

**SCHOOL-BASED SOCIAL-EMOTIONAL DEVELOPMENT:  
THE ROLE OF RELATIONSHIPS AND TEACHING**

by

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## TABLE OF CONTENTS

LIST OF TABLES .....	viii
LIST OF FIGURES .....	ix
ABSTRACT .....	x

### Chapter

1 LITERATURE REVIEW .....	1
Social–Emotional Competencies .....	4
Responsible Decision Making .....	5
Relationship Skills .....	6
Self-Management .....	8
Social Awareness .....	9
Self-Awareness .....	10
Development of Social–Emotional Competence .....	11
Social–Emotional Learning .....	17
Theory Supporting SEL .....	19
History of SEL .....	21
SEL Effectiveness .....	23
SEL Disadvantages .....	25
Study Purpose .....	28
Teacher–Student Relationship Quality .....	29
Supporting Theory .....	32
Attachment Theory .....	33
Self-Determination Theory .....	34
Social Learning Theory .....	34
Ecological Systems Theory and Social Development Model .....	35
Student–Student Relationship Quality .....	36
Supporting Theory .....	38

	SEL Teaching Techniques.....	40
	Grade Level .....	42
	Control Variables.....	45
	Summary.....	47
2	METHOD .....	49
	Data Collection .....	49
	Participants .....	51
	Measures.....	54
	Social–Emotional Competence .....	55
	Teacher–Student Relationship Quality and Student–Student Relationship Quality .....	57
	SEL Teaching .....	59
	Student Demographic Information .....	60
	School Demographic Information .....	60
	Procedures for Statistical Analyses .....	60
3	RESULTS.....	67
	Hierarchical Linear Modeling .....	67
	Main Effects of Student- and School-Level Demographics.....	68
	Main Effects of Grade Level, Teacher–Student Relationship Quality, Student–Student Relationship Quality, and SEL Teaching.....	71
	Moderation Effects of Grade Level and Teacher–Student Relationship Quality .....	77
4	DISCUSSION.....	85
	Interpretation of Findings .....	86
	Main Effects of Demographics on Social–Emotional Competence .....	86
	Gender .....	86
	Race/Ethnicity .....	87
	School-Level SES.....	88
	Main Effect of Schools’ Grade Level on Social–Emotional Competence ..	90
	Main Effect of Teacher–Student Relationship Quality on Social– Emotional Competence .....	93

Main Effect of Student–Student Relationship Quality on Social–Emotional Competence .....	95
Main Effect of SEL Teaching on Social–Emotional Competence .....	96
Moderation Effects of Grade Level .....	98
Moderation Effect of Grade Level in the Association Between Teacher–Student Relationship Quality and Social–Emotional Competence .....	98
Moderation Effect of Grade Level in the Association Between Student–Student Relationship Quality and Social–Emotional Competence .....	99
Moderation Effect of Teacher–Student Relationship Quality .....	100
Practical Implications .....	101
Strategies for Developing Positive Teacher–Student Relationships .....	102
Strategies for Developing Positive Student–Student Relationships .....	104
Strategies for Teaching SEL in the Classroom and School.....	107
Limitations and Directions for Future Research .....	109
Conclusion.....	114
REFERENCES .....	117
Appendix	
A SCALE AND SUBSCALE ITEMS USED IN STUDY .....	167
B APPROVAL LETTER FROM THE UNIVERSITY’S INSTITUTIONAL REVIEW BOARD.....	169

## LIST OF TABLES

Table 1	Demographic Information of the Sample .....	54
Table 2	Descriptive Statistics of the Continuous Student-Level Variables.....	57
Table 3	Variables Included In Hierarchical Linear Regression Models .....	66
Table 4	Statistical Estimates of Main Effects of Student-Level Demographic Factors, School-Level Demographic Factor, Grade Level, Teacher–Student Relationship Quality, Student–Student Relationship Quality, and SEL Teaching on Social–Emotional Competence (Models 1–7) .....	76
Table 5	Statistical Estimates of Main Effects of Student-Level Demographic Factors, School-Level Demographic Factor, Grade Level, Teacher–Student Relationship Quality, Student–Student Relationship Quality, and SEL Teaching on Social–Emotional Competence and Moderation Effects (Models 8–10) .....	80



## LIST OF FIGURES

Figure 1	Effect of Students' Gender on Social–Emotional Competence .....	70
Figure 2	Effect of Students' Race/Ethnicity on Social–Emotional Competence .....	71
Figure 3	Moderation Effect of Grade Level for Elementary and High Schools in Association Between Teacher–Student Relationship Quality and Social–Emotional Competence .....	81
Figure 4	Moderation Effect of Grade Level for Elementary and Middle Schools in Association Between Student–Student Relationship Quality and Social–Emotional Competence .....	82
Figure 5	Moderation Effect of Grade Level for Elementary and High Schools in Association Between Student–Student Relationship Quality and Social–Emotional Competence .....	83
Figure 6	Moderation Effect of Teacher–Student Relationship Quality in Association Between SEL Teaching and Social–Emotional Competence .....	84

## **ABSTRACT**

This study investigated the association of grade level, teacher–student relationship quality, student–student relationship quality, and the teaching of social–emotional skills with students’ social–emotional competence. It also investigated grade level as a moderator of the associations between teacher–student relationship quality and social–emotional competence and between student–student relationship quality and social–emotional competence. Teacher–student relationship quality also was examined as a moderator of the association between the teaching of social–emotional skills and students’ social–emotional competence. Data were gathered from 29,671 students in grades 3–12 from 115 public schools in Delaware. Results of multilevel statistical analyses indicated that beyond the effects of student-level and school-level demographic factors, elementary schools had lower mean social–emotional competence scores than high schools. However, there was no significant difference between the mean social–emotional competence scores of elementary and middle schools. Results demonstrated a positive association between students’ perceptions of their social–emotional competence and their perceptions of teacher–student relationship quality, student–student relationship quality, and teaching of social–emotional skills. Although there was no significant difference in the strength of the association of teacher–student relationship quality and social–emotional competence perceptions in the comparison between elementary and middle schools, there was a stronger association in high schools compared to elementary schools. Results also indicated that the association between student–student relationship quality

and social–emotional competence perceptions was stronger in elementary schools compared to middle or high schools. Additionally, the study found a stronger relationship between perceptions of social–emotional instruction and social–emotional competence within the context of positively perceived teacher–student relationships as opposed to less positively perceived relationships. Findings of this exploratory study suggest that teacher–student relationships, student–student relationships, and the teaching of social–emotional competencies may be potential avenues for school-based social–emotional development programming for students.

## **Chapter 1**

### **LITERATURE REVIEW**

Although certainly not a new educational aim (Zins, Bloodworth, Weissberg, & Walberg, 2004), there has been an increased focus in recent years for schools to develop students' social–emotional competencies (Dusenbury, Weissberg, Goren, & Domitrovich, 2014; Jones & Bouffard, 2012). The focus on developing these competencies seems well founded for several reasons. First, many students seem to be lacking strong social–emotional skills. According to one study, only 29% of adolescents view themselves as having strong planning and decision making skills and only 45% as having strong interpersonal competencies, including empathy and friendship skills (Benson, 2006). Other research suggests that students frequently place their own desires ahead of others. For example, 78% of students report that their own achievement or happiness is more important than caring for others (Weissbourd, Jones, Ross-Anderson, Kahn, & Russell, 2014). Such results suggest that students would benefit from additional support to strengthen their social–emotional competencies and empathy toward others.

Schools also seem justified in their efforts because social–emotional competencies are considered “critical to being a good student, citizen, and worker” (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2012, p. 9). Schools are social environments with ongoing interactions between students and between students and their teachers. Thus, preparing students to be more skilled in social interactions helps prepare them to be successful in school (Zins, Bloodworth,

Weissberg, & Walberg, 2007). In fact, many teachers name self-control and cooperation as essential skills for being a successful student (Lane, Givner, & Pierson, 2004). Research also has shown that strong skills in these areas are associated with a greater likelihood of graduating from high school on time and completing a college degree (Jones, Greenberg, & Crowley, 2015).

Strong social–emotional competencies also serve to prevent future behavior problems both in and out of school (Frey, Hirschstein, & Guzzo, 2000). Yearly, the average American school has 350 office disciplinary referrals (School Wide Information System, 2013) and an estimated 3.3 million students receive out-of-school suspensions (Losen & Gillespie, 2012). The most common behavior problems such as inattention, calling out, or hyperactivity (Harrison, Vannest, Davis, & Reynolds, 2012; Giallo & Little, 2003; Infantino & Little, 2005) may seem relatively harmless to peers but can disrupt other students’ learning and their teacher’s ability to effectively instruct the class (Finn, Pannozzo, & Voekl, 1995; Robers et al., 2014; Wheldall & Merrett, 1988). Although less common, research suggests that a considerable number of students engage in higher-risk behaviors. For example, according to the 2013 Youth Risk Survey (Kann et al., 2014), 25% of high school students reported being in a physical fight and 22% reported being offered, sold, or given an illegal drug on school property. Other research suggests that 22% of students have experienced bullying victimization at school and 15% have experienced cyberbullying (Kann et al., 2014; Robers et al., 2014). Because involvement in high-risk activities is often associated with negative outcomes, including greater psychiatric symptoms, disease, and mortality (Kann et al., 2014; Kumpulainen & Rasanen, 2000), efforts to prevent these behaviors are important.

Strong social–emotional competencies also serve to prevent behavior problems outside of school and later in life. Individuals who are more skilled in the social–emotional domain tend to have better mental and physical health (Moffitt et al., 2011; Tangney et al., 2004), fewer suicide attempts (Sadowski & Kelley, 1993), less crime involvement (Jones et al., 2015; Moffitt et al., 2011), less substance abuse (Griffin, Low, Acevedo, & Botvin, 2015; Jones et al., 2015; Moffitt et al., 2011; Romer et al., 2010; Tangney et al., 2004; Wulfert, Block, Santa Ana, Rodriguez, & Colman, 2002), and greater income (Moffitt et al., 2011). Beyond preventing behavior problems, strong social–emotional competencies also are associated with greater likelihood of having stable and full-time employment and less likelihood of living in public housing or receiving public assistance (Jones et al., 2015). As a result, strong social–emotional competencies not only prepare individuals to be better students but also to be better citizens.

Despite the reasons for developing students’ social–emotional competencies, programs used by schools to promote these competencies often have experienced limited effectiveness. Such limited effectiveness can largely be attributed to the many shortcomings of programs often implemented. Therefore, it is important to explore other malleable and naturally occurring factors in schools that are associated with strong student social–emotional competencies and do not share these same disadvantages. As described in further detail later, this study employed an exploratory research focus and examined if students’ social–emotional competencies are related to four specific school-related factors: (1) students’ perceptions of teacher–student relationship quality, (2) students’ perceptions of student–student relationship quality, (3) students’ perceptions of the degree to which social–emotional competencies are

taught in the school, and (4) the grade level of the student. Through exploring the relationships between these malleable school-related factors and students' social-emotional competence, one can begin to identify additional potential interventions to promote the social-emotional development of students. These interventions could replace or could be used in conjunction with the programs commonly implemented in schools to provide comprehensive social-emotional development programming for students. Before providing more information about the study and hypotheses, a review on children's social-emotional competencies, social-emotional learning programs, and the proposed factors is presented in the following paragraphs in support of these hypothesized relationships.

### **Social-Emotional Competencies**

According to the CASEL (2012), social-emotional competencies refer to skills in five core areas: responsible decision making, relationship skills, self-management, social awareness, and self-awareness. Although CASEL considers these five competencies to be distinct from each other, other researchers suggest that they are interrelated and as a result often combine these skills when discussing the construct. For example, when assessing children's social behaviors and skills, Malecki and Elliott (2002) and Perdue and colleagues (2009) used the *Social Skills Rating System*, which measured skills such as cooperation, assertion, self-control, empathy, and responsibility. Although these skills were considered to comprise a single construct in these studies, they would be considered to be different constructs according to CASEL's definition. As described in further detail in the paragraphs below, cooperation and assertion would likely fall under "relationship skills," self-control

would fall under “self-management,” empathy would fall under “social awareness,” and responsibility would fall under “responsible decision making.” Discussing these social–emotional competencies as a single construct makes sense, as these skills are doubtlessly related to one another. For example, studies have demonstrated a positive relationship between empathy and prosocial behavior (Findlay et al., 2006; Strayer & Roberts, 2004), between self-control and interpersonal skills (Tangney et al., 2004), between prosocial behavior and self-control (Normandeau & Guay, 1988), and between self-efficacy and self-regulation (Pintrich & De Groot, 1990). It also makes sense to refer to these skills as a single construct because they are all theoretically related to teacher–student relationships and student–student relationships. For instance, social awareness skills are needed for students to take the perspective of their peers and teachers and to understand appropriate ways of interacting with others. Likewise, relationship skills are necessary for students to communicate with and listen to their teachers and peers, which would thereby impact these relationships. As a result, the five different social–emotional competence domains will be referred to as a single construct (i.e., social–emotional competence) in this study. However, in the interest of exploring the five competencies’ association with positive student behaviors, skills, and outcomes, they are discussed separately in the following section.

### Responsible Decision Making

Responsible decision making involves the ability to make safe, respectful, and ethical decisions about one’s behavior, relationships, and interactions with others (CASEL, 2012). As such, it includes skills in social problem solving and moral reasoning. Children with stronger skills in this area typically are more popular among



peers (Asarnow & Callan, 1985; Newcomb et al., 1993; Pakaslahti, Karjalainen, & Keltikangas-Jarvinen, 2002), have more friends (Schonert-Reichl, 1999), experience less social isolation (Rubin, Daniels-Beirness, & Bream, 1984), and are more competent in their peer interactions (Pettit, Dodge, & Brown, 1988). Stronger moral reasoning skills also have been associated with greater prosocial behavior (Eisenberg, Zhou, & Koller, 2001; Miller, Eisenberg, Fabes, & Shell, 1996; Ongley, Nola, & Malti, 2014; Pratt, Hunsberger, Pancer, & Alisat, 2003; Schonert-Reichl, 1999), greater empathy and sympathy (Eisenberg-Berg & Mussen, 1978; Eisenberg et al., 2001), and stronger perspective-taking skills (Eisenberg et al., 2001). In contrast, students whose moral reasoning is more self-oriented (i.e., more focused on consequences that affect them personally rather than others) tend to display greater antisocial behavior, including aggression and other externalizing problems, compared to students with moral reasoning skills that are more oriented toward others (Carlo, Mestre, Samper, Tur, and Armenta, 2010; Manning & Bear, 2011; Stams et al., 2006). Less effective social problem solving styles also are associated with greater aggression, delinquency, and frequency of bullying others and of being bullied (Cassidy, 2009; Cook, Williams, Guerra, Kim, & Sadek, 2010; Jaffee & D’Zurilla, 2003). Finally, responsible decision making is related to academic achievement (D’Zurilla & Sheedy, 1992; Rodriguez-Fornells & Maydeu-Olivares, 2000; Wentzel, 1991).

### Relationship Skills

Relationship skills refer to the ability to establish and maintain healthy friendships, listen to others, work cooperatively, help others, and respond to conflict in

a constructive manner (CASEL, 2012). Relationship skills include social problem solving and moral reasoning but are more specific to the context of interpersonal relationships. Although many studies examining relationship skills use measures that simultaneously assess other social–emotional competencies (i.e., self-management or social awareness skills), these studies nonetheless suggest that relationship skills are related to important outcomes. As one would expect, students with stronger relationship skills tend to be more popular, better liked and accepted by peers, and have more reciprocated friendships (Kwon, Kim, & Sheridan, 2012; Newcomb, Bukowski, & Pattee, 1993). This may partly be due to students’ tendency to befriend peers who act in prosocial ways (Goossens, Bokhorst, Bruinsma, & van Boxtel, 2002) and tendency to dislike peers who frequently act in aggressive or antisocial ways (Wentzel, 1991). Ample research has demonstrated the importance of friendships and social acceptance for students. Students who have close friendships tend to be less lonely and experience less bullying victimization compared to students who do not have friends (Boulton, Trueman, Chau, Whitehand, & Amatya, 1999; Parker & Asher, 1993). Friendships also can help protect students from the effects of negative experiences such as bullying victimization or abuse (Adams & Bukowski, 2007; Flaspohler, Elfstrom, Vanderzee, Sink, & Birchmeier, 2009; Prinstein, Boergers, & Vernberg, 2001). This may help explain why students with stronger relationship skills tend to experience fewer depressive symptoms (Dalley, Bolocofsky, & Karlin, 1994). Research also has suggested that students with stronger social skills like school more, are more engaged, and are less likely to drop out of school (Jimerson, Egeland, Sroufe, & Carlson, 2000; Kwon et al., 2012). They also tend to exhibit greater academic behaviors (i.e., greater interest in schoolwork and independent work completion),

which may help explain why students with greater prosocial behavior and relationship skills tend to have better academic achievement and competence (Kwon et al., 2012; Wentzel, 1993).

### Self-Management

Self-management refers to the effective regulation of one's emotions, behaviors, and thoughts (CASEL, 2012). As such, this area encompasses the massive literatures in the areas of emotional regulation, including inhibitory control (Carlson & Moses, 2001; Kochanska, Murray, Jacques, Koenig, & Vandegeest, 1996; Moilanen, Shaw, Dishion, Gardner, & Wilson, 2009), impulse control and delay of gratification (Funder, Block, & Block, 1983; Mischel, Shoda, & Peake, 1988; Wulfert et al., 2002), and emotion- and behavior-related self-regulation (Eisenberg, Spinrad, & Eggum, 2010; Kopp, 1982; Ponitz, McClelland, Matthews, & Morrison, 2009; Shields, Cicchetti, & Ryan, 1994).

Although it is beyond the scope of this study to provide an in-depth review of the research in each of these areas, a wealth of research supports the importance of each area. For example, emotion regulation is positively associated with students' academic achievement, accuracy, and productivity even after controlling for IQ (Graziano, Reavis, Keane, & Calkins, 2007). It is negatively associated with students' display of behavior problems and the quality of the teacher–student relationship (Graziano et al., 2007). Self-control also has been associated with positive student outcomes. For example, students with greater self-control tend to have higher self-esteem, less psychopathology, and less cigarette, alcohol, and drug abuse later in life (Romer et al., 2010; Tangney et al., 2004). They also have better relationships and

interpersonal skills (Tangney et al., 2004). Individuals with less self-control tend to have a smaller income, to be more involved in crime, and to have worse physical and mental health and greater substance abuse in future years (Griffin, Low, Acevedo, & Botvin, 2015; Moffitt et al., 2011). Other studies have linked greater self-control and self-regulation to stronger academic achievement and competence (Blair & Razza, 2007; Duckworth, Tsukayama, & Kirby, 2013; Mischel et al., 1988; Normandeau & Guay, 1998; Tangney, Baumeister, & Boone, 2004; Wolfe & Johnson, 1995). In fact, some researchers have suggested that self-management, also referred to as self-discipline, is a better predictor of academic achievement compared to IQ (Duckworth & Seligman, 2005) and have proposed the existence of a causal link between self-discipline and academic achievement (Duckworth, Tsukayama, & May, 2010). Children's ability to delay gratification also has been linked to several important outcomes. For example, studies have shown that children at age 4 or 5 who were better able to delay gratification were rated in adolescence as having greater social-emotional competence and academic achievement, being better able to handle frustration and stress, having healthier body mass index scores, engaging in fewer risk behaviors, and being more rational, attentive, and successful at planning (Duckworth, Tsukayama, & Kirby, 2013; Mischel, Shoda, & Peake, 1988).

### Social Awareness

Social awareness includes the ability to understand others' behavior, take their perspective, and empathize (CASEL, 2012). Skills of social awareness are critical to effectiveness in other social-emotional competencies, especially responsible decision making and relationships. Indeed, it is difficult to imagine students making

responsible decisions or maintaining positive relationships if lacking in social perspective taking and empathy. Despite its close connection to other social–emotional competencies, CASEL views social awareness as a separate skill area. Perhaps this is because social awareness is necessary but not sufficient for responsible decision making and healthy relationships. It also may be viewed as a value in its own right; that is, irrespective of its association with responsible decision making and relationships, educators should strive to help ensure that students are socially aware, as evidenced in being able to understand the perspective of others and experience empathy.

Social awareness skills are associated with several positive outcomes. For example, students with stronger perspective taking skills tend to display more prosocial behavior (Carlo, Allen, & Buhman, 1999; Cigala, Mori, & Fangareggi, 2014; Eisenberg et al., 1999; Fitzgerald & White, 2003) and less aggression (Fitzgerald & White, 2003; Li et al., 2015). Greater empathy also has been linked to positive outcomes, including less aggression and externalizing behaviors (Findlay, Girardi, & Coplan, 2006; Miller & Eisenberg, 1988; Strayer & Roberts, 2004) and greater prosocial behavior (Findlay et al., 2006). Students' empathy and concern for others also has been negatively associated with future disruptive behavior (Hastings et al., 2000).

### Self-Awareness

Self-awareness consists of identifying one's own emotions and thoughts and understanding how they impact one's behavior (CASEL, 2012). It also refers to one's self-confidence, self-efficacy, and ability to assess one's strengths and weaknesses

(CASEL, 2012; Zins & Elias, 2006). Strong self-awareness skills are related to other social–emotional competencies, such as self-management and responsible decision making. That is, students who are effectively able to recognize their thoughts and feelings seem better able to manage their emotions and make respectful choices. Self-awareness skills also have demonstrated an association with several positive outcomes. For example, self-efficacy is positively associated with school engagement and academic achievement (Pintrich & De Groot, 1990). According to one meta-analysis, students’ self-efficacy accounted for 14% of the variance in their academic performance and 12% of the variance in their academic persistence (Multon, Brown, & Lent, 1991). Students with greater self-efficacy and self-confidence also tend to experience less bullying victimization, greater happiness, and less loneliness (Cheng & Furnham, 2002; Kokkinos & Kipritsi, 2012). Finally, self-awareness is related to students’ status with peers. For example, popular children tend to have more positive self-perceptions compared to students of average peer status (Boivin & Begin, 1989).

Because the social–emotional competencies described above have demonstrated a relationship with numerous positive outcomes for students, it is important to understand how these competencies develop. Knowledge of their development can help establish positive environments and interactions to promote these competencies in children. This review is provided below.

### **Development of Social–Emotional Competence**

Social–emotional competencies and skills begin developing very early in life. During the first year after birth, infants display behaviors that suggest an early understanding of others (Carpendale & Lewis, 2006). For example, researchers have

found that newborns often imitate adult facial expressions (Meltzoff & Moore, 1983) and that infants begin to follow someone's gaze around 3-6 months (D'Entremont, Hains, & Muir, 1997). Around 9-10 months, infants begin referencing others' reactions when encountering an uncertain event in order to understand how to proceed (Walden & Ogan, 1988). Around one year of age, toddlers begin imitating and repeating behaviors observed in others (Meltzoff, 1999) and pointing to objects to make requests or to direct someone's attention (Carpendale & Lewis, 2006). These early social skills are associated with greater social understanding later in life and therefore are considered to be the foundation of social development (Charman et al., 2000).

As children get older, their social understanding further develops. Research has shown that as early as age two, toddlers begin to interpret others' behavior and experience others' emotions (Zahn-Waxler & Radke-Yarrow, 1990). Around this time, toddlers also begin to understand that others may have different likes and dislikes, and they begin to engage in prosocial behaviors, such as sharing, giving advice, and providing verbal comfort (Westby & Robinson, 2014; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). By age three, toddlers begin developing an understanding that thoughts and desires impact behavior and by age four or five, children begin learning how to take another person's perspective and to predict a person's feelings (Mossler, Marvin, & Greenberg, 1976; Westby & Robinson, 2014). Perspective-taking abilities continue to develop throughout childhood and by 6-8 years children are able to predict a person's thoughts about what another person is thinking (Westby & Robertson, 2014).

Multiple factors are influential in the rate of children's social development. Primarily, several aspects about children's relationships with their parents have been shown to be contributing factors. For example, numerous studies have suggested that children's attachment to their parents is an important component of developing future social-emotional competence (Groh et al., 2014; Kestenbaum, Farber, & Sroufe, 1989; Van Lange, Otten, De Bruin, & Joireman, 1997). Attachment is known as the bond that connects children to their parents that fulfills children's need for safety, protection, and security (Ainsworth, Blehar, Waters, & Wall, 1978; Benoit, 2004; Bowlby, 1969). A secure attachment is preferable to the other three attachment styles (insecure-avoidant, insecure-resistant, and insecure-disorganized), as it is related to more positive long-term outcomes, including fewer mental health problems and less risky behaviors (Benoit, 2004; Moretti & Peled, 2004). Researchers also suggest that a secure attachment is later associated with stronger social-emotional competence (Groh et al., 2014; Laible, 2007; Meins, Fernyhough, Russell, & Clark-Carter, 1998), greater prosocial behavior (Van Lange et al., 1997), and greater empathy (Kestenbaum et al., 1989), whereas the other attachment styles are associated with weaker social-emotional competence (Cohn, 1990), less peer acceptance (Cohn, 1990), greater problem behaviors (Cohn, 1990; Greenberg, Speltz, & DeKlyen, 1993; Speltz, DeKlyen, & Greenberg, 1999), and greater aggression (Cohn, 1990). Beyond attachment, other aspects of parenting may also play a role. Specifically, parents who display greater sensitivity and warmth tend to have children with stronger social-emotional competence and empathy (Fraley, Roisman, & Haltigan, 2013; NICHD ECCRN, 1998; Robinson, Zahn-Waxler, & Emde, 1994; Symons & Clark, 2000; Zhou et al., 2002). Conversely, children with parents who are more emotionally controlling



tend to be perceived as less socially competent (McDowell & Parke, 2000). Other research suggests that children who experience a more positive home environment and better parenting quality have stronger social–emotional competence (Bates, Luster, & Vandenberg, 2003; NICHD ECCRN, 2002). Additionally, it has been suggested that the number of family discussions about feelings is related to the child’s ability to engage in perspective-taking tasks later in life (Dunn, Brown, & Beardsall, 1991).

As children grow older, interactions with individuals outside the family become increasingly important in developing social–emotional competence. Children entering preschool and kindergarten begin to interact with peer groups and teachers in a more structured setting. Therefore, children need to learn how to adapt to the expectations of their teachers and peers (Semrud-Clikeman, 2007). As expected, there appears to be a positive relationship between children’s social–emotional competence and the frequency of their interactions with peers. For example, children’s perspective-taking ability is positively related to their number of conversations and amount of pretend play with peers and is negatively related to their amount of peer conflict (Dunn & Cutting, 1999). Children’s emotional competence, emotional regulation, and social skills also are positively associated with their amount of pretend play (Fantuzzo, Coolahan, Mendez, McDermott, & Sutton-Smith, 1998; Fantuzzo, Sekino, & Cohen, 2004; Lindsey & Colwell, 2003).

Although one could certainly argue that greater perspective-taking abilities lead to more positive and frequent peer interactions and play, there is some evidence suggesting that positive peer interactions lead to greater perspective-taking abilities. For example, one longitudinal study found that role-playing during play predicted children’s perspective-taking skills seven months later (Youngblade & Dunn, 1995).

Another study found that toddlers who engaged in more complex play with their peers were more prosocial during preschool and demonstrated less aggression at age 9 (Howes & Phillipsen, 1998). The importance of play in social–emotional competence development also was discussed in a study by Elias and Berk (2002), which showed that preschoolers’ complex sociodramatic play with peers positively predicted their development of self-regulatory behaviors.

As further described later in this literature review, peer interactions continue to be associated with children’s social–emotional competence throughout their schooling. For example, research has shown that students with more positive peer relationships tend to have higher self-esteem and a more positive self-concept (Demaray & Malecki, 2002; Spilt, van Lier, Leflot, Onghena, & Colpin, 2014). Numerous studies also have shown that friendships serve as a protective factor for students’ behaviors. For example, peer acceptance has been associated with reductions in misconduct and increases in cooperation (Ladd & Burgess, 2001). Friendships and peer acceptance also moderate the relationship between family adversity and children’s subsequent externalizing behavior problems (Criss, Pettit, Bates, Dodge, & Lapp, 2002). Two possible reasons may help explain the connection between social–emotional competence and peer interactions. First, research has found that peers often shape children’s social behavior through reward and punishment and through modeling (Hartup & Coates, 1967; Hartup, Glazer, & Charlesworth, 1966; Schunk, 1987). Therefore, greater interaction with peers may help shape children’s social–emotional competence in positive ways. A second possible explanation is based upon the social information processing model by Crick and Dodge (1994). This model states that children draw upon previous social experiences when determining their responses

within social interactions. As a result, it seems likely that children who have previously engaged in frequent positive peer interactions would display greater social–emotional competence.

As described in further detail later in this literature review, students’ relationships with their teachers also impact their social–emotional competence. Many studies have found evidence that positive teacher–student relationships are related to positive social outcomes for students. For example, studies have shown that students in classrooms with positive teacher–student relationships demonstrate more positive interactions with peers, less aggression, and greater prosocial behavior (Luckner & Pianta, 2011). Positive teacher–student relationships also have been positively associated with teacher-reported student social skills and negatively associated with teacher-reported student behavior problems (Mashburn et al., 2008; Pianta, La Paro, Payne, Cox, & Bradley, 2002; Wilson, Pianta, & Stuhlman, 2007). A study by Ladd and Burgess (2001) also found evidence that close teacher–student relationships predict increases in classroom obedience. Greater discussion of the possible reasons for these connections is found later in this literature review.

In addition to relationships with parents, peers, and teachers, students’ social–emotional competence can develop through school-based social–emotional learning programs (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). A review of this programming, its supporting theory, and its demonstrated effectiveness is provided next.

## **Social–Emotional Learning**

Social–emotional learning (SEL) is a preventative approach that aims to develop students’ social–emotional competencies in the five core areas previously described: self-awareness, self-management, social awareness, relationship skills, and responsible decision making (CASEL, 2012). SEL programs also aim to develop students’ positive attitudes about themselves, others, and their school (CASEL, 2012). As previously described, strong social–emotional competencies are related to numerous positive social behaviors and outcomes. As a result, through strengthening students’ social–emotional competencies, these programs also hope to strengthen students’ positive behavior, prevent future behavior problems, improve students’ relationships with others, reduce their emotional distress, and increase their academic achievement. SEL is intended to be delivered in a supportive, caring environment and to be used in conjunction with effective classroom management strategies (Zins & Elias, 2006). Developing a positive environment is thought to be important in not only fostering students’ learning and application of social–emotional skills but also helping students become engaged in school and feel safe, motivated, competent, and cared for (Learning First Alliance, 2001; Wentzel, 1997).

SEL is a fairly broad umbrella used to describe many types of prevention programs that focus on developing social–emotional competencies. However, there is a great deal of diversity in how these programs aim to increase students’ social–emotional skills (Zins, Bloodworth, Weissberg, & Walberg, 2004). Most programs involve specific curricula that aim to increase these competencies through direct teaching, modeling, and opportunities for practice. The focus of these curricula often varies. Some include instruction on a range of social–emotional competencies and

behaviors, whereas others focus on more specific ones such as social problem solving, bullying, or violence. The students targeted by these curricula also frequently differ. Some curricula take a school-wide or classroom-level approach, thereby delivering lessons to all students in the school or in classrooms at certain grade levels. Conversely, other curricula are directed towards targeted students who are considered at-risk for negative outcomes.

Although many schools use specific curricula to develop these competencies, SEL programs often take a different approach. For example, some programs embed SEL into the regular academic curricula, such as through integrating social-emotional concepts into pre-existing language arts lessons (Jones, Brown, Hoglund, & Aber, 2010; Zins et al., 2004). SEL also is taught often through instructional approaches used by teachers (Yoder, 2014; Zins et al., 2004). An example of this is cooperative learning in which students work together in small groups and participate in a variety of activities to increase their learning. This strategy has been associated not only with positive academic outcomes but also with gains in social skills (Ginsburg-Block, Rohrbeck, & Fantuzzo, 2006). Other approaches are more focused on developing a supportive classroom and school climate with use of proactive classroom management strategies (Zins et al., 2004). Schools also frequently integrate SEL into the informal curriculum by reinforcing these skills during morning meetings or during non-instructional activities such as in the cafeteria, on the playground, or during extracurricular activities (Brock, Nishida, Chiong, Grimm, & Rimm-Kaufman, 2008; Zins et al., 2004). Other approaches involve engaging students in service learning opportunities or developing stronger family-school partnerships to increase consistency and support across environments (Fredericks, 2003; Zins et al., 2004).

Despite the different approaches and techniques used within different SEL programs, they all draw upon similar theories to support their effectiveness in fostering social–emotional competencies. A brief review on the supporting theories is provided in the section below.

### Theory Supporting SEL

SEL programming is grounded in multiple theories and models, including ecological systems theory (Bronfenbrenner, 1979; Bronfenbrenner, 1994), the social development model (Catalano & Hawkins, 1996; Catalano, Kosterman, Hawkins, Newcomb, & Abbott, 1996), social learning theory (Bandura, 1977), social cognitive theory (Bandura, 1986, 1989), and self-determination theory (Deci & Ryan, 1985). Three of these theories and models in particular—ecological systems theory, the social development model, and self-determination theory—help explain how the school environment impacts students’ social–emotional competence. According to ecological systems theory, environments and individuals have a reciprocal influence on one another (Bronfenbrenner, 1979, 1994). As such, this suggests not only that characteristics of the environment impact children’s development but also that children’s competencies and behaviors influence their environments. The social development model similarly proposes that environmental characteristics have an effect on children’s development of prosocial and antisocial behaviors (Catalano & Hawkins, 1996; Catalano, Kosterman, Hawkins, Newcomb, & Abbott, 1996). According to self-determination theory, children are more likely to succeed in environments that fulfill their social–emotional needs, such as in homes and schools in which they have positive relationships with others and feel competent (Deci & Ryan,

1985). Together, these three theories suggest that school environments characterized by frequent teaching of social–emotional skills and by a positive, caring, and supportive environment are likely to have a positive impact on the social–emotional development of students.

Although ecological systems theory and the social development model view teachers and peers as greatly influential in the school environment, their role is focused upon more heavily within social learning theory and social cognitive theory. Both of these theories propose that individuals’ interactions with and observations of others have a profound impact on their behavior, with social cognitive theory placing greater emphasis on the mediating role of social cognitions (Bandura, 1977, 1986, 1989).

Both social cognitive theory and the social development model help explain the factors that influence children’s willingness to internalize particular values and demonstrate prosocial behaviors. For example, social cognitive theory contends that individuals’ engagement in behaviors is related to their beliefs about these behaviors (Bandura, 1986, 1989). That is, students are more likely to display behaviors that they believe lead to positive and rewarding results. Therefore, students are more likely to engage in prosocial behaviors if they believe they lead to peer acceptance and teacher approval (particularly if those outcomes are desired). Social cognitive theory also suggests that individuals’ ability to display a particular skill is based upon their understanding and knowledge of the skill (Bandura, 1986, 1989). This therefore suggests that directly providing students with knowledge about social–emotional competencies and how to effectively engage in related behaviors promotes strong competencies in these areas. Similarly, according to the social development model, the

environment's influence on a child's development is dependent upon how closely the child is bonded to that environment (Catalano & Hawkins, 1996; Catalano et al., 1996). Children are more likely to take on the beliefs and behaviors of others in environments to which they are closely bonded compared to the environments to which they are less bonded. This suggests that students who are closely bonded to schools with norms and values that support prosocial and responsible behavior are likely to take on these same values and beliefs.

The theories supporting SEL described above have been discussed in the literature for several decades. This suggests that although the SEL approach has been increasing in popularity in recent years, the concepts behind the SEL approach are nothing new. A brief review of the history of SEL is provided next to provide additional information about its origin.

### History of SEL

SEL stems out of a long history of moral and character education. As Lickona (1991) noted, "Character education is as old as education itself. Down through history, in countries all over the world, education has had two great goals: to help young people become smart, and to help them become good" (p. 6). The roots of moral and character education can be traced as far back as ancient Greece. In *The Republic*, Plato (trans. 2008) conceptualized a well-rounded education as including training in moral and character judgment. Moral and character education also has been present throughout early American schooling (McClellan, 1992). Nearly 200 years ago, Mann wrote in support for moral education, saying that if students could be exposed to "the elevating influences of good schools," then "the dark host of private vices and public



crimes... might, in 99 cases in every 100, be banished from the world" (Kaestle, 1984, p.103). Discussions on the importance of moral education continued into the 20<sup>th</sup> century, with "character education" becoming the preferred term in light of some equating moral education with religious education and its lack of effectiveness (Bear, 2005). A 1918 report from the National Education Association considered the development of students' "ethical character" to be a primary objective of secondary education. Nearly a century later, this topic received attention in President Clinton's 1997 State of the Union address, in which he noted, "...character education must be taught in our schools. We must teach our children to be good citizens." (Washington Post, 1998). To this day, developing students' character continues to be an important issue, as evidenced by the hundreds of recent studies that have investigated how to effectively increase students' competencies (see Durlak et al., 2011 for a review of these studies).

Although the roots of the SEL approach go back many centuries, the term "social-emotional learning" is relatively recent. The term was coined in 1994 after a conference was held to consolidate the various school-based approaches and programs, including character education, that all shared a similar goal: to promote student development and to prevent mental, social, and health problems (Elbertson, Brackett, & Weissberg, 2010). Through this conference, CASEL was born—a group that served "to support schools and families in their efforts to educate knowledgeable, responsible, and caring young people who will become productive workers and contributing citizens in the 21<sup>st</sup> century" (Elias et al., 1997, p. viii). Since its creation, the group has attempted to advance knowledge of what constitutes effective SEL programming and to help improve schools' and educators' practices to develop social-

emotional competencies in students. Numerous studies have since been conducted on the effectiveness of SEL programs. A review of these studies follows.

### SEL Effectiveness

Meta-analyses on the effectiveness of SEL programs show that they increase student social skills and competencies and reduce behavior problems (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Durlak & Wells, 1997; Green, Howes, Waters, Maher, & Oberklaid, 2005; Sklad, Diekestra, De Ritter, Ben, & Gravesteyn, 2012; Weare & Nind, 2011). For example, a meta-analysis by Durlak and colleagues (2011) specifically investigated the effects of 213 universal SEL programs. All of the studies in this meta-analysis included a control group and nearly half of the studies used randomized designs. All of the programs were implemented with students who did not have learning or adjustment difficulties. Results indicated that compared to non-participating students, students participating in SEL programs demonstrated improved social–emotional competencies and social behaviors, fewer conduct problems, less emotional distress, more positive attitudes about the self and others, and improvements in academic performance. Mean effect sizes ranged from small to moderate: .57 for social–emotional skills, .23 for attitudes, .24 for social behavior, .22 for conduct problems, .24 for emotional distress, and .27 for academic performance. Effect sizes were relatively similar to those obtained from a previous meta-analysis of SEL programs by Durlak and Wells (1997). In this previous meta-analysis, the researchers noted that although these effect sizes are not incredibly large, they are considerable given that most students participating in these programs were initially functioning within a typical range. This meta-analysis also noted that improvements

continued to exist at follow-up, thereby suggesting that SEL programs have a lasting impact on students' social–emotional competencies and behaviors (Durlak et al., 2011). According to Durlak and colleagues, programs were successful across all grade levels and across urban, suburban, and rural schools. No significant differences were found in program effects between studies that employed randomization to condition and those that did not.

In contrast to the meta-analyses described above, other research suggests that many SEL programs do not result in positive effects for students. For example, a randomized control trial study investigating the effects of seven school-wide SEL programs commonly used in schools across the country found that these programs resulted in no significant improvements in students' social–emotional competence, behavior, academic achievement, or perceptions of school climate (Social and Character Development Research Consortium, 2010). However, several shortcomings of this study should be noted. First, although the control schools in this study were not implementing a specific SEL program, they did engage in other activities intended to develop students' social–emotional competence as part of their “standard practice.” Thus, the researchers note the possibility that the difference between the SEL programs and “standard practice” may not have been great enough to result in significant differences in student outcomes. A second potential reason why this study differs from others is the considerable amount of missing data. Across years of the study, student data were not available for 36–39% of students due to lack of parent consent or student assent. Therefore, it is plausible that the students participating in the study differed from those students with missing data, which could have affected the results.

In addition to investigating the overall effectiveness of SEL programs, researchers have attempted to determine the most effective components and practices of prevention and SEL programs. According to several reviews, programs are most successful when they are long-term and implemented over the span of several years (CASEL, 2005; CASEL, 2012; Ttofi & Farrington, 2011; Weare & Nind, 2011; Wells, Barlow, & Stewart-Brown, 2003). As one would suspect, programs tend to be most successful when they are implemented with high fidelity (Durlak et al., 2011). They also tend to have the greatest impact when lessons are taught frequently throughout the school year (Domitrovich & Greenberg, 2000). Two studies completed on individual SEL programs (RULER and Resolving Conflict Creatively Program) showed that among teachers who had adequate training or implemented with high or moderate quality, those who taught more lessons had more positive student outcomes compared to students who taught fewer lessons (Aber, Jones, & Brown, 2003; Reyes, Brackett, Rivers, Elbertson, & Salovey, 2012). Researchers also have noted that the largest effects usually come from programs that are fully integrated into the classroom and school culture rather than focused upon separately from the general curriculum (Weare & Nind, 2011). This is particularly true when the program also is accompanied by changes in school climate (Wells et al., 2003).

### SEL Disadvantages

Despite the promising effects, SEL programming has several disadvantages. One drawback is that school-based prevention programs often are not delivered with fidelity (Gottfredson & Gottfredson, 2002; Durlak, 2015). Because program effectiveness is related to implementation fidelity (Durlak & DuPre, 2008; Durlak et

al., 2011), this is a definite concern for the effectiveness of “real life” SEL programming. Although research has suggested that programs led by school staff are effective in developing social–emotional competencies (Durlak et al., 2011; Wilson & Lipsey, 2007), other researchers have noted that schools typically do not implement program components on a regular basis, may not include all of the components in school routines, and may modify program components based upon school resources and capacities (Gottfredson & Gottfredson, 2002; Durlak, 2015). In addition, program delivery often is not sustained across school years, which leads to limited continuity in social–emotional education for students (Jones & Bouffard, 2012).

Another disadvantage, which is often related to the one above, is the time that is required to teach particular lessons associated with SEL programs. Because there are many co-occurring initiatives in schools, teachers have an abundance of commitments that take a substantial amount of time out of the school day. Schools implement a median of 14 different prevention and school climate programs (Zins et al., 2004). As a result, programs that require additional lesson planning and preparation may be overwhelming to teachers. In fact, in one study, 81% of teachers indicated that time is the biggest obstacle in SEL implementation (Bridgeland, Bruce, & Hariharan, 2013). In another study, only one-third of teachers reported that it would be very feasible to devote one class period a week to implement an SEL program (Buchanan, Guelnder, Tran, & Merrell, 2009). When asked about the feasibility of devoting two class periods per week, the number substantially dropped to less than 7%. Difficulty finding additional time in the school day may help explain why “prevention activities often take a back burner to educational activities seen as more central to the school’s mission” (Gottfredson & Gottfredson, 2002, p. 27) and why

SEL lessons are often skipped during the school day (Jones & Bouffard, 2012). However, integrating components of SEL programming into different routines of the school—both at the classroom and school-wide level—is an important part of ensuring the program’s success (Zins & Elias, 2006). As aptly noted by Jones and Bouffard (2012), “schools cannot meaningfully teach and reinforce SEL skills during one half-hour per week any more than parents can build these skills during one weekly conversation” (p. 3).

Commercial SEL programs and curricula are also costly for schools to purchase. In one study, 42% of teachers indicated that the resources needed to purchase a curriculum “very much” applied as an implementation barrier (Buchanan et al., 2009). These teachers’ concerns appear to be valid. Obtaining a *Second Step* classroom kit (a popular commercial SEL program) for each grade level from kindergarten through grade 5 costs nearly \$2100 (Committee for Children, 2015). PATHS, another popular curriculum, costs over \$600 per classroom kit (Channing Bete Company, 2015). Because schools have multiple classrooms within a particular grade, purchasing several of these kits would probably be needed to give teachers adequate access to the materials. Spending several thousand dollars would likely be difficult for most schools and districts that are financially strained.

Despite the disadvantages that are associated with SEL programs, teachers and educators consider SEL to be a critical aspect of students’ education. According to a recent report by Bridgeland and colleagues (2013), more than 75% of teachers reported that a greater focus on SEL would be “a major benefit to students” (p. 5) and that SEL “is very important” (p. 6). Nearly all teachers indicated that these types of skills are teachable and that SEL programming would benefit all students. A majority

of teachers also reported that SEL is an effective strategy to improve school climate and to prepare students for life after school. As a result, examining other school-related predictors of students' social-emotional competence that do not involve time-consuming or costly programs seems necessary. Identifying new potential social-emotional interventions would help provide schools with strategies to complement and strengthen or to replace their pre-existing social-emotional programming. This is the purpose of the current study.

### **Study Purpose**

In this study, I investigated if students' perceptions of teacher-student relationship quality and student-student relationship quality in their school, perceptions of the degree to which social-emotional competencies are taught in the school, and students' grade level are associated with perceptions of their own social-emotional competence. Thus, a primary goal was to explore how students' social-emotional competence is associated with malleable, naturally occurring factors in school, thereby providing information used to develop interventions for social-emotional development that are not associated with the same disadvantages as SEL curricula. As discussed in what follows, I hypothesized that teacher-student relationship quality, student-student relationship quality, and the degree to which social-emotional competencies are taught in the school are positively associated with students' social-emotional competence. However, due to contradictory previous findings presented later, no predictions were made regarding the relationship between grade level and social-emotional competence. I also investigated if more positive teacher-student relationships are related to a stronger association between social-

emotional competence teaching and social–emotional competence, as predicted. Finally, I examined if there are differences in the association between teacher–student relationship quality and social–emotional competence and between student–student relationship quality and social–emotional competence across grade level (i.e., elementary, middle, and high school). Although it was hypothesized that increasing grade level is associated with stronger associations between student–student relationship quality and social–emotional competence, no predictions were made regarding the role of grade level in the association between teacher–student relationship quality and social–emotional competence. The variables central to these hypotheses are discussed next as well as research supporting the hypothesized relations between them.

### **Teacher–Student Relationship Quality**

Teacher–student relationship quality refers to the degree to which teachers and students have positive interactions between one another within the classroom and the school. Teachers play a critical role in shaping classroom and school climate, largely by setting the expectations and norms for student behavior and teacher–student interactions (Jennings & Greenberg, 2009; Marzano & Marzano, 2003). Teachers who are effective in this role create positive relationships by getting to know their students individually and by providing them with guidance, support, and care (Driscoll & Pianta, 2010; Weinstein & Romano, 2014). To cultivate a positive classroom climate, effective teachers use classroom management techniques that promote positive behavior and that prevent and reduce behavior problems, and they encourage students’ intrinsic motivation toward academic, social, and behavioral success (Jennings &



Greenberg, 2009; Nie & Lau, 2009; Woolfolk Hoy & Weinstein, 2006). They also create opportunities for students to interact and collaborate with one another and serve as role models for how to interact with others, handle difficulty, and behave in prosocial ways.

As previously noted, positive and supportive relationships between teachers and students have been linked to multiple positive academic and school-related outcomes. For example, students who have positive relationships with their teachers tend to have greater school liking (Baker, 1999), greater school completion rates (Croninger & Lee, 2001), greater school interest (Wentzel, 1998), greater academic achievement (Crosnoe, Johnson, & Elder, 2004; Gregory & Weinstein, 2004; Graziano et al., 2007; Lee, 2012; NICHD ECCRN, 2002; O'Connor & McCartney, 2007; Roeser, Eccles, & Sameroff, 1998) greater academic initiative and motivation (Danielsen, Wiium, Wilhelmsen, & Wold, 2010; Roeser et al., 1998) and greater school engagement (Fredricks, Blumenfeld, & Paris, 2004; Lee, 2012).

Supportive teacher–student relationships also have been associated with positive social–emotional outcomes for students. When researchers have investigated this association using broad measures of social–emotional competence (i.e., combining multiple competencies in a measure that would be deemed as separate competencies according to CASEL, as noted earlier in this literature review), studies have tended to show that students display stronger social–emotional competence in classrooms with greater teacher support (Bub, 2009; Burchinal, Vandergrift, Pianta, & Mashburn, 2010; Howes et al., 2008; Mashburn et al., 2008; Pianta & Stuhlman, 2004; Pianta et al., 2002; Wilson et al., 2007). Studies also have found that, more specifically, students tend to display stronger relationship skills within positive

teacher–student relationships, including greater positive and prosocial behaviors (Luckner & Pianta, 2011; NICHD ECCRN, 2002), less aggression (Buyse, Verschueren, Verachtert, & Van Damme, 2009; Luckner & Pianta, 2011), more reciprocated friendships (Gest & Rodkin, 2011), and greater peer acceptance (Kiuru et al., 2015). According to Howes (2000), the association between positive teacher–student relationships and social behaviors can be long lasting. In her study, the social climate of preschoolers’ classroom and their teacher–student relationship quality predicted their social competence with peers in second grade. Supportive teacher–student relationships also have been associated with fewer behavior problems in the classroom (Bub, 2009; Crosnoe et al., 2004; O’Connor, Dearling, & Collins, 2010). According to Marzano and colleagues (2003), there are 31% fewer behavior problems in classrooms with positive relationships compared to classrooms with more negative relationships. Fewer behavior problems likely occur because within positive relationships students want to please their teachers and tend to obey their teachers out of respect instead of obeying to avoid punishment or gain rewards (Wentzel, 1997; Wentzel, 2006).

Clearly, numerous studies suggest that supportive teacher–student relationships are positively related to students’ social–emotional competence. However, the studies that have been conducted on this topic typically have only examined teachers’, parents’, or observers’ perspectives of the teacher–student relationship and the student’s social–emotional competence (see Bub, 2009; Burchinal et al., 2010; Howes et al., 2008; Mashburn et al., 2008; NICHD ECCRN, 2002; Pianta & Stuhlman, 2004; Wilson et al., 2007). None of the studies described above examined how *students’* perceptions of their own social–emotional competence and of the teacher–student

relationships in their school are related. This topic seems critical to examine because individuals' perceptions of their environment can have a substantial impact on their behavior (Bandura, 1986). In fact, individuals' beliefs are often more related to their behavior than objective reality (Bandura, 1986; Clarkson, Hirt, Jia, & Alexander, 2010; Eccles et al., 1983; Kelly, 1955). Although teachers and students occupy the same classroom and school environment, their perceptions of these environments may differ (Bear et al., 2014). Therefore, understanding how *students'* perceptions of teacher–student relationship quality are related to perceptions of *their own* social–emotional competence seems to make more sense than understanding how other individuals' perceptions are related to student competencies.

In addition to the studies mentioned above that suggest a positive association between teacher–student relationship quality and students' social–emotional competence, several major theories provide insight into the reasons for this potential connection. A brief review of these theories follows.

### Supporting Theory

Numerous theories support the connection between teacher–student relationship quality and student social–emotional competence, including attachment theory (Bowlby, 1969), self-determination theory (Ryan & Deci, 2000), social learning theory (Bandura, 1977), ecological systems theory (Bronfenbrenner, 1979), and the social development model (Catalano & Hawkins, 1996; Catalano et al., 1996).

## **Attachment Theory**

As discussed earlier in this literature review, attachment is the bond that connects children to another person (Ainsworth et al., 1978; Bowlby, 1969). Secure attachment develops through warmth and sensitivity being demonstrated to children and allows them to explore the world and develop successful coping skills. Through this attachment, children begin to internalize the adult's values and ideas about the self and others. As noted earlier, attachment, as typically thought of as being between children and their parents, has been associated with greater social-emotional competence (Cohn, 1990; Greenberg et al., 1993; Groh et al., 2014; Kestenbaum et al., 1989; Meins et al., 1998; Speltz et al., 1999). However, attachment theory also extends to the teacher-student relationship (Semrud-Clikeman, 2007). Within a secure teacher-student relationship, students feel safe, trust their teacher, and seek out their teacher when needed (Pianta & Nimetz, 1991). In turn, their teacher also trusts them and will comfort them when upset. As a result, it seems likely that within a positive and supportive teacher-student relationship (i.e., a secure teacher-student attachment), students internalize many of their teachers' prosocial values and behaviors. Previous research has examined teacher-student attachment and its relation to classroom behavior and has found that a secure teacher-child relationship is associated with a child more readily following directions, easily transitioning between activities, and asking for assistance when needed compared to students with less secure teacher relationships (Howes & Ritchie, 1999).

## **Self-Determination Theory**

Self-determination theory also explains the connection between students' relationship with their teachers and students' social–emotional competence. According to this theory, students have greater school engagement, psychological health, and intrinsic prosocial motivation when they feel that their needs to have positive interactions with others, to feel competent, and to be autonomous are met (Gagne & Deci, 2005; Ryan & Deci, 2000). Because supportive teacher–student relationships are characterized by warm and positive interactions (Luckner & Pianta, 2011), it seems likely that students who have supportive relationships with their teachers also have greater intrinsic prosocial motivation and more positive psychological health. As such, these students are more likely to routinely engage in prosocial acts and display strong social–emotional competence compared to students who do not have these needs met within the classroom. Self-determination theory also suggests that students who feel a sense of belonging and connection in the classroom are more likely to take on the goals and values of their teacher (Deci & Ryan, 1985; Wentzel, 1997). Because students tend to feel a greater sense of school belonging within positive teacher–student relationships (Hughes, 2011), this suggests that students who have a positive relationship with their teacher are more likely to internalize their teacher's prosocial values and beliefs and act in prosocial ways with their peers.

## **Social Learning Theory**

As previously described, social learning theory asserts that people learn through observing others' behaviors and often imitate these behaviors (Bandura, 1977; Bandura, Ross, & Ross, 1961). When teachers have positive relationships with their

students, they display warmth in their interactions with students, provide students with emotional support, and are responsive to student needs (Pianta, Hamre, & Allen, 2012). This provides a model for students of how to interact with others and what to expect in social interactions (Jennings & Greenberg, 2009; Luckner & Pianta, 2011). Thus, teachers play a significant role in shaping students' behavior. This seems to be particularly true within the context of a positive teacher–student relationship, as social learning theory posits that individuals are more likely to adopt the behaviors of individuals whom they admire (Bandura, 1977). Therefore, it seems that students in classrooms with teachers who frequently model effective problem-solving, prosocial behavior, and appropriate interactions and relationships with others (and therefore have positive relationships with their students) are more likely to engage in prosocial and socially competent behaviors as well.

### **Ecological Systems Theory and Social Development Model**

Finally, ecological systems theory and the social development model support the association between teacher–student relationship quality and students' social–emotional competence. As reviewed earlier in this literature review, both of these theories assert that environmental characteristics play a substantial role in individuals' social development (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998; Catalano & Hawkins, 1996; Catalano et al., 1996; Tseng & Seidman, 2007). According to the social development model, the environment's influence on children's development is particularly strong when children are closely bonded to that environment. Because students feel a stronger sense of belonging within the context of positive teacher–student relationships (Hughes, 2011), it suggests that a warm and supportive

classroom environment is particularly influential on students' social outcomes. Consistent with this hypothesis, multiple studies, as reviewed previously, relate supportive teacher–student relationships to positive student outcomes, including fewer behavior problems (Marzano & Marzano, 2003), greater school engagement (Fredericks et al., 2004), more prosocial behaviors (Luckner & Pianta, 2011), and less aggression (Buyse et al., 2009).

### **Student–Student Relationship Quality**

As described earlier, I hypothesized that students' perceptions of student–student relationship quality in their school are related to their social–emotional competence. Student–student relationship quality refers to the degree to which there are positive interactions between students on a classroom and school-wide basis. It also refers to peer acceptance and social support. Positive student–student relationships are characterized by students getting along with one another; demonstrating friendliness, respect, and care toward each other; interacting in a prosocial manner; and avoiding interacting in aggressive ways.

Peer relationships play an important role in children's development by providing a context to engage in social interactions and to learn and practice social skills (Bukowski, Buhrmester, & Underwood, 2011). Close peer relationships also provide students with a sense of support and security (Rubin, Bukowski, & Parker, 2006). For example, students with close friendships and peer social support are less likely to experience bullying compared to students without these friendships (Hodges, Malone, & Perry, 1997; Jenkins & Demaray, 2012; Wang, Iannotti, & Nansel, 2009). Peer relationships also serve to protect students from the effects of negative

experiences such as bullying victimization or abuse (Adams & Bukowski, 2007; Criss, Pettit, Bates, Dodge, & Lapp, 2002; Davidson & Demaray, 2007; Flaspohler, Elfstrom, Vanderzee, Sink, & Birchmeier, 2009; Hodges, Boivin, Vitaro, & Bukowski, 1999; Prinstein, Boergers, & Vernberg, 2001).

Positive peer relationships are associated with numerous positive school-related outcomes, including greater school engagement (De Laet et al., 2015; Furrer & Skinner, 2003; Li, Lynch, Kalvin, Liu, & Lerner, 2011; Ryan, 2001; Wang & Eccles, 2012), greater academic achievement (Danielsen, Wiium, Wilhelmsen, & Wold, 2010; Wentzel, Barry, & Caldwell, 2004), and greater school satisfaction (Jiang, Huebner, & Siddall, 2013). Students with strong peer social support also tend to experience positive social-emotional outcomes, including higher self-esteem and a more positive self-concept (Demaray & Malecki, 2002; Spilt, van Lier, Leflot, Onghena, & Colpin, 2014) and greater prosocial behaviors (Asher & McDonald, 2009; Torrente et al., 2014; Wentzel, 1998; Wentzel, Barry, & Caldwell, 2004). In contrast, students who lack peer acceptance and friendships generally experience more internalizing problems, including greater loneliness (Parker & Asher, 1993), depression (Brand, Felner, Shin, Seitsinger, & Dumas, 2003; Demaray & Malecki, 2002), anxiety (Demaray & Malecki, 2002), withdrawal (Demaray & Malecki, 2002), and suicidal thoughts (Bearman & Moody, 2004). They also tend to have a more negative self-concept (Spilt et al., 2014) and exhibit greater externalizing behavior problems (Sturaro, van Lier, Cuijpers, & Koot, 2015), including aggression (Demaray & Malecki, 2002) and delinquency and conduct problems (Brand et al., 2003; Demaray & Malecki, 2002).



To support the hypothesis that students' peer relationships are associated with greater student social–emotional competence, numerous theories can be cited. A review of these theories is provided below to provide evidence for why positive student–student relationships in the school would be related to stronger student social–emotional competence.

### Supporting Theory

Several theories support the connection between the quality of student–student relationships and social–emotional competence, including social learning theory (Bandura, 1977), social cognitive theory (Bandura, 1986, 1989), social control theory (Hirschi, 1969), and social norms theory (Cialdani & Trost, 1998). Both social learning theory and social cognitive theory, which have been reviewed previously, assert that individuals' observations of others can influence their behavior, thereby suggesting that students serve as behavioral models for one another. Similarly, social control theory and social norm theory contend that individuals' behavior is impacted by their perceptions of what others expect and value and how others behave. Both of these theories suggest that students look to others in the group to understand the behaviors that are approved. Social control theory also notes that students who feel close to their peers are more likely to behave in ways that are consistent with peer norms and are less likely to engage in deviant behaviors (unless deviant behaviors are the norm). When social bonds are weaker, individuals are more likely to engage in behaviors that oppose the group norms, values, and attitudes.

Numerous studies support these theories and suggest that peer groups play a substantial role in motivating students' behavior. For example, research has shown

that the overall school engagement of a peer group predicts changes in group members' motivation across the school year (Kindermann, 2007). As such, students in peer groups with highly engaged peers tend to stay at a high level of engagement or increase their engagement throughout the school year, whereas students belonging to peer groups with lower engagement levels show declining engagement throughout the school year. This is likely because when school engagement is valued (or not valued) within a particular peer group, this encourages group members to act in a way that is compatible with their group's expectations. Peer groups also can motivate students' negative behaviors. For example, membership in a group with delinquent peers is a strong predictor of students' delinquent behavior (Bauman & Ennett, 1996; Dishion, Bullock, & Granic, 2002). Peer group influence also has been shown to impact adolescents' drinking behavior (Ali & Dwyer, 2010) and substance use (Mayberry, Espelage, & Koenig, 2009).

Although most of the research completed on group membership has focused on smaller peer groups, some research also has demonstrated that larger groups of students (i.e., all of the students within a particular classroom or school) can have a substantial impact on student behavior. For example, the previously cited study by Ali and Dwyer (2010) that investigated adolescents' drinking behaviors found that the general drinking behavior among classmates was related to students' drinking behavior even after controlling for the drinking behavior among students' closer friend groups. Similar results also were found in a study investigating students' academic achievement and school engagement (Lynch, Lerner, & Leventhal, 2013). These findings therefore suggest that larger peer groups, such as all of the students within a school, have an influence on students' behavior over and above the influence of their

close peer group (Lynch, Lerner, & Leventhal, 2013). As a result, it seems likely that the overall peer norms of social interactions within a school (i.e., the student–student relationships) play a role in students’ social–emotional competence.

### **SEL Teaching Techniques**

In addition to investigating the role of students’ perceptions of teacher–student relationship quality and student–student relationship quality, I also examined if students’ perceptions of their social–emotional competence are related to their perceptions of the extent to which their teachers teach students the skills and behaviors that are consistent with the social–emotional competence. This would include teaching students to feel responsible for how they act (i.e., responsible decision making skills), teaching students how to resolve conflicts with others (i.e., relationship skills), teaching students that they can control their own behavior (i.e., self-management skills), and teaching students to understand how others think and feel and that they should care about how others feel (i.e., social awareness skills).

Teaching of social–emotional competencies can occur in various different formats and does not necessarily need to take place within the context of SEL packaged curricula. Although these curricula are generally thought to be effective in developing students’ social–emotional competencies as well as strengthening their academic achievement, reducing behavior problems, and developing positive attitudes (Durlak et al., 2011), there are many other ways that SEL teaching can occur in the absence of curricula. For example, as noted earlier in this literature review, social–emotional competencies can be taught through integration with pre-existing literacy or social studies lessons, through student engagement in service learning opportunities,

or through various instructional approaches used in the classroom such as cooperative learning activities (Bear, 2010; Zins et al., 2004). SEL teaching also can be integrated into the daily interactions between students and teachers, such as teaching students how to effectively solve social problems or to manage impulses during disciplinary encounters (Bear, 2010; Jones & Bouffard, 2012).

Despite the diversity in approaches to SEL instruction, most studies have only examined the effects of packaged SEL curricula, thereby ignoring the other ways in which this teaching can occur. The current study therefore investigates SEL teaching as a whole and does not focus on a particular method of delivery. Understanding how SEL teaching in *general* is related to students' social–emotional competence is important because of the diversity in SEL teaching methods. It is proposed that greater SEL teaching is associated with stronger student social–emotional competence. This hypothesis is supported by a study that found more frequent lessons to be associated with greater SEL program effectiveness compared to programs that teach lessons less frequently (Domitrovich & Greenberg, 2000). There may be numerous reasons for the connection between lesson frequency and social–emotional competence. With more frequent teaching of social–emotional competencies, students would presumably gain more knowledge about these skills, which would make them more likely to engage in prosocial behaviors (Bandura, 1986). Additionally, if educators teach these competencies more frequently, students may feel that prosocial values and behaviors are more valued in the school community. According to social cognitive theory and the social development model, this also could make them more likely to take on these values and display these behaviors (Bandura, 1986; Catalano & Hawkins, 1996).

As previously described in this study, I also examined if the hypothesized relationship between perceptions of SEL teaching and student social–emotional competence is moderated by perceptions of teacher–student relationship quality. In general, children tend to learn more altruistic behavior from people who are more warm and nurturing than from those who are not perceived as warmly (Yarrow, Scott, & Waxler, 1973). It therefore seems plausible that students adopt the prosocial values taught by their teacher to a greater degree within the context of a positive teacher–student relationship compared to a less positive relationship. This role of the teacher–student relationship in students’ adoption of social–emotional competencies also seems likely because students are more inclined to take on their teacher’s values when they view their teacher as warm and responsive (Wentzel, 2002). Additionally, as shown in a study by Hughes (2011), students feel a greater sense of belonging in the classroom within the context of a positive teacher–student relationship. As noted previously, feeling a sense of belonging is a fundamental need according to self-determination theory and is related to greater intrinsic prosocial motivation (Ryan & Deci, 2000). This provides further support that students are more likely to display strong social–emotional competencies within a positive teacher–student relationship compared to a relationship that is not as supportive.

### **Grade Level**

Schools’ grade level also was proposed as a predictor of social–emotional competence perceptions. Previous research on students’ social–emotional competence across age has produced mixed findings. Some studies indicate that social–emotional competencies, such as perspective-taking (Van der Graaff et al., 2014), social problem

solving (Takahashi, Koseki, & Shimada, 2009), and prosocial behavior (Eisenberg & Fabes, 1998; Eisenberg, Fabes, & Spinrad, 2006), become stronger as children grow older. However, other researchers suggest that social–emotional competence decreases during adolescence. For example, in a study by Smetana and colleagues (2009), middle adolescents (i.e., 10<sup>th</sup> graders) rated fulfilling their own desires instead of providing assistance to their parent as less selfish compared to early adolescents (i.e., 7<sup>th</sup> graders). Yet, other researchers suggest that social–emotional competence typically levels off during adolescence. For example, Raffaelli, Crockett, and Shen (2005) found that although self-regulation increased from early childhood (age 4–5) to middle childhood (age 8–9), there was no change in self-regulation from middle childhood to early adolescence (age 12–13). Similarly, in a study by Wray-Lake and colleagues (2015), adolescents’ self-reports of social responsibility generally declined from age 9 to 16 and then leveled off. In another study, girls generally demonstrated stable levels of empathy across adolescence, but boys showed a slight decline in empathy from age 13 to 16 and an increase thereafter (Takahashi et al., 2009). Other researchers have similarly noted that social–emotional competence follows a U-shaped trajectory, with an initial decline during middle adolescence and an increase during later adolescence. For example, one study found that middle adolescents (around 10–14 years old) were more focused on their personal rights when making a decision compared to younger children (around 7–8 years old) and late adolescents (around 16–17 years old) who were more focused on moral implications and the greater good (Nucci & Turiel, 2009). Because previous studies have produced such contradictory findings, I made no predictions regarding grade level differences in social–emotional competence.

I also proposed that grade level moderates the association between teacher–student relationship quality and social–emotional competence and between student–student relationship quality and social–emotional competence. Research has demonstrated that high schools typically have less SEL programming compared to elementary and middle schools. According to Bridgeland and colleagues (2013), only 28% of high school teachers report that SEL programming occurs school-wide compared to 43% of middle school teachers and 49% of elementary school teachers. Because older grade levels typically experience less SEL instruction compared to lower grade levels, other school-level factors, such as the quality of teacher–student and student–student relationships, may become more influential in students’ social–emotional competence. Additionally, some research suggests that the stability in students’ social–emotional competence differs across childhood, with less stability from middle childhood to adolescence than from early childhood to middle childhood (Obradovic et al., 2006). According to these authors, variations in the social experiences that children have as they enter adolescence may contribute to differences in their social–emotional competence. Research also has suggested that peer norms are most influential during students’ adolescent years and that peers have the most influence during this period (Brown, Clasen, & Eicher, 1986; Brown & Larson, 2009). As a result, I hypothesized that the quality of student–student relationships is more strongly associated with social–emotional competence in middle and high schools compared to elementary schools. The contributing role of teacher–student relationships was less clear. As students go through elementary school and enter middle school, they tend to report less positive perceptions of their relationship with their teacher (Jerome, Hamre, & Pianta, 2009; Lynch & Cicchetti, 1997; O’Connor &

McCartney, 2007; Spilt, Hughes, Wu, & Kwok, 2012). Because children tend to learn more altruistic behavior from individuals they consider to be warm compared to those who are not perceived as warmly (Yarrow et al., 1973), it suggests that the influence of teacher–student relationship quality on social–emotional competence may decrease as children age. However, other research indicates that high school students with greater connectedness to their teachers display less emotional distress, violence, suicidal ideation, and substance abuse (Resnick et al., 1997), thereby suggesting that this relationship is indeed influential on social outcomes for high school students. As a result, no predictions were made regarding grade level differences in the association between teacher–student relationship quality and social–emotional competence.

### **Control Variables**

In addition to the variables of interest hypothesized to predict students' social–emotional competencies described above, students' gender and race/ethnicity and school-level socioeconomic status (SES) were controlled statistically during analyses given past research demonstrating their relationship with social–emotional competence. Girls have been shown to demonstrate greater social skills (Kwon et al., 2012), self-discipline (Duckworth & Seligman, 2006; Silverman, 2003), self-control (Duckworth et al., 2015), concern for others (Hastings et al., 2000), and social–emotional competence (Bosacki & Moore, 2004; Brown & Dunn, 1996; Harrod & Scheer, 2005).

Previous research has produced less consistent findings with respect to racial/ethnic differences in social–emotional competence. Some researchers have contended that African American students demonstrate less social competence and



greater aggression compared to other races/ethnicities (Elias & Haynes, 2008; Elliot, Barnard, & Gresham, 1989; McLaughlin, Hilt, & Nolen-Hoeksema, 2007). Other studies have found that Caucasian students report greater levels of altruism compared to Mexican American students (Carlo, Knight, McGinley, Zamboanga, & Jarvis, 2010) and greater prosocial behavior compared to African American students (Wentzel, Filisetti, & Looney, 2007). Yet, other researchers have reported either no significant differences between Caucasian and African American students (Kistner, Metzler, Gatlin, & Risi, 1993) or less prosocial values in Caucasian students compared to other racial groups (Beutel & Johnson, 2004; Richman, Berry, Bittle, & Himan, 1988). It is important to note that none of these studies controlled for individual-level SES—a factor that is doubtlessly intertwined with race/ethnicity. For example, a greater percentage of African American and Hispanic individuals live in poverty compared to Caucasian and Asian individuals (National Center for Education Statistics, 2007). Thus, social–emotional competence differences across race/ethnicity might instead be attributed to differences in SES. However, because SES was statistically controlled for only at the school level and not the individual level in the current study (as described in the next paragraph), controlling for students’ race/ethnicity seemed most appropriate.

Using percent of students qualifying for free and reduced meals as a proxy, school-level SES also was controlled statistically in analyses given previous research indicating children’s SES is positively related to their social–emotional competence, moral reasoning, and prosocial behavior (Bates et al., 2003; Eisenberg, Zhou, & Koller, 2001; Haapasalo, Tremblay, Boulerice, & Vitaro, 2000; Herrenkohl, Herrenkohl, Egolf, & Wu, 1991; Larsson & Frisk, 1999; Lichter, Shanahan, &

Gardner, 2002). This association may be due to differences between families of varying SES (Hastings, Utendale, & Sullivan, 2007). For example, research has demonstrated that lower SES parents tend to be less sensitive and emotionally responsive and tend to use more punitive strategies compared to parents of higher SES (Bradley & Corwin, 2002; Burbach, Fox, & Nicholson, 2004; Knight, Kagan, & Buriel, 1982; McLeod & Shanahan, 1993). Research also has suggested that they tend to question their children less about their behaviors and provide fewer explanations to their child about the consequences of their behavior (Bourduin & Henggeler, 1981). As previously noted, parenting skills can have a significant relationship with a child's social-emotional competence (Bates et al., 2003; NICHD ECCRN, 2002). It also was important to control for school-level SES because previous research has found that greater school poverty is associated with fewer positive teacher-student interactions (Pianta et al., 2002).

### **Summary**

In summary, I examined how students' perceptions of their social-emotional competence are related to their perceptions of the teacher-student relationship quality in their school, perceptions of the student-student relationship quality in their school, perceptions of the degree to which social-emotional competencies are taught in their school, and schools' grade level. Additionally, the interactions between those variables were explored. The following hypotheses were made:

- Perceptions of teacher-student relationship quality, student-student relationship quality, and the degree to which social-emotional competencies are taught are positively related to perceptions of social-emotional competence.

- Perceptions of teacher–student relationship quality moderate the relationship between SEL teaching and social–emotional competence, with more positive relationships showing a stronger association between these variables.
- Grade level moderates the relationship between student–student relationship quality and social–emotional competence, with a stronger association between student–student relationship quality and social–emotional competence existing among students in middle and high school compared to elementary school.

Given the studies described earlier that found different age-related trajectories of social–emotional competence, no prediction was made regarding grade level differences in social–emotional competence. Additionally, no prediction was made regarding the role of grade level in the association between teacher–student relationship quality and social–emotional competence.

## **Chapter 2**

### **METHOD**

As stated previously, the study had three primary goals: (1) to examine how students' perceptions of teacher–student relationship quality, perceptions of student–student relationship quality, perceptions of their school's teaching of SEL, and schools' grade level are associated with students' social–emotional competence; (2) to examine if teacher–student relationship quality moderates the association between SEL teaching and social–emotional competence; and (3) to examine if grade level moderates the associations between teacher–student relationship quality and social–emotional competence and between student–student relationship quality and social–emotional competence. To examine these associations, hierarchical linear models were used to analyze survey data from students in Delaware public schools. More specific information about data collection, participants, measures, and statistical analyses procedures is provided in the following sections.

#### **Data Collection**

The study used data from the Delaware School Survey–Student Version (DSS–S). Use of the data was approved by the University's Institutional Review Board (see Appendix B). The DSS–S was developed and conducted by the Delaware Positive Behavior Support Project (DE-PBS), which is a collaboration between the Delaware Department of Education (DDOE) and the University of Delaware's Center for Disabilities Studies. This survey has been administered to schools throughout the state

of Delaware since the 2004–2005 school year. Since its creation, it has been revised several times based on requests from DDOE and results of studies of the survey’s psychometric properties, including extensive confirmatory factor analyses (e.g., Bear, Gaskins, Blank, & Chen, 2011; Bear et al., 2014). The survey is offered in a paper Scantron format and an online format using Qualtrics survey software.

The 2015 version of the DSS–S was used. It consists of five scales. The first is the Delaware School Climate Scale (DSCS–S), which assesses students’ perceptions of the social support and structure in their school. It includes seven subscales: Teacher–Student Relations, Student–Student Relations, Clarity of Expectations, Fairness of Rules, School Safety, School-wide Student Engagement, and School-wide Bullying. The second scale is the Delaware School Disciplinary Techniques Scale (DSDTS–S), which assesses students’ perceptions of their teachers’ use of positive behavioral techniques (e.g., rewards and praise), punitive techniques (e.g., classroom removal), and SEL teaching (e.g., teaching responsibility, empathy, and self-control). The third scale is the Delaware Social–Emotional Competency Scale (DSECS–S), which assesses students’ perceptions of the degree to which they display skills and behaviors consistent with strong social–emotional competence. It consists of four subscales: Responsible Decision Making, Social Awareness, Self-Management, and Relationship Skills. The Delaware Bullying Victimization Scale (DBVS–S) is the fourth scale and assesses students’ perceptions of the degree to which they experience bullying victimization. It includes four subscales assessing different forms of bullying victimization: Physical Bullying, Social/Relational Bullying, Verbal Bullying, and Cyberbullying. The final scale is the Delaware Student Engagement Scale (DSES–S), which assesses students’ perceptions of the degree to which they display behaviors

and attitudes consistent with being involved in, committed to, and invested in school. It includes three subscales that each measure a different type of school engagement: Cognitive Engagement, Behavioral Engagement, and Emotional Engagement.

Delaware public schools were sent a request in October 2014 from the DE-PBS Project that invited them to participate in the survey; 140 public schools enrolled and completed the survey. All surveys were completed during January or February 2015. Each school was responsible for administering the survey to their students and was provided with instructions for how to do so. Only students from third through twelfth grade were invited to participate, as younger students may have had difficulty understanding the survey and providing reliable and valid responses. Schools were asked to survey 100% of students in grades 3 and above in elementary schools and 50% of students in middle and high schools. They were provided with suggestions on proper random student selection methods to ensure a representative student sample. Schools also were given a script for educators to read to the students completing the survey, which briefly described the survey's purpose and ensured the anonymity of students' responses. Students completed the survey independently. However, if students had difficulties reading the directions and questions, teachers were encouraged to read the entire survey to the whole class.

### **Participants**

The original 2015 DSS-S sample included a total of 41,473 students from 140 schools. The following criteria were used to select student responses for the current study: (a) students reported that they "agreed" or "agreed a lot" to the survey's two validity screening items ("I am telling the truth in this survey" and "I answered all

items truthfully on this survey”)<sup>1</sup>; (b) students were enrolled in regular elementary, middle, and high schools (i.e., the school was not designated as serving a special population, such as an alternative school or school for students with disabilities); (c) students identified their grade, gender, and race/ethnicity on the survey; (d) students responded to at least one of the items on each of the four scales used in the study; (e) the school’s percentage of low income students was posted on the DDOE’s website; (f) over 30% of students in the school completed the survey, or if under 30%, at least 100 students in the school completed the survey; and (g) the school had a regular grade configuration (i.e., elementary school included grades 3–5; middle school included grades 6–8; high school included grades 9–12). Due to very low sample size, students reporting Hawaiian (0.3% across all students) and American Indian/Alaskan Native (1.9% across all students) race/ethnicity were excluded from the study sample.

As a result, the final analytic sample consisted of 29,671 students from 115 schools: 14,716 students from 75 elementary schools, 8,756 students from 23 middle schools, and 6,199 students from 17 high schools. The response rates (i.e., the number of students in a school who were included in the final sample divided by the number of eligible students enrolled in the school) ranged from 14.0% to 97.4% (mean = 63.9%; median = 70.6%; average number of respondents per school = 270). The response rates in elementary school ranged from 28.1% to 97.4% (mean = 74.9%;

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<sup>1</sup> Validity screening items, which were added to the DSS–S in 2014, have been used in other surveys of school climate and student behavior (e.g., Cornell, Klein, Konold, & Huang, 2012; Cornell & Loper, 1998). Research on the DSS–S validity screening items has found that approximately 7% of students provide invalid responses and that invalid respondents rate school climate significantly more negatively compared to valid respondents (Mantz, Bear, & Glutting, 2014).

median = 78.9%), in middle school ranged from 24.3% to 87.8% (mean = 48.2%; median = 42.4%), and in high school ranged from 14.0% to 76.7% (mean = 36.3%; median = 31.8%). The schools in the study surveyed a mean of 78.3% of the number of students recommended for their school (i.e., the number of students in a school who were included in the final sample divided by the number of students recommended for the school to survey). This percentage ranged from 28.1% to 175.7% (median = 79.0%) across schools. The percentage of recommended students sampled ranged from 28.1% to 97.4% in elementary school (mean = 74.9%; median = 78.9%), from 48.5 % to 175.7 % in middle school (mean = 94.1%; median = 84.8%), and from 28.1% to 153.3% in high school (mean = 71.6%; median = 63.6%).

Demographic information for the final sample is found in Table 1. Based on students' reports on demographic items of the survey, 48.9% of participants were male and 51.1% were female. The racial/ethnic composition of the participants included 3.9% Asian, 25.7% African American, 13.2% Hispanic/Latino, 10.3% Multi-racial, and 46.9% Caucasian. Comparing the racial/ethnic group composition to those reported by DDOE, the percentages for racial/ethnic groups reflected many of the overall percentages in the state at the time of the study (3.6% Asian, 15.3% Hispanic/Latino, and 46.6% Caucasian). However, African American students were slightly underrepresented (25.7% vs. 31.2%) and Multi-racial students were overrepresented (10.3% vs. 2.8%). This discrepancy can at least partly be attributed to different individuals reporting racial/ethnic group data. Students reported their race/ethnicity in the current study, but their parents/guardians reported the students' race/ethnicity in the data from DDOE.



Table 1 Demographic Information of the Sample

	Grade Level			
	Elementary	Middle	High	Full Sample
Gender				
Male	7291 (49.5%)	4240 (48.4%)	2969 (47.9%)	14500 (48.9%)
Female	7425 (50.5%)	4516 (51.6%)	3230 (52.1%)	15171 (51.1%)
Race/Ethnicity				
Asian	551 (3.7%)	326 (3.7%)	269 (4.3%)	1146 (3.9%)
African	3725 (25.3%)	2158 (24.6%)	1750 (28.2%)	7633 (25.7%)
Hispanic/Latino	1935 (13.1%)	1263 (14.4%)	715 (11.5%)	3913 (13.2%)
Multi-racial	1566 (10.6%)	953 (10.9%)	539 (8.7%)	3058 (10.3%)
Caucasian	6939 (47.2%)	4056 (46.3%)	2926 (47.2%)	13921 (46.9%)

*Note.*  $N = 115$  schools.

Across all 115 schools participating in the study, the mean percentage of students receiving FRPM was 40.92% ( $SD = 17.93\%$ ) and ranged from 3.80% to 86.50%. The mean percentage of students receiving FRPM was 44.49% ( $SD = 18.81\%$ ) in elementary schools, 36.97% ( $SD = 15.38\%$ ) in middle schools, and 30.50% ( $SD = 11.44\%$ ) in high schools.

### Measures

The following scales and subscales from the DSS–S were used: the Delaware Social–Emotional Competency Scale (DSECS–S), the Teacher–Student Relations and Student–Student Relations subscales of the Delaware School Climate Scale (DSCS–S), and the SEL Techniques subscale of the Delaware School Disciplinary Scale (DSDS–S). The scale and subscale scores used in this study represent average item scores, which are derived from the sum score of the scale or subscale divided by the number of items on the scale or subscale. Items are found in the appendix. Students’ grade, gender, and race/ethnicity, which are assessed on the DSS–S, and school-level

SES, which is posted on DDOE's School Profiles website, also were used in the study. Additional information about each of these scales and their psychometric properties is provided in the following sections.

### Social–Emotional Competence

The 12-item DSECS–S (Bear et al., 2016) assesses students' perceptions of the degree to which they display behaviors and attitudes consistent with strong social–emotional skills. This scale assesses four of the five social–emotional competence domains outlined by CASEL (2012): responsible decision making, social awareness, self-management, and relationship skills. The fifth domain, self-awareness, is not included in the DSECS–S for three primary reasons. First, because the self-awareness domain includes skills in recognizing one's emotions and assessing personal strengths and weaknesses, it does not seem entirely appropriate to assess students' feelings of self-esteem, depression, and emotional well-being. Doing so would require a higher level of parent approval (i.e., active consent rather than passive consent) for students to complete the surveys, which would likely lead to fewer student surveys completed. Secondly, assessing students' self-awareness skills raises several ethical issues, including whether or not students should be identified if they report low levels of self-esteem or high levels of depression and whether or not these identified students should be provided with mental health services (particularly because these services are not readily available in schools). Although mental health screening is certainly important, it is not the focus of the DSS–S. Lastly, programs targeting improving students' self-awareness are typically shown to be ineffective in improving these skills (Manning,

Bear, & Minke, 2006). Therefore, providing schools with information about skills they are unlikely to change does not seem beneficial.

On the DSECS–S, students respond using a 4-point Likert scale, with 1 = *Not like me at all*, 2 = *Not much like me*, 3 = *Somewhat like me*, and 4 = *Very much like me*. Results of confirmatory factor analyses (Bear et al., 2016) indicated that the scale is best represented by a second-order model consisting of four lower order factors (responsible decision making, relationship skills, self-management, and social awareness) and a higher order overall social–emotional competence factor [CFI = .957, RMSEA = .040, and SRMR = .030]. For all students combined across grade levels, the alpha coefficients for each of the four subscales were found to be .58 for responsible decision making, .69 for social awareness, .65 for self-management, and .58 relationship skills. These lower coefficients are most likely due to there being only three items per subscale. Because most coefficients were below the minimally accepted criterion of .70, the authors recommend that subscale scores not be used and that the total scale score be used instead. For the total scale score and for all students combined, an alpha coefficient of .84 was derived. Across grade level, race/ethnicity, and gender groups, alphas ranged from .83 to .85. As shown in Table 2, the mean score on the DSECS–S was 3.34 ( $SD = 0.48$ ) for all students in the current study. The mean was 3.43 ( $SD = 0.46$ ) for students in elementary schools, 3.26 ( $SD = 0.49$ ) for students in middle schools, and 3.27 ( $SD = 0.49$ ) for students in high schools.

Table 2 Descriptive Statistics of the Continuous Student-Level Variables

Variables	All Students		Elementary		Middle		High	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1. Teacher–Student Relationship Quality	3.26	.62	3.56	.49	3.08	.60	2.82	.54
2. Student–Student Relationship Quality	2.79	.64	3.00	.63	2.60	.61	2.55	.56
3. SEL Teaching	2.92	.59	3.18	.52	2.75	.56	2.56	.53
4. Social–Emotional Competence	3.34	.48	3.43	.46	3.26	.49	3.27	.49

*Note.* *M* = mean, *SD* = standard deviation.

\*  $p < .001$ .

#### Teacher–Student Relationship Quality and Student–Student Relationship Quality

Both the Teacher–Student Relationships and Student–Student Relationships subscales are found on the Delaware School Climate Scale (DSCS-S). For both subscales, students respond using a 4-point Likert scale, with 1 = *Disagree a Lot*, 2 = *Disagree*, 3 = *Agree*, and 4 = *Agree a Lot*, with higher scores indicating more positive perceptions of these relationships in their school. As reported in the survey’s technical manual (Bear et al., 2016), results of confirmatory factor analyses indicated that the DSCS–S is best represented by a second-order factor model with seven specific factors and a general factor [CFI = .925, RMSEA = .036, and SRMR = .047]. The seven factors are Teacher–Student Relations, Student–Student Relations, Student Engagement School-wide, Clarity of Expectations, Fairness of Rules, School Safety, and Bullying School-wide. Configural invariance, weak factorial invariance, and strong factorial invariance were found across students’ grade level (i.e., elementary,

middle, and high school), gender, and race/ethnicity (i.e., Caucasian, African American, Hispanic/Latino, Multi-racial, and Asian).

The five-item Teacher–Student Relationships subscale of the DSCS-S assesses students’ perceptions of the teacher–student relationships and interactions within their school, including how teachers listen to students, like their students, care about their students, and treat students of different races with respect. For this subscale and students in the current study, reliability coefficients were determined to be .88 for all students combined, .79 for elementary school students, .87 for middle school students, and .85 for high school students. As shown in Table 2, the mean Teacher–Student Relationships subscale score was 3.26 ( $SD = 0.62$ ) for all students. Elementary students tended to report more positive teacher–student relationships ( $M = 3.56$ ;  $SD = 0.49$ ) compared to middle school students ( $M = 3.08$ ;  $SD = 0.60$ ), who in turn reported more positive relationships compared to high school students ( $M = 2.82$ ;  $SD = 0.54$ ).

The five-item Student–Student Relations subscale assesses students’ perceptions of the student–student relationships and interactions within their school, including how students care about, respect, get along, and act friendly with each other. For the current study, reliability coefficients were found to be .87 for all students combined, .85 for elementary school students, .87 for middle school students, and .86 for high school students. As shown in Table 2, the mean Student–Student Relationships subscale score was 2.79 ( $SD = 0.64$ ) for all students. Like the Teacher–Student Relationships subscale, elementary students reported more positive student–student relationships ( $M = 3.00$ ;  $SD = .63$ ) compared to middle school students ( $M = 2.60$ ;  $SD = .61$ ), who reported more positive student–student relationships compared to high school students ( $M = 2.55$ ;  $SD = .56$ ).

## SEL Teaching

The six-item SEL Teaching subscale of the DSDTS–S assesses students’ perceptions of the degree to which their school teaches social–emotional skills, including responsibility, empathy, behavioral control, and problem solving. Students respond using a 4-point Likert scale, with 1 = *Disagree a Lot*, 2 = *Disagree*, 3 = *Agree*, and 4 = *Agree a Lot*, with higher scores indicating more positive perceptions. As reported in the survey’s technical manual (Bear et al., 2016), results of confirmatory factor analyses indicated that the DSDTS–S is best represented by a three factor model [ $\chi^2 = 388.40$  (104,  $N=16,205$ ),  $p < .001$ ; CFI = .907, RMSEA = .048, and SRMR = .053], with the other two factors being Positive Techniques and Punitive Techniques. Configural invariance, weak factorial invariance, and strong factorial invariance were found across students’ grade level (i.e., elementary, middle, and high school), gender, and race/ethnicity (i.e., Caucasian, African American, Hispanic/Latino, Multi-racial, and Asian). For the current study, reliability coefficients for the SEL Teaching subscale were determined to be .83 for all students combined, .75 for elementary school students, .83 for middle school students, and .83 for high school students. As demonstrated in Table 2, the mean SEL Teaching subscale score was 2.92 ( $SD = 0.59$ ) for all students in the study. Consistent with previous research showing that SEL is taught more at the elementary than secondary level (Bridgeland et al., 2013), elementary students in the current study reported that SEL skills were taught to a greater degree ( $M = 3.18$ ;  $SD = .52$ ) compared to middle school students ( $M = 2.75$ ;  $SD = .56$ ) and high school students ( $M = 2.56$ ;  $SD = .53$ ).

### Student Demographic Information

On the DSS–S, students are asked to report their gender (i.e., boy or girl) and race/ethnicity (i.e., Caucasian, African American, Hispanic/Latino, Multi-racial, and Asian). Gender was coded as a dummy variable in analyses, with males as the reference group. The five race/ethnicity groups also were coded as four dummy variables, with Caucasian students serving as the reference group. Given the previously described studies producing inconsistent findings on social–emotional competence differences across racial/ethnic groups, Caucasian students were chosen as the reference group because they are the largest group.

### School Demographic Information

The percentage of students receiving free or reduced priced meals (FRPM) for each school was collected from the Delaware Department of Education School Profiles webpage (<http://profiles.doe.k12.de.us/schoolprofiles/State/Default.aspx>). To aid in interpretation of findings, this variable was rescaled so that 1 unit of this variable was equal to 100 percentage points. This measure of FRPM was used as a proxy for measuring the average SES of the students in each school. Schools' grade level (i.e., elementary, middle, and high school) also was collected from DDOE. The three grade levels were coded as two dummy variables, with elementary schools serving as the reference group against middle schools and high schools.

### Procedures for Statistical Analyses

Using SPSS, correlational analyses were first completed to understand the relationship between the continuous independent variables (i.e., teacher–student

relationship quality, student–student relationship quality, and SEL teaching) and dependent variable (i.e., social–emotional competence). As expected, students’ reports of teacher–student relationship quality were moderately and positively correlated with reports of student–student relationship quality ( $r = .56$ ) and SEL teaching in the school ( $r = .63$ ). The correlation between students’ perceptions of student–student relationship quality and SEL teaching also was moderately positive ( $r = .58$ ). The association between these variables is unsurprising. Developing positive teacher–student and student–student relationships and teaching SEL skills are all techniques that are frequently used by teachers to promote students’ positive behavior and prevent behavior problems. Thus, it makes sense that students’ perceptions of teacher–student relationship quality, student–student relationship quality, and teaching of SEL skills are moderately related to one another. Students’ reports of their social–emotional competence also correlated moderately with their reports of the teacher–student relationship quality, student–student relationship quality, and SEL teaching in their school ( $r_s = .36-.49$ ). These correlations were calculated in order to detect any potential issues of multicollinearity between the variables used in the hierarchical linear models. Multicollinearity occurs when correlations between the predictors are high, which can lead to unreliable or unstable coefficient estimates (Raudenbush & Bryk, 2002). Given that all correlations were in the moderate range, multicollinearity is not a concern among the variables in this study. This is particularly true because variables used in the hierarchical linear models were centered on the grand means, thereby further reducing the threat of multicollinearity.

Next, the continuous independent variables and variables that were statistically controlled during analyses were centered. Student-level predictors (perceptions of



teacher–student relationship quality, perceptions of student–student relationship quality, and perceptions of SEL teaching) and student-level control variables (gender and race/ethnicity) were centered using the grand mean of that predictor. The school-level control variable (SES) was centered using the grand mean. Grand mean centering was used because the current study was focused on how students’ perceptions of teacher–student relationship quality, student–student relationship quality, and SEL teaching are associated with social–emotional competence *in general* for all students. The study *was not* focused on how students’ perceptions of these variables compare to those of other students in their school and how these differences in perceptions are associated with students’ social–emotional competence. Thus, using grand mean centering for the student-level variables seemed most appropriate.

After centering, interaction terms were calculated to investigate the moderation effects of grade level in the association between teacher–student relationship quality and social–emotional competence (i.e., teacher–student relationship quality  $\times$  grade level) and the association between student–student relationship quality and social–emotional competence (i.e., student–student relationship quality  $\times$  grade level). An interaction term also was calculated to investigate the moderation effect of teacher–student relationship quality in the association between SEL teaching and social–emotional competence (i.e., SEL teaching  $\times$  teacher–student relationship quality).

A series of hierarchical linear models were then produced using HLM 6 (Raudenbush, Bryk, & Congdon, 2004) to address the three main research questions of the study: (1) Are students’ perceptions of teacher–student relationship quality, perceptions of student–student relationship quality, perceptions of SEL teaching occurring in their school, and schools’ grade level related students’ social–emotional

competence? (2) Does grade level moderate the associations between teacher–student relationship quality and social–emotional competence and between student–student relationship quality and social–emotional competence? and (3) Does teacher–student relationship quality moderate the association between SEL teaching and social–emotional competence? Although the study mainly used student-level data, a hierarchical analytic strategy was chosen for two reasons. First, this strategy allowed for SES to be statistically controlled at the school-level and allowed for grade level (i.e., a school-level variable) to be used as a predictor. Second, this strategy also accounted for the nested nature of students within schools and therefore controlled for the inherent dependency in the data. Because students reported on the quality of relationships and frequency of SEL teaching within their school, students within a particular school would likely have responses that are more similar compared to students from a different school.

The variables included in the models are presented in Table 3. The unconditional model (Model 1) was first estimated. This model included no predictors and was used to calculate the intraclass correlation coefficient (ICC), which was used to understand how much of the variance in students’ social–emotional competence is attributable to either the student level or school level. To account for the variance in students’ social–emotional competence due to students’ gender and race/ethnicity and school-level SES, Model 2 was estimated with these variables included as covariates. In Models 3–6, each of the predictors (i.e., grade level, teacher–student relationship quality, student–student relationship quality, and SEL teaching) was added individually, with only one of these four predictors added in the model at a time. This allowed for examination of each predictor’s unique contribution to the model in the

absence of the other predictors. In Model 7, all four of these predictors were added simultaneously to examine the contribution of each predictor after accounting for the variance explained by the other predictors. In Models 8–10, the interactions (teacher–student relationship quality  $\times$  grade level, student–student relationship quality  $\times$  grade level, and SEL teaching  $\times$  teacher–student relationship quality) were added individually, with only one moderation effect added in the model at a time. The three moderation effects were not added into the model simultaneously in order to avoid excessive complexity in interpretation of effects given that the predictor variables would include five interaction terms. If added into the model simultaneously, the meaning of intercept would be incredibly difficult to interpret correctly. Therefore, Models 8–10 include only one interaction term per model.

In examining all of the models shown in Table 3, proportions of change in variance were used to understand each predictor’s contribution to the model after controlling for variables previously added to the model. Coefficient estimates and significance levels of predictors and moderators also were examined and compared to investigate the contribution of predictors added to the model. The equations for the models and the symbolic notation are provided below.

**Student-Level Models (Level 1):**

$$SEC_{ij} = B_{0j} + B_1(TS_{ij}) + B_2(SS_{ij}) + B_3(SEL_{ij}) + \sum_{n=4}^{N+3} \beta_n (X_{nij}) + e_{ij}$$

**School-Level Models (Level 2):**

$$B_{0j} = \gamma_{00} + \gamma_{01}(SES_j) + \gamma_{02}(grade_j) + \gamma_{03}(TS_{ij} \times grade_{ij}) + \gamma_{04}(TS_{ij} \times grade_{ij}) + u_{0j}$$

**Notation:**

- $SEC_{ij}$  = outcome variable of social–emotional engagement for student  $i$  in school  $j$
- $B_{0j}$  = the random intercept for school  $j$
- $B_1$  = the slope for teacher–student relationship quality
- $TS_{ij}$  = grand-mean centered predictor representing teacher–student relationship quality
- $B_2$  = the slope for student–student relationship quality
- $SS_{ij}$  = grand-mean centered predictor representing student–student relationship quality
- $B_3$  = the slope for SEL teaching
- $SEL_{ij}$  = grand-mean centered predictor representing SEL teaching
- $B_n$  = the slope for covariate  $X_n$  (i.e., student gender, race/ethnicity)
- $X_{nij}$  = covariate  $X_n$  for student  $i$  in school  $j$
- $e_{ij}$  = the error term associated with each student
- $\gamma_{00}$  = average group intercept, or grand-mean outcome at the school level in the population
- $\gamma_{01}$  = slope at the school level for school SES
- $\gamma_{02}$  = slope at the school level for grade level
- $\gamma_{03}$  = student-level moderation effect of  $Grade_{ij}$  on the relationship between  $TS_{ij}$  and  $SEC_{ij}$
- $\gamma_{04}$  = student-level moderation effect of  $Grade_{ij}$  on the relationship between  $SS_{ij}$  and  $SEC_{ij}$
- $u_{0j}$  = random effect associated with school  $j$

Table 3 Variables Included In Hierarchical Linear Regression Models

Variable	Model									
	1	2	3	4	5	6	7	8	9	10
<b>Intercept of Social-Emotional Competence Outcome</b>	X*	X	X	X	X	X	X	X	X	X
<b>Student-Level Main Effects</b>										
Gender										
Difference Between Male and Female Students		X	X	X	X	X	X	X	X	X
Race/Ethnicity										
Difference Between Asian and Caucasian Students		X	X	X	X	X	X	X	X	X
Difference Between African American and Caucasian Students		X	X	X	X	X	X	X	X	X
Difference Between Hispanic/Latino and Caucasian Students		X	X	X	X	X	X	X	X	X
Difference Between Multi-racial and Caucasian Students		X	X	X	X	X	X	X	X	X
Teacher-Student Relationship Quality (T-S)				X*			X	X	X	X
Student-Student Relationship Quality (S-S)					X*		X	X	X	X
SEL Teaching (SEL)						X*	X	X	X	X
<b>Student-Level Moderation Effects</b>										
T-S × Grade Level								X*		
S-S × Grade Level									X*	
SEL × T-S										X*
<b>School-Level Main effects</b>										
SES		X	X	X	X	X	X	X	X	X
Grade Level										
Difference Between Middle School and Elementary School Students			X*				X	X	X	X
Difference Between High School and Elementary School Students			X*				X	X	X	X

Note. X\* indicates variable newly added to the model

## **Chapter 3**

### **RESULTS**

The following sections present results of the analyses that addressed the three primary goals of the study. Results of the hierarchical linear models are presented in a sequential order. Results from the null model (Model 1) are presented first with a discussion of the intraclass correlation coefficient (ICC). The results of Model 2, which included the student-level and school-level control variables, are then presented. Afterwards, results of Models 3–7 are described, which address the research questions regarding the main effects of grade level and students' perceptions of teacher–student relationship quality, student–student relationship quality, and SEL teaching. Finally, the results of Models 8–10 are presented to address the research questions involving the moderation effect of grade level in the associations between teacher–student relationship quality and social–emotional competence and between student–student relationship quality and social–emotional competence and the moderation effect of teacher–student relationship quality in the association between SEL teaching and social–emotional competence.

#### **Hierarchical Linear Modeling**

As shown in Table 3, the unconditional model (Model 1) was first produced, with student social–emotional competence as the outcome and no predictors in the model. This model was used to calculate the ICC, which indicated how much of the variance in students' social–emotional competence was explained at both the student

and school levels. Because the ICC also provided information on the dependency in the data, it justified the need for using a hierarchical linear analytic approach. The ICC value was .0516, indicating that 5.16% of the variance in students' social-emotional competence occurred between schools and 94.84% of the variance in social-emotional competence occurred within schools. Due to the large sample size in this study and the percentage of variance accounted for at the school level, it was most appropriate to use a hierarchical approach for data analysis. This was further supported by the asymptotic test of the random intercept, which indicated that significant variance in social-emotional competence scores was explained by school groupings [ $\chi^2(114) = 1545.00$ ,  $p < 0.001$ ].

#### Main Effects of Student- and School-Level Demographics

The effects of students' gender and race/ethnicity and school-level SES on students' social-emotional competence were statistically controlled. These effects were tested in Model 2. The addition of these variables to the model accounted for 3.70% of the variance in social-emotional competence at the student level and 13.47% at the school level. As demonstrated in Table 4, female students reported significantly greater social-emotional competence compared to males ( $b = 0.144$ ;  $p < .001$ ;  $ES = 0.335$ ). In general, females reported social-emotional competence scores that were 0.144-points higher than males. Model 2 also shows significant race/ethnicity effects. Caucasian students reported greater levels of social-emotional competence compared to African American ( $b = -0.135$ ;  $p < .001$ ;  $ES = -0.314$ ), Hispanic ( $b = -0.069$ ;  $p < .001$ ;  $ES = -0.160$ ), and Multi-racial students ( $b = -0.110$ ;  $p < .001$ ;  $ES = -0.256$ ). In general, Caucasian students' social-emotional competence score was 0.135 points higher than African American students, 0.069 points higher than Hispanic students,

and 0.110 points higher than Multi-racial students. However, results indicated no significant difference in the reported social–emotional competence between Caucasian and Asian students ( $b = 0.013$ ;  $p = .384$ ;  $ES = 0.030$ ). The significant effects of students' gender and race/ethnicity are shown in Figure 1 and Figure 2.

Model 2 also demonstrated that a school's percentage of students receiving FRPM (i.e., school-level SES) was not a significant predictor of students' social–emotional competence ( $b = -0.047$ ;  $p = .414$ ); however, the effect size was moderate ( $ES = -0.427$ ). This suggests that there may indeed be a meaningful relationship between students' social–emotional competence and a school's percentage of students receiving FRPM but that the sample size of schools in the current study ( $n = 115$ ) was not large enough to produce a statistically significant  $p$  value. Another potential explanation is that students' race/ethnicity was entered into the model simultaneously. This is problematic given that race/ethnicity and SES are associated with one another (National Center for Education Statistics, 2007). To examine the effect of school-level SES without the effect of students' race/ethnicity, a model was run that included only school-level SES and students' gender as predictors. In this model, school-level SES served as a significant predictor of students' social–emotional competence ( $b = -0.146$ ;  $p = .016$ ), which supports the notion that school-level SES is indeed associated with students' social–emotional competence.

Among the student-level and school-level demographic factors examined in Model 2, the largest significant coefficient estimate measured the difference in social–emotional competence between male and female students. Therefore, gender differences demonstrated a stronger association with social–emotional competence compared to students' racial/ethnic differences or differences in schools' SES.



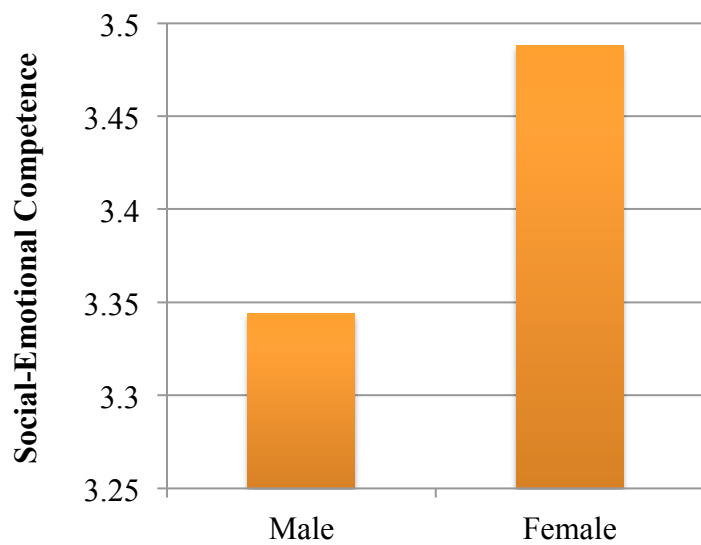


Figure 1 Effect of Students' Gender on Social-Emotional Competence

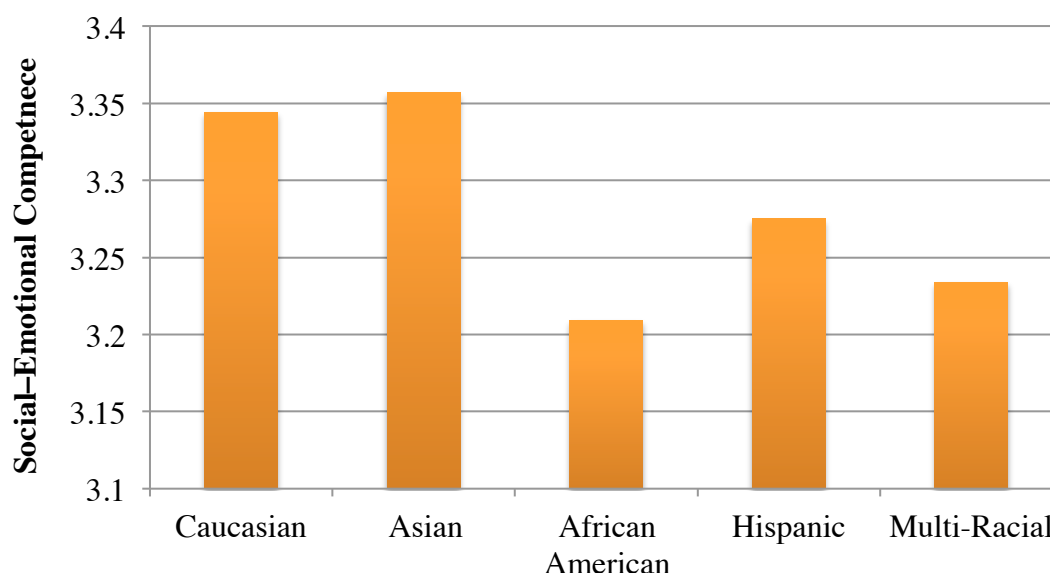


Figure 2 Effect of Students' Race/Ethnicity on Social-Emotional Competence

#### Main Effects of Grade Level, Teacher-Student Relationship Quality, Student-Student Relationship Quality, and SEL Teaching

To investigate the association between grade level, teacher-student relationship quality, student-student relationship quality, and SEL teaching with social-emotional competence, the main effects of these variables were tested in Models 3-7 with students' gender and race/ethnicity and schools' SES serving as covariates. It was hypothesized that students' perceptions of teacher-student relationship quality, student-student relationship quality, and the degree to which social-emotional competencies are taught would be positively related to their perceptions of social-emotional competence. No predictions were made regarding the role of grade level. The results of Models 3-7 are presented in Table 4.

Model 3 specifically assessed the effect of grade level on social-emotional competence. There was a statistically significant difference in school-level social-

emotional competence between elementary and middle schools ( $b = -0.191$ ;  $p < .001$ ) and between elementary and high schools ( $b = -0.187$ ;  $p < .001$ ). As such, this showed that, in general, elementary schools had overall social–emotional competence scores that were 0.191 points higher than middle schools and 0.187 points higher than high schools when students’ gender and race/ethnicity and schools’ SES were controlled statistically. The effect sizes were large in magnitude for both the comparison between elementary and middle school students ( $ES = -1.736$ ) and between elementary and high school students ( $ES = -1.700$ ). The addition of grade level to Model 3 was associated with an additional 67.95% of variance explained at the school level.

Model 4 tested the effects of teacher–student relationship quality on students’ social–emotional competence while controlling for students’ gender and race/ethnicity and schools’ SES. As hypothesized, there was a positive and significant association between students’ perceptions of teacher–student relationship quality and their self-reported social–emotional competence ( $b = 0.312$ ;  $p < .001$ ). The effect size was in the medium range ( $ES = 0.726$ ). As such, students who reported more positive teacher–student relationships in their school also tended to report greater social–emotional competence. For every 1-point increase in students’ perceptions of teacher–student relationship quality, there was an associated 0.312-point increase in students’ reports of their social–emotional competence. Beyond what was explained by students’ gender and race/ethnicity and school-level SES, students’ perceptions of teacher–student relationship quality accounted for an additional 11.44% of the variance in social–emotional competence at the student level but only an additional 2.76% of variance at the school level.

In Model 5, the association between students' perceptions of student–student relationship quality in their school and their perceptions of their social–emotional competence was tested. As hypothesized, student–student relationship quality was positively associated with social–emotional competence ( $b = 0.254$ ;  $p < .001$ ). This association represented a medium effect size ( $ES = 0.591$ ). In general, for every 1-point increase in students' perceptions of student–student relationship quality, there was an associated 0.254-point increase in students' reports of their social–emotional competence. The addition of student–student relationship quality as a predictor in Model 5 resulted in an additional 9.86% of the variance in social–emotional competence at the student level beyond what was explained by student- and school-level covariates. However, it was associated with a 1.00% decrease in the variance at the school level, therefore indicating that the quality of student–student relationships explains variance in social–emotional competence more so at the student level than school level.

The association between students' perceptions of SEL teaching in their school and their perceptions of their social–emotional competence was tested in Model 6. When controlling for students' gender and race/ethnicity and school-level SES, there was a positive association between these variables with a medium effect size ( $b = 0.296$ ;  $p < .001$ ;  $ES = 0.688$ ). As hypothesized, students who reported that SEL was taught more frequently in their school also reported having greater social–emotional competence. Specifically, for every 1-point increase in students' reports of SEL teaching, there was an associated 0.296-point increase in students' reports of their social–emotional competence. SEL teaching accounted for an additional 11.25% of the variance in students' social–emotional competence at the student level and an

additional 2.34% of variance at the school level beyond that explained by students' gender and race/ethnicity and school-level SES.

In Model 7, all four predictors (i.e., grade level, teacher–student relationship quality, student–student relationship quality, and SEL instruction) were added to test the unique effects of each variable in the context of the effects of the other variables. When all four of these variables were added into the model simultaneously, they accounted for an additional 17.03% of the variance in social–emotional competence at the student level and 9.21% of the variance at the school level beyond that explained by students' gender, their race/ethnicity, and school-level SES. The grade level effects in Model 7 differed from those in Model 3. In the earlier model, elementary schools demonstrated greater social–emotional competence scores compared to middle schools and high schools. However, when teacher–student relationship quality, student–student relationship quality, and SEL teaching were accounted for, there no longer was a significant difference in the social–emotional competence between elementary and middle schools ( $b = 0.007$ ;  $p = .469$ ;  $ES = 0.064$ ). Model 7 also differed from Model 3 in that high schools had greater school-level social–emotional competence compared to elementary schools ( $b = 0.093$ ;  $p < .001$ ). The effect size fell in the large range ( $ES = 0.845$ ). As such, high schools had a school-level social–emotional competence score that was .093 points higher than elementary schools. The discrepancy between Models 3 and 7 suggests that the grade level difference for elementary and middle schools is better accounted for by differences in perceptions of teacher–student relationship quality, student–student relationship quality, and SEL instruction. Additionally, when these other predictors were considered, there actually was an *increase* in social–emotional competence from elementary to high schools. In Model 7, there continued

to be a positive association between students' social-emotional competence and students' perceptions of teacher-student relationship quality ( $b = 0.181$ ;  $p < .001$ ;  $ES = 0.421$ ), student-student relationship quality ( $b = 0.109$ ;  $p < .001$ ;  $ES = 0.253$ ), and SEL teaching ( $b = 0.137$ ;  $p < .001$ ;  $ES = 0.319$ ). However, in comparison to Models 4–6, the strength of these associations was lower in Model 7. This suggests that some of the variance in social-emotional competence accounted for by each of these variables individually can be attributed to the other variables. Among the significant effects in Model 7, the largest coefficient and effect size was for teacher-student relationship quality.

Table 4 Statistical Estimates of Main Effects of Student-Level Demographic Factors, School-Level Demographic Factor, Grade Level, Teacher–Student Relationship Quality, Student–Student Relationship Quality, and SEL Teaching on Social–Emotional Competence (Models 1–7)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Co.	ES <sup>a</sup>	Co.	ES <sup>a</sup>	Co.	ES <sup>a</sup>	Co.	ES <sup>a</sup>	Co.	ES <sup>a</sup>	Co.	ES <sup>a</sup>	Co.	ES <sup>a</sup>
<b>Intercept</b>	3.360***	—	3.344***	—	3.411***	—	3.296***	—	3.312***	—	3.325***	—	3.280***	—
<b>Student-Level Main Effects</b>														
Gender														
Female vs. Male			0.144***	0.335	0.144***	0.335	0.146***	0.340	0.162***	0.377	0.141***	0.328	0.151***	0.351
Race/Ethnicity														
Asian vs. Caucasian			0.013	0.030	0.015	0.004	0.007	0.016	−0.002	−0.005	−0.009	−0.021	−0.006	−0.014
African American vs. Caucasian			−0.135***	−0.314	−0.134***	−0.312	−0.085***	−0.198	−0.106***	−0.247	−0.142***	−0.330	−0.095***	−0.221
Hispanic vs. Caucasian			−0.069***	−0.160	−0.068***	−0.158	−0.058***	−0.135	−0.080***	−0.186	−0.085***	−0.198	−0.076***	−0.177
Multi-racial vs. Caucasian			−0.110***	−0.256	−0.109***	−0.253	−0.075***	−0.174	−0.081***	−0.188	−0.102***	−0.237	−0.071***	−0.165
T–S							0.312***	0.726					0.181***	0.421
S–S									0.254***	0.591			0.109***	0.253
SEL											0.296***	0.688	0.137***	0.319
<b>School-Level Main Effects</b>														
% FRPM			−0.047	−0.427	−0.180***	−1.636	−0.183***	−1.664	0.009	0.082	−0.131***	−1.191	−0.093**	−0.845
GL														
MS vs. ES					−0.191***	−1.736							0.007	0.064
HS vs. ES					−0.187***	−1.700							0.093***	0.845

Note. Co = Coefficient; ES = effect size; T–S = Teacher–Student Relationship Quality; S–S = Student–Student Relationship Quality; SEL = SEL Teaching; % FRPM = Percentage of students in a school receiving free or reduced priced meals; GL = Grade Level; ES = Elementary School; MS = Middle School; HS = High School

<sup>a</sup> At the student level, the effect size was calculated by dividing the main effect coefficient by 0.43 (the reliability-adjusted student-level standard deviation of the random effect estimate in the unconditional model). At the school level, the effect size was calculated by dividing the coefficient by 0.11 (the school-level standard deviation of the random effect estimate in the unconditional model).

### Moderation Effects of Grade Level and Teacher–Student Relationship Quality

The next set of models (Models 8–10) tested the moderation effects of grade level and teacher–student relationship quality. No prediction was made regarding the role of grade level in the association between teacher–student relationship quality and social–emotional competence. However, grade level was hypothesized to moderate the relationship between student–student relationship quality and social–emotional competence, with a stronger association between the quality of these relationships and social–emotional competence predicted for students in middle and high schools compared to elementary schools. Additionally, it was expected that perceptions of teacher–student relationship quality moderate the relationship between SEL teaching and social–emotional competence, with more positive relationships showing a stronger association between these variables. In Models 8–10, the interaction effects (i.e., teacher–student relationship quality  $\times$  grade level, student–student relationship quality  $\times$  grade level, and SEL teaching  $\times$  teacher–student relationship quality) were added to the model individually, with only one of these interactions in the model at a time. The results of these models are found in Table 5.

In Model 8, the moderation effect of grade level in the association between teacher–student relationship quality and social–emotional competence was added. Adding this interaction accounted for very little additional variance in social–emotional competence at the student level (0.13%) and the school level (0.08%). Grade level did not significantly moderate the association between teacher–student relationship quality and social–emotional competence in the comparison between elementary and middle schools ( $b = -.010$ ;  $p = .363$ ;  $ES = -0.091$ ). However, it served as a significant moderator in the comparison between elementary and high schools ( $b$



$= -.084; p < .001$ ). This corresponded to a medium effect size ( $ES = -.764$ ). Further analysis revealed that there was a stronger association between teacher–student relationship quality and social–emotional competence in high schools compared to elementary schools. This is demonstrated in Figure 3.

In Model 9, grade level was added as a moderation effect in the association between student–student relationship quality and social–emotional competence. Grade level served as a significant moderator in the comparison between elementary and middle school students with a medium effect size ( $b = -0.066; p < .001; ES = -0.600$ ). As shown in Figure 4, further investigation of this interaction revealed there to be a stronger association between student–student relationship quality and social–emotional competence in elementary schools compared to middle schools. Grade level also served as a significant moderator in the comparison between elementary and high school students ( $b = -0.126; p < .001; ES = -1.145$ ). There was a stronger association between student–student relationship quality and social–emotional competence in elementary schools compared to high schools. This is demonstrated in Figure 5. The finding that there was a stronger association between student–student relationship quality and social–emotional competence in elementary schools compared to middle or high schools was the opposite of what was predicted. However, it should be noted that adding this interaction effect to the model only explained an additional 0.37% of the variance in social–emotional competence at the student level and 0.17% at the school level.

In Model 10, teacher–student relationship quality was added as a moderator in the association between SEL teaching and social–emotional competence. Results indicated that teacher–student relationship quality served as a significant moderator ( $b$

= 0.057;  $p < .001$ ). As predicted, there was a stronger association between SEL teaching and social–emotional competence for students who reported more positive teacher–student relationships compared to students reporting less positive relationships (Figure 6). Although this interaction was associated with a medium effect size ( $ES = 0.518$ ), it accounted for very little additional variance in social–emotional competence at the student level (0.26%) and school level (0.25%).

Table 5 Statistical Estimates of Main Effects of Student-Level Demographic Factors, School-Level Demographic Factor, Grade Level, Teacher–Student Relationship Quality, Student–Student Relationship Quality, and SEL Teaching on Social–Emotional Competence and Moderation Effects (Models 8–10)

Table 1	Model 8		Model 9		Model 10	
	Co.	ES <sup>a</sup>	Co.	ES <sup>a</sup>	Co.	ES <sup>a</sup>
<b>Intercept</b>	3.273***	—	3.270***	—	3.262***	—
<b>Student-Level Main Effects</b>						
Gender						
Female vs. Male	0.150***	0.349	0.148***	0.344	0.150***	0.349
Race/Ethnicity						
Asian vs. Caucasian	−0.005	−0.012	−0.004	−0.009	−0.006	−0.014
African American vs. Caucasian	−0.094***	−0.219	−0.092***	−0.214	−0.094***	−0.219
Hispanic vs. Caucasian	−0.076***	−0.177	−0.076***	−0.177	−0.076***	−0.177
Multi-racial vs. Caucasian	−0.071***	−0.165	−0.070***	−0.163	−0.071***	−0.165
T–S	0.205***	0.477	0.187***	0.435	0.199***	0.463
S–S	0.109***	0.253	0.149***	0.347	0.107***	0.249
SEL	0.136***	0.316	0.137***	0.319	0.140***	0.326
<b>Student-Level Moderation Effect</b>						
SEL × T–S					0.057***	0.518
<b>School-Level Main Effects</b>						
% FRPM	−.091**	−0.827	−0.083**	−0.755	−0.094**	−0.855
GL						
MS vs. ES	0.017	0.155	0.015	0.136	0.016	0.145
HS vs. ES	0.073***	0.664	0.088***	0.800	0.102***	0.927
<b>Cross-Level Moderation Effects</b>						
T–S × GL						
T–S × MS vs. ES	−0.010	−0.091				
T–S × HS vs. ES	−0.084***	−0.764				
S–S × GL						
S–S × MS vs. ES			−0.066***	−0.600		
S–S × HS vs. ES			−0.126***	−1.145		

Note. Co = Coefficient; ES = effect size; T–S = Teacher–Student Relationship Quality; S–S = Student–Student Relationship Quality; SEL = SEL Teaching; % FRPM = Percentage of students in a school receiving free or reduced priced meals; GL = Grade Level; ES = Elementary School; MS = Middle School; HS = High School

<sup>a</sup> At the student level, the effect size was calculated by dividing the main effect coefficient by 0.43 (the reliability-adjusted student-level standard deviation of the random effect estimate in the unconditional model). At the school level, the effect size was calculated by dividing the coefficient by 0.11 (the school-level standard deviation of the random effect estimate in the unconditional model). The effect size for moderation effects also was calculated by dividing the moderation effect coefficient by 0.11 (the school-level standard deviation of the random effect estimate in the unconditional model).

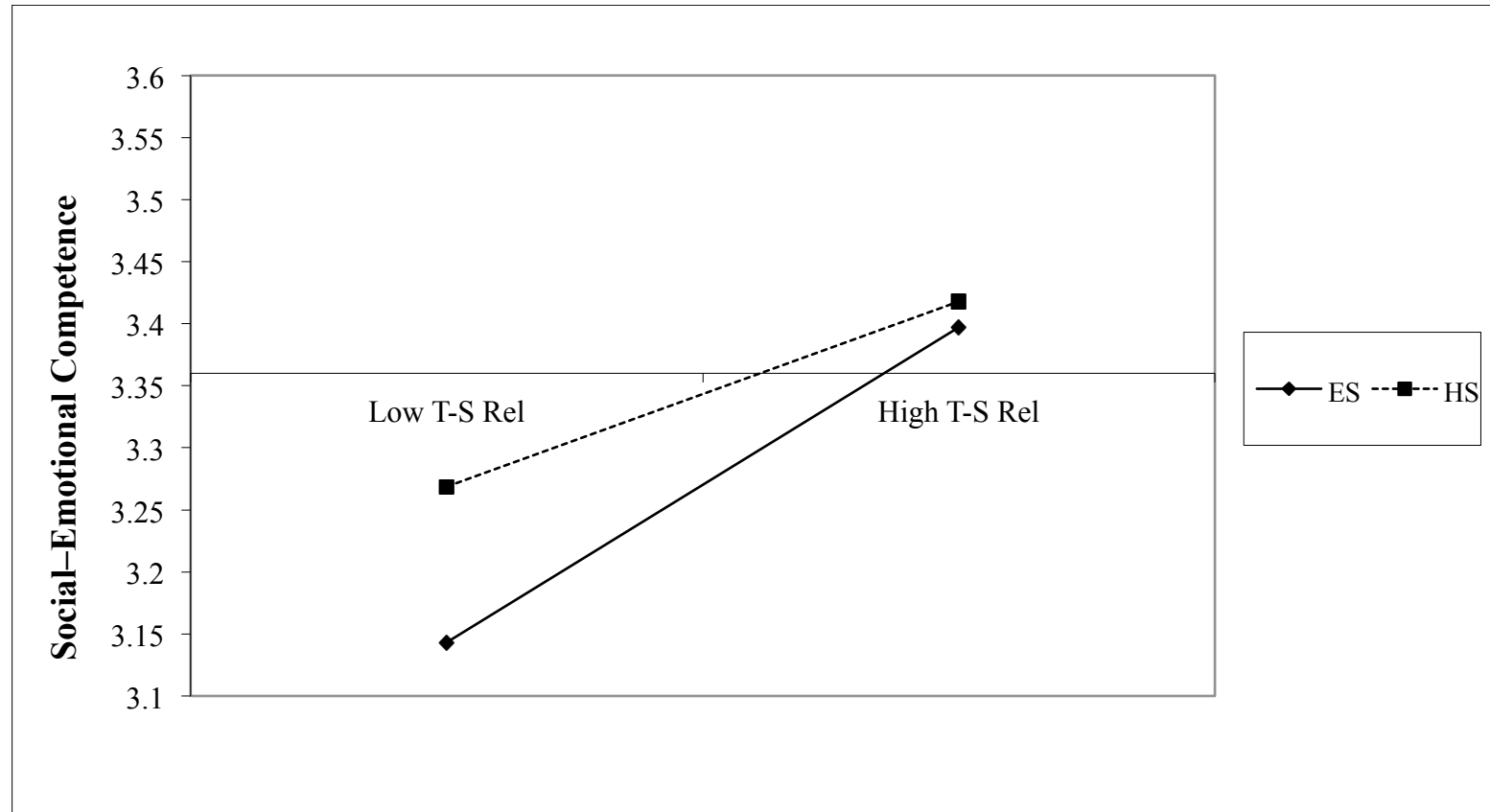


Figure 3 Moderation Effect of Grade Level for Elementary and High Schools in Association Between Teacher-Student Relationship Quality and Social-Emotional Competence

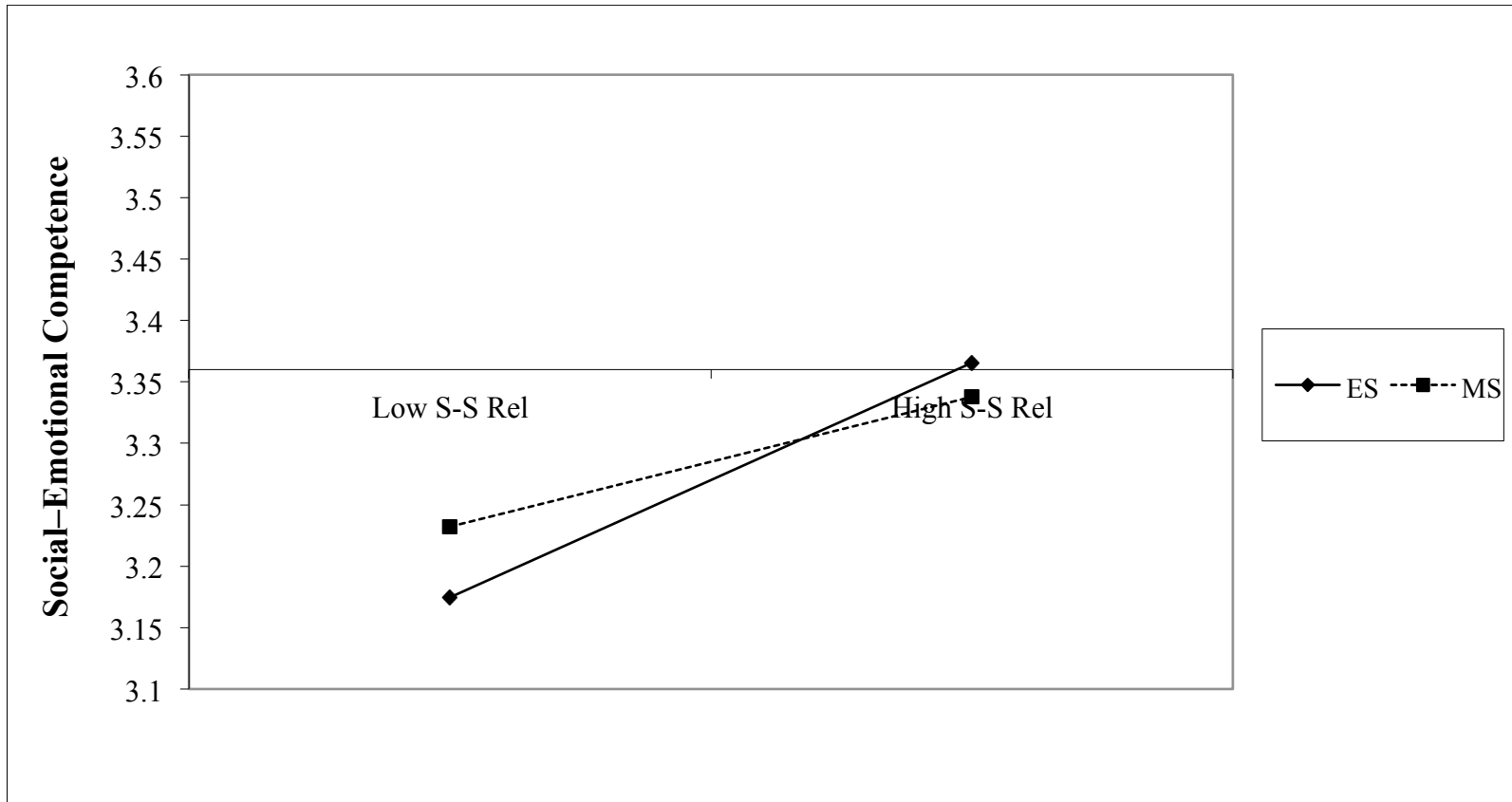


Figure 4 Moderation Effect of Grade Level for Elementary and Middle Schools in Association Between Student-Student Relationship Quality and Social-Emotional Competence

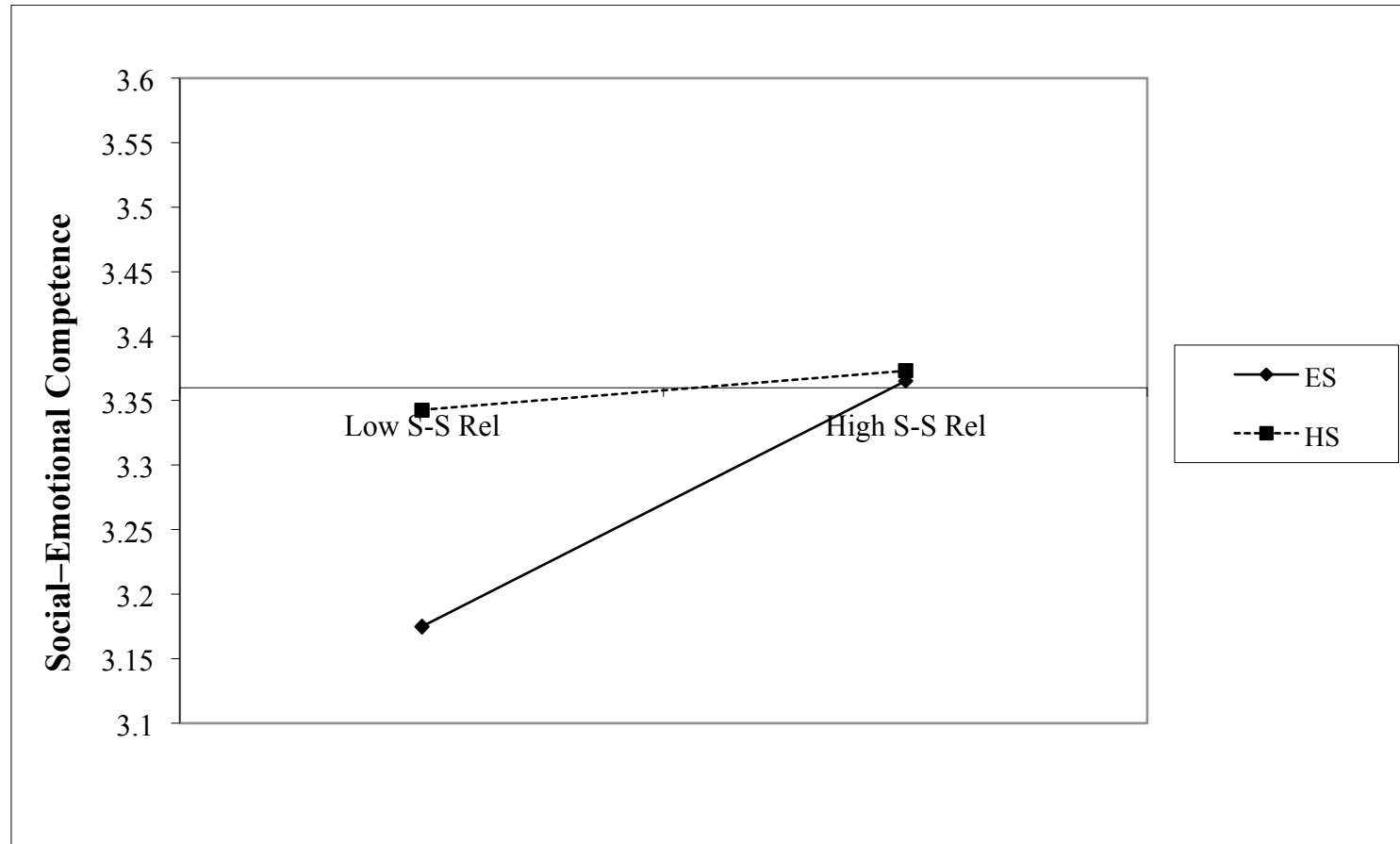


Figure 5 Moderation Effect of Grade Level for Elementary and High Schools in Association Between Student-Student Relationship Quality and Social-Emotional Competence

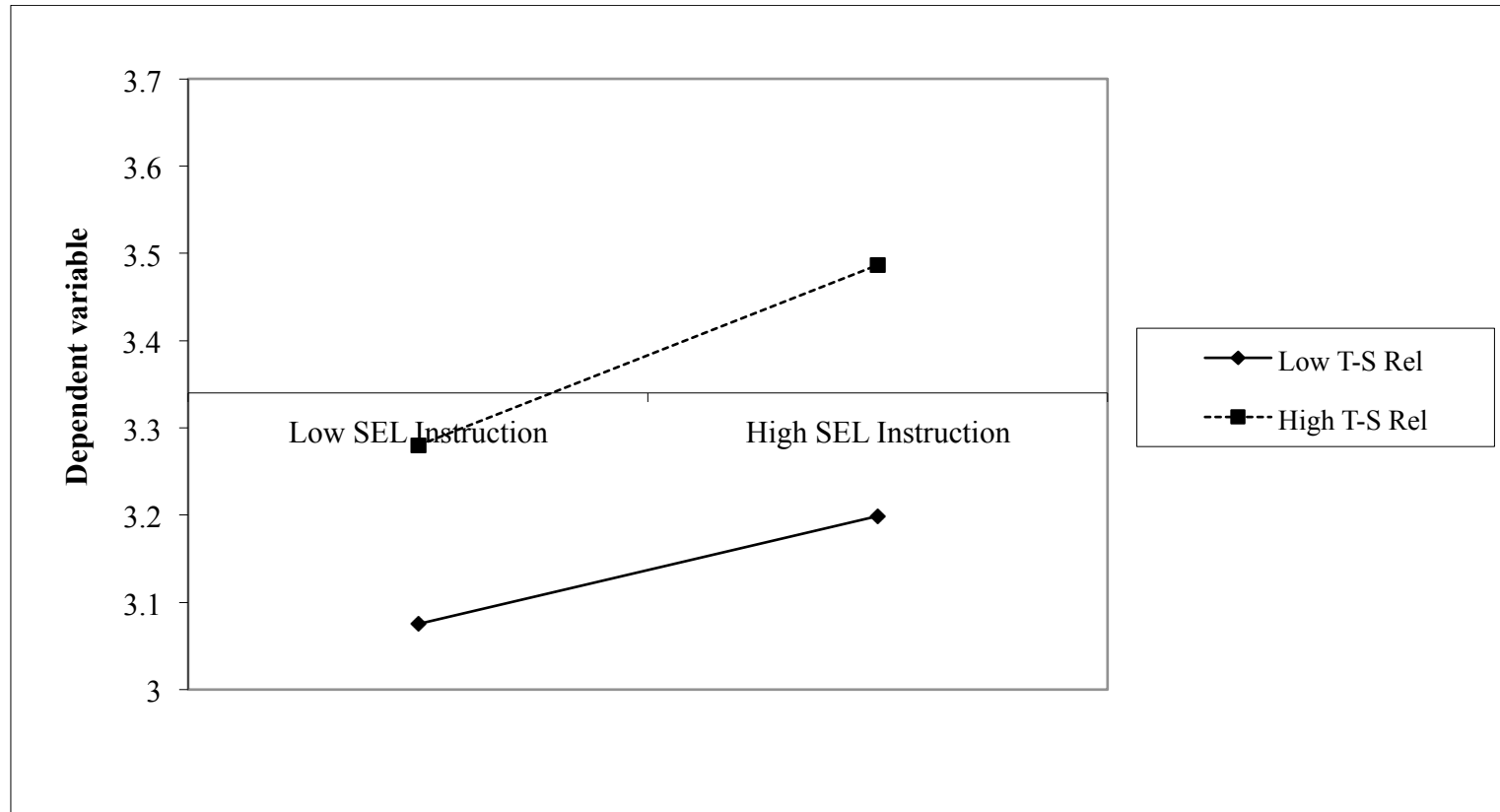


Figure 6 Moderation Effect of Teacher–Student Relationship Quality in Association Between SEL Teaching and Social–Emotional Competence

## **Chapter 4**

### **DISCUSSION**

The purpose of this exploratory study was to investigate the association between students' social-emotional competence and malleable, naturally occurring variables within schools. Therefore, this study aimed to serve as a foundational step toward developing other avenues for social-emotional intervention in schools. In summary, I found that students' perceptions of their social-emotional competence are positively related to their perceptions of teacher-student relationship quality, student-student relationship quality, and the degree to which SEL is taught in their school. Although elementary schools had lower social-emotional competence scores than high schools, there was no difference between elementary and middle schools. I also found that grade level did not moderate the association between perceptions of teacher-student relationship quality and social-emotional competence in the comparison between elementary and middle schools but did serve as a significant moderator in the comparison between elementary and high schools. Specifically, there was a stronger association between perceptions of teacher-student relationship quality and social-emotional competence in high schools compared to elementary schools. Grade level also served as a significant moderator in the association between perceptions of student-student relationship quality and social-emotional competence, with a stronger association found in elementary schools compared to middle and high schools. Additionally, results showed a significant moderation effect of teacher-student relationship quality in the association between perceptions of SEL teaching and



social–emotional competence, with a stronger association found for perceptions of positive teacher–student relationships compared to less positive teacher–student relationships. These findings and their relation to previous research are discussed in the following sections. The effects are presented in the order to which they were added to the set of hierarchical linear models. Afterwards, the practical implications of the findings, limitations of the study, and directions for future research are provided.

### **Interpretation of Findings**

#### **Main Effects of Demographics on Social–Emotional Competence**

This study statistically controlled for the effects of students’ gender and race/ethnicity and schools’ percentage of students receiving FRPM (i.e., school-level SES). According to results of hierarchical linear analyses, the effects of students’ gender and race/ethnicity were statistically significant. Additionally, the effect of schools’ percentage of students receiving FRPM was statistically significant in the majority of models. Supporting the decision to statistically control for these variables, the association between each demographic characteristic and students’ social–emotional competence is interpreted individually in the following sections, with a discussion of previous research findings and theory.

#### **Gender**

Females generally reported greater social–emotional competence than males, representing a moderate effect size. This finding is consistent with other studies showing that girls demonstrate greater social skills (Kwon et al., 2012), self-discipline (Duckworth & Seligman, 2006; Silverman, 2003), concern for others (Hastings et al., 2000), prosocial behavior (Rys & Bear, 1997), and emotional understanding and

intelligence (Bosacki & Moore, 2004; Brown & Dunn, 1996; Harrod & Scheer, 2005). There is some evidence to suggest that these socially oriented gender differences emerge relatively early in life. For example, female infants tend to show stronger interest in human faces (Connellan, Baron-Cohen, Wheelwright, Batki, & Ahluwalia, 2000) and tend to make a greater amount of eye contact (Lutchmaya, Baron-Cohen, & Ragatt, 2002) compared to male infants. Research also suggests that some gender differences continue into adulthood, with women displaying greater levels of empathy (Macaskill, Maltby, & Day, 2002) and altruism (Piper & Schnepf, 2008) than males.

### **Race/Ethnicity**

Caucasian students reported greater social–emotional competence than African American, Hispanic, and Multi-racial students but did not report greater social–emotional competence compared to Asian students. As noted in the introduction, previous research on differences in social–emotional competence across racial/ethnic groups has produced inconsistent findings. Some research has shown Caucasian students to report greater altruism and prosocial behavior compared to students of other races/ethnicities (Carlo et al., 2010; Wentzel et al., 2007), which supports the findings in the current study. However, other studies have found either no significant differences between Caucasian students and students of other races/ethnicities (Kistner et al., 1993) or less prosocial behavior for Caucasian students compared to others (Beutel & Johnson, 2004; Richman et al., 1988). Like the current study, these previous studies did not control for students' individual SES. Because SES is positively associated with children's social–emotional development, as described further in the following section, not accounting for student-level SES could be a potential reason for the discrepancy across studies regarding racial/ethnic differences. Although using

student-level SES data in the current study would have provided an interesting perspective on this topic, these data were unavailable from the DDOE. As a result, only school-level SES could be used as a covariate. Therefore, future research should explore social–emotional competence differences across racial/ethnic groups when controlling for SES at the student level.

Another reason for the differences in social–emotional competence across race/ethnicity groups may be a potential racial bias of the social–emotional competence measure. Several measures commonly used in schools, including the Scholastic Achievement Test (SAT), have been criticized for their racial bias. Caucasian students tend to score higher on the SAT compared to African American or Hispanic students (Zwick & Sklar, 2005). One potential reason for the racial difference in SAT scores may be due to the test items including language more familiar to Caucasian students compared to students of other races/ethnicities (Freedle, 2003). This critique of the SAT measure also may apply to the social–emotional competence measure used in this study. Thus, significant differences in social–emotional competence scores across racial/ethnic groups may actually be attributable to racial differences in the interpretation of survey items and response options and not to actual differences in social–emotional competence.

### **School-Level SES**

Schools' percentage of students receiving FRPM did not serve as a significant predictor of students' social–emotional competence when only student-level and school-level demographic variables were in the model, although the effect size was moderate. The lack of statistical significance is likely due to students' race/ethnicity being controlled for in this model. As noted earlier, school-level SES was statistically

significant when students' race/ethnicity was not included as a predictor. Another potential explanation for the lack of statistical significance in this model was the sample size of schools in the study, which may not have been large enough to produce a statistically significant  $p$  value.

It is important to note that all other models (except for Model 5) showed a negative association between schools' percentage of students receiving FRPM and students' social-emotional competence. In these models, as the percentage of FRPM increased, the overall social-emotional competence of the students in that school decreased. This is unsurprising, given that several previous studies have found that children from greater SES backgrounds tend to have stronger social-emotional competence, moral reasoning skills, and prosocial behavior compared to children from lower SES backgrounds (Bates et al., 2003; Eisenberg et al., 2001; Haapasalo et al., 2000; Herrenkohl et al., 1991; Larsson & Frisk, 1999; Lichter et al., 2002). As noted in the introduction, the positive association between SES and social-emotional competence is often thought of being caused by differences in the parent-child interactions of families from various SES backgrounds. Parents heading low SES families tend to be less nurturing and sensitive to their children (Knight et al., 1982; McLeod & Shanahan, 1993) and tend to use more frequent and harsher punitive disciplinary practices (Burbach et al., 2004; McLeod & Shanahan, 1993) compared to parents from higher SES backgrounds. The differences in parenting behaviors may be due to greater economic and parenting stress found in low-income families (Keegan-Eamon & Zuehl, 2001; Sturge-Apple, Suor, & Skibo, 2014). Sensitive and responsive parenting practices are an important component in fostering a secure attachment between children and their caregivers (De Wolff & van IJzendoorn, 1997). Because a

secure attachment is associated with stronger social–emotional competence (Groh et al., 2014; Laible, 2007; Meins et al., 1998), this may help explain why SES is associated with social–emotional development.

Although the current study examined SES only at the school level and not at the student level, the majority of models nonetheless support the notion that these constructs are related to one another. Future research should explore both school-level and student-level SES in a model to examine if school-level SES explains any variance in social–emotional competence over and above what is explained by student-level SES.

#### Main Effect of Schools' Grade Level on Social–Emotional Competence

The effect of schools' grade level on students' perceptions of their social–emotional competence was statistically significant when student- and school-level demographic factors (i.e., students' gender and race/ethnicity and schools' SES) were statistically controlled. As such, overall social–emotional competence, as reported by students, was higher in elementary schools compared to middle or high schools. The differences between grade levels represented large effect sizes.

However, this association changed when students' perceptions of teacher–student relationship quality, student–student relationship quality, and SEL instruction were added into the model. When these variables were held constant, there no longer was a significant difference between the overall social–emotional competence in elementary and middle schools. This therefore suggests that the difference in social–emotional competence between elementary and middle schools can primarily be accounted for by differences in students' perceptions of teacher–student relationship quality, student–student relationship quality, and SEL teaching. Additionally, when

these student perceptions were accounted for, it resulted in *greater* overall social–emotional competence in high schools compared to elementary schools, represented by a large effect size. As a result, when students’ perceptions of teacher–student relationship quality, student–student relationship quality, and SEL teaching were held constant, there was a substantial change in the statistical significance and direction of the effect of grade level on students’ social–emotional competence. Therefore, on the surface it may seem as though elementary students report stronger social–emotional competence compared to middle and high school students; however, when other factors are considered, social–emotional competence actually tends to be higher in high school.

In explaining the complexity of grade level’s association with social–emotional competence, it is important to note that students’ *perceptions* of their social–emotional competence were assessed – not their actual skill levels as measured by observations or direct assessments. As a result, any developmental differences in students’ self-perceptions or tendencies when self-reporting would likely impact the study’s results. For instance, children’s self-esteem tends to decrease after transitioning to middle school (Twenge & Campbell, 2001; Wigfield & Eccles, 1994), with some studies showing self-esteem continuing to decline during the middle school years (Adams, Kuhn, & Rhodes, 2006; Rhodes, Roffman, Reddy, & Fredriksen, 2004). Children’s self-perceptions may become more negative because of their greater ability to reflect on personal strengths and weaknesses and their greater tendency to compare their performance with that of their peers (Eccles, 1999). As a result, students in middle and high school may be more self-aware of their personal strengths and weaknesses in the social–emotional domain and therefore are less likely to over-report strong

competencies. Thus, elementary students do not necessarily *have* stronger social–emotional competence but instead may simply *report having* stronger social–emotional competence. This may help explain why middle and high school students’ social–emotional competence was lower than that of elementary students when only student and school demographics were controlled. When perceptions of teacher–student relationship quality, student–student relationship quality, and SEL teaching were controlled [i.e., perceptions that also tend to become more negative as students get older (Bear et al., 2016; Jerome et al., 2009; Lynch & Cicchetti, 1997; O’Connor & McCartney, 2007; Spilt et al., 2012)], the association between grade level and social–emotional competence changed substantially.

As noted earlier in the introduction, no a priori hypothesis was made regarding grade level differences in social–emotional competence given the inconsistent results from previous research. Some studies have shown increases in social–emotional competence as children get older (Takahashi et al., 2009; Van der Graaff et al., 2014), which aligns with the results in the current study when students’ perceptions of teacher–student relationship quality, student–student relationship quality, and SEL teaching were simultaneously added in the model. However, other studies have shown either a decrease or a leveling off of social–emotional competence during adolescence (Raffaelli et al., 2005; Smetana et al., 2009; Wray-Lake et al., 2015), which aligns with the results of this study when only student and school demographics were controlled. Therefore, this suggests that these discrepancies in findings could perhaps be due to the different variables held constant. For example, Wray-Lake and colleagues (2015) controlled for gender, race/ethnicity, parents’ education level, and family structure, whereas Takahashi and colleagues (2009) did not include any student

demographics as covariates. Another potential reason for the discrepancy across studies may be the different types of social–emotional competence assessed by each study. It is likely that not all types of social–emotional competence progress in the same way across age. For instance, although perspective-taking skills may consistently increase across age (Van der Graaff et al., 2014), children’s self-regulation skills may plateau during adolescence (Raffaelli et al., 2005).

#### Main Effect of Teacher–Student Relationship Quality on Social–Emotional Competence

As predicted, a significant and positive association between students’ perceptions of teacher–student relationship quality in their school and perceptions of their social–emotional competence was found. This association was represented by a medium effect size. As such, students who reported that teachers and students had more positive interactions in their school also reported having greater social–emotional competence. There continued to be a significant and positive association even when controlling for grade level and students’ perceptions of student–student relationship quality and SEL teaching, although the effect size was smaller in magnitude. This demonstrates that students’ perceptions of teacher–student relationship quality explain variance in social–emotional competence over and above what is explained by grade level, student–student relationship quality, and SEL teaching.

As described in the introduction, studies using teacher, parent, or observer reports have shown that within the context of positive teacher–student relationships students display greater prosocial behavior (Luckner & Pianta, 2011), have more reciprocated friendships (Gest & Rodkin, 2011), and demonstrate less aggression



(Buyse et al., 2009). The results of the current study not only support these previous findings but also extend them to show that *students'* perceptions of teacher–student relationship quality and social–emotional competence are positively related to one another. This study therefore provides meaningful additions to the existing literature regarding students' perceptions of teacher–student relationships.

There are several potential explanations for the positive association between teacher–student relationship quality and social–emotional competence. First, within the context of school-wide positive teacher–student relationships, students frequently observe teachers interacting with students in a caring and respectful manner. According to social learning theory, children learn from observing others' behaviors and often imitate them (Bandura, 1977; Bandura et al., 1961). Therefore, it seems likely that students act more prosocially in classrooms and schools with positive teacher–student relationships compared to environments with less positive relationships. Another supporting theory is self-determination theory, which notes that students have better psychological health and greater intrinsic prosocial motivation when their needs to have positive interactions with others are met (Gagne & Deci, 2005; Ryan & Deci, 2000). This theory also states that when students feel a greater sense of belonging in their classroom and school, they are more likely to take on the values of their teacher (Deci & Ryan, 1985; Wentzel, 1997). Thus, students likely take on more of their teacher's prosocial values within the context of positive teacher–student relationships.

### Main Effect of Student–Student Relationship Quality on Social–Emotional Competence

As predicted, students’ perceptions of the quality of student–student relationships in their school were positively and significantly related to their perceptions of their social–emotional competence. Therefore, students who reported that their peers got along better with each other in the school also reported having stronger social–emotional competence. This was represented by a medium effect size. The association between student–student relationship quality and social–emotional competence was significant even when controlling for grade level, teacher–student relationship quality, and SEL teaching, although the magnitude of the effect size decreased to a small effect. This finding shows that the quality of student–student relationships explains variance in students’ social–emotional competence over and above what is explained by teacher–student relationship quality, SEL teaching, and grade level.

Peer interactions are critical to children’s development, as they provide a context for children to learn and practice social skills (Bukowski et al., 2011). As described earlier in the introduction, there are several theories that help explain why peers are so influential in children’s social development. Theories such as social learning theory (Bandura, 1977) and social cognitive theory (Bandura, 1986, 1989) emphasize that peers serve as behavioral role models. In schools where students interact warmly and respectfully toward one another, students observe their peers’ positive behaviors, as well as supporting cognitions, and may therefore be more likely to act in a similar way. This is likely to be particularly true when students see that their peers’ positive behaviors lead to favorable outcomes, such as receiving recognition from their teachers or positive attention from other students. The results of the current

study might also be explained by social control theory and social norm theory, which state that children's behavior is affected not only by others' behaviors but also by others' expectations (Cialdani & Trost, 1998; Hirschi, 1969). As such, in schools in which the peer norms dictate respectful and kind social interactions, students would be more likely to act in a way that is consistent with those prosocial norms.

#### Main Effect of SEL Teaching on Social–Emotional Competence

As predicted, a positive and significant relationship between students' perceptions of SEL instruction in their school and perceptions of their social–emotional competence also was demonstrated. Thus, students who reported that social–emotional skills were taught to a greater degree also reported greater social–emotional competence. This effect was medium in magnitude. The positive association between SEL instruction and social–emotional competence continued to exist even when controlling for grade level, teacher–student relationship quality, and student–student relationship quality, although the effect size decreased to a small effect. As such, students' perceptions of the degree to which SEL teaching occurs in their schools explained variance in their social–emotional competence over and above what was explained by these other predictors.

As explained earlier in the introduction, a myriad of previous studies have demonstrated the positive effects of SEL curricula for students. These curricula have resulted in greater student social skills and competence, fewer behavior problems, less emotional distress, more positive attitudes about the self and others, and increased academic achievement (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Durlak & Wells, 1997; Green, Howes, Waters, Maher, & Oberklaid, 2005; Sklad, Diekestra, De Ritter, Ben, & Gravesteijn, 2012; Weare & Nind, 2011). Thus, the

results of the current study are not surprising. However, what makes the results particularly interesting is the way in which SEL instruction was assessed. Whereas nearly all previous studies have focused on the effects of a particular packaged SEL curriculum, such as Second Step (e.g., Frey et al., 2000), PATHS (e.g., Domitrovich, Cortes, & Greenberg, 2007), or Incredible Years (e.g., Webster-Stratton, Reid, & Stoolmiller, 2008), the current study focused on the *overall* SEL instruction in the school as perceived by students. Thus, SEL teaching could occur within a packaged curriculum but also could occur within the context of problem solving conversations between teachers and students, during classroom morning meetings, or within cooperative learning groups. The findings indicate that students' social–emotional competence is associated not only with packaged SEL curricula but also with general SEL instructional techniques. This study therefore provides a meaningful contribution to the existing research literature on school-based SEL programming.

There are several possible reasons why a positive association between SEL instruction and social–emotional competence exists. First, students likely gain more knowledge of social–emotional skills with more frequent instruction. By having greater knowledge of these skills, they are more likely to engage in prosocial behaviors (Bandura, 1986). For example, it is likely that students who are more aware of effective steps to use for solving a social problem are more likely to solve the problem accordingly compared to students less familiar with this knowledge. Another likely reason for the connection between SEL instruction and skills is that increased teaching leads to greater prosocial norms in the classroom and school. Therefore, students might feel as though prosocial behaviors and greater social–emotional competence are more valued skills within the school community. According to social

cognitive theory and the social development model, this would therefore make students more likely to demonstrate these behaviors and skills (Bandura, 1986; Catalano & Hawkins, 1996).

### Moderation Effects of Grade Level

In addition to analyzing the main effects of grade level, teacher–student relationship quality, student–student relationship quality, and SEL instruction, I also investigated grade level as a moderator in the associations between perceptions of teacher–student relationship quality and social–emotional competence and between perceptions of student–student relationship quality and social–emotional competence. The results of these moderation effects are discussed in the following two sections.

#### **Moderation Effect of Grade Level in the Association Between Teacher–Student Relationship Quality and Social–Emotional Competence**

Grade level did not serve as a significant moderator in the association between students’ perceptions of teacher–student relationship quality and social–emotional competence in the comparison between elementary schools and middle schools. However, there was a significant moderation effect in the comparison between elementary and high schools, with a stronger association between teacher–student relationship quality and social–emotional competence found in high schools compared to elementary schools. This was associated with a medium effect size. Therefore, findings indicate that although students’ perceptions of positive teacher–student relationships are important to social–emotional competence at all grade levels, they are particularly critical in high school.

One possible reason for this moderation effect is that high schools typically have less SEL programming compared to elementary and middle schools (Bridgeland

et al., 2013). In the absence of this teaching, other school-level factors, including students' perceptions of the quality of teacher–student relationships, are likely more influential in students' social–emotional competence. Although no prediction was made regarding the direction of the grade level moderation effect, the results are supported by research showing teacher–student relationship quality to be associated with positive social–emotional outcomes for high school students. For example, high school students with greater connectedness to their teachers tend to display less emotional distress, violence, suicidal ideation, and substance abuse (Resnick et al., 1997).

### **Moderation Effect of Grade Level in the Association Between Student–Student Relationship Quality and Social–Emotional Competence**

I also investigated if grade level served as a significant moderator in the association between students' perceptions of student–student relationship quality and social–emotional competence. A significant moderation effect was found in both the comparison between elementary and middle schools and the comparison between elementary and high schools. The comparison between elementary and middle schools was associated with a medium effect size, whereas the comparison between elementary and high schools was associated with a large effect size. Further investigation of these moderation effects revealed there to be a stronger association between perceptions of student–student relationship quality and social–emotional competence in elementary schools compared to middle or high schools.

The finding of a stronger association between students' perceptions of student–student relationship quality and SEL teaching in elementary schools compared to middle or high schools was contrary to the prediction. Research has shown that peer

norms are particularly influential during adolescence (Brown et al., 1986; Brown & Larson, 2009), which suggests that middle schools and high schools have a stronger association between student–student relationship quality and SEL teaching compared to elementary schools. One potential reason for the opposite finding in the current study may be that elementary students typically spend the school day within one classroom, surrounded by the same group of peers. In contrast, middle and high school students change classes and therefore spend less time with the same group of students during the school day. As a result, less time spent with the same students might make peer relationships less influential. Another potential explanation is that elementary school is the first time that many children have extensive social interactions with large groups of peers. Because peer interactions can help children learn and practice their social skills, the quality of peer relationships in the school may be particularly influential in elementary school.

Regardless of the reasons for grade level serving as a moderator in the association between students’ perceptions of student–student relationship quality and social–emotional competence, results indicate that students’ perceptions of peer relationship quality are important for social–emotional competence at all grade levels, but particularly in elementary school.

#### Moderation Effect of Teacher–Student Relationship Quality

Students’ perceptions of teacher–student relationship quality also were examined as a moderation effect in the association between their perceptions of SEL teaching and social–emotional competence. This moderation effect was statistically significant and represented by a medium effect size. As hypothesized, there was a stronger association between SEL teaching and social–emotional competence for

students who reported more positive teacher–student relationships compared to students reporting less positive relationships. This is likely explained by research showing that children learn more altruistic behavior from people they consider warm and nurturing compared to those who are not perceived as favorably (Yarrow et al., 1973). Additionally, students are more likely to take on their teacher’s values when they view their teacher as warm and responsive (Wentzel, 2002). Although the current study cannot determine that positive teacher–student relationships cause students to learn more skills from SEL instruction, it nonetheless reiterates the importance of these relationships.

### **Practical Implications**

Although packaged SEL curricula are advantageous in many ways given their straightforward lessons and demonstrated effectiveness in developing students’ social–emotional competencies, they often are not implemented with fidelity in schools (Gottfredson & Gottfredson, 2002; Durlak, 2015). Therefore, identifying alternate interventions would be helpful to schools seeking other efficient ways to develop students’ social–emotional competence. Because the results of this study demonstrate a positive association of teacher–student relationships, student–student relationships, and general teaching of SEL skills with students’ social–emotional competence, these factors may be additional avenues for social–emotional interventions within schools. This is supported by studies showing that teacher–student and student–student relationships can be improved (Driscoll & Pianta, 2010; Mikami, Gregory, Allen, Pianta, & Lun, 2011; Pianta & Hamre, 2001) and that social–emotional instruction can be increased in classrooms (Social and Character Development Research Consortium, 2010), therefore demonstrating that these are malleable factors for schools to target.



Although the techniques used to improve teacher–student and student–student relationships and to teach social–emotional skills do not add a great deal of time to the school day, it is recognized that various obstacles may make it somewhat challenging for some teachers to improve teacher–student and student–student relationships and to increase SEL instruction in the classroom. For example, in classrooms where many students demonstrate frequent and significant behavior problems, teachers must devote a substantial portion of the school day to correcting these behaviors. This results in less time that can be spent building positive relationships and teaching students social–emotional skills. Teachers in classrooms with frequent student misbehavior also experience more stress compared to teachers in less challenging classrooms (Geving, 2007). Because high levels of teacher stress are associated with a more negative classroom emotional climate (Friedman-Krauss, Raver, Morris, & Jones, 2014) and more negative teacher–student relationships (Yoon, 2002), it is recognized that some teachers may have more difficulty implementing these techniques in their classrooms. As such, it is recommended that efforts to foster students’ social–emotional competencies are comprehensive in nature and therefore include techniques in fostering positive relationships *and* techniques used to directly teach social–emotional skills. A discussion is provided in the following sections on strategies to improve these relationships and integrate SEL teaching into the classroom and school.

#### Strategies for Developing Positive Teacher–Student Relationships

There are several strategies teachers can use to improve their relationships with students that are not costly or overly time-consuming. An in-depth exploration of all of the ways to improve teacher–student relationship quality is far beyond the scope of this discussion; however, a few techniques are described in the following paragraphs.

Given that students' perceptions of teacher–student relationship quality are most strongly associated with their perceptions of social–emotional competence at the high school level, high school teachers are especially encouraged to implement these strategies in their classrooms.

One method to improve teacher–student relationship quality is through implementing strong classroom management techniques. Research shows that an authoritative approach to classroom management, emphasizing both support and structure, characterizes the most effective teachers (Bear, 2015; Brophy, 1996; Epstein, Atkins, Cullinan, Kutash, & Weaver, 2008). Support refers to teachers demonstrating care, respect, warmth, and acceptance to students and being responsive to their psychological needs. Structure refers to the communication of clear and consistent rules, procedures, and expectations; the close supervision and monitoring of students' behavior; and the use of positive and negative consequences for behavior. An authoritative approach to classroom management promotes students' positive behavior and prevents behavior problems (Bear, 2015; Brophy, 1996; Epstein, Atkins, Cullinan, Kutash, & Weaver, 2008). Therefore, teachers spend less time correcting students' problem behaviors, which reduces the amount of conflict in the relationship.

A more specific technique to improve teacher–student relationship quality is by making an effort to get to know students individually and making students feel as though they are valued members in the classroom. Spending time individually with students has been linked to the development of positive teacher–student relationships (Driscoll & Pianta, 2010; Pianta & Hamre, 2001). These positive interactions can help prevent students' misbehavior and lessen conflict within the teacher–student relationship when behavior problems occur. One way to engage students in positive

interactions is through greeting them individually every morning when entering the classroom. Teachers also can join students for lunch on occasion or arrange brief meetings before or after school to check in with students. During these opportunities, teachers should get to know students' likes, dislikes, interests, talents, cultures, and families. Teachers also can share their interests and experiences so students can get to know them better. This can allow students to identify shared interests with their teachers, which can foster a more positive relationship.

Given that the quality of the teacher–student relationship has been positively associated with the relationship between the student's family and the school (O'Connor, 2010), teachers also can cultivate positive relationships with students by getting to know their families. Frequent contact between teachers and parents may allow teachers to get to know the families' values and therefore better understand each student (Smolkin, 1999). Additionally, more frequent family-school communication may lead to more positive perceptions of the student by the teacher, which would help develop a stronger relationship (O'Connor, 2010). Teachers can improve their relationships with parents by regularly communicating positive messages about students' academic skills, social–emotional skills, or other positive behaviors to students' parents, such as through phone calls, emails, or notes sent home with students.

#### Strategies for Developing Positive Student–Student Relationships

Peer relationships provide a context for students to learn and practice social skills. Thus, it is important for teachers to ensure that students have close friendships and are generally accepted by their peers. There are many strategies available to teachers to foster students' peer relationships that are not do not add a great deal of

time to the school day. A few of these strategies are provided in the following paragraphs. Although these strategies are important for teachers of all grade levels, results of the current study indicate that they are especially important for elementary teachers, as student's perceptions of peer relationships were most strongly associated with their perceptions of their social–emotional competence in elementary school.

Classroom management strategies are important not only in developing positive teacher–student relationships but also in fostering students' peer relationships. Therefore, teachers are encouraged to provide an appropriate balance of support and structure in the classroom, as these approaches (particularly emotional support) are considered to be very important in developing positive student–student relationships (Gest & Rodkin, 2011; Kiuru et al., 2015). As previously noted, the combination of support and structure can prevent students' behaviors problems and promote students' positive interactions with one another (Bear, 2015; Brophy, 1996; Epstein et al., 2008). For example, when observing a student help a friend, the teacher can pull the student aside not only to praise this behavior but perhaps more importantly to praise the student's disposition of being a kind person. This would make it more likely for the student to help friends in the future (Eisenberg, Cialdini, McCreath, & Shell, 1989; Grusec & Redler, 1980; Henderlong & Lepper, 2002).

Teachers also should be careful to treat all students equally in the classroom and therefore not express particular liking or disliking toward certain students. By playing favorites, teachers can inadvertently create a hierarchical classroom structure in which some students are treated better than others, which can then impact students' acceptance of one another. For example, when teachers favor more academically oriented students, those with externalizing behavior problems are more likely to be

rejected by their peers (Mikami, Griggs, Reuland, & Gregory, 2012). By treating all students equally, teachers can instead foster an egalitarian structure in their classrooms, which encourages students to see others' strengths and therefore fosters peer acceptance and more positive social behaviors (Capella, Kim, Neal, & Jackson, 2013; Gest et al., 2014; Mikami et al., 2011).

Teachers also should be aware of the social structures within their classrooms. Those who more frequently manage the social dynamics within their classroom tend to have students who demonstrate more positive social, academic, and behavioral adjustment (Gest et al., 2014). Thus, teachers should be aware of the students in their classrooms who frequently bully others, experience bullying victimization, lack friendships, and are rejected by peers. Teachers also should know the students in their classroom that most often demonstrate prosocial behaviors, as these students can serve as behavioral role models for their peers. Teachers should use their knowledge of the classroom's social dynamics to be strategic in students' seating arrangements, as research shows that seating impacts peer acceptance and victimization (van den Berg, Segers, & Cillessen, 2012).

An additional way to encourage peer relationships is by providing opportunities for students to interact with one another in a supervised setting. For example, the use of cooperative learning activities in the classroom fosters more positive perceptions of peers (Putnam, Markovchick, Johnson, & Johnson, 1996; Slavin, 1979). Likewise, in general, involvement in sports and extracurricular activities promotes positive peer interactions (Fredricks & Eccles, 2006; Fredricks & Eccles, 2008). These activities help students identify peers who share similar interests

and help create friendships. Thus, opportunities for extracurricular activities should be provided for all students, and they should be encouraged to participate.

### Strategies for Teaching SEL in the Classroom and School

As noted throughout this study, there are myriad ways in which SEL can occur in schools. One popular way to implement SEL is through packaged curricula, which are associated with many advantages. First, they provide teachers and other school staff with scripted lessons that can be taught directly to students. Thus, educators do not need to spend a great deal of time developing SEL lessons to teach to students. Additionally, many of these programs have been shown to positively impact students' behaviors and skills, including less aggression, greater social competence, and more cooperative behavior (Domitrovich et al., 2007; Frey et al., 2000). Therefore, educators can feel confident that using these packaged, evidence-based curricula will lead to improvements in their students' social-emotional competence. However, despite these advantages, these curricula are associated with several disadvantages, including the cost associated with purchasing the curriculum kits and the time it takes to implement the lessons. As a result, teachers often modify the lessons or not deliver as many lessons as needed, thereby not delivering the curriculum with fidelity (Gottfredson & Gottfredson, 2002; Durlak, 2015). This often lessens the effect of the program. For example, one study showed that compared to higher lesson adherence, less lesson adherence for the KiVa antibullying curriculum was associated with less of a reduction in bullying victimization (Haataja et al., 2014).

Fortunately, there are other ways in which SEL can occur in the classroom and school that do not involve time-consuming and costly curricula. One way is through embedding SEL instruction into pre-existing academic lessons (Jones et al., 2010; Zins

et al., 2004). Lessons in English Language Arts or history are particularly conducive to SEL instruction. For example, when reading a novel, teachers can engage students in discussions about characters' feelings during certain situations, the consequences that resulted from characters' actions, or alternative choices that characters ought to have pursued. Engaging in these class-wide discussions do not add a great deal of time to the pre-existing curriculum and can help students learn and practice social-emotional skills.

Teachers also can use cooperative learning activities to improve students' social-emotional competence, as research has shown these activities lead to improved social skills, self-esteem, and psychological health (Ginsburg-Block et al., 2006). In these activities, students work together in groups toward a common goal under teacher supervision and monitoring, and each group member is responsible for contributing to this goal. These groups can either be formal, in which students work together over several classes to complete projects, or can be informal, in which temporary groups are formed that exist only for one class (Smith, 1996). In order for groups to be truly cooperative, groups must feel interdependent with one another; as such, each student's success depends on the overall group's success (Smith, 1996). Students also must work through problems together, discuss any issues that arise, and collaborate to produce solutions (Smith, 1996). Therefore, the connection between cooperative learning and students' social skills makes sense. These activities serve as a way for students to learn and practice their skills in respectful communication, problem solving, and perspective taking.

There are several other methods that schools can use to increase their students' social-emotional competencies. One such method is through engaging students in

service learning opportunities to learn how their altruistic behaviors impact others (Zins et al., 2004). For example, when participating in a canned food drive, teachers can discuss how students' contributions provide food to those who are hungry. Teachers also can discuss social–emotional skills during classroom meetings or during non-instructional activities such as lunch or recess (Zins et al., 2004). For instance, if there are recent instances of bullying occurring in the classroom, the teacher can discuss the negative effects of bullying victimization, the steps that should be taken as a victim or a bystander, and the importance of interacting kindly and respectfully with one another. Additionally, social–emotional competence can be developed through disciplinary encounters between teachers and students (Bear, 2010; Jones & Bouffard, 2012). In these interactions, teachers can engage students in a problem solving process to encourage students' understanding of the negative consequences of their behaviors and the impact of their behavior on others. Teachers also can encourage students to take responsibility for their behaviors and to identify ways to fix their mistakes.

### **Limitations and Directions for Future Research**

Although results of this study provide insight to educators interested in practical and efficient ways to develop students' social–emotional competencies, several limitations should be noted. First, this study utilized a cross-sectional and correlational design and therefore could not demonstrate a causal link between students' perceptions of teacher–student relationship quality, student–student relationship quality, SEL teaching, and social–emotional competence. As suggested by the theories previously described, it makes sense that positive teacher–student and student–student relationships and SEL teaching are causally related to social–emotional competence. However, it also could be argued that the reverse relationship



is true. For example, if students within a classroom and school have stronger social–emotional competence, they likely display fewer behavior problems and act more prosocially toward their teachers and peers. This would make it more likely that they develop positive teacher–student and student–student relationships. Additionally, with fewer behavior problems in the school, teachers likely have more time to devote to the teaching of SEL, as less time is spent correcting misbehavior. Therefore, future research should examine the associations between social–emotional competence, teacher–student relationship quality, student–student relationship quality, and SEL teaching using a longitudinal design. As such, data on the predictors (i.e., teacher–student relationship quality, student–student relationship quality, SEL teaching) and the dependent variable (i.e., social–emotional competence) would be collected at several points over a span of time. The data would then be analyzed to examine if changes in the predictors are associated with changes in the dependent variable.

Second, the current study used student self-report measures to assess social–emotional competence, teacher–student relationship quality, student–student relationship quality, and SEL teaching. Thus, students’ perceptions of these variables were assessed rather than directly observed. Because individuals’ beliefs are often more related to their behavior than observable reality (Bandura, 1986; Clarkson et al., 2010; Eccles et al., 1983; Kelly, 1955), self-report measures can provide valuable insight. However, they are also associated with several limitations, including social desirability bias, which occurs when students present an overly favorable image of themselves. Thus, students may have reported greater social–emotional competence than they actually possess or may have reported more positive student–student relationships in an effort to make their peers appear more amicable. It would have

been preferable in the study to use direct assessments of students' social–emotional competence and school-based observations of teacher–student relationship quality, student–student relationship quality, and SEL instruction, as these measures would provide a more unbiased estimate compared to student self-report. However, direct assessments and observations also have disadvantages. For example, these measures require the presence of observers or cameras to capture and code data, which would doubtlessly impact students' and teachers' behaviors. These assessments also require greater time and money to complete, which makes self-reports a more efficient measure.

An additional limitation related to the use of student self-report measures is the issue of shared variance. As such, students' responses on one subscale are likely more similar to their responses on another subscale compared to other students' responses on that subscale. Therefore, the significant associations between the variables in the study may partly be explained by the shared variance in students' responses. To address this limitation, future research should use measures other than student self-report to assess teacher–student relationship quality, student–student relationship quality, SEL instruction, and social–emotional competence. For example, a teacher-reported measure of a student's social–emotional competence could be used as a predictor of student self-reported social–emotional competence.

Teacher and parent perceptions were not solicited in this study, which is an additional limitation. Thus, the data reflects only students' experiences and beliefs, which could differ from those of parents and teachers. However, it should be noted that at the school level students' perceptions correlated strongly and significantly with teachers' and parents' reports on the 2015 version of the DSS. With regard to teacher–

student relationship quality, students' reports correlated .86 with parent reports and .65 with teacher/staff reports. Students' student–student relationship quality ratings correlated .89 with parents and .83 with teachers/staff. Student and teacher/staff reports of SEL instruction in the school correlated .76 (parents did not complete items assessing SEL instruction in the school). Therefore, although students' perceptions of these variables were not identical to parents' and teachers' reports, they were strongly related to one another.

Some limitations also existed with regard to the social–emotional competence measure. First, as described earlier, only a total social–emotional competence score was derived from the scale due to low reliability coefficients for the individual subscales of relationship skills, social awareness, responsible decision making, and self-management. These low reliability coefficients were likely a result of having only three items per subscale. If future revisions of this scale result in higher subscale reliability, the associations of these individual subscales with grade level, teacher–student relationship quality, student–student relationship quality, and SEL instruction should be explored. Knowing if similar associations exist for all four types of social–emotional competence would be helpful when later developing interventions to foster these student skills. A second limitation of the measure was the omission of one type of social–emotional competence designated by CASEL (i.e., self-awareness). As noted earlier, this domain includes skills in emotion recognition and assessing personal strengths and weaknesses. Thus, items would have tapped into students' feelings of self-esteem, depression, and emotional well-being, thereby requiring a higher level of parental approval for the survey and substantially reducing the sample size. Although it certainly would be interesting to explore the association of students' self-awareness

skills with teacher–student relationship quality, student–student relationship quality, SEL teaching, and grade level, studies have suggested that school-based programs targeting self-awareness are typically ineffective in developing these skills (Manning et al., 2006). Thus, the exclusion of the self-awareness construct in the measure is not a major limitation given that schools have limited ability to increase these skills in students.

The sampling procedures employed in this study also is recognized as a limitation. Schools volunteered to participate rather than being randomly selected. Therefore, differences in teacher–student relationship quality, student–student relationship quality, and SEL instruction could exist between participating and non-participating schools. Additionally, sampling within schools occurred at the classroom level and not at the individual student level. Although schools were instructed to randomly select classrooms for participation, the extent to which this occurred is unknown. Therefore, it cannot be said with certainty that the study included a true random sample of students in Delaware. However, as noted earlier when describing the study’s method, the racial/ethnic composition of the participants was fairly similar to the overall racial/ethnic composition of students in the state, which suggests that a fairly representative sample was used in the current study.

Finally, limitations should be noted with respect to the study’s data analysis techniques. Based on the study’s primary research goals, the models specified in the current study did not have random slopes. Although this is certainly an interesting way to examine the data, this type of analysis simply was beyond the scope of the current study. Future research should explore how random slopes affect the model, thereby examining differences between schools in the associations of social–emotional

competence with teacher–student relationship quality, student–student relationship quality, SEL teaching, and grade level. Future research also should examine mediation effects of social–emotional competence to better understand the complex relationships between these variables. As noted earlier, it not only is probable that more positive relationships and more frequent SEL teaching lead to greater student social–emotional competence but also is likely that more frequent SEL teaching leads to greater student social–emotional competence, which leads to more positive relationships in the school. Thus, examining mediation may provide additional insight into the complex associations between these variables.

### **Conclusion**

Social–emotional competencies are associated with numerous important outcomes for students, including more reciprocated friendships (Gest & Rodkin, 2011), greater academic achievement (Crosnoe et al., 2004; Duckworth et al., 2013), greater school engagement (Fredricks et al., 2004; Lee, 2012), less crime involvement (Moffitt et al., 2011), and less substance abuse (Moffitt et al., 2011). As such, there has been an increased focus on the development of these competencies in recent years (Dusenbury et al., 2014; Jones & Bouffard, 2012). However, the programs used by many schools to develop social–emotional competencies are associated with several disadvantages that potentially limit their effectiveness. Finding other malleable school-related factors that do not share these same disadvantages therefore seems critical in developing alternative social–emotional interventions in schools that are both practical and efficient. Schools could either use these interventions to complement or replace their pre-existing social–emotional programming. To address this issue, I investigated the main effects of student-level and school-level

demographic factors, grade level, teacher–student relationship quality, student–student relationship quality, and SEL teaching. I also investigated the moderation effects of grade level in the association between teacher–student relationship quality and social–emotional competence and between student–student relationship quality and social–emotional competence. Additionally, the moderation effect of teacher–student relationship quality in the association between SEL teaching and social–emotional competence was examined.

Results show that beyond the effects of student-level and school-level demographic factors, elementary schools have lower social–emotional competence scores than high schools; however, there is no difference between elementary and middle schools. Results also show that students’ perceptions of their social–emotional competence are positively related to their perceptions of teacher–student relationship quality, student–student relationship quality, and SEL teaching. This suggests that these factors have the potential to be more practical and less time-consuming ways for schools to develop these skills in students.

Although there was no difference in the strength of the association of students’ perceptions of teacher–student relationship quality and social–emotional competence in the comparison between elementary and middle schools, there was a stronger association in high schools compared to elementary schools. Therefore, high school teachers should make particular efforts to develop positive relationships with their students. Results also show that the association between students’ perceptions of student–student relationship quality and social–emotional competence is strongest in elementary schools compared to middle or high schools, suggesting that fostering friendships and acceptance between students is especially critical during elementary

school years. Finally, findings indicate that students' perceptions of SEL instruction are more strongly related to their perceptions of social-emotional competence when they perceive positive teacher-student relationships to be most positive. As a result, teachers are encouraged to deliver SEL instruction within the context of a positive, caring, and supportive classroom environment.

Clearly, this study provides meaningful implications for schools seeking to foster students' social-emotional competence. Beyond these practical applications, this study also extends the pre-existing literature on school-based social-emotional development by demonstrating significant associations of teacher-student relationships, student-student relationships, and SEL instruction with social-emotional competence. This study certainly is not the first to demonstrate a connection between positive teacher-student and student-student relationships and students' social outcomes (e.g., Demaray & Malecki, 2002; Gest & Rodkin, 2011; Howes, 2000; Luckner & Pianta, 2011; Torrente et al., 2014). However, what makes this study unique is its emphasis on teacher-student relationships and student-student relationships as potential interventions for school-based student social-emotional development. This study also is unique due to its focus on SEL teaching *in general* and not necessarily within the context of packaged SEL curricula. Because SEL instruction can occur within various contexts, using a measure that assesses SEL instruction more broadly is important in understanding how this type of instruction in general is associated with other student outcomes.

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## **Appendix A**

### **SCALE AND SUBSCALE ITEMS USED IN STUDY**

#### **1. Items on the factor of “Social–emotional Competency”**

III1. I blame others when I’m in trouble. (*Reverse scored*)

III2. I think about how others feel.

III3. I can control how I behave.

III4. I am good at solving conflicts with others.

III5. I feel responsible for how I act.

III6. I care about how others feel.

III7. I think before I act.

III8. I get along well with others.

III9. I am good at deciding right from wrong.

III10. What others think is important to me.

III11. I am good at waiting for what I want.

III12. I have one or more close friends.

#### **2. Items on the factor of “Teacher–student Relations”**

I2. Teachers treat students of all races with respect.

I7. Teachers care about their students.

I17. Teachers listen to students when they have problems.

I22. Adults who work here care about the students.

- I32. Teachers like their students.
- 3. Items on the factor of “Student–student Relations”
  - I11. Students are friendly with each other.
  - I16. Students care about each other.
  - I21. Students respect others who are different.
  - I30. Students treat each other with respect.
  - I31. Students get along with each other.
- 4. Items on the factor of “SEL Techniques”
  - II3. Students are taught to feel responsible for how they act.
  - II6. Students are taught to understand how others think and feel.
  - II9. Students are taught that they can control their own behavior.
  - II12. Students are taught how to solve conflicts with others.
  - II15. Students are taught they should care about how others feel.
  - II16. Students are often asked to help decide what is best for the class or school.

## Appendix B

### APPROVAL LETTER FROM THE UNIVERSITY'S INSTITUTIONAL REVIEW BOARD



RESEARCH OFFICE

210 Hullihen Hall  
University of Delaware  
Newark, Delaware 19716-1551  
Ph: 302/831-2136  
Fax: 302/831-2828

DATE: February 11, 2016

TO: George Bear, Ph.D.  
FROM: University of Delaware IRB

STUDY TITLE: [161809-5] School Climate in Delaware Public Schools

SUBMISSION TYPE: Continuing Review/Progress Report

ACTION: DETERMINATION OF EXEMPT STATUS  
DECISION DATE: February 11, 2016

REVIEW CATEGORY: Exemption category # (4)

Thank you for your submission of Continuing Review/Progress Report materials for this research study. The University of Delaware IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will put a copy of this correspondence on file in our office. Please remember to notify us if you make any substantial changes to the project.

If you have any questions, please contact Nicole Farnese-McFarlane at (302) 831-1119 or [nicolefm@udel.edu](mailto:nicolefm@udel.edu). Please include your study title and reference number in all correspondence with this office.

cc: