among Latina adolescent mothers: Psychological adjustment, moderating processes, and the role of early parental acceptance. *American Journal of Community Psychology, 22*, 211-227. doi:10.1007/BF02506863

Rhodes, J. E., Ebert, L., & Fischer, K. (1992). Natural mentors: An overlooked resource in the social networks of young, African American mothers. *American Journal of Community Psychology, 20*, 445-461. doi:10.1007/BF00937754

Rhodes, J. E., Grossman, J. B., & Resch, N. L. (2000). Agents of change: Pathways through which mentoring relationships influence adolescents' academic adjustment. *Child Development, 71*, 1662-1671. doi:10.1111/1467-8624.00256

Rhodes, J., Reddy, R., Roffman, J., & Grossman, J. B. (2005). Promoting successful youth mentoring relationships: A preliminary screening questionnaire. *Journal of Primary Prevention, 26*, 147-167. doi:10.1007/s10935-005-1849-8

Rhodes, J. E., Spencer, R., Keller, T. E., Liang, B., & Noam, G. (2006). A model for the influence of mentoring relationships on youth development. *Journal of Community Psychology, 34*, 691-707. doi:10.1002/jcop.20124

Rishel, C. W., Cottrell, L., Stanton, B., Cottrell, S., & Branstetter, S. (2010). The buffering effect of nonparental adults on the relationship between parent-adolescent communication and adolescent risk behavior. *Families in Society, 91*, 371-377. doi:10.1606/1044-3894.4031

Rotenberg, K. J. (Ed.). (2010). *Interpersonal trust during childhood and adolescence*. New York, NY: Cambridge University Press.

Rumberger, R. W. (1987). High school dropouts: A review of issues and evidence. *Review of Educational Research, 57*(2), 101-121.

Ryan, A. M. (2001). The peer group as a context for the development of young adolescent motivation and achievement. *Child Development, 72*, 1135-1150. doi:10.1111/1467-8624.00338

Sánchez, B., Esparza, P., & Colón, Y. (2008). Natural mentoring under the microscope: An investigation of mentoring relationships and Latino adolescents' academic performance. *Journal of Community Psychology, 36*, 468-482. doi:10.1002/jcop.20250

Sánchez, B., & Reyes, O. (1999). Descriptive profile of the mentorship relationships of Latino adolescents. *Journal of Community Psychology, 27*, 299-302. doi:10.1002/(SICI)1520-6629(199905)27:3<299::AID-JCOP4>3.0.CO;2-H

Sánchez, B., Reyes, O., & Singh, J. (2006). A qualitative examination of the relationships that serve a mentoring function for Mexican American older adolescents. *Cultural Diversity and Ethnic Minority Psychology, 12*, 615-631. doi:10.1037/1099-9809.12.4.615

Sipe, C. L. (2002). Mentoring programs for adolescents: A research summary. *Journal of Adolescent Health, 31*(Suppl6), 251-260. doi:10.1016/S1054-139X(02)00498-6

Skinner, E., Furrer, C., Marchand, G., & Kindermann, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic? *Journal of Educational Psychology, 100*, 765-781. doi:10.1037/a0012840

Skinner E. A., Zimmer-Gembeck M. J., & Connell J. P. (1998). Individual differences and the development of perceived control. *Monographs of the Society for Research in Child Development, 63*, v-220. doi:10.2307/1166220

Sui-Chu, E. H., & Willms, J. D. (1996). Effects of parental involvement on eighth-grade achievement. *The Sociological Quarterly, 69*, 126-141. doi:10.2307/2112802

Taylor, R. D., Casten, R., & Flickinger, S. M. (1993). Influence of kinship social support on the parenting experiences and psychosocial adjustment of African-American adolescents. *Developmental Psychology, 29*, 382-388. doi:10.1037/0012-1649.29.2.382

United States Census Bureau. (2014). *American Fact Finder*. Retrieved December 11, 2016 from https://factfinder.census.gov/

Van Ryzin, M. (2010). Secondary school advisors as mentors and secondary attachment figures. *Journal of Community Psychology, 38*, 131-154. doi:10.1002/jcop.20356

Wang, M. T., & Eccles, J. S. (2012). Social support matters: Longitudinal effects of social support on three dimensions of school engagement from middle to high school. *Child Development, 83*, 877-895. doi:10.1111/j.1467-8624.2012.01745.x

Wellman, B., & Wortley, S. (1990). Different strokes from different folks: Community ties and social support. *American Journal of Sociology, 96*, 558-588. doi:10.1086/229572

Wentzel, K. R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology, 89*, 411-419. doi:10.1037/0022-0663.89.3.411

Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology, 35*, 193-202. doi:10.1016/j.cedpsych.2010.03.002

Weiss, R. S. (1974). The provisions of social relationships. In Z. Rubin (Ed.), *Doing unto others*. Englewood Cliffs, NJ: Prentice-Hall.

West, S. G., Finch, J. F., & Curran, P. J. (1995). Structural equation models with nonnormal variables: Problems and remedies. In R. H. Hoyle (Ed.), *Structural*

equation modeling: Concepts, issues, and applications. (pp. 56-75). Thousand Oaks, CA: Sage Publications.

Woodcock, R. W., & Johnson, M. B. (1989). *Woodcock–Johnson Psycho-Educational Battery-Revised*. Allen, TX: DLM Teaching Resources.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock–Johnson III Tests of Achievement*. Itasca, IL: Riverside Publishing.

Woodcock, R. W., & Muñoz-Sandoval, A. F. (1993). *Woodcock–Munoz Language Survey*. Chicago, IL: Riverside Publishing

Woodcock, R. W., Muñoz-Sandoval, A. F., McGrew, K., Mather, N., & Schrank, F. (2004). *Batería III Woodcock-Munoz*. Riverside, CA: Riverside Publishing.

Wu J., Hughes J. N., & Kwok O. (2010). Teacher student relationship quality type in elementary grades: Effects on trajectories for achievement and engagement. *Journal of School Psychology, 48*, 337–355. doi:10.1016/j.jsp.2010.06.004

Zimmerman, M. A., Bingenheimer, J. B., & Behrendt, D. E. (2005). Natural Mentoring Relationships. In D. L. DuBois M. J. Karcher, D. L. DuBois, M. J. Karcher (Eds.), *Handbook of youth mentoring* (pp. 143-157). Thousand Oaks, CA: Sage Publications Ltd.

Zimmerman, M. A., Bingenheimer, J. B., & Notaro, P. C. (2002). Natural mentors and adolescent resiliency: A study with urban youth. *American Journal of Community Psychology, 30*, 221-243. doi:10.1023/A:1014632911622

APPENDIX A

MENTOR SUPPORT PROVISIONS SCALE ITEMS

Mentor Support Provisions Scale	
Items	
1	How much does this person tell you it is important for you to do well in school?
2	How much does this person tell you to try hard at school?
3	How much does this person expect you to make good grades at school?
4	How much does this person talk to you about what you learned in school?
5	How much does this person help you with your schoolwork?
6	How much can you count on this person to be there for you?
7	How much does this person believe in you and care deeply about you?
8	How much does this person inspire you to do your best?
9	How much has knowing this person really affected what you do and choices you make?
10*	How satisfied are you with your relationship with this adult?
11*	How much do you tell this adult everything?
12*	How much does this adult help you with things you cannot do by yourself?
13*	How much does this adult like or love you?
14*	How much does this adult treat you like you are admired and respected?
15*	How happy are you with the way things are between you and this adult?
16*	How much do you share your secrets and private feelings with this adult?
17*	How much does this adult take care of you or protect you?
18*	How much does this adult really care about you?
19*	How much does this adult treat you like you are good at many things?
20*	How sure are you that your relationship with this adult will last in spite of fights?
21*	How good is your relationship with this adult?
22*	How much do you talk to this adult about things that you do not want others to know?
23*	How much does this adult have a strong feeling of affection (love or liking) toward you?
24*	How much does this adult like or approve of the things you do?

Note: * after the item number indicates the item was extracted from the Network of Relationships Inventory (Buhrmester & Furman, 1987). Students were asked to indicate the degree to which they agreed or disagreed with each of the statements using a five-point Likert-type scale (1 = strongly disagree; 5 = strongly agree).