Peers, Teachers, and Classrooms; Their Impact on Early School Adjustment

Thesis

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Abstract

This study examined the independent and joint influence of peer victimization, close teacher-child relationships, and classroom organization on early elementary students' school adjustment. Five hundred and ninety students from 42 classrooms were a part of this study. Data were collected through observations, student interviews, and family and teacher questionnaires. Based on self-perceptions of peer victimization, teacher perceptions of teacher-child relationships, and observer ratings of classroom organization, results of the multilevel models indicate that children who are victimized by their peers have lower school liking, behavioral engagement, and academic achievement. Additionally, results indicated that close teacher-child relationships support school adjustment. However, despite their positive impact, findings indicate that close teacher-child relationships are not able to buffer against the adverse effects of peer victimization. Also, results indicated that classroom organization negatively correlated with behavioral engagement and school liking; however, it was not significant in any of the multilevel models. Findings underscore the importance of creating classroom climates that promote positive peer interactions and reduce victimization.

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Chapter 1. Introduction

A child's initial impression of school can come from their teacher and the class that they are a part of. From the first days they are in a classroom, the interactions a student has with their teacher, their classmates, and the classroom environment begin shaping their beliefs about school and their academic and behavioral outcomes (e.g., Birch & Ladd, 1997; Hamre & Pianta, 2001; Ladd, Buhs, & Seid, 2000). The extent to which a child can adjust to school and become successful in the school environment has been shown to have lasting and cumulative effects on a child's school career (Ladd, 1990). Further, after controlling for classroom adjustment at the beginning of the year, classroom features such as the number of friends reported and behavioral engagement predict changes in school adjustment within the school year (Alexander, Entwisle, & Dauber, 1993; Ladd, 1990). Thus, despite stability in some aspects of school adjustment (Birch & Ladd, 1997), the experience a child has in a classroom can alter school adjustment outcomes within the course of the year. Additionally, each year, children enter new classrooms and are faced with new academic challenges, new peers, and new teachers. Thus, beliefs and behaviors related to school may be re-shaped and re-formed each year as children re-adjust to the classroom environment. The interconnectedness of classroom characteristics—for example, the way that the physical layout of a classroom impacts peer to peer interaction—means that the interactions a student has with peers, teachers, and the classroom blend together and jointly

influence their short- and long-term school trajectory. A negative comment from a teacher may be counteracted by kind words from a friend, and the structure of a classroom may limit the chance for negative interactions with peers. The influence of the classroom, peers, and teachers do not act in isolation; it is the combined influence of interactions with the classroom space, peers and teachers that shape school adjustment (Dunst, Mcwilliam, & Holbert, 1986; Pianta, La Paro, Payne, Cox, & Bradley, 2002).

While much previous research has focused on the independent influence of teacher, peers, and classroom factors (e.g., Baker, 2006; Birch & Ladd, 1997; Ladd, 1990; Ladd & Coleman, 1997; Pianta & Stuhlman, 2004; Schmitt, Pentimonti, & Justice, 2012), less is known about the combined impact of teachers and peers (Archambault, Kurdi, Olivier, & Goulet, 2016; Furrer, Skinner, & Pitzer, 2014; Luckner & Pianta, 2011; Troop-Gordon & Kuntz, 2013) or classroom organization and peers (Cappella, Kim, Neal, & Jackson, 2013). Therefore, the purpose of this study is to examine the way that aspects of the classroom ecosystem (teachers, peers, classroom organization) uniquely and jointly affect adjustment to school for children in the lower elementary grades.

School Adjustment

School adjustment can be defined as the degree to which students become comfortable with, engaged in, and successful in the school environment (Birch & Ladd, 1997). While previous literature has operationalized these components in a variety of ways, often school adjustment is conceptualized as including academic achievement, school liking and behavioral engagement (Birch & Ladd, 1997; Ladd, 1990; Troop-Gordon & Kuntz, 2013). Research has

shown that young children's feelings towards and experiences within school can positively or negatively impact their long-term school outcomes (e.g., Birch & Ladd, 1997; Hughes, 2011; Ladd, 1990; Pianta, Steinberg, & Rollins, 1995). From early academic achievement and behavioral engagement to school liking, children's initial impressions of and success in the school environment have lasting effects on their school trajectories (Ladd, 1990). Further, each of the components of school adjustment has been shown to individually influence children's school experiences and continued success in the school environment.

Academic achievement. Academic achievement can be conceptualized in a variety of ways from teacher reported grades, to standardized tests, IQ assessments, and GPA. These measures vary in what they capture and their significance, however, in young children one common measure of academic achievement, early language skills, has been shown to be a particularly important predictor of academic readiness and later academic achievement (Rimm-Kaufman, Pianta, & Cox, 2000; Storch & Whitehurst, 2002). In general, no matter the measure of academic achievement, parents, researchers, and policymakers alike agree that an essential part of formal schooling is increasing students' academic abilities (Shouse, 2018). In recent years, as federal and state regulations have increasingly stressed the importance of standardized tests and national standards (Fusarelli & Fusarelli, 2015), academic outcomes have only become even more important. Given the emphasis on academic achievement, it is particularly problematic that research has shown that racial/ethnic achievement gap is present as early as kindergarten, with white students starting and staying above their non-white peers on almost all

standardized achievement measures (Vanneman, Hamilton, Baldwin Anderson & Rahman, 2009).

Given the significance of early academic achievement for all students in predicting achievement over time (Sung & Wickrama, 2018), decades of research has been conducted looking at early intervention programs, closing the achievement gap and ways to support struggling students in the early grades (Banerjee, 2016; Campbell & Ramey, 1994; Jeynes, 2015). Indeed one study reported a connection between teacher-assigned grades in early elementary classes and high school dropout, indicating that children with lower academic grades in first grade are more likely to drop out in high school (Alexander, Entwisle, & Horsey, 1997). Additionally, students who consistently underperform academically in the early grades are more likely to engage in delinquent behavior as they get older (Farrington, 1987). In the short-term, children with lower academic achievement also experience school-related difficulties such as increased conflict with their teachers, more externalizing behaviors, and decreased school engagement (e.g., Hughes & Kwok, 2006; Jerome, Hamre, & Pianta, 2009). Therefore, understanding how teachers, peers, and classrooms impact students' academic achievement in the early school years has significant implications for both short- and long-term school success.

Behavioral engagement. Another critical aspect of children's school experiences is the extent to which they can learn to follow and work within school norms. Behavioral engagement has been defined in various ways ranging from academic engagement and on-task concentration to classroom conduct, and even participation outside the classroom (Birch & Ladd, 1997). One critical aspect of behavioral engagement is cooperative participation (Fredricks, Blumenfeld, &

Paris, 2004) which represents the extent to which children follow school rules and adjust to standard school norms (Birch & Ladd, 1997; Fredricks et al., 2004). It has been shown that in the early school years, students' tendency to adapt to the student role and behave in accordance with classroom rules and expectations is a vital prerequisite for learning and school success (Ladd et al., 2000).

Similar to academic achievement, there are racial/ethnic as well as gender differences in behavioral engagement, with teachers rating students who are white and those who are female higher in behavioral engagement than their peers (Archambault et al., 2016; Pigott & Cowen, 2000). Given that these studies use teacher ratings of behavioral engagement, these differences may in part be due to teachers' perceptions of acceptable behavior, or implicit bias. However, whatever the cause result of these differences, children who do not learn to follow classroom norms and meet teacher expectations are more likely to have conflictual relationships with teachers (Birch & Ladd, 1997), and may be more likely to experience negative consequences and punishments as a result of their actions. However, earning to behave in accordance with classroom expectations and cooperatively participate in the classroom has been shown to correlate with increases in academic achievement and school liking (Eggum-Wilkens, Valiente, Swanson, & Lemery-Chalfant, 2014; Ladd et al., 2000) indicating the interrelatedness of school adjustment factors. In sum, the extent to which children conform to classroom norms is a crucial factor in determining their academic and behavioral outcomes over time. When children struggle to conform to school and classroom norms, they may be more likely to face peer exclusion (Hendrickx, Mainhard, Oudman, Boor-Klip, & Brekelmans, 2017), begin to dread going to

school and struggle to engage in school and academic work as expected. Therefore, knowing how peers, teachers, and classroom organization impact the extent to which they conform to school expectations and participate cooperatively in the classroom is critical to understanding children's adjustment to and experiences within school.

School liking. Another significant dimension of school adjustment is children's feelings towards school. School liking, defined as the extent to which children acknowledge liking or disliking school (Ladd, Kochenderfer, & Coleman, 1996) is a critical factor in young children's school experiences. Previous literature has indicated that young children who like school are more likely to attend to and engage in school activities, less likely to avoid school and have fewer missed days (Ladd & Burgess, 2001). Additionally, early elementary children with high levels of school liking have been shown to have higher levels of classroom engagement as well as higher independent participation (Ladd, Buhs, & Seid, 2000; Ladd, Kochenderfer, & Coleman 1996). School liking is also positively related to cooperative participation in younger elementary students (Ladd & Burgess, 2001) indicating that the extent to which children like school relates to behavioral engagement. Finally, school liking is associated with increases in academic achievement for elementary students (Ladd, Buhs, & Seid, 2000; Ladd & Burgess, 2001; Ladd, Kochenderfer, & Coleman 1996). Interestingly, despite the close connections between school liking, academic achievement, and behavioral engagement, fewer racial/ethnic and gender differences have been reported in relation to school liking compared to academic achievement (Murray, Waas, & Murray, 2008). As a whole, the research on school liking makes

it clear that the extent to which children like and report positive feelings towards school is crucial in determining numerous school-related outcomes.

The research reviewed above demonstrates just how critical elements of school adjustment are in determining students' educational trajectories. Further, the interconnectedness of the elements of school adjustment highlights the importance of considering all factors when examining children's school trajectories. Particularly in the early years, adjustment to school has been shown to have lasting effects on a child's long-term educational outcomes (Ladd, 1990). While school adjustment is often examined during transitional periods (e.g., kindergarten, the beginning of middle school), the factors that makeup school adjustment (academic achievement, behavioral engagement, school liking) are important during every grade. One study observed that when examining children's behavior and academic achievement, within-year effects of behavior on academic achievement were stronger than across-year effects (Alexander et al., 1993). Additionally, the interaction between teacher-child relationships and children's behavior has been shown to vary within the course of a school year (Roorda, Verschueren, Vancraeyveldt, Van Craeyevelt, & Colpin, 2014). One study of early elementary students at public elementary schools also reported a weak correlation between kindergarten behavior and first-grade popularity (Eggum-Wilkens et al., 2014). Thus, while there is stability in some aspects of children's school adjustment (Birch & Ladd, 1997), it is clear that there is also variation within and across school years.

Each year, as children enter new classrooms, they have the chance to form new peer friendships, change their attitudes towards school, and start again with a new teacher. Although

aspects of children's school experiences have been described as stable across time (e.g., Buhs, Ladd, & Herald, 2006; Jerome et al., 2009), a new year will bring new relationships and interactions. The experience a child has in a specific classroom may alter their school adjustment (Ladd, 1990). Additionally, the experiences students have, and their impact on school adjustment may differ depending on the individual characteristics of the student such as their race/ethnicity and gender (Jeynes, 2015; Murray et al., 2008; Voyer & Voyer, 2014). Thus, understanding how classroom factors jointly influence school adjustment across the elementary grades, after considering racial and gender differences, is key to determining how to support students' long-term educational success.

Sources of Classroom Influence

Previous research has looked at numerous classroom-related variables in relation to school adjustment (e.g., Baker, 2006; Honma & Uchiyama, 2014; Lau & Power, 2018; Troop-Gordon & Kuntz, 2013). While there are many different conceptions of classroom quality and classroom ecology, most include dimensions related to the physical environment, the social-emotional environment, and the academic environment (Bustos Flores, Casebeer, & Riojas-Cortez, 2011; Pianta et al., 2002). When considering the aspects of a classroom that may influence students' school adjustment, including teachers, peers, and the classroom structure helps capture the different dimensions of classroom ecology. These sources of influence work both independently and jointly to influence children's school adjustment (e.g., Dunst et al., 1986; Pianta et al., 2002; Troop-Gordon & Kuntz, 2013; Wang & Fletcher, 2017).

Teacher-child relationships. Given their role as leaders in the classroom, teachers are in a unique position to shape children's school experiences. As such, research has consistently shown the importance of young children's relationships with their teachers for school-related outcomes including but not limited to, academic success, behavioral engagement and school liking (Howes, Hamilton, & Matheson, 1994; Pianta & Stuhlman, 2004). Since elementary school children spend the majority of their day with one teacher, this relationship is likely to be particularly impactful with regard to children's feelings towards and success in the school environment. Indeed, research has shown that the relationship that a child has with their teacher in kindergarten predicts grades, standardized test scores, work habits and disciplinary actions through fourth grade (Hamre & Pianta, 2001). Moreover, young children have been known to use the teacher-child relationship as a resource for creating relations with peers and participating in classroom activities (Howes, 2000). Often teacher-child relationships are conceptualized in terms of two dimensions: closeness and conflict (e.g., Howes, 2000; Luckner & Pianta, 2011; Pianta & Stuhlman, 2004). Closeness is defined in terms of warmth and open communication between a teacher and a student; it incorporates student feelings of support and comfort (Birch & Ladd, 1998).

Teacher-child relationships high in closeness allow children to use the teacher as a secure base from which to engage in the classroom environment (Schmitt, Pentimonti, & Justice, 2012). Additionally, one study found that both parents and teachers reported that some of the most important roles of the teacher-child relationship were to help the child feel safe, secure, comforted and protected (Degotardi, Sweller, & Pearson, 2013). Thus, when teacher-child

relationships are functioning as intended, they are close relationships that support children's development within the classroom. This study will focus on the impact of close teacher-child relationships to investigate how positive teacher relationships alter school adjustment.

Teacher-child relationships have been linked to concurrent and future academic achievement (Hamre & Pianta, 2001; Pianta & Stuhlman, 2004; White, 2013). However, the connection between teacher-child relationships and academic achievement may not be the same for all students. Hamre and Pianta (2001) reported that the correlation between academic achievement and teacher-reported closeness was stronger for African American students than it was for students of other ethnic backgrounds. Further, Jerome et al. (2009) indicated that there were significant differences in teacher-child closeness based on student race. Thus, teachers only to have different levels of closeness with students depending on their race. Moreover, when they do experience closeness with students, the effect of that closeness may not operate the same for all children.

When examining the connection between teacher-child relationships and academic achievement, findings are mixed depending on the measure of academic achievement used. A study of preschool students (Pianta et al., 1995) showed that, within a sample of students who were predicted to be referred for academic support, those who had close relationships with their teachers did not end up being referred during that school year. One possible explanation for this is that in using teacher reported closeness and examining whom those same teachers referred, the results are more indicative of teacher preference than actual academic gains. In contrast, Birch and Ladd (1997) calculated that, in kindergarten students, closeness accounted for 8% of the

variance observed in children's language skills, as tested on the Metropolitan Readiness Tests. Some newer studies examining both teacher-reported and tested achievement have shown that teacher-reported closeness is only linked to teacher-reported academic achievement, rather than tested academic achievement (Maldonado-Carreño & Votruba-Drzal, 2011; Pianta & Stuhlman, 2004). Thus, there seems to be conflicting evidence as to the association between teacher closeness and academic achievement. It may be that when teachers perceive greater closeness with a student, they overestimate their academic achievement, creating a link between academic achievement and closeness that exists only in their assigned grades. Therefore, in this study, students' tested academic achievement, rather than teacher reported achievement, will be examined to determine the extent to which close relationships with teacher impact students' learning when measured less subjectively.

Foundational work on teacher-child relationships has also demonstrated that teacher-child relationships are associated with children's behavioral engagement (Birch & Ladd, 1997). When children and teachers are close and get along with one another, it may be that a child will be more likely to listen and follow directions given by the teacher. However, this may not be the same for all children. In their study, Birch and Ladd reported that gender played a significant role in teachers' ratings of closeness and behavioral engagement, with teachers reporting higher levels of closeness and behavioral engagement for girls. Additionally, Hamre and Pianta (2001) found that student ethnicity significantly contributed to the variance in teacher-reported behavior in lower elementary grades. It is possible this result stems from differences in behavior, teacher expectations, perceptions of cultural norms, or some combination of these reasons. Further, in

that same study, teacher-child closeness in kindergarten was related to more positive behavior during the remainder of elementary school for girls, illustrating that, for at least some students, the importance of a close relationship with a teacher on behavioral engagement is not limited to the current school year and can have lasting effects. Pianta and Stuhlman (2004) also reported that first-grade teachers' ratings of closeness with students were negatively related to children's internalizing behaviors, as reported by mothers and teachers. Similarly, Maldonado-Carreño and Votruba-Drzal (2011) established that higher quality teacher-child relationships were linked to fewer behavior problems across time. Thus, there appears to be a link between close teacher-child relationships and children's behavioral engagement in school; students who have closer relationships with their teachers are more likely to show increased levels of cooperative participation. However, this association may be moderated by students' gender and race.

Finally, teacher-child closeness has also been linked to children's school liking (Birch & Ladd, 1997). It seems clear that interactions with teachers have the ability to considerably alter how a child feels and how much they desire to engage in the classroom. In their foundational study, Birch and Ladd calculated that, even after controlling for student gender and the classroom relational environment, teacher closeness accounted for 17% of the variance in school liking. Similarly, Buyse, Verschueren, Verachtert, and Van Damme (2009) reported that teacher-child closeness was associated with school liking.

Taken together these studies support the importance of teacher-child closeness in relation to the three dimensions of school adjustment. Further, they highlight the potential for differences in the relations between teacher-closeness and school adjustment based on individual

characteristics of the student, such as race and gender. In this study, it is hypothesized that closeness will be associated with higher academic achievement, greater behavioral engagement, and greater school liking. Further, it is hypothesized that these associations may differ depending on a child's gender or ethnicity.

Peer Relationships. Similar to the relationship a child has with their teacher, the relationships children have with their peers can significantly alter their school adjustment. To date, an extensive body of literature has explored the impact of numerous types of peer relationships including bullying (e.g., Longobardi, Iotti, Jungert, & Settanni, 2018), peer acceptance (e.g., Ladd et al., 1996), peer exclusion (e.g., Buhs, Ladd, & Herald, 2006), isolation (e.g., Donohue, Perry, & Weinstein, 2003) and victimization (e.g., Iyer, Kochenderfer-Ladd, Eisenberg, & Thompson, 2010) on children's school experiences. These various peer relationship variables have been associated with outcomes such as school liking, classroom participation, school engagement, stress levels, and health (e.g., Archambault, Kurdi, Olivier, & Goulet, 2016; Buhs, Ladd, & Herald, 2006; Ladd, Kochenderfer, & Coleman, 1997). However, each type of relationship a child has with their peers impacts their school outcomes differently. That is, while similar, there are clear distinctions between relationship types such as victimization, exclusion, and rejection (Troop-Gordon & Kuntz, 2013).

One type of relationship that has received growing attention in the literature is victimization. This attention may, in part, be due to the fact that approximately half of all students will be victimized during their K-12 educational career (Nansel et al., 2001). Further, Kochenderfer and Ladd (1996) calculated that 20% of kindergarten students reported being

victimized at some point during the school year. While definitions of victimization can vary, they generally encompass students being excluded by peers, being the target of verbal and physical abuse, and being the recipient of frequent negative treatment from peers (Buhs et al., 2006; Elledge, Elledge, Newgent, & Cavell, 2016; Ladd, 1990; Troop-Gordon & Kuntz, 2013). When children face these sorts of behaviors, they have difficulty engaging and being successful in the school environment (Iyer et al., 2010; Ladd et al., 1997). Compared to teacher relationships, there is some evidence to suggest that there may be fewer racial and gender differences within peer relationships. In their 2006 study examining friendship processes (stability, inclusion, conflict, and closeness), Ladd et al. reported that, contrary to their hypothesis, almost none of the gender effects they examined were significant. Another study reported that despite initial mean level differences in peer acceptance by gender, in cross-time analyses, the differences were no longer apparent (De Laet et al., 2014). Thus, while friendship operates differently than victimization, it may be that there are fewer racial or gender differences in young children's relationships with each other than there are in their relationships with teachers.

It seems likely that children who are victimized would struggle to stay academically engaged. However, findings connecting victimization with decreased academic achievement have been mixed. In their study of young children, Ladd et al. (1996) observed that victimization during the fall semester was not predictive of either fall or spring academic achievement scores, although spring victimization scores were related to spring academic achievement. Further examining the association between academic achievement and victimization in elementary school, Hanish and Guerra (2002) reported that while victimization was related to inattention and

delinquency, it was not related to a decrease in academic achievement. Conversely, Iyer et al. (2010) and Ladd et al. (1997) did find victimization to be related to decreases in academic achievement in the elementary grades. One possible explanation for these seemingly contradictory findings is the type of victimization assessed.

In her research, Hoglund (2007) described that, in middle school, relational victimization (intentionally leaving students out) was not related to academic achievement, but physical victimization (being physically harmed/threatened) was. Additionally, peer exclusion, being consistently left out and not liked by other children, has been associated with decreased academic achievement for elementary students (Buhs et al., 2006). Thus, it seems that the impact of victimization on academic achievement depends on the type of victimization a child experiences. In this study, given the significance of previous findings (Hoglund, 2007), physical peer victimization will be investigated. It is hypothesized that, in line with previous literature (Hoglund, 2007), higher ratings of physical victimization will be related to lower academic achievement. As such, this study seeks to add to previous literature and further support understanding of how victimization relates to academic achievement by examining one type of victimization, physical victimization.

Children who are victimized not only struggle academically, they also struggle to stay behaviorally engaged. Victimization of elementary school students has been found to be negatively related to engagement and participation in the classroom (Buhs et al., 2006; Iyer et al., 2010). A student who frequently experiences negative treatment may be more likely to feel frustrated, angry, or hurt. When a young child endures those feelings, they may have difficulty

cooperatively participating in the classroom, following conventional classroom rules, and engaging in the classroom as expected. This struggle is evidenced by the fact that victimization is negatively related to effortful control in lower elementary students (Iyer et al., 2010). Children who are victims of negative peer treatment may not be able to control their functioning in the classroom. Thus, being victimized by peers negatively impacts a child's ability to follow school rules and participate in the classroom as expected (Buhs et al., 2006).

Finally, in looking at children's adjustment to school and rates of victimization, it is agreed that there is a connection between victimization and decreased school liking. That is, students who are picked on and teased report liking school less than their peers(e.g., Kochenderfer & Ladd, 1996). Additionally, studies have that observed that, for elementary students, being victimized relates to decreases in both concurrent and future school liking (e.g., Iyer et al., 2010; Ladd et al., 1996, 1997). Further, no studies were found to have reported racial differences in how peer victimization relates to school liking and the studies that examined gender differences in how peer victimization relates to school liking did not find significant differences (Ladd & Coleman, 1997; Ladd et al., 1996). Therefore, it is likely that being victimized by peers leads all students to like school less.

On the whole, it is clear that, for young students, being victimized by peers is likely to alter their adjustment to school. While some connections are well established (e.g., to school liking and participation), others (academic achievement) warrant further investigation. Additionally, compared to teacher relationships, it may be that peer relationships function more consistently regardless of student race and gender. However, despite the differences in peer and

teacher relationships, research has shown that the combined impact of negative peer and teacher relationships has the potential to increase adverse outcomes for students (Troop-Gordon & Kuntz, 2013). Therefore, investigating how victimization and close teacher-child relationships independently and jointly impact students' school-related outcomes will help to clarify how they interact.

Classroom organization. In addition to looking at the relationships that happen within a classroom, it is possible that features of the classroom itself have the ability to alter children's adjustment to school. One classroom feature that has the potential to relate to peer and teacher relations, as well as children's school adjustment, is classroom organization. Classroom organization is often defined as the extent to which a classroom is well-managed, and the teacher makes good use of time (Pianta et al., 2005); however, other studies have defined classroom organization as the amount of time a teacher spends providing students with explanations about expectations (Cameron, Connor, Morrison, & Jewkes, 2008). In this study, classroom organization is defined using Pianta's (2005) definition, which views classroom organization in relation to classroom management, use of time, and facilitation of instruction. While recent research into classroom organization is not as extensive as research into other areas of classroom ecology such as teacher-child relationships (for review, see Vandenbroucke, Spilt, Verschueren, Piccinin, & Baeyens, 2017) or peer relationships (for review, see Slaughter, Imuta, Peterson, & Henry, 2015), classroom organization and management may still impact a number of important student outcomes.

One area of school adjustment that may be impacted by classroom organization is academic achievement. In his review of research on classroom organization and management, Brophy (1983) stated that effective management of a classroom must include organization to maximize students' productive on-task engagement. This argument has been supported through empirical research. For example, a study conducted with first-grade students established a connection between classroom organization and vocabulary skills that was particularly strong for low ability students (Cameron, Connor, & Morrison, 2005). Another study by the same research group later observed that, in first-grade classrooms, the amount of instructional time spent on classroom organization in the fall of the school year predicted spring reading scores (Cameron et al., 2008). These two studies of first-grade students were the only recent studies identified that connected classroom organization and academic outcomes. It is likely; however, that classroom organization continues to have an effect on student academic achievement beyond the first grade. Therefore, the current study will investigate the impact of classroom organization on academic achievement for students in first, second, and third grade.

In addition to academic achievement, a small number of studies have explored the link between classroom organization and students' behavioral engagement, specifically the extent to which classroom organization helps students to follow classroom rules. Classroom organization in upper elementary classrooms has been associated with cooperative behavior in the classroom (Luckner & Pianta, 2011) and with prosocial behavior (Gest & Rodkin, 2011). One possible explanation for this association is that, in organized classrooms, there is less time available for off task or negative behavior (Emmer & Stough, 2001). Interestingly neither Luckner and Pianta

or Gest and Rodkin explored the possibility of racial differences in how classroom organization impacts cooperative behavior. Further, despite studying them, neither paper reported significant gender differences.

Despite multiple studies reporting a connection between classroom organization and behavioral engagement, not all studies have reported that same finding. For example, a study of elementary schoolers by Cappella, Kim, Neal, and Jackson (2013) reported that classroom organization was not predictive of behavioral engagement. They hypothesized that the lack of association might have been due to the fact that classroom norms tend to demonstrate stronger findings for negative behaviors, rather than positive behaviors (Cappella et al., 2013). Their hypothesis is supported by a study conducted by Chang (2004), who calculated that the impact of classroom norms on changes in student behavior was stronger for aggression and withdrawal than it was for prosocial behavior. Additionally, in explaining the lack of association between classroom organization and behavioral engagement in their data, Capella et al. (2013) noted that previous work exploring classroom organization and behavioral engagement had not considered the role of peer relations. They concluded that it may be that classroom organization is not a significant predictor of behavioral engagement once peer relations are considered. To help explain the conflicting findings connecting behavioral engagement and classroom organization, this study will examine the individual and combined influence of peer victimization and classroom organization on behavioral engagement for young children.

Finally, although there has been little recent research that explores the link between school liking and classroom organization, it is reasonable to hypothesize that students may

perceive a more favorable environment in a classroom that has clear behavior expectations, few learning disruptions and teacher re-direction of misbehavior. Therefore, exploring the possible connection between classroom organization and school liking could add to the understanding of what leads students to enjoy school and want to be there.

From the research reviewed here, there is reason to hypothesize positive connections between classroom organization and students' academic and behavioral outcomes. However, the research also seems to indicate that, contrary to their importance in teacher-child relationships, individual student characteristics (race and gender) may have less association with classroom organization. Additionally, the research into classroom organization and peer and teacher relationships highlights just how important it is to understand classroom ecosystems as a whole and the interactions between components of those ecosystems.

Interconnectedness of Classroom Influences

Independently, the sources of classroom influence examined above have been shown to impact children's school adjustment; however, extensive research has also examined the way classroom influences interact and jointly alter children's school adjustment (e.g.Cappella et al., 2013; J. Hughes & Kwok, 2007; Longobardi et al., 2018; Sulkowski & Simmons, 2018; Troop-Gordon & Kuntz, 2013). Within classrooms, teachers and peers can observe the interactions that others have, and change their actions to be in line with, or make up for the actions of others.

This idea, about the importance of the social context in learning, dates back to Rotter (1954). His initial theory was later expanded upon by Bandura with his work in social cognitive and social learning theories. Bandura’s social learning theory details how observed consequences

can change an evaluation of an event (Bandura, 1978) and speaks to the importance of observational learning and the influential role of models in shaping behavior (Bandura, 1969). Further, Bandura's triadic reciprocity model speaks to how a person's behavior, the environment they are in, and personal factors such as cognition, all influence one another (Bandura,1986). Thus, in thinking about classrooms, the social and instructional context of the classroom (e.g., the relationships formed, the organization of the space) impact how individuals operate within the classroom, yet simultaneously, the way in which individuals interact within the classroom can impact the overall context of the classroom. Therefore, thinking about how classroom organization may impact the relationships that occur within that space is an important consideration when investigating school adjustment.

Additionally, Bandura's social learning theory states that social behaviors are learned through observations and experiences (Bandura, 1978). Thus, it is important to investigate the way in which teacher and peer relationships interact with each other. It might be that, if teachers model close caring relationships with students, they may be more likely to have close caring relationships with each other. However, this is not always the case, as vicarious learning and modeling work best when there is perceived similarity between the observer and the model. Thus, if differences between the student and the teacher (e.g., gender, race, age) limit perceived similarity, teacher's and student's behaviors may have less influence on each other (Bandura, 1986). Nonetheless, it is clear that for decades education researchers have thought about and investigated the importance of the social context of learning and the interaction of students with the learning environment (Bandura, 1969, 1978).

Recent research into the interconnectedness of classroom relationships has investigated the ways peer and teacher relationships interact with each other to alter students' school-related outcomes (e.g., J. Hughes & Kwok, 2007; Luckner & Pianta, 2011; Serdiouk, Berry, & Gest, 2016). If a teacher has a negative relationship with a student, it is likely that fellow students in the class may notice and pick up on that tension. Further, it may be that, in sensing that a teacher does not like a classmate, peers may be more likely to exclude or victimize that student. Indeed, research investigating 5th-grade students observed that negative teacher behaviors towards a student were noticed by fellow students and affected their reports of perceived teacher dislike (Hendrickx et al., 2017). Moreover, significant gender differences emerged, with females influenced by peers to a greater extent than males.

Additionally, in a 3-year longitudinal study of elementary students, Hughes and Chen (2011) reported that peer liking and teacher support had a bi-directional relationship, with early teacher-child relationship quality predicting later peer liking scores, and early peer liking scores predicting later teacher-child relationship quality, after controlling for race and gender. In further investigating the connection between teacher and peer relationships in elementary school, Luckner and Pianta (2011) found that, for late elementary students, teacher emotional support was correlated with increased individual ratings of prosocial behavior and decreased aggression. Interestingly, a study of academically at-risk first-grade students reported that teacher-reported closeness was predictive of peer acceptance in second grade; however, that effect was fully mediated by second-grade teacher-reported student engagement (Hughes & Kwok, 2006). Further, they reported no significant moderation effects by gender or ethnicity. Thus, while these

studies highlight how the relationship a teacher has with a student can alter that student's behavior and peer relationships, there are many factors to consider when examining the interaction of these relationships.

As highlighted above, teachers have a critical role in shaping the experiences of their students, both in their interactions with students and in the indirect effects their behaviors cause. In terms of individual student outcomes, research has shown that peer and teacher relationships combine to alter academic performance, school liking, bullying behaviors and psychological distress (Sulkowski & Simmons, 2018; Troop-Gordon & Kuntz, 2013; Wang, Swearer, Lembeck, Collins, & Berry, 2015). In a study conducted with rural and suburban 3rd and 4th-grade students, Troop-Gordon and Kuntz (2013) looked at profiles of victimization and teacher relationships over the course of two years and examined how they affected students' school liking and academic achievement. They concluded that the profile of high self-reported victimization and low teacher-reported closeness in year one led to worse school outcomes in year two, even after controlling for current victimization and teacher relationship status. Further, while all students experienced a decline in school liking from 3rd to 4th grade, students who reported high levels of victimization decreased the most. However, for victimized students, a close relationship with their teacher attenuated the decline in school liking. Given this finding, it is possible that close relationships with teachers may be able to moderate the negative effects of peer victimization on other areas of students' school adjustment. Despite finding a moderating effect for school liking, however, Troop-Gordon and Kuntz (2013) did not find that high levels

of teacher closeness were able to moderate the academic declines of victimized students. Additionally, they did not investigate the possibility of gender or race differences.

Therefore, while close teacher relationships may provide a buffer against some of the adverse effects of victimization, research to date, has not thoroughly investigated the extent to which this occurs in elementary school populations. It may be that close teacher relationships are more likely to alter the negative effects of victimization on psychosocial outcomes (Sulkowski & Simmons, 2018; Troop-Gordon & Kuntz, 2013), compared to academic and behavioral outcomes. Further investigation into the buffering effects of close teacher relationships on young children's school adjustment could provide valuable insights into how interactions within the classroom ecosystem alter children's school experiences.

Together the connections between peer relations, teacher relations, and classroom organization indicate that classroom influences do not work independently to impact students school adjustment. Research has shown that classroom organization in upper elementary classrooms is correlated with decreased relational and physical aggression and social network equality (Cappella et al., 2013; Luckner & Pianta, 2011). Moreover, teacher-child relationships have been related to students' attitudes towards and bullying behaviors, with a close relationship with a teacher making students less likely to engage in bullying behaviors (Wang et al., 2015). Finally, the combined influence of teacher-child relationships and peer relationships has been found to alter school adjustment more than either relationship on its own (Luckner & Pianta, 2011). Thus, it seems the combined and interactive effects of classroom influences are what truly shape students' school adjustment.

Present Study

The purpose of this study is to extend the literature on young children's school adjustment in three important ways. First, despite extensive research, there are still some inconstancies regarding the extent to which teachers, peers, and classroom organization, impact school adjustment. As such, this study will investigate how peer victimization, close teacher relationships, and classroom organization are associated with academic achievement, school liking, and behavioral engagement. Second, while numerous studies have examined the combined effects of students and teachers (e.g., Hughes & Chen, 2011; Luckner & Pianta, 2011; Troop-Gordon & Kuntz, 2013) and studies have examined the interaction between classroom organization and peer relationships (Cappella et al., 2013; Luckner & Pianta, 2011), few studies to date have explored the collective effects of the three sources of classroom influence (teachers, peers, and classroom structure). Further, some of the studies investigating the combined effects of students and teachers have failed to account for race and gender (Cappella et al., 2013; Sulkowski & Simmons, 2018; Troop-Gordon & Kuntz, 2013). Therefore, this study aims to extend the understanding of how these dimensions jointly contribute to differences in children's school adjustment, after controlling for racial and gender differences. Finally, a small body of research has investigated the potential moderating effects of close teacher relationships on the adverse outcomes associated with peer victimization (Sulkowski & Simmons, 2018; Troop-Gordon & Kuntz, 2013); however, this buffering effect has not been explored for all aspects of school adjustment. Thus, this study aims to extend the understanding of the extent to which close relationships with teachers buffer against the effects of being victimized.

The specific research questions addressed in this study are:

1. To what extent are close teacher relationships, peer victimization, and classroom organization individually associated with aspects of early elementary children's school adjustment?

2. To what extent do close teacher relationships, peer victimization, and classroom organization, in combination, account for the variation in children's school adjustment scores?

3. Do close teacher-child relationships moderate the adverse effects of peer victimization on young children's school adjustment?

Chapter 2: Method

Participants & Procedure

This study was conducted as part of a comprehensive project examining classroom ecology and children's learning in preschool and elementary classrooms. The procedures for this study were approved by the institutional review board at The Ohio State University (Study ID: 2016B0231). In this project, classroom ecology is defined as including features such as classroom composition, classroom networks, teachers' practices, and characteristics of students' experiences. Teachers and children in preschool to third-grade classrooms in a large midwestern district were eligible to enroll. Given the focus of this study, however, only data from grades 1-3 will be used.

Participants in the study were elementary students and their teachers. Student participants (N= 590, 50.2% female) were recruited from elementary schools in a large midwestern metropolitan area. Students were all enrolled in full-day public school programs in grades 1-3 (n1=200, n2=185, and n3=205). The sample was somewhat racially diverse with white students accounting for 56.6% of the participants, Black students 10.2%, Hispanic 12.4% and the remaining 20.8% of the population classified as other or one or more races. Participating children were taught by 42 teachers (88% female) in 42 classrooms. There was limited racial diversity in the teaching staff, with 96% of the teachers self-identifying as white. Further, teachers were

reasonably experienced, with 97% having a teaching certificate, and 57% having at least 10 years of teaching experience.

Teacher recruitment took place through informational meetings at preschools and elementary schools within the district — teachers who chose to include their class in the study completed fall and spring questionnaires on the children in their classrooms. In addition, teachers were asked to complete a questionnaire with information on their demographic characteristics, background, and teaching practices during the spring of the school year. Teachers received a monetary incentive for completion of study activities, with incentives prorated by activity.

All children in classrooms with participating teachers were eligible to enroll. Consent packets were sent home to parents several times at the beginning of the school year. Parents were asked to complete a short questionnaire during the consent process, with information on their child and family. Parents also completed a more in-depth family background questionnaire in the spring of the school year; they received a small incentive for completing the survey. Additionally, children whose parents enrolled them in the study received age-appropriate books at the fall and spring assessment periods.

In addition to surveys completed by parents and teachers, data were collected via child interviews, and classroom observations (see Appendix A for full measures). Interviews with students took place during the fall and spring of the school year; however, ratings of victimization were only collected in the fall, and ratings of school liking were only measured during the spring. Additionally, classroom observations took place during the winter. An overview of the study design and data collection is provided in Table 1.

Table 1. Timeline of Data Collection

Source	Time 1: Fall	Time 2: Winter	Time 3: Spring
Students	**Interview** Victimization		**Interview** School liking **Assessment** Academic Achievement
Parents	**Survey** Demographics		
Teachers	**Survey** Demographics, teacher-child relationships		**Survey** Demographics, behavioral engagement, teacher demographics
Observers		**Observation** Classroom organization	

Measures

An overview of all measured variables is provided in Table 2.

Demographics. Student demographic information was collected through both parent and teacher survey reports in the fall and spring of the academic year. Demographics included information on students' race, gender, and age. For student race, the variable was split and dummy coded, to examine the effect of one race as compared to all others. To do this three-separate binary race variables were created: Black, White, and Hispanic —each with the target race, compared to all other students in the sample. Teacher demographic information was collected through self-report surveys conducted during the spring of the academic year and included information on teachers' race, gender, age, and teaching experience.

Teacher-child closeness. Teacher-child relationships were assessed using the Student-Teacher Relationship Scale-Short Form (STRS; Pianta, 2001). The STRS is comprised of a 15-item scale designed to evaluate the degree of closeness and conflict in a teacher's relationship with a given child. Teachers are asked to indicate their degree of agreement with each statement on a five-point Likert-type scale, ranging from 4 (definitely applies) to 0 (definitely does not apply).

For this study, only scores from the closeness subscale was used. The 7-item closeness subscale measures the degree of affection and warmth a teacher experiences with a given student with example items including "I share an affectionate, warm relationship with this child" and "This child openly shares his/her feelings with me." Scores for closeness were determined by averaging responses from the seven items. Previous research has indicated that the closeness sub-scale exhibits high internal consistency (Pianta, 2001). STRS scores also display external validity with scores linked to children's behavioral and academic outcomes (Birch & Ladd, 1997; Hamre & Pianta, 2001). In the current sample, the closeness subscale demonstrated adequate internal consistency with $\alpha = .87$ for fall.

Victimization. Peer victimization, defined as the extent to which students are hit, picked on or teased, was assessed using the peer aggression subscale of the Perceptions of Peer Support Scale (PPSS) (Kochenderfer & Ladd, 1996). This measure is comprised of four items and is designed to rate the level of peer victimization that a student perceives. In individual interviews, students sat with an interviewer who recorded their responses. Before starting the assessment, students completed practice items concerning watching movies and having snacks. Students

responded to each question on a three-point Likert type scale (A lot = 2, Sometimes = 1, Never = 0). Interviewers could also code “don’t know” or “no response” if, after prompting, the student was not able to make a choice or answer. Example questions included “Does anyone in your class ever hit you? and “Does anyone in your class say mean things to you?". Scores for victimization were determined by averaging responses from the four items. Previous literature comparing the peer aggression subscale to observer ratings of aggression found that the self-report measure produced sufficiently valid data in young children and had adequate reliability (α = .74; Kochenderfer & Ladd, 1996). Additionally, there is some evidence of external validity with scale scores linked positively to loneliness and negatively to peer acceptance (Underwood & Boulton, 1992). In this study, the scale demonstrated adequate reliability with an α = .73 for fall.

Classroom organization. Classroom organization was assessed using the average of global ratings of behavior management, productive use of instructional time and instructional learning formats from the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008). The CLASS is an observation instrument developed to assess classroom quality through observed interactions in preschool-third grade classrooms. For observations, teachers selected a one-hour block of time during which they were willing to be observed. During each session, observers coded ten classroom dimensions within three domains: emotional support, classroom organization, and instructional support. Each domain is comprised of multiple dimensions. For this study, the dimensions of the classroom organization domain were included: productivity, behavior management, and instructional learning formats. Within each dimension,

observers looked for target behaviors (e.g. re-direction of misbehavior, consistency, anticipation of problems) and evidence (e.g. students on task during transitions, having materials ready, having a variety of materials) before rating the dimension on a scale from 1 (minimally characteristic) to 7 (highly characteristic). Lower ratings indicated that observers rarely saw indicators of that dimension while higher ratings indicated that observers consistently saw evidence of that dimension within the classroom. All observations took place during times when students were with the classroom teacher on regular school days. Within each observation, two 20-minute cycles of coding took place, with 10 minutes of coding time after each.

Classrooms were deemed highly organized when observers noted that there was a high level of productivity, behavior management and effective facilitation of instruction. Evidence of behavior management included ratings of concepts such as clear expectations and rules, teacher anticipation of problems, effective redirection, and student compliance. Evidence of productive use of time was displayed through having routines, few disruptions, brief transitions, and having materials readily accessible. Evidence of instructional learning included having a variety of learning materials, clarity of learning objectives and effective facilitation of instruction. The scores for behavior management, productivity, and instructional learning for each coding cycle were averaged into one overall dimension score. Then the dimensions scores were averaged to create the classroom organization score.

Academic achievement. The Woodcock-Johnson III Test of Cognitive Abilities (WJ III) was used as a measure of academic achievement. This test measures general intellectual abilities and predicts academic achievement (Woodcock, McGrew, & Mather, 2001). For this study one

subtest, Picture Vocabulary, was used. Picture Vocabulary is a test of word knowledge that assesses the student's expressive vocabulary at the single word level. In the beginning, students are asked to point to a picture that fits the named word. As the test progresses, the student is asked to name pictures. According to Blackwell (2001), the WJ III demonstrates content, construct and concurrent validity based on moderate to high correlations between it and other cognitive measures. Using the split-half procedure, previous work has indicated the picture vocabulary subscale to have good reliability (α =.80, Woodcock, McGrew, & Mather, 2001). For the purposes of this study, standardized scores were used, to account for grade differences.

Behavioral engagement. Students' behavioral engagement was assessed using the Cooperative Participation subscale of The Teacher Rating Scale of School Adjustment (TRSSA) (Birch, & Ladd, 1997). The Cooperative Participation subscale was originally an eight-item indicator designed to assess the degree to which children accept the teacher's authority and conform to classroom rules and responsibilities (Birch & Ladd). For the purposes of this study, in consultation with G.W. Ladd (personal communication October, 2016), the scale was shortened to 5 items. Example items include statements such as "Follows teacher's directions" and "Uses classroom materials responsibly."

Teachers completed electronic surveys during the fall and spring of the school year individually for each student participating in the study. Teachers were asked to indicate their level of agreement with each item on a five-point Likert scale ranging from 4, strongly agree, to 0, strongly disagree. Previous studies using the full original version of the subscale indicate that the subscale exhibits high reliability with an α = .92 (Birch & Ladd, 1997). Additionally,

research has shown some evidence of external validity with scores for cooperative participation highly correlated to scores for teacher-child conflict (Birch & Ladd, 1997). In this sample, the shortened scale displayed high reliability (α = .95, spring).

School liking. The School Liking and Avoidance Questionnaire adapted from Ladd and Price (1987), Ladd (1990) and Asher, Hymel, & Renshaw (1984) was used to assess student feelings towards school and being in school. In consultation with G.W. Ladd (personal communication, October 2016), the original 14-item scale was reduced to 6 items to better fit with this project and its aims. The revised scale contained 3 items related to school liking and 3 items related to school avoidance. The new 6-item questionnaire was administered to students during individual interviews. Students were instructed to respond to a series of questions related to whether they enjoy and feel included at school, selecting between never, sometimes and a lot. Before starting the assessment, students completed practice items. As with the measure of peer victimization, interviewers could also code "don't know" or "no response" if, after prompting, the student was not able to make a choice or answer. Sample questions include "Is school fun?", "Do you hate school?" and "Do you like to come to school?". Negatively valenced items were reverse coded before the scale was created. For the purposes of this study, the revised 6 item scale were used. However, previous research using the full 14 items scale demonstrated adequate internal consistency (α=.87, Ladd et al., 2000) and external validity with scores linked to cooperative participation, independent participation, and achievement (Ladd et al.). In this study, the revised scale demonstrated adequate internal consistency (α = .81, spring).

Table 2. Variables

Construct	Variable	Role
Student Gender	Parent Report (0=male, 1 = female)	Covariate
Grade	School Records (0=Grade 1, 2=Grade 3)	Covariate
Race Black White Hispanic	Parent Report (1=Black, 0=Other) (1=White, 0=Other) (1=Hispanic, 0=Other)	Covariate
Teacher-child relationships	Teacher Report STRS (0=does not apply, 4=definitely applies) α = .87	Predictor Level 1
Peer Victimization	Student Report PPSS: Peer Aggression (0=never, 1=sometime, 2=a lot) α = .71	Predictor Level 1
Classroom Organization	Classroom Organization Observation CLASS (1=minimally characteristic, 7=highly characteristic) α = .80	Predictor Level 2
Academic Achievement	Direct Assessment WJ III α = .81	Outcome
Behavioral Engagement	Teacher Report TRSSA: Cooperative Participation (0=strongly disagree, 4=strongly agree) α = .95	Outcome
School Liking	Student Report SLAQ (0=never, 2= a lot) α = .81	Outcome

Chapter 3: Results

Descriptive Statistics

The means and standard deviations for sources of classroom influence (i.e., teacher-child closeness, peer victimization, classroom organization) and school adjustment (i.e., academic achievement, school liking, and behavioral engagement) can be found in Table 3. Results show that most students reported low levels of victimization ($\bar{x}$ =.44 out of 2). Additionally, teachers tended to perceive high levels of closeness with students ($\bar{x}$ = 3.12 out of 4). Moreover, the descriptive data shows that on average most classrooms were rated highly for classroom organization ($\bar{x}$ =5.26 out of 7). For school adjustment outcomes, means indicated that students reported liking school ($\bar{x}$ =1.53 out of 2), teachers reported that most students were somewhat behaviorally engaged in school ($\bar{x}$ =2.78 out of 4), and scores for picture vocabulary exhibited considerable variability ($\bar{x}$ = 94.66, σ=10.41).

Table 3. Means and Standard Deviations

Variable	Mean	Std. Deviation	Minimum	Maximum
Teacher-Child Closeness	3.12	.67	0.00	4.00
Peer Victimization	.44	.48	0.00	2.00
Classroom Organization	5.26	.66	3.16	6.50
Picture Vocabulary	94.66	10.41	48.00	125.00
Behavioral Engagement	2.78	1.12	0.00	4.00
School Liking	1.53	.53	0.00	2.00

Classroom Social Climate and School Adjustment

Research question one asked; "to what extent are close teacher relationships, peer victimization, and classroom organization individually associated with aspects of early elementary children's school adjustment?" To address this question, Spearman correlations between the variables in the sample were calculated. Spearman correlations were used due to the fact that they are more robust to outliers than Pearson correlations (Cohen, Cohen, West & Aiken, 2003). All reported correlations can be found in Table 4. As expected, all predictor variables were found to be significantly correlated with school adjustment outcomes.

Teacher perceptions of teacher-child closeness exhibited a small positive association with student reported school liking (r_s=.087, p<.05) and teacher-reported behavioral engagement (r_s =.253, p<.001). Unexpectedly, teacher-child closeness was not significantly associated with picture vocabulary scores (r_s =.056, p>.05). As expected, in contrast to teacher perceptions of closeness, students' reports of being victimized by peers were negatively associated with school adjustment outcomes. Results show small but significant correlations between peer victimization and school liking (r_s =-.151, p<.001), behavioral engagement (r_s =-.219, p<.001) and picture vocabulary (r_s =-.103, p<.05).

When looking at the correlations for classroom organization, individual level scores for all other variables were aggregated to the classroom level before correlations were calculated. Despite previous mixed findings, classroom organization was found to be significantly associated with aggregated school liking (r_s =-.178, p<.001), and aggregated behavioral engagement (r_s =-.305, p<.001). However, these correlations were small and unexpectedly negative, indicating that higher classroom organization is not positively associated with school

adjustment. Additionally, classroom organization was not significantly associated with picture vocabulary scores (r_s =-.064, p>.05).

Table 4. Correlations Between Classroom Influences and School Adjustment

Variable	1	2	3	4	5	6
1.Teacher Closeness	—					
2.Classroom Organization	.248**	—				
3. Peer Victimization	.088	.045	—			
4. Behavioral Engagement	.253**	- .178**	-.219**	—		
5. School Liking	.087*	- .305**	-.151**	.248**	—	
6. Picture Vocabulary	.056	- .064	-.103*	.159**	.072	—

Note. All variables were aggregated to the classroom level for classroom organization correlations.
*p<.05. **p<.01.

Variance in School Adjustment Scores: Relation to Classroom Social Climate

Research question two asked; "to what extent do close teacher relationships, peer victimization and classroom organization, in combination, account for the variation in children's school adjustment scores?" To address this question three sets of multilevel models were run, with one set for each outcome variable (academic achievement, behavioral engagement, school liking). Prior to running analyses, linearity, homoscedasticity, and multicollinearity were assessed. Correlations indicated that multicollinearity was not a concern (Fox 1991, p.11). For all variables, the skewness and kurtosis coefficients fell within the accepted range of -2 to 2 (Doane & Seward, 2011), further analysis of Q-Q plots indicated additional evidence of normality.
For all models, level 1 was the student level and level two was the classroom level (Raudenbush & Bryk, 2002). In order to examine the variance added by the predictors, the models were

examined in this sequence: the unconditional model with no predictors at either levels 1 or 2 (one-way ANOVA); a conditional model with only level 1 covariates (random coefficients regression model); and a conditional model with both levels 1 and 2 predictors (means-as-outcomes regression model). Additionally, both fixed and random effects were explored in relation to the focal variables to assess better how teacher's perceptions of closeness, self-reports of victimization, and classroom organization related to school adjustment.

Picture vocabulary. The preliminary step in determining the association of teacher-closeness, peer victimization and classroom organization on picture vocabulary was to run a null or unconditional model which included no predictor variables and only included the outcome picture vocabulary. This preliminary step was needed to determine the variation that existed at each level (Raudenbush & Bryk, 2002). The intercept of the unconditional model indicated that the average picture vocabulary score, across classrooms, was 94.62 ($p<.001$). Additionally, results of the unconditional model indicated that the classroom level variance component was significant ($\tau=11.50$ (SD=3.39, $p<.001$). This denotes that there is significant variance in picture vocabulary scores between classrooms. Further, the child-level variance was 104.421 (SD=10.22). In addition, the unconditional model allowed for calculation of the interclass coefficient, ICC (11.505/(11.505 + 104.421) = .099 indicating that approximately 10% variance in picture vocabulary is attributable to classroom differences, with the remaining 90% of the variance in picture vocabulary between individuals.

In the next step all covariates were added to the model to provide information on the significance of race, gender, and grade, in accounting for differences in picture vocabulary scores. Being black (ß = -6.48, t(398) = -4.24, $p < .001$) and Hispanic (ß = -16.69, t(398) = -7.56, $p< .001$) were both significantly related to picture vocabulary scores, with Black and Hispanic

students expected to have lower vocabulary scores when compared to students of other races. All other covariates were found to be non-significant: grade (ß = -1.08, t(398) = -1.98, p = .058), gender (ß = -.09, t(398) = -.107, p = .914), and race: white (ß = 2.13, t(398) = 1.86, p = .063). However, although non-significant, all covariates were retained in the model to determine the relation with teacher-closeness, peer victimization, and classroom organization above and beyond that of race, gender, and grade. Further, the covariates explained a large percentage of the individual variance in academic achievement, accounting for 18.7% of the individual variance in picture vocabulary scores. Additionally, the amount of variance explained due to differences in classrooms was reduced when covariates were added to the model (u_0=.067, SD=.258).

In the next step covariates and level one and two predictors were added to the model to investigate the extent to which classroom organization, peer victimization and close teacher relationships accounted for variance in picture vocabulary scores. As expected, teacher perceptions of closeness were significantly related to picture vocabulary scores (ß = 1.59, t(396) = 2.12, p = .016), indicating that reporting high levels of teacher closeness is associated with higher academic achievement. Additionally student perceptions of peer victimization were significantly related to academic achievement (ß = -2.34, t(396) = -2.25, p =.015), showing that on average victimized students scored lower than their non-victimized peers. Unexpectedly the association between classroom organization and picture vocabulary scores was not significant (ß = .29, t(37) = .503, p = .618). Including predictors in the model did little to further increase explained variance adding an additional 2.5 percent of individual variance explained after controlling for covariates. Additionally, the amount of variance explained due to differences in classrooms was only slightly reduced when predictors were added (u_0=.034, SD=.183).

Finally, a random coefficients model with level one and two predictors and random effects was run to determine if the slopes of the predictors were significant. When random effects were added to the model, the intercepts for teacher closeness (ß = 1.66, t(38) = 2.86, p =.007) and peer victimization (ß = -2.40, t(38) = -1.99, p = .05) remained significant. In addition, the slope for peer victimization was significant (τ=17.08, p=.012) indicating that across classrooms, there is variance in the association of peer victimization and picture vocabulary scores. However, the slope for teacher closeness was not significant (τ=.174, p >.500) indicating that the association with teacher closeness does not vary across classrooms. The full model with fixed and random effects helped to explain slightly more variance, explaining an additional 6.7% of the individual variance in picture vocabulary scores after controlling for covariates, which means that the full model with covariates explained 25.4% of the individual variance in picture vocabulary scores. All coefficients for the full set of models are presented in Table 5.

Behavioral engagement. As with picture vocabulary, the first step in determining the relation of teacher-closeness, peer victimization, and classroom organization on behavioral engagement was to run a null or unconditional model. Results of the unconditional model indicated that the average behavioral engagement, across classrooms, was 2.81 (p<.001). Results of the unconditional model also indicated that the classroom level variance component was significant (τ=.123, p<.001). Further, the child-level variance was 1.09 (SD=1.04). The interclass correlations coefficient (ICC) (.12299/(.12299 + 1.08531) was .101 indicating that approximately 10 percent of the variance in behavioral engagement lies between classrooms, with the remaining 90% of the variance in behavioral engagement scores occurring between individuals.

Table 5.Fixed Effects and Variance-Covariance Estimate for Picture Vocabulary

	Model 1		Model 2		Model 3		Model 4	
	β	*SE*	β	*SE*	β	*SE*	β	*SE*
Intercept	94.62**	.76	97.11**	1.30	92.64**	2.39	92.32**	2.30
Control Variables								
Grade			-1.08	.52	-.85	.48	-.85	.46
Gender			-.09*	.79	-.42	.82	-.45	.83
Black			-6.48**	1.53	-6.22**	1.48	-6.11**	1.41
White			2.13	1.40	1.91	1.42	2.29	1.38
Hispanic			-13.70**	1.81	-13.79**	1.79	-13.50**	1.75
Predictor Variables								
Teacher Closeness					1.59*	.58	1.66*	.58
Peer Victimization					-2.34*	1.20	-2.40*	1.20
Classroom Organization					.29	.61	.18	.58
Variance Components								
σ^2	104.42	7.35	84.93	5.96	82.89	5.82	79.26	5.90
τ_{00}	11.50**	4.79	.067	1.72	.034	1.68	1.46	1.21
Slope Variance Close							.17	
Slope Variance Victim							17.08*	

Note. For grade 0=grade 1, 1= grade 2, 2=grade 3. For race, all variables compare the target group to all other students in the sample.
*p<.05. **p<.01.

Results of the covariates model indicated that gender and being white had a significant association with behavioral engagement, with female students (ß = .61, t(398) = 5.51, p < .001) expected to have higher behavioral engagement scores compared to males and being white (ß = .25, t(398) = 2.10, p = .036) associated with higher behavioral engagement ratings compared to students of other races. All other covariates were found to be non-significant: grade (ß = .021, t(398) = .236, p = .814), race: Black (ß = -.14, t(398) = -.620, p = .535), and race: Hispanic (ß = -.009, t(398) = -.444, p = .657). Once again, despite non-significance, all covariates were retained in the model. Adding covariates to the model explained 10.7% of the individual level variance in

behavioral engagement scores. Additionally, the amount of variance explained due to differences in classroom was reduced when covariates were added to the model (u_0=.117, SD=.342).

Next a fixed effects model with covariates and predictors was run. As expected, teacher perceptions of closeness were significantly related to behavioral engagement ratings (ß = .38, t(396) = 4.18, p < .001). Additionally, student perceptions of peer victimization were significantly related to behavioral engagement (ß = -.44, t(396) = -4.32, p < .001) indicating that on average children who perceived higher levels of victimization had lower behavioral engagement scores. Once again, the association between classroom organization and behavioral engagement was not significant (ß = -.10, t(37) = -1.12, p = .272). Including predictors in the model increased the model by explaining an additional 9.8% of the individual variance in behavioral engagement after controlling for covariates. Additionally, the amount of variance explained due to differences in classrooms was not reduced when predictors were added to the model (u_0=.120, SD=.347).

Finally, a random coefficients model with both fixed and random effects was run to determine whether the slopes of the predictors were significant. When random effects were added to the model, the intercepts for teacher closeness (ß = .41, t(38) = 4.09, p <.001) and peer victimization (ß = -.44, t(38) = -4.22, p < .001) remained significant. In addition, the slope for teacher closeness was significant (τ=.120, p=.033) indicating that, the association of teacher closeness with behavioral engagement varies across classrooms. However, the slope for peer victimization was not significant (τ=.044, p=.292) indicating that the association between peer victimization and behavioral engagement is the same across classrooms. Additionally, the full

model with fixed and random effects increased individual variance explained by 14.9% after controlling for covariates, which means that the full model with covariates explained 24% of the individual variance in behavioral engagement scores. All coefficients for the full set of models are presented in Table 6.

Table 6. Fixed Effects and Variance-Covariance Estimates for Behavioral Engagement

	Model 1		Model 2		Model 3		Model 4	
	β	*SE*	β	*SE*	β	*SE*	β	*SE*
Intercept	2.81**	.08	2.36**	.14	1.53**	.35	1.44**	.38
Control Variables								
Grade			.02	.08	.05	.09	.06	.09
Gender			.61**	.11	.53**	.11	.51**	.11
Black			-.14	.22	-.10	.21	-.08	.21
White			.26*	.12	.22	.13	.27*	.12
Hispanic			-.09	.19	-.13	.09	-.09	.19
Predictor Variables								
Teacher Closeness					.38**	.09	.41**	.10
Peer Victimization					-.44**	.10	-.44**	.10
Classroom Organization					-.10	.09	-.11	.09
Variance Components								
σ^2	1.09	.08	.973	.07	.878	.06	.828	.06
τ_{00}	.123**	.05	.117**	.05	.121**	.05	1.44*	1.20
Slope Variance Close							.12*	
Slope Variance Victim							.04	

Note. For grade 0=grade 1, 1= grade 2, 2=grade 3. For race, all variables compare the target group to all other students in the sample.
*p<.05. **p<.01.

School liking. As with the other models, analysis for school liking began with an unconditional model. The intercept of the unconditional model indicated that the average school liking, across classrooms, was 1.53 (p<.001). Additionally, results of the unconditional model

indicated that the classroom level variance component was not significant (τ=.003, p=.169). This denotes that there is not significant variance in school liking scores between classrooms. The child level variance was .278 (SD=.528). The interclass correlations coefficient (ICC) was .011, indicating that approximately one percent of the variance in school liking lies between classrooms, with almost all of the variance in school liking between individuals. However, despite the non-significant variance and the limited variance within the classroom level, analyses continued with multilevel modeling given the nested structure of the data (Nezlek, 2008).

Next the model with predictors was run to further understand the significance of race, gender and grade, in accounting for variance in school liking scores. Results indicated that gender was the only significant covariate, with being female, on average related to higher school liking scores by approximately 1/3 of a standard deviation (ß = .17, t(398) = 3.43, p < .001). All other covariates were found to be non-significant: grade (ß = .-05, t(398) = -1.52, p = .121), race: Black (ß = .03, t(398) = .311, p = .756), race: white (ß = .01, t(398) = .088, p = .930) and race: Hispanic (ß = -.07, t(398) = -.75, p = .455). However, although non-significant, all covariates were retained in the model. Additionally, adding covariates to the model explained 2.5% of individual variance in school liking scores. Additionally, the amount of variance explained due to differences in classroom was reduced when predictors were added to the model (u_0=.001, SD=.029).

Next predictors were added to the model. Results showed that as expected, higher levels of teacher-reported closeness were related to higher school liking scores (ß = .08, t(396) = 2.34, p = .020). Further, as expected the relation between peer victimization and school liking was

significant (ß = -.20, t(396) = -2.73, p = .007), meaning that on average reporting higher victimization scores was related to lower school liking scores. Finally, as with other models the association with classroom organization once again non-significant (ß = -.01, t(37) = -.476, p < .637). Including predictors into the model explained an additional 5.2 percent of the individual variance in school liking, after controlling for covariates. Further, the amount of variance explained due to differences in classrooms was not reduced when predictors were added to the model (u_0=.005, SD=.071).

When random effects were added to the model, the intercepts for teacher closeness (ß = .08, t(38) = 2.47, p = .018) and peer victimization (ß = -.21, t(38) = -2.80, p = .008) remained significant. In addition, the slope for peer victimization was significant (τ=.280, p=.011) indicating that, the relation between peer victimization and school liking was different across classrooms. However, the slope for teacher closeness was not significant (τ=.073, p=.195) indicating that the relationship between teacher closeness and school adjustment was the same regardless of the classroom a child was in. Adding random effects to the model further explained the individual variance in school liking scores, after controlling for covariates, by an additional 12.2% meaning that altogether the final model with fixed and random effects explained 14.4% of the individual variance in school liking scores. All regression coefficients for the full set of school liking models are presented in Table 7.

The Buffering Effect of Close Teacher Relationships

Research question three asked “do close relationships with teachers moderate the adverse effects of peer victimization on young children's school adjustment?” To determine whether

close teacher relationships buffer against the effect of peer victimization on school adjustment outcomes, an interaction term was created and added to all existing models.

Table 7. Fixed Effects and Variance-Covariance Estimates for School Liking

	Model 1		Model 2		Model 3		Model 4	
	β	*SE*	β	*SE*	β	*SE*	β	*SE*
Intercept	1.53**	.03	1.50**	.07	1.36**	.14	1.39**	.13
Control Variables								
Grade			-.05	.03	-.04	.03	-.05	.03
Gender			.17**	.05	.15*	.05	.54*	.05
Black			.03	.10	.03	.10	.06	.08
White			.01	.06	-.01	.06	-.03	.05
Hispanic			-.07	.09	-.08	.09	-.09	.09
Predictor Variables								
Teacher Closeness					.08*	.04	.09*	.03
Peer Victimization					-.20*	.07	-.21*	.07
Classroom Organization					-.02	.05	-.03	.04
Variance Components								
σ^2	.278	.02	.271	.02	.257	.02	.238	.02
τ_{00}	.003	.01	.001	.01	.005	.01	.067	.26
Slope Variance Close							.005	
Slope Variance Victim							.079*	

Note. For grade 0=grade 1, 1= grade 2, 2=grade 3. For race, all variables compare the target group to all other students in the sample.
*p<.05. **p<.01.

To create the interaction term, teacher closeness and peer victimization were mean centered and multiplied together. Contrary to the hypothesis, the interaction term was not significant for academic achievement (ß = -.10, t(38) = -.075, p = .941), behavioral engagement (ß = -.053, t(38) = -.170, p = .866), or school liking (ß = -.06, t(38) = -.523, p = .604) indicating

that close-teacher relationships do not moderate the negative association between peer victimization and school adjustment outcomes. However, adding the interaction term to the model did help to further explain variance in both behavioral engagement and school liking. The full model with the interaction explained 27% of the variance in behavioral engagement scores and 19% of the variance in school liking scores. The interaction term did not increase the variance explained for picture vocabulary scores. Full models with interaction terms are presented in Table 8.

Table 8. Fixed Effects and Variance-Covariance Estimates for Interaction Models

	School Liking		Behavioral Engagement		Picture Vocabulary	
	β	*SE*	β	*SE*	β	*SE*
Intercept	1.28**	.20	1.29*	.40	91.92**	2.57
Control Variables						
Grade	-.04	.03	.06	.08	-.85	.46
Gender	.15*	.05	.49**	.11	-.53	.83
Black	.02	.08	-.15	.21	-6.12**	1.42
White	-.05	.05	.25*	.12	2.30	1.37
Hispanic	-.10	.09	-.12	.19	-13.58**	1.73
Predictor Variables						
Teacher Closeness	.12*	.06	.47**	.11	1.82*	4.83
Peer Victimization	-.05	.29	-.37	.63	-2.17	4.83
Classroom Organization	-.01	.04	-.10	.08	.171	.59
Interaction Closeness & Victimization	-.06	.12	-.03	.29	-.10	1.39
Variance Components						
σ^2	.224	.017	.793	.061	79.03	5.93
τ_{00}	.365	.292	1.55	1.15	9.21	59.93
Slope Variance Close	.05		.12		.17	
Slope Variance Victim	2.12*		3.58*		126.57	
Slope Variance Interaction	.23*		.292		5.64	

Note. For grade 0=grade 1, 1= grade 2, 2=grade 3. For race, all variables compare the target group to all other students in the sample.
*p<.05. **p<.01.

Chapter 4 Discussion

Important contributors to children's school adjustment include interpersonal relationships and the environment within which those relationships take place (e.g., Cappella et al., 2013; Elledge, Elledge, Newgent, & Cavell, 2016b; Franco & Levitt, 1997; Ladd & Coleman, 1997). Previous research has investigated these relationships and classroom factors separately, examining how they impact children's school outcomes (e.g., Baker, 2006; Birch & Ladd, 1997; Ladd, 1990; Ladd & Coleman, 1997; Pianta & Stuhlman, 2004; Schmitt, Pentimonti, & Justice, 2012). This study further examined the interconnectedness of these relationships and the classrooms they take place in, to determine how they jointly relate to children's school trajectories. Examining the associations between peer victimization, close teacher-child relationships, and classroom organization together emphasized the harmful relationship between peer victimization and school adjustment. In this study, being victimized was related to lower school liking, less behavioral engagement, and lower academic achievement when compared to non-victimized students. Further looking at peer, teacher, and classroom influences together highlighted the highly individualized nature of school adjustment. As such, classroom organization did not have a significant association with young children's school adjustment. Additionally, this study sought to explore the potential for close teacher-child relationships to act as a buffer against the negative impact of peer victimization (Sulkowski & Simmons, 2018; Troop-Gordon & Kuntz, 2013).

Contrary to expectations, the results of this study indicate that close teacher-child relationships are not enough to buffer against the negative association between victimization and school adjustment. Altogether the results of this study point to the importance of children's relationships in the classroom and their association with school adjustment outcomes.

Peer Victimization

Examining close teacher relationships, peer victimization and classroom organization together provided further support that peer victimization is negatively related to school adjustment outcomes for young children (Buhs et al., 2006; Iyer et al., 2010; Ladd & Coleman, 1997). In line with previous research, (Iyer et al., 2010; Kochenderfer & Ladd, 1996; Ladd & Coleman, 1997) this study found that being victimized by peers was related to lower school liking and behavioral engagement. Additionally, despite mixed findings in previous research (Hanish & Guerra, 2002; Iyer et al., 2010; Ladd & Coleman, 1997), the current data indicate that being victimized by peers is associated with lower academic achievement.

When examining the relationship between victimization and achievement, it may be necessary to consider the type of victimization children experience. One earlier study showed that children who reported relational victimization (intentionally being left out by peers) did not have decreased academic achievement. However, those who reported physical victimization (being physically harmed or threatened) did have decreased academic achievement (Hoglund, 2007). This study which examined physical victimization, found in line with Hoglund (2007) that the feeling of being victimized by peers during the fall of the school year was associated with lower school liking, behavioral engagement and academic achievement in the spring of the

school year. This finding suggests that students' perception of being victimized by peers causes children to struggle to be comfortable and fully engaged in the school environment. Given that early school adjustment has lasting impacts on a child's school career (e.g., Ladd, 1990), these findings speak to the importance of reducing peer victimization for young children.

Individual Variance

Examining relationships in combination with classroom organization also highlighted the highly individualized nature of school adjustment. Results of this study indicate that almost all of the variance in children's school adjustment outcomes occurs between individuals. For example, these findings indicate that 99% of the variance in school liking scores occurred between individuals rather than between classrooms. Thus, despite the potential for classroom characteristics such as organization to relate to children's school experiences, it seems that individuals' reactions to and interactions within the classroom are highly individualized. In addition to school liking, the current results show that the majority of the variance in behavioral engagement and academic achievement also occurred between individuals rather than classrooms. Previous studies examining school adjustment outcomes using multilevel modeling have reported similar results, indicating that the majority of variance in young children's school adjustment outcomes is between individuals (Cameron et al., 2008; Cappella et al., 2013).

Thus despite the importance of classrooms in shaping school trajectories (e.g., Cappella et al., 2013; Luckner & Pianta, 2011), this study found that adjustment to school is a uniquely individual experience. The current findings show, in contrast to previous research (Cameron et al., 2008, 2005; Gest & Rodkin, 2011; Luckner & Pianta, 2011), that highly organized

classrooms did not significantly contribute to the variance in any of the measured school adjustment outcomes. One possible explanation for the mixed findings may be the populations sampled. The studies which found a significant impact of classroom organization on school adjustment (Cameron et al., 2008, 2005) had samples that were predominantly white, with well-educated parents. Conversely, this study and Cappella et al. (2013) which did not find a significant relation between classroom organization and school adjustment, had populations that were more economically and racially diverse.

An alternative explanation may lie in the time of year at which classroom organization was measured. Prior research examining the importance of classroom organization on academic achievement, has generally looked at fall organization predicting spring academic achievement (Cameron et al., 2008, 2005). Observations of classroom organization often look for clarity of rules, detailed explanations, redirection of behavior, and even teacher preparedness. These types of teacher behaviors are likely more explicit early in the school year as teachers and students get to know each other and set the expectations for the year to come. Indeed studies using these classroom organization measurements have found that there is a decline in time spent on classroom organization as the year continues (Cameron et al., 2008, 2005). Thus, it is possible that observing classroom organization during the middle of the school year, rather than in the beginning, did not allow us to fully capture teachers' classroom organization practices as they look at that time. The timing and use of this type of observational measure may be part of the reason this study did find a significant association between classroom organization and school adjustment.

Given the individualized nature of school adjustment, however, it may be that having a well-managed class is not enough to alter individual school adjustment outcomes. The results of this study found that classroom organization in the winter was not significantly related to variance in student's vocabulary, school liking or behavioral engagement in the spring on the school year. Interestingly, although classroom organization was not significant in the multilevel model, the data did show a significant negative correlation between classroom organization, school liking, and behavioral engagement. Thus, there might be an interaction between having a well-managed classroom, engagement in the classroom, and student's enjoyment of school that is not fully captured in this study.

Individual Differences

The highly individualized nature of school adjustment underscores the importance of examining other individual characteristics that might impact children's early experiences within and adjustment to school. In this study, both gender and race were examined as possible contributors to individual differences in school adjustment. In line with previous work (Archambault et al., 2016; Murray et al., 2008) the current results show that gender significantly contributed to school adjustment with being female related to higher scores for school liking and behavioral engagement. In addition, students' race significantly contributed to variance in school adjustment outcomes, though the association with race was less consistent than gender. There were no statistically significant differences in school liking scores based on a child's race, however, teachers rated white students higher in behavioral engagement than students of all other races. Additionally, in line with a large amount of previous research (e.g., Pigott & Cowen,

2000) Black and Hispanic students, when compared to all other students in the sample, had significantly lower academic achievement.

These results highlight the possibility that teachers' perceptions of their students may relate to the relationships reported between race and school adjustment. This study found no statistically significant differences in self-reported school liking scores in relation to race; however, there were significant racial differences in both teacher reported outcomes (behavioral engagement and academic achievement). This pattern aligns with previous research that showed that racial and gender match between students and teachers is a significant determinant of teachers subjective evaluations (Bates & Glick, 2013; Downey & Pribesh, 2004; Ehrenberg, Goldhaber, & Brewer, 2006). Additionally, these studies show that Black students consistently receive more unsatisfactory ratings of behavior, when compared to white students. Other studies have also shown racial disparities in school adjustment outcomes as reported by teachers (Archambault et al., 2016; Pigott & Cowen, 2000; Vanneman et al., 2009). Thus, future research should carefully consider who is reporting school adjustment outcomes and compare self and teacher reports of school adjustment to examine the extent to which teacher perceptions explain the racial and gender differences that are routinely found.

While the results of this study indicate that both gender and race significantly contribute to the individual variance in school adjustment, as discussed, these differences may in part be due to teacher perceptions. Further, this study found that race, gender, peer victimization, teacher closeness, and classroom organization only accounted for approximately 25% of the variance in school adjustment outcomes. Thus, a large amount of the variance in school adjustment remains

unaccounted for. There are likely other relevant individual differences (e.g., personality, cultural background) that may shape children's adjustment to school. Future research should investigate other individual differences that may influence how a child acts within and interacts with the classroom.

Close Teacher Relationships

Another goal of this study was to examine if close teacher relationships might provide a buffer against the negative effects of peer victimization. Understanding what attenuates the effects of victimization is critical, as approximately half of all students will be victimized during their K-12 educational career (Nansel et al., 2001). For young children in particular, who spend a large portion of their day with the same teacher, it was hypothesized that a close relationship with that teacher would buffer against the adverse associations of school outcomes and negative peer relationships (e.g., Hughes & Kwok, 2007; Luckner & Pianta, 2011; Sulkowski & Simmons, 2018). In their work Troop-Gordon and Kuntz (2013) examined patterns of peer and teacher relationships in grades three and four, finding that, for students who reported being victimized, a close relationship with their teacher attenuated the decline in school liking scores.

The results of the current analyses, however, indicate that for young elementary students, close teacher relationships do not attenuate the negative association between peer victimization and school liking, academic achievement, or behavioral engagement. These results somewhat align with other findings from Troop-Gordon and Kuntz, (2013) which showed that peer victimization was associated with lower initial academic performance and that this effect did not change as a result of teacher relationships. However, at the same time, these results contradict

earlier work (Sulkowski & Simmons, 2018; Troop-Gordon & Kuntz, 2013), which showed that close teacher relationships could attenuate the negative effects of peer victimization on psychosocial outcomes such school liking or psychological distress.

Thus, while this study found that close teacher-child relationships do not buffer the negative association between peer victimization and school liking, behavioral engagement and academic achievement, it is important to consider how to interpret these findings. First, it may be that close teacher relationships do buffer against the negative effects of peer victimization when the student perceives closeness with their teacher. Using a measure of teacher perceptions of their closeness with students shows how close teachers feel to their students, but it does not accurately represent how students feel about their relationships with their teachers. Given that the negative association with victimization is measured based on the student's perception, it may be important to examine their perception of their relationship with their teacher as well. Further, research has shown that there is significant variation in teacher and student-reported relationships, with one study conducted in the lower elementary grades finding only modest correlations between student and teacher ratings of their relationships (Mantzicopoulos & Neuharth-Pritchett, 2003). Additionally, previous work on the interactive effects of peer and teacher relationships has measured those relationships from a variety of perspectives including teachers, observers, students own perceptions and that of peers (Luckner & Pianta, 2011; Neal, Cappella, Wagner, & Atkins, 2011; Troop-Gordon & Kuntz, 2013) which may contribute to the mixed findings in the literature. Given the importance of students' perceptions of their

victimization and their closeness with teachers, future research should seek to investigate relationships from the perspective of the student.

In line with previous work (e.g., Birch & Ladd, 1997; Hamre & Pianta, 2001; Pianta & Stuhlman, 2004) results of this study indicate that close teacher-child relationships do have a significant positive association with children's school adjustment outcomes. Close teacher-child relationships were significantly related to greater school liking, behavioral engagement, and academic achievement. However, despite the positive relation with close teacher-child relationships, they are not enough to attenuate the negative association between peer victimization and school adjustment outcomes for young children. The analyses show that while both teacher and peer relationships are related to school adjustment for young children, peer victimization is negatively related to children's school adjustment outcomes regardless of the type of relationship a student has with their teacher. These results align with a large body of research which has established the importance of peers in shaping children's school adjustment (e.g., Boulton, Don, & Boulton, 2011; Buhs et al., 2006; Eggum-Wilkens et al., 2014; Ladd, 1990) emphasizing just how impactful relationships with peers are. While teacher relationships are associated with increased school adjustment outcomes (e.g., Hamre, Pianta, Development, Development, & April, 2016; Ladd et al., 2000), it may also be important to consider the role that teachers have in shaping peer social interactions within the classroom.

Teachers can shape peer social interactions through their management of the classroom (e.g., Bierman, 2011; Farmer, McAuliffe Lines, & Hamm, 2011; Wentzel, 2002). As leaders of the classroom, teachers can reduce student aggression, set expectations for social norms, and

effectively alter the peer social environment. Results of this study indicate that the association between peer victimization and school liking and academic achievement varies across classrooms, showing that the environment a teacher creates may have the ability to alter the association between victimization and school adjustment. Thus, while a close teacher-child relationship may not buffer against the negative effects of peer victimization, teachers can still play an important role in supporting school adjustment and reducing peer victimization. One previous study showed that while peer victims generally had fewer social connections than other students, in classrooms with more teacher emotional support, those peer victims had increased social connections (Cappella & Neal, 2012). To add insight into the complex way that teachers shape classroom interpersonal interactions and impact school adjustment, continued research is needed about how teachers can alter peer interactions.

Limitations and Future Directions

When considering the results of this study, it is important to acknowledge its limitations. First, as noted, the measure of close teacher-child relationships was based on teachers' perceptions of their relationships with students rather than students' perceptions of their relationships with their teachers. As such, findings are limited in the insight that they can provide into how students' perceptions of relationships relate to school adjustment. While numerous studies have examined teacher-perceptions of relationships with their students (e.g., Birch & Ladd, 1997; Hamre et al., 2016; Pianta & Stuhlman, 2004) particularly when looking at the connection between peer victimization and teacher-closeness, using students' reports of their relationships with their teachers will highlight the relationships students perceive themselves

having and their impact on school adjustment. Thus, future research should investigate the impact of close teacher-child relationships as measured from the student perspective.

Additionally, this study is limited in that it only looked at physical victimization. Given that physical victimization is just one type of victimization that students can experience, as students may be faced with other forms of victimization such as relational victimization, and verbal victimization (Archambault et al., 2016; Hoglund, 2007; Ladd et al., 1997; Sulkowski & Simmons, 2018) it is possible that other forms of victimization have different relations with school adjustment outcomes. Moreover, different types of victimization may interact with close-teacher relationships in unique ways. Future research should measure different types of victimization and assess if there are differences in the associations they have with school adjustment and how they interact with close teacher-child relationships. For example, it may be that close teacher-child relationships may better attenuate the association between relational victimization and school adjustment as opposed to physical victimization. Investigating different types of victimization and how they interact with teacher relationships may provide important insight into how teachers should combat peer victimization in the classroom.

Another limitation of this study is that prior levels of outcome variables were not controlled for. It is likely that students' prior levels school liking, behavioral engagement, and academic achievement account for a large amount of the variance in their spring school adjustment outcomes. It may be that, once prior levels are accounted for that the associations between classroom predictors and school adjustment is less significant. Future research should be sure to control for prior levels of school adjustment when examining the influence

relationships and classrooms on school adjustment outcomes to better understand the impact that they have.

Another limitation of this study was that it only controlled for individual differences such as race and gender; it did not look at the interaction between those differences and victimization and close teacher-child relationships. It may be that there are individual differences that influence the association between peer victimization and school adjustment. Further, the impact of close teacher-child relationships on the negative impact of peer victimization may vary by individual characteristics such as personality characteristics, cultural differences, racial differences, and even gender differences. Thus, future research should examine the interaction of students' gender, race, and other individual characteristics and close teacher-child relationships to examine whether there are important individual differences that alter the impact of peer victimization and the ability of close teacher-child relationships to act as a buffer.

Another limitation to this study was the measure of academic achievement that was used. While picture vocabulary scores provide an unbiased assessment of children's achievement, as shown by the significant relationship between vocabulary scores and student race, there may be other factors such as children's language background that are related to the academic achievement scores in this study. As results of this study indicated, being Hispanic or Black was related to significantly lower picture vocabulary scores when compared to all other students in the sample. Thus, future research should include other tested academic achievement outcomes that might limit the potential for race to confound the results.

Finally, this study was limited in that it only examined one possible buffer against peer victimization, close teacher relationships. Likely, there are other potential buffers against the effects of peer victimization such as peer friendships, family support, or feelings of self. Previous studies have consistently shown that the relationships students have with their peers have a critical role in shaping their school experiences (e.g., Archambault et al., 2016; Buhs et al., 2006; Donohue et al., 2003; Ladd et al., 1997). This research has shown that different types of peer relationships (victimization, friendships, peer acceptance) uniquely and jointly contribute to school adjustment (Ladd et al., 1997). Thus, future research should continue to investigate positive peer relationships and the impact they have in attenuating the effects of victimization.

Implications

Despite the limitations noted above, the current findings have several implications for early childhood education. Past research has shown the positive impact of close teacher-child relationships in supporting school adjustment (e.g., Birch & Ladd, 1997; Hamre & Pianta, 2001). This study, however, shows that there are limits to the power of close teacher-child relationships. While close teacher relationships remain important, it is critical to understand that students who are victimized may continue to struggle despite having supportive teachers. The results of this study also underscore the fact that peer victimization is harmful for school adjustment starting in the early years of school (e.g. Cappella & Neal, 2012; Ladd et al., 1997; Troop-Gordon & Kuntz, 2013). These results highlight the importance of working proactively to reduce the victimization that young children experience, rather than reacting to victimization after it happens. Further, the results of this study show that the relation between peer victimization and school liking and

behavioral engagement varies across classrooms. This finding suggests that there are teacher behaviors and instructional practices that alter the association of peer victimization with school adjustment. Previous work has shown that teachers behaviors towards students are noticed by classmates and alter classmates' reports of the extent to which students are disliked (Hendrickx et al., 2017). Teachers need to be aware that although feeling close to students might not attenuate the negative association between peer victimization and school adjustment, their actions and behaviors in the classroom can still make a difference in the experiences of victimized children. Finally, findings of this study highlight the highly individualized nature of school adjustment, indicating the importance of understanding that different students will respond to, and interact differently within the same classroom. This shows the importance of cultural awareness and understanding the unique experiences that students have.

Conclusion

The experience a child has in a classroom can alter school adjustment outcomes over the course of the year, and in the years that follow (Ladd, 1990). Although researchers have investigated the combined effects of students and teachers (e.g., Hughes & Chen, 2011; Luckner & Pianta, 2011; Troop-Gordon & Kuntz, 2013), and some studies have examined the interaction between classroom organization and peer relationships (Cappella et al., 2013; Luckner & Pianta, 2011), few studies to date have explored the collective impact of the three sources of classroom influence (teachers, peers, and classroom organization). This study builds on previous research by investigating the interaction of these classroom features. Results of this study indicate that almost all of the variance in school liking, behavioral engagement, and academic achievement

occurs at the individual level. Additionally, while previous work has indicated that classroom organization relates to school adjustment outcomes (Cameron et al., 2008; Cappella et al., 2013; Gest & Rodkin, 2011), in the current study classroom organization was not significantly related to school liking, behavioral engagement, or academic achievement for young elementary students. Finally, the results of this study provide further evidence of the detrimental association between peer victimization and young elementary students' school outcomes. Given, the finding that peer victimization is significantly negatively related to school liking, behavioral engagement and academic achievement, and the non-significant buffer of close teacher-child relationships, results of this study indicate that being victimized by peers is harmful for school adjustment for all children, regardless of the relationships they have with their teachers. This study provides an important contribution in understanding the ways that the interpersonal relationships young children experience in school relate and interact to alter their success in and engagement within school.

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Appendix A. Survey Items

Scale	Item	Reference
Student Teacher Closeness	I share an affectionate, warm relationship with this child. If upset, this child will seek comfort from me. This child values his/her relationship with me. When I praise this child he/she beams with pride. This child spontaneously shares information about himself/herself. It is easy to be in tune with what this child is feeling. This child openly shares his/her feelings and experiences with me.	Pianta (1992)
Peer Victimization	Does anyone in your class ever hit you? Does anyone in your class ever pick on you? Does anyone in your class ever say mean things to you? Does anyone in your class ever say bad things about you to other kids?	Kochenderfer & Ladd (1996)
Behavioral Engagement	Follows teacher's directions. Uses classroom materials responsibly. Listens carefully to teacher's instructions and directions. Accepts responsibility or a given task. Breaks classroom rules. (reverse coded)	Birch and Ladd (1997)
School Liking	Is school fun? Do you wish you didn't have to go to school? (reverse coded) Do you hate school? (reverse coded) Do you like being in school? Do you like to come to school? Do you wish you could stay home from school? (reverse coded)	Ladd and Price (1987), Ladd (1990) and Asher, Hymel, & Renshaw (1984)

Appendix B: Observation Measure

Domain	Dimension	Behaviors or Evidence
Productivity	Maximizing Learning Time	Provision of activities, choices when finished, few disruptions, effective completion of managerial tasks, pacing
	Routines	Students know what to do, clear instructions, little wandering
	Transitions	Brief Transitions, explicit follow through, learning opportunities during transitions
	Preparation	Materials are ready and accessible, knows the lessons
Behavior Management	Clear Behavior Expectations	Clear expectations, consistency, clarity of rules
	Redirection of Misbehavior	Attention to the positive, subtle cues to redirect, effective redirection
	Proactive	Anticipates problem behavior or escalations, low reactivity, monitors
	Student Behavior	Frequent compliance, little aggression or defiance
Instructional Learning Formats	Effective Facilitation	Teacher involvement, effective questioning, expanding children's involvement
	Variety of Modalities	Range of auditory, visual and movement opportunities, interesting and creative materials, hands on opportunities
	Student Interest	Active participation, listening, focused attention
	Clarity of Learning Objectives	Advanced organizers, summaries, reorientation statements

Appendix C: Measure of Academic Achievement

ELN Woodcock-Johnson Picture Vocabulary

Basal: Test by complete pages until the 6 lowest-numbered items administered are correct.
Ceiling: Test by complete pages until the 6 highest-numbered items administered are incorrect.
Staring points:
PreK - Sample Item A (p25)
K to Grade 2: Item 9 (p33)
Grade 3: Item 15 (p35)

First Trial		Last Trial		
A. ◯ 0	◯ 1	◯ 0	◯ 1	car

◯ Unable to Complete

1.	◯ 0	◯ 1	flower	15.	◯ 0	◯ 1	whistle
2.	◯ 0	◯ 1	ball	16.	◯ 0	◯ 1	light switch
3.	◯ 0	◯ 1	bed	17.	◯ 0	◯ 1	ruler
4.	◯ 0	◯ 1	bird	18.	◯ 0	◯ 1	waterfall
5.	◯ 0	◯ 1	star	19.	◯ 0	◯ 1	binoculars
6.	◯ 0	◯ 1	clock	20.	◯ 0	◯ 1	beetle
7.	◯ 0	◯ 1	turtle	21.	◯ 0	◯ 1	luggage
8.	◯ 0	◯ 1	computer	22.	◯ 0	◯ 1	ironing board
9.	◯ 0	◯ 1	corn	23.	◯ 0	◯ 1	compass
10.	◯ 0	◯ 1	watermelon	24.	◯ 0	◯ 1	pliers
11.	◯ 0	◯ 1	zipper	25.	◯ 0	◯ 1	fire extinguisher
12.	◯ 0	◯ 1	giraffe	26.	◯ 0	◯ 1	file cabinet
13.	◯ 0	◯ 1	grasshopper				
14.	◯ 0	◯ 1	comb				

Appendix D. Model Equations

Unconditional Model:

$$OUTCOME_{ij} = \gamma_{00} + u_{0j} + r_{ij}$$

Covariates Model:

$$OUTCOME_{ij} = \gamma_{00} + \gamma_{10}*GRADE_{ij} + \gamma_{20}*GENDER_{ij} + \gamma_{30}*BLACK_{ij} + \gamma_{40}*WHITE_{ij} + \gamma_{50}*HISPANIC_{ij} + u_{0j} + r_{ij}$$

Predictors Model with Fixed Effects:

$$OUTCOME_{ij} = \gamma_{00} + \gamma_{01}*CLASSROOM_{j} + \gamma_{10}*GRADE_{ij} + \gamma_{20}*GENDER_{ij} + \gamma_{30}*BLACK_{ij} + \gamma_{40}*WHITE_{ij} + \gamma_{50}*HISPANIC_{ij} + \gamma_{60}*CIM1CLOV_{ij} + \gamma_{70}*FALLVICT_{ij} + u_{0j} + r_{ij}$$

Predictors Model with Random Effects:

$$OUTCOME_{ij} = \gamma_{00} + \gamma_{01}*CLASSROOM_{j} + \gamma_{10}*GRADE_{ij} + \gamma_{20}*GENDER_{ij} + \gamma_{30}*BLACK_{ij} + \gamma_{40}*WHITE_{ij} + \gamma_{50}*HISPANIC_{ij} + \gamma_{60}*CIM1CLOV_{ij} + \gamma_{70}*FALLVICT_{ij} + u_{0j} + u_{6j}*CIM1CLOV_{ij} + u_{7j}*FALLVICT_{ij} + r_{ij}$$

Interaction Model with Fixed Effects:

$$OUTCOME_{ij} = \gamma_{00} + \gamma_{01}*CLASSROOM_{j} + \gamma_{10}*GRADE_{ij} + \gamma_{20}*GENDER_{ij} + \gamma_{30}*BLACK_{ij} + \gamma_{40}*WHITE_{ij} + \gamma_{50}*HISPANIC_{ij} + \gamma_{60}*CIM1CLOV_{ij} + \gamma_{70}*FALLVICT_{ij} + \gamma_{80}*INTERACT_{ij} + u_{0j} + r_{ij}$$

Interaction Model with Random Effects:

$$OUTCOME_{ij} = \gamma_{00} + \gamma_{01}*CLASSROOM_{j} + \gamma_{10}*GRADE_{ij} + \gamma_{20}*GENDER_{ij} + \gamma_{30}*BLACK_{ij} + \gamma_{40}*WHITE_{ij} + \gamma_{50}*HISPANIC_{ij} + \gamma_{60}*CIM1CLOV_{ij} + \gamma_{70}*FALLVICT_{ij} + \gamma_{80}*INTERACT_{ij} + u_{0j} + u_{6j}*CIM1CLOV_{ij} + u_{7j}*FALLVICT_{ij} + u_{8j}*INTERACT_{ij} + r_{ij}$$