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Reciprocal peer mentoring : increasing the prosocial behavior of socially neglected students

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RECIPROCAL PEER MENTORING: INCREASING THE PROSOCIAL BEHAVIOR OF SOCIALLY NEGLECTED STUDENTS

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Table of Contents

List of Tables

List of Figures

Abstract

Two studies investigated the effectiveness of the Reciprocal Peer Mentoring intervention in improving the prosocial behavior of socially neglected elementary school students as measured by a Direct Behavior Rating filled out by their teachers. Reciprocal Peer Mentoring uses the methodological framework of the Check-In/Check-Out intervention (e.g. Hawken & Horner, 2003), but expands on it by using peers as mentors, adding a reciprocity component, focusing on prosocial behavior, and targeting socially neglected students. In Study 1, the effectiveness of Nonreciprocal Peer Mentoring was examined, as popular peers served as mentors for neglected peers. In Study 2, neglected or rejected students mentored each other, thereby improving each other's behavior. Taken together, the results of the studies suggest that Reciprocal Peer Mentoring is an effective and efficient method of improving the social skills of socially neglected students.

Chapter 1
Introduction

The School-wide Positive Behavior Support (PBS) model discourages the use of punitive techniques with students in favor of positive techniques, such as providing reinforcement for engaging in socially appropriate behavior (Sugai et al., 2000). The impetus for the increased use of reinforcement in schools grew out of mounting evidence from the Applied Behavior Analysis (ABA) literature, which began when Carr and Durand (1985) demonstrated that positive techniques such as teaching and rewarding replacement behaviors were effective in reducing the self-injurious behavior emitted by youth with developmental disabilities. As such, Colvin, Kame ‘enui, and Sugai (1993) introduced Project PREPARE (Promoting Responsive, Empirical, and Proactive Alternatives in Regular Education), which was a precursor to the Positive Behavior Support movement. The authors proposed a change to the punitive discipline strategies that were common to schools, emphasizing the use of preventative behavior management strategies, empirically supported techniques, and ongoing staff development and training. The authors also described a double standard concerning behavior problems in schools. When students commit an error in the area of academics, they are corrected and given opportunities to practice appropriate responding; however, when they commit an error in the form of behavior problems, students are often harshly reprimanded and punished. As such, the authors suggested that positive techniques should be utilized in order to reinforce appropriate behavior in schools. Walker and colleagues (1996) described a preventative approach to behavior management in schools that consisted of three tiers. The Universal or Primary Prevention Tier includes interventions that all students receive in schools and are intended to prevent most students from becoming at-risk for emotional and behavioral disorders. The Selected or Secondary Prevention Tier involves more intense

interventions that are delivered to students who are identified as at-risk based on their lack of response to Universal Tier interventions. Finally, Walker and colleagues (1996) described the Comprehensive or Tertiary Prevention tier as including wraparound services for students that have demonstrated non-response to Secondary Tier interventions. Because of the wealth of research on the topic, the use of positive behavior supports in schools was encouraged in the Individuals With Disabilities Education Act (IDEA) Amendments of 1997. Since the 1997 IDEA Amendments, researchers have further developed the school-wide PBS model and various interventions have been incorporated into the model (Lewis, Sugai, & Colvin, 1998; Sugai et al., 2000).

Check-In/Check-Out

One such intervention that fits within the second tier of the school-wide Positive Behavior Support model is the Check-In/Check-Out (CICO) intervention. Check-In/Check-Out, also called the Behavior Education Program and Check, Connect, and Expect, utilizes adult mentors to reduce behavior problems in youth, which was suggested by Walker and colleagues (1996). In the seminal publication, Hawken and Horner (2003) describe CICO, which consists of four steps. In the first step, the student meets with his or her adult mentor at the beginning of the school day, at which time the previous day's progress is reviewed, the student is reminded of the daily behavior goals, and the student is given a Daily Progress Report form. The second step consists of the teacher rating the student's behavior on the Daily Progress Report form after each classroom period and meeting with the student to deliver praise and feedback. In the third step, the student checks out with his or her mentor at the end of the day. The student is reinforced if he or she reaches the behavior goal for the day, which is usually defined as attaining 80% of possible points. If the behavioral goal is not reached, the student is given feedback and is

encouraged to improve his or her performance the following day. In the final step, either the Daily Progress Report or another summary of the teacher's rating of the student's behavior is sent home to the parents, and the form is returned by the student the next day with his or her parent's signature.

The teacher rating component of the CICO intervention (i.e. Daily Behavior Report Cards (DBRCs), Direct Behavior Ratings (DBRs), & School-Home Note) has consistent support in the research literature. A systematic method of improving teacher feedback to students was delineated by Dougherty & Dougherty (1977), who utilized a Daily Report Card consisting of Likert ratings of behavior to reduce inappropriate vocalizations and increase homework completion with children in a 4th grade classroom. Teacher ratings of behavior have been suggested as a more time- and resource-efficient method than Systematic Direct Observation and standardized rating scales (e.g. Behavior Assessment System for Children-2; Reynolds and Kamphaus, 2004), as they encompass vital characteristics of each method in a feasible intervention that can be implemented repeatedly and incorporates teachers' perceptions of the students' behavior (Chafouleas, Riley-Tillman, & Christ, 2009). DBRCs have been shown to be moderately correlated with systematic direct observation of off-task behavior, and the correlation was not significantly altered by the severity of the problem behavior or by systematically training the teachers (Chafouleas, McDougal, Riley-Tillman, Panahon, & Hilt, 2005). A survey of a large sample of teachers revealed that teacher ratings are widely utilized to improve positive behaviors (e.g. on-task), as well as decrease inappropriate behaviors (e.g. talking out), and are generally rated as acceptable by teachers (Chafouleas, Riley-Tillman, & Sassu, 2007).

Empirical evidence overwhelmingly supports the use of the Check-In/Check-Out intervention, and researchers have examined the application of the CICO paradigm in different settings and with different populations. For example, Hawken and Horner (2003) utilized the Behavior Education Program to reduce the disruptive behavior exhibited by four students in a rural middle school. Also, using direct observation of the target students and control peers, the researchers demonstrated that each of the participants' academic engagement increased as a result of the intervention.

Hawken, MacLeod, and Rawlings (2007) implemented the Behavior Education Program to reduce the externalizing behavior problems exhibited by students in grades K-6. Rather than tailoring the direct behavior rating form to each student, the researchers utilized the schoolwide PBS expectations as target behaviors. Random reward contingencies were used during the check-out portion of the intervention, as students were given lottery tickets during check-in which they were able to exchange for a chance to spin a reward wheel at check-out if they reached their behavioral goal. The intervention was effective in reducing Office Discipline Referrals, was deemed acceptable by both students and staff, and was implemented with high levels of treatment integrity by staff members. Filter, McKenna, Benedict, Horner, & Watson (2007) demonstrated that the CICO intervention could be implemented with high fidelity with little guidance from researchers; however, parent signatures on the personalized DBRs were not consistently returned during the intervention. The disruptive behavior of 17 students in 3 elementary schools was reduced, as evidenced by fewer overall ODRs after implementation of the intervention.

Kauffman (2008) faded the teacher feedback portion of the intervention, demonstrating that CICO was effective with as little as one meeting between the teacher and student per day;

however, problem behavior increased when the teacher feedback portion was removed completely. As such, the necessity of the Daily Progress Report with teacher feedback was demonstrated, but the intervention was streamlined with the reduction in the number of required daily teacher meetings. In this manner, the feasibility and ease of implementation of the intervention was improved. Also, Simonsen, Myers, and Briere (2011) used a group design with random assignment to compare CICO to standard practice, which consisted of meetings and counseling with the school counselor. CICO was more effective than standard practice in reducing problem behavior measured by direct observation; however, discrepant results were observed regarding the teachers' ratings of the students' social skills, problem behavior, and academic competence on the Social Skills Rating Scale (Gresham & Elliot, 1990).

Several studies have examined the role of behavior function in the effectiveness of the CICO program. Following an analysis of existing school data that suggested that CICO was differentially effective for students whose problem behavior was hypothesized to be maintained by attention and escape, March and Horner (2002) added function-based supports to the typical CICO intervention. In this way, all four students, two of whom engaged in problem behavior to avoid academic tasks and two who sought attention according to their teachers, demonstrated less problem behavior and increased academic engagement following the intervention. Fairbanks, Sugai, Guardino, & Lathrop (2007) demonstrated the use of students as coaches in the CICO paradigm, whereby the entire class encouraged the target student to achieve his or her behavioral goals in order to receive class-wide rewards when the goals were reached. As such, the researchers demonstrated that peers can play an active role in implementing CICO. Fairbanks and colleagues (2007) also demonstrated that function-based interventions could be layered with CICO to more intensely target disruptive behavior when the students did not

respond to the CICO intervention alone. In a related study, Cheney and colleagues (2010) implemented self-monitoring and social skills instruction with students who did not respond to the standard Check, Connect, and Expect intervention. The addition of intensified supports was based on early work on the Behavior Education Plan (Lewis et al., 1998), as well as the Check and Connect intervention, which included mentoring in a system of wraparound services (Evelo, Sinclair, Hurley, Christenson, & Thurlow, 1996).

Along the same vein, Todd, Campbell, Meyer, and Horner (2008) found the CICO intervention to be effective in reducing four elementary-aged boys' disruptive behavior, as measured by direct observation and Office Discipline Referrals. In this study, each of the students' disruptive behavior was hypothesized to be maintained by adult attention. McIntosh , Campbell, Carter, and Dickey (2009) similarly demonstrated that the CICO intervention was effective in reducing problem behavior for those students whose teachers identified attention as the function of their behavior, as the teachers reported decreases in disruptive behavior and ODRs, and increases in prosocial behavior after the intervention was implemented. In contrast, mixed results were obtained for students whose teachers identified escape from academic tasks as the function of their behavior, as the teachers reported increases in prosocial behavior and fewer ODRs were noted; however, increases in disruptive behavior were reported for these students. In another related study, Turtura (2011) demonstrated that additional supports such as parent training and personalizing the behavior goals to target academic engagement was effective in decreasing off-task behavior and increasing homework and classwork completion and accuracy for three middle school students whose problem behavior was hypothesized to be maintained by escape from or avoidance of academic tasks. Taken together, these studies highlight the importance of considering the function of externalizing problem behavior when

considering intervention choices. Also, the flexibility of the CICO intervention was demonstrated, as multiple supports were incorporated within the paradigm to improve the students' behavior.

Overall, research overwhelmingly suggests that CICO has been shown to reduce problem behavior in schools, as evidenced by decreases in office discipline referrals (e.g. Fairbanks et al.; Filter et al., 2007), as well as reductions in problem behavior according to teacher report (e.g. Kauffman, 2008; McIntosh et al., 2009), and direct observation (e.g. Fairbanks et al., 2007; Todd et al., 2008). CICO has also been shown to result in increases in teacher ratings of prosocial behavior (e.g. McIntosh et al., 2009), as well as increases in directly observed academic engagement (e.g. Kauffman, 2008), and a reduced need for additional behavioral supports and special education placement (e.g. Hawken et al., 2007). The intervention has been shown to be effective with elementary students (e.g. Filter et al., 2007; Kauffman, 2008; McIntosh et al., 2009; Todd et al., 2008) and middle school students (e.g. Hawken & Horner, 2003; Turtura, 2011) and some studies have included a small sample of minority students (e.g. Cheney et al., 2010; Kauffman, 2008). The benefits of CICO have been demonstrated with students whose problem behavior was maintained by attention according to teacher report (e.g. Kauffman, 2008; McIntosh et al., 2009; Todd et al., 2008), and with samples of students for whom the function of their problem behavior was not hypothesized (e.g. Cheney et al., 2010; Filter et al., 2007); however, McIntosh and colleagues (2009) demonstrated that the intervention was not as effective for students whose problem behavior was maintained by escape according to teacher report. As such, researchers have added function-based supports to target escape-maintained problem behavior (e.g. March & Horner, 2002; Turtura, 2011). Check-In/Check-Out has also been shown to be a socially valid intervention, as implementers have rated

the intervention as effective and acceptable (e.g. Filter et al., 2007; Hawken et al., 2007; Todd et al., 2008). Additionally, the ease of implementation of CICO has been demonstrated, as school personnel have been shown to implement the intervention with acceptable levels of integrity with minimal researcher monitoring (e.g. Filter et al., 2007).

Reciprocal Peer Mentoring

The purpose of the current studies was to examine the effects of a novel intervention termed Reciprocal Peer Mentoring (RPM), which borrows much of its methods from the Check-In/Check-Out framework. The Reciprocal Peer Mentoring intervention builds upon the CICO model and extend it in four ways. First, rather than having students interact with adult mentors, peers are utilized as mentors in the RPM intervention. Second, the principle of reciprocity is included, as students mentor each other in dyads. Third, students' prosocial behavior is targeted, as opposed to the externalizing problem behaviors that have been prevalent in previous CICO studies. Fourth, the participants in the current study were students classified as socially neglected. As such, the current studies sought to examine the effectiveness of the Reciprocal Peer Mentoring intervention as a resource-efficient method of increasing the social skills of students exhibiting difficulties with peer relationships.

Peers as mentors. The first way in which the Reciprocal Peer Mentoring intervention attempts to extend the Check-In/Check-Out literature is by utilizing peers, rather than adults, as mentors. Some support for this methodological shift can be found in the Fairbanks and colleagues (2007) study, as the other students in the target child's classroom were employed as coaches during the intervention, providing evidence that peers can play an effective role in reducing problem behavior in the CICO framework. Also, Strain, Cooke, and Apolloni (1976) suggested reasons why peers may be more advantageous than adults as interventionists. First,

the teacher is not required to allocate their full attention to the target student, as is the case with many teacher-led interventions in the classroom. Also, children engage in some behaviors only when the teacher is not present, and those behaviors would be more likely to be detected by peers than teachers. A third reason to utilize peers as interventionists is that students may be taught by multiple teachers throughout the day, while the peer group is more likely to remain consistent. As such, peer-led interventions can be conducted in multiple classrooms without having to train multiple teachers to conduct the interventions. Finally, Strain and colleagues (1976) suggested that peer-led interventions may be more likely to generalize to novel untrained settings where the teacher may not be present, such as in other classes or on the playground, as well as in subsequent school years.

Many studies have demonstrated the use of peers as intervention agents in social skills interventions, especially with children with developmental disabilities. For example, Arceneaux and Murdock (1997) utilized peers to prompt a child with autism to focus his attention on a task, rather than emitting vocalizations, which was effective in reducing the number of disruptive vocalizations emitted by the target child. Peers have also been taught to use various strategies to encourage peers with language delays to speak to them, resulting in more verbal interactions during unstructured free time (Goldstein & Wickstrom, 1986).

A final reason for utilizing peers in the Reciprocal Peer Mentoring intervention is that it would be a more efficient use of time for adult interventionists in schools than typical Check-In/Check-Out. Rather than meeting with one student during a traditional CICO session, an adult could supervise multiple child dyads engaging in Reciprocal Peer Mentoring at once, thereby exponentially increasing the number of children being contacted by the intervention at one time.

Reciprocity. In order to maximize the efficiency of the Reciprocal Peer Mentoring intervention, target students are paired and required to play the role of both mentor and mentee. Evidence supporting the effectiveness of reciprocity in schools can be found in the extensive literature on peer tutoring. In Reciprocal Peer Tutoring (RPT), two or more students meet to rehearse academic tasks, during which time they prompt each other, evaluate each other's performance, and reward each other when goals are met. Pigott, Fantuzzo, and Clement (1986) implemented Reciprocal Peer Tutoring for mathematics using groups of four students, including a coach, a referee, a scorekeeper, and a manager. The coach reminded the other group members about the strategies they would use to solve the problems and the goals that they were required to meet to obtain reinforcement, and they encouraged their peers when prompting them with flashcards. The scorekeeper kept track of the number of correct problems that the group solved, while the referee completed the same task as a reliability check. The manager was tasked with stating when the group reached their goal and won the game. The results of the study indicated that the students' math accuracy was increased to the class average. Also, although the intervention did not target social status specifically, the target children were mentioned more by peers as being one of the top five students that they would like to play with after the intervention than they were mentioned before the intervention was implemented.

Other studies have also demonstrated the effectiveness of Reciprocal Peer Tutoring in classroom environments. Fantuzzo, Polite, and Grayson (1990) found that students in dyads who engaged in group-building behavior in the form of playing darts did not show improved academic performance, demonstrating that having specific goals and being reinforced for the target behaviors are paramount in the Reciprocal Peer Tutoring framework. Fantuzzo, King, and Heller (1992) exposed students to different conditions, when the structure of the RPT

environment and the reward component were varied. The authors demonstrated that the structure condition, during which one student was identified as the tutor and one was the tutee, was more effective than the unstructured condition, during which the students were simply directed to work together, without delineating a specific child to be the tutor. They also found that the inclusion of a reward component for a pre-specified number of correct responses was more advantageous than not including a reward component, and that the combination of the structure and reward components was additively more effective than any of the other conditions. Reciprocal Peer Tutoring in academics has also been demonstrated to increase the number of positive social statements occurring during free time (Lawson & Trapenberg, 2007). Reciprocal Class-Wide Peer Tutoring is also effective in increasing academic engaged time and decreasing off-task behavior of children with Attention Deficit Hyperactivity Disorder (DuPaul, Ervin, Hook, & McGoey, 1998). Finally, Reciprocal and Nonreciprocal Class-wide Peer Tutoring have been shown to be equally effective, and more effective in increasing students' academic skills than students in a control condition (Menesses & Gresham, 2009). Reciprocal Peer Tutoring, however, increases students' accuracy with academic tasks in a more efficient manner than Nonreciprocal Peer Tutoring, suggesting that the inclusion of reciprocity may be advantageous.

Social skills. In most of the Check-In/Check-Out studies to date, the primary dependent variable has been some measure of externalizing behavior problems, such as aggression or disruptive behavior in the classroom. The aim of the Reciprocal Peer Mentoring intervention, on the other hand, is to remediate social skills deficits in children who fail to exhibit appropriate behavior in social situations. Social skills are defined as learned behaviors that aid individuals in performing adequately in social situations (Gresham, 1986). Social skills are considered to be under the umbrella of social competence, which refers to judgments that are made about

individual's functioning in situations with others (Gresham, 1986). Social skills are critically important in schools, as students with problems in peer relationships are at-risk for many adverse outcomes, such as school dropout, delinquency, internalizing problems such as anxiety and depression, and conduct disorder and other externalizing behavior problems (Dodge, Coie, & Brakke, 1982; Kupersmidt, Coie, & Dodge, 1990; Ladd, 1981). In addition to protecting against behavior problems, social skills are also academic enablers, as they allow children to appropriately interact with the learning environment by engaging in behaviors such as asking for help when needed. As such, social skills in 3rd grade are a better predictor of 8th grade academic performance than is academic performance in 3rd grade (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000).

When students fail to exhibit appropriate social skills, their deficits fall into two categories: acquisition and performance deficits (Gresham, 1981). Students with acquisition deficits do not engage in appropriate social behaviors because the social skills are not in their behavioral repertoire. As such, intervention strategies would focus on explicit instruction of the social skills and rewarding appropriate behavior. In contrast, students with performance deficits have the social skills in their repertoire, but they fail to exhibit the behaviors because of a lack of motivation or reinforcement. Intervention in the case of performance deficits involves manipulating the antecedents and consequences of the behavior in order to increase the likelihood that the children will engage in prosocial behavior. Another reason that students fail to behave appropriately in social situations is that competing problem behaviors inhibit the acquisition or performance of prosocial behavior (Gresham & Elliott, 1990; Gresham, Elliott, & Kettler, 2010). Competing problem behaviors can occur in the form of externalizing behaviors, such as opposition and defiance, or internalizing behaviors, such as social withdrawal and

anxiety. The goal of the Reciprocal Peer Mentoring intervention is to target the prosocial behavior exhibited by students who have performance deficits and competing problem behaviors in the form of social withdrawal, thereby increasing their social status, as well as the amount and quality of positive interactions with peers.

Socially neglected students. In addition to utilizing peers as mentors, including reciprocal pairings, and targeting social skills, the Reciprocal Peer Mentoring intervention is also intended to extend the Check-In/Check-Out literature by targeting students in low social status groups. Social status classifications, such as popular, average, neglected, rejected, and controversial, are a means of placing children into groups that differ in characteristic behaviors and levels of social acceptance. Sociometric data based on peer report has consistently been used as a method to classify children into social status groups. In an early study, Justman and Wrightstone (1951) compared three different methods of collecting sociometric data. In the Casting Characters method, students were asked to select peers who best fit pre-determined descriptions of characters in a play, which were devised by the authors as a means of assessing the students' positive and negative peer attributions. The second method utilized by Justman and Wrightstone (1951) would now be referred to as a peer rating method, which involved students rating all of the peers in their class on a five-point scale assessing the extent to which they were friends. Each student's mean rating comprised his or her status score. The third method, now termed a peer nomination method, required students to list the three classmates whom he or she liked the best and the three classmates who were liked least. Based on these nominations, a status score was created whereby each student's Like Least score was subtracted from his or her Like Best score, yielding an index of overall social preference. After comparing the three methods, Justman and Wrightstone (1951) concluded that the Casting Characters method

measured a different construct from the peer nomination and peer ratings methods, which were highly correlated and deemed interchangeable.

Subsequent to the work done by Justman and Wrightstone (1951), researchers have developed other sociometric data collection systems, which can be classified as one-dimensional or two-dimensional methods (Terry & Coie, 1991). One-dimensional methods utilize the raw scores obtained by ratings of all peers, similar to the peer ratings method utilized by Justman and Wrightstone (1951). Oden and Asher (1977), for example, asked students to provide ratings of how well they liked to play with each of their peers, and mean scores were calculated for each student. Two-dimensional methods, on the other hand, classify students into social status groups based on scores derived from the raw scores, rather than using the raw scores themselves (Terry & Coie, 1991). Peery (1979), for example, asked preschool students positively- and negatively-worded questions about activities with peers (e.g. "Whom do you like to sit next to for stories on the rug?"; p. 1231), to which they responded with as many as two peer nominations. Based on these nominations, Peery (1979) derived two metrics: Social Preference and Social Impact. Social Preference was calculated by subtracting the number of negative votes from the number of positive votes, much like Justman & Wrightstone's (1951) status score. The Social Impact score was calculated by adding the positive and negative votes, yielding a measure of the student's total influence on the peer ecology, whether positive or negative. Newcomb and Bukowski (1983) utilized a sociometric data collection method that was based on the probability of being nominated as liked and disliked by peers. The authors chose cutoff criteria for the number of nominations that were considered common or rare using a criterion of .05, which allowed for the calculation of the number of nominations that could be expected based purely on chance while taking into account the number of students in the nominating group. For example, in a group of

eight to twelve students, having a liked or disliked score of six was considered to be rare, as it was not likely to occur due to chance. Newcomb and Bukowski (1983) classified students into social status groups based on the number of rare nominations that they received. For example, popular students were characterized as children with rare liked scores, which were higher than those that could be expected based on chance, as well as a disliked score below the mean.

Coie, Dodge, and Coppotelli (1982) devised the sociometric data collection system that has been used most frequently in the literature, consisting of a combination of the Justman & Wrightstone (1951) peer nomination method and Peery's (1979) Social Preference and Social Impact metrics. In this method, students nominate the three peers who they like the most and the three peers who they like least. The scores are then standardized around the group mean and Social Preference and Social Impact scores are obtained similar to the method utilized by Peery (1979). Because of the potentially problematic outcomes that could result from having students provide negative ratings of peers, Asher and Dodge (1986) formulated a method similar to the Coie et al. (1982) method; however, they only used the positive ratings obtained from peers. In this method, students nominate the three peers who they like the most, and they rate each of the other students in their class on an item assessing the degree to which they like to play with each peer. In the Asher and Dodge (1986) method, a Lowest Play Rating score replaces the Like Least score found in the Coie et al. (1982) method, thereby classifying students into the same groups without using negative ratings or nominations.

In a study comparing many of the aforementioned sociometric data collection methods, Terry and Coie (1991) arrived at many influential conclusions. First, the authors found that each of the sociometric rating systems, including the Newcomb and Bukowski (1983), Coie et al. (1982), and Asher and Dodge (1986) methods, as well as one-dimensional rating methods, such

as Oden and Asher (1977), produced very low 1-year stability correlations, with κ scores ranging from .12-.24. This assertion is supported by Newcomb and Bukowski (1984), who also obtained low stability scores using the Newcomb and Bukowski (1983) and Coie et al. (1982) methods assessed at multiple intervals over the course of two years. Terry and Coie (1991) also concluded that one-dimensional peer rating methods (e.g. Oden and Asher, 1977) do not yield classifications of students into groups that are behaviorally different, as the discriminant validity associated with this method was lower than scores for other methods. Also, the Asher and Dodge (1986) method was not found to classify rejected students as well as the other methods, which was hypothesized to occur because of the lack of negative ratings inherent with this method (Terry & Coie, 1991). Additionally, Terry and Coie (1991) determined that the Coie et al. (1982) method was superior to many of the other methods in classification accuracy. Overall, Terry and Coie (1991) suggested that each method had its advantages and disadvantages, and that decisions about which method to choose should be based on the specific goals of the assessment situation.

When utilizing the Coie et al. (1982) method of social status classification, students are placed into groups that are behaviorally distinct. As such, many researchers have examined differences in behavior of children in each of the social status groups, as well as correlates of group classification, in an effort to better identify the intra- and inter-individual factors that predict and maintain membership in social status groups. Coie and colleagues (1982) made a distinction between neglected and rejected children, suggesting that rejected children are actively disliked, while neglected children are simply ignored by their peers. As such, the researchers emphasized the importance of both Like Most and Like Least items in sociometric peer nominations, stating, “There is much that cannot be learned about social relations among

children without introducing the negative choice issue" (p. 567). Asher (1983) proposed the idea that inappropriate behavior and social status may influence each other in a bidirectional relationship, such that performance deficits may emerge if children know the correct prosocial behaviors but fail to engage in them because they are currently neglected or rejected, or engaging in inappropriate social behavior may lead to being placed into low social status groups.

Coie and colleagues (1982) created profiles of each social status group based on correlating membership in each group with peer ratings of behavior. Peer ratings suggest that popular children are leaders, are physically attractive, and are cooperative, while they rarely start fights or disrupt the classroom environment. Rejected children, on the other hand, often fight and disrupt the classroom environment, ask for help before attempting work, and are rarely considered leaders or cooperative by their peers. Children in the controversial social status group represent a blend of the popular and rejected groups. They are often rated as disruptive and starting fights, but are also rated as being a leader. Controversial children are not characterized as being cooperative, but they are also not rated as being shy, suggesting that they are visible members of the classroom ecology. Coie et al. (1982) found that neglected children are often invisible members of the social hierarchy, as no meaningful correlations were found with any of the variables.

In addition to the Coie et al. (1982) study, researchers have attempted to further elucidate the behavioral and social correlates of social status group membership by measuring variables in the school environment. For example, Dodge and colleagues (1982) assessed the behavior of children in different social status groups by directly observing them on the playground and in the classroom. The researchers found that rejected children engaged in more aggressive and off-task solitary behaviors than positive and average children. Rejected children approached peers in a

prosocial manner as often as popular children, but the social advances of popular children were more likely to be met with social acceptance. According to teacher report, rejected children were more likely to be reprimanded and to perform unsatisfactorily in academics. The behavioral profile of neglected children found in the Dodge et al. (1982) study included being more likely to work alone when engaging in on-task behavior and attempting fewer social interactions than other groups, providing credence to the characterization of neglected children as shy individuals.

In a longitudinal study, Ladd (1990) measured social status and various behavioral correlates in Kindergarten students at school entry, two months after the start of the year, and at the end of the school year. Similar to the Caprara et al. (2000) study, Ladd (1990) found that early social status was predictive of later academic performance, such that teachers rated children that were in high social status groups at the beginning of the year more favorably than children of low social status on measures of achievement, school readiness, and appropriate behavior. A sobering picture of rejected students was presented, as their parents reported higher levels of school avoidance than other groups, and teachers reported lower levels of academic performance than the other groups; however, neglected children demonstrated no unfavorable behaviors according to parent and teacher report.

Coie and Dodge (1988) also measured the correlates of social status using reports by different informants, including peers, teachers, and direct observation by experimenters. In this study, controversial and rejected children were rated as more aggressive than other groups, with controversial children receiving the highest ratings of aggression. Similar to previous studies, neglected children received low ratings by their peers on all variables; however, teachers did not rate neglected children consistently lower than other groups on all variables. The researchers found that teachers were more likely to rate neglected students as isolated; however, direct

observation data indicated that rejected children engaged in more solitary play than neglected children. The authors emphasized the differences between the two groups, as neglected children are more likely to engage in appropriate behavior in isolation while rejected children are more likely to be offensive to peers by engaging in inappropriate, often aggressive, behavior.

In another study that examined different reports of aggressive and prosocial behavior and their correlations with social status group membership, Hatzchristou and Hopf (1996) studied gender differences in elementary and junior high students in Greece. In this study, both teachers and peers rated neglected children consistently low on all variables, which provides more evidence of the low visibility of neglected children in the peer ecology. Hatzchristou and Hopf (1996) also suggested that rejected boys and girls display different characteristic behaviors. Most of the previous research on rejected children included only boys in their samples, leading to the characterization of rejected children as being aggressive and having academic problems. Although this behavioral profile was found to be true of boys, Hazchristou and Hopf (1996) found that rejected girls are more likely to have internalizing problems, as they are often shy and withdrawn.

Another group of studies have examined factors related to social status in the classroom environment and during the emergence social hierarchies in novel play groups. Coie and Kupersmidt (1983) assembled play groups of boys, consisting of one child from each of the average, popular, neglected, and rejected groups according to the report of peers in their classrooms. The social statuses reported by classroom peers emerged in the new play groups, such that children who were rejected, for example, in their classrooms were likely to be rejected in the play groups as well. When play groups consisted of familiar peers from the same classroom, the social statuses did not emerge immediately, suggesting that they were not the

result of reputational biases; however, social status differences in the play groups emerged more quickly in groups with familiar peers than with groups of unfamiliar peers. The social statuses of these children were not simply a function of their classroom environment, as the statuses were the same in novel groups with unfamiliar peers. This suggests the need for interventions for neglected and rejected children, as their difficulties in peer relationships are not relegated to their classroom peers. Another important finding in this study was that neglected children were more likely to attempt prosocial behavior in groups with unfamiliar peers than with familiar peers. Consistent with Asher's (1983) suggestion of a bidirectional relationship, neglected children were more shy with familiar peers with whom they perceived that they were already neglected. Also consistent with previous research, rejected boys were rated as more aggressive and uncooperative than other groups; however, according to direct observation data, rejected boys engaged in an equal amount of aggressive behavior as average boys.

Dodge, Coie, Pettit, and Price (1990) examined the behavior of 1st and 3rd grade boys in new play groups that consisted of one boy in the popular group, two average boys, two rejected boys, and one boy rated as neglected by classroom peers. Similar to Coie and Kupersmidt (1983), the children's social statuses in the classroom and in the new play groups were not correlated immediately, but after a few sessions the social status groups were similar. Rejected boys engaged in more solitary play and aggressive behavior than average boys, and they received more reprimands from adults. Neglected children played in groups more often than in pairs, suggesting that one-on-one contact with peers was less preferable than group play. The researchers also found differences in correlates of social status during early and late sessions for the 3rd graders, but not for the 1st graders. Within 3rd grade play groups, social conversations were highly correlated with social status across all sessions. In early sessions, solitary play was

negatively correlated with social status and cooperative play was highly correlated; however, leadership was more predictive of high social status in later sessions, suggesting that the quality of interactions replaces quantity as most important when groups become more familiar.

In another study that examined 1st and 3rd grade boys in new play groups, Boivin, Dodge, and Coie (1995) tested a hypothesis that, rather than absolute rates of aggressive behavior, the dissimilarity between the amount of aggressive behavior displayed by children and the group norms of aggressive behavior would be predictive of low social status membership. Consistent with their hypothesis, the researchers found that, in groups in which solitary play occurred often, solitary play was not correlated with social status; however, in groups in which solitary play occurred rarely, engaging in solitary play was highly correlated with being a member of a low social status group. Reactive aggression, defined as aggression in response to conflicts, followed a similar pattern: if it was common in the group, it was not correlated with social status, but if reactive aggression occurred rarely in the group, then it was correlated with low social status. Interestingly, the authors found a different relationship between social status and proactive aggression, defined as bullying and goal-directed aggression. In groups in which proactive aggression occurred rarely, engaging in proactive aggression was correlated with high social status, which was suggestive of dominant behavior, according to the authors.

Social skills and social competence are other important factors that have been investigated as potential correlates of social status. Boivin and Begin (1989) measured social competence and self-esteem in Canadian 3rd and 4th graders. Popular children reported significantly more positive perceived self-competence in the areas of academics, athletics, and social acceptance. Controversial children reported lower self-perceptions than average children, and there were no differences in self-perceptions between neglected and average children.

Boivin and Begin (1989) found that rejected children could be split into two groups: those with high self-perceptions and those with low self-perceptions. The authors suggested that the high self-perception group may represent the more aggressive-rejected children who incorrectly perceive themselves as socially competent, while rejected children with low self-perceptions may be more withdrawn and nonaggressive.

In a similar vein, Zakrinski and Coie (1996) assessed the self-perceptions of aggressive and nonaggressive rejected children. Aggressive-rejected and nonaggressive-rejected children were not statistically different in the degree to which they were rejected by other students, and they were able to correctly predict how many Most Liked scores they would receive. In terms of least liked scores, however, aggressive-rejected children underestimated how many scores they would receive, while nonaggressive-rejected children were able to correctly anticipate how many peers disliked them. Aggressive-rejected and nonaggressive-rejected children were found to be generally accurate in predicting how many peers liked and disliked others, and aggressive-rejected performed better than nonaggressive-rejected children on some such tasks. The authors also exposed the students to different conditions in order to measure their perceptions when social feedback was given. In one condition, the children watched videotapes that contained two children playing a game, during which the protagonist child would give either ambiguous or negative social feedback to the other child in the videotape. The participants were tasked with rating how well they liked the protagonist and how well the protagonist liked the other child in the vignette. The other condition involved experimental confederates who gave ambiguous or negative feedback to the participants, after which time the participants rated how well they liked the confederate and how well the confederate liked them. In each condition, aggressive-rejected children provided higher ratings on each item than nonaggressive-rejected children, indicating

that the protagonist in the videotape liked the other child and that the confederate liked them more than they liked either actor. The results of the study provide more evidence that a subset of rejected children may have overinflated self-perceptions in terms of misattributing negative feedback from others as positive.

Stuart, Gresham, and Elliott (1991) measured the social skills of popular and rejected children from Kindergarten through 6th grade, when their teachers completed the Teacher Form of the Social Skills Rating System (Gresham & Elliott, 1990). The teachers reported that their rejected students possessed consistently lower social skills than popular students in the areas of assertion, cooperation, and self-control, and that the rejected students engaged in more problem behaviors than popular students. These results suggest the need for social skills interventions for children in low social status groups, as they are likely to engage in fewer prosocial behaviors than their popular peers. The efficacy of small-group social skills interventions has been demonstrated in terms of increasing social status (Ladd, 1981; Oden & Asher, 1977), as well as prosocial behavior (Ladd, 1981). Also, Gresham and Nagle (1980) found that small-group explicit social skills instruction, referred to as coaching, was as effective as modeling, which involved watching videotapes of children engaging in prosocial behavior, but that the combination of coaching and modeling was not more effective than either intervention alone. Studies such as these emphasize the importance of developing interventions to increase the prosocial behavior of children in low social status groups, providing the impetus for an examination of the Reciprocal Peer Mentoring intervention.

Research Questions

In order to demonstrate the effectiveness of the Reciprocal Peer Mentoring intervention in improving the prosocial behavior of neglected and rejected students, four research questions will guide the current investigation:

1. To what extent will the implementation of Nonreciprocal Peer Mentoring (NPM) increase the prosocial behavior of socially neglected students?
2. To what extent will the implementation of Reciprocal Peer Mentoring (RPM) increase the prosocial behavior of socially neglected students?
3. To what extent will NPM and RPM result in changes in social status?
4. To what extent will NPM and RPM lead to changes in social skills rated by teachers?

Chapter 2
General Methodology

Participants

The participants for the current studies consisted of twelve 3rd-5th grade students in two public schools in the Southeastern United States. All students were taught in a general education setting for most of the school day. Each dyad included in the studies consisted of two students who were taught in the same classroom throughout the day to maximize contact between the participants.

Socially neglected students. Eight socially neglected students were identified for inclusion in the study with the use of a multiple gating procedure. First, an adaptation of the Coie et al. (1982) procedure of sociometric classification was utilized. Students in general education classrooms were prompted to nominate the three students in their classroom with whom they like to play with most and the three students with whom they like to play least. Each student's number of nominations was standardized around the group mean, thereby creating a Like Most and a Like Least score for each student. For each student, a Social Preference score was derived by subtracting the Like Least score from the Like Most score, and a Social Impact score was created when the Like Most and Like Least scores were added. Students were identified as neglected based on a Social Impact score that was one standard deviation below the classroom mean and a Like Most score within a quarter of a standard deviation from the group mean. In the second step of the multiple gating procedure, teachers completed the Social Skills Improvement System-Rating Scales Teacher Report Form (SSIS-RS; Gresham & Elliott, 2008) on each of the neglected students. In order to be included in the study, the Externalizing Problems subscale could not be clinically elevated. This step was included so that the

intervention targeted students with social skills deficits only, rather than students with externalizing behavior problems as well. The final inclusion criterion was relatively stable baseline performance on the Direct Behavior Rating (DBR) form that the teacher completed daily. In order to be included in the study, the student must not have demonstrated superior performance on the daily DBR.

Popular students. Four popular students were identified to serve as mentors in Study 1. In order to identify popular students, an adaptation of the Coie et al. (1982) procedure was used. To be classified as popular, students were required to have a Social Preference score one standard deviation above the classroom mean, as well as a Like Most score greater than average and a Like Least Score less than average. Also, in order to be included in the study, popular students were approved by his or her teacher as an ideal candidate to mentor other students in their classroom. Teachers were directed to approve the popular students as mentors if he or she believed that the student would be responsible, reliable, and would be an effective mentor for his or her peer.

Procedures

Consent. Teachers from two elementary schools were contacted for inclusion in the studies. The basic tenets of the intervention were explained to the teachers, and they were asked to contact the experimenter if they felt that the intervention would benefit any of their students who were exhibiting difficulties in peer relationships. After classrooms were identified for use in the studies, a response form detailing the purpose of the classroom sociometric data collection procedure was sent home with each student in each class. Any students whose parents responded stating that they did not wish for their child to participate were removed from the sociometric data collection procedure, such that they were not asked about their favorite and least favorite

peers and their classmates were not allowed to mention the excluded students' names when providing their ratings.

After popular and neglected students were identified for inclusion in the study, child assent and parent consent forms were completed and returned.

Training. The "Tell, Show, Do" method of teaching skills was utilized when training students to be peer mentors. First, students watched two graduate students engaging in meetings during which they modeled the behaviors associated with checking-in and checking-out. After watching the steps, students practiced the check-in and check-out meetings with graduate students, using sample Direct Behavior Ratings to evaluate performance. During training, the students were provided with a checklist of each step that he or she was required to perform (see Appendix A). After each training session, the students were given feedback about their performance. Mentors were considered to be adequately trained after three sessions of perfect integrity. Performance feedback was used to improve the mentor's integrity after training sessions of less-than-perfect integrity (Noell et al., 2005).

Baseline. During baseline data collection, the teachers filled out Direct Behavior Rating (DBR) forms for each of the target neglected students. The popular mentors were trained during this phase, but the students were not aware of their pairings. Also, the target students were not made aware that their daily behavior was being recorded. This measure was taken so that the data obtained in the baseline phase would be as representative of their typical classroom behavior as possible.

Peer mentoring. After the mentors were trained and the baseline data were collected for the target students, the Peer Monitoring intervention was implemented, whereby the mentors and mentees checked-in at the beginning of the day and checked-out at the end of the day. Students

were paired in dyads with mentors from the same classroom in order to maximize contact between mentor and mentee. Check-in and check-out sessions occurred in an empty area within each school building. All of dyads met in the same room at the same time to maximize the efficiency of pulling students from their classrooms.

During check-in, the mentors were responsible for stating the mentee's daily behavior goal, which the experimenter provided to them. A percentile shaping procedure (Galbicka, 1994) was used to gradually increase the students' goals, such that they were allowed access to reinforcement if they earned a score better than the median of the three previous days. Students were required to earn at least half of the total possible points (15 points), as they did not receive reinforcement if they had an unsatisfactory day. Mentees were able to earn access to reinforcement upon earning a minimum of 20 points on any day, regardless of their performance on the previous three days. This criterion was included to discourage frustration, such that students were not required to achieve the full 25 points in order to obtain reinforcement. The mentee was responsible for collecting the DBR form from the teacher at the end of the day and bringing it to the check-out session. During check-out, the mentor evaluated the mentee's performance and allowed the mentee to pick out of a prize box if the student reached his or her goal. The DBR forms were then sent home with the mentee and they were returned the following school day.

Measures

Direct Behavior Ratings (DBR). The Direct Behavior Ratings consisted of five behaviors that teachers rated on a five-point scale (see Appendix B). The DBRs were customized for each mentee during a consultation session between the experimenter and each target student's teacher. The experimenter and teacher discussed the difficulties that the target

students were exhibiting and decided upon five positively-worded behaviors upon which the child should improve. Items from the SSIS-RS form served as a guideline for many of the behaviors that were included on the DBRs. The teachers completed the DBRs at the end of each day, and they were instructed to base their ratings on the target student's behavior with all peers, rather than just the peer with whom they are paired during the intervention.

Social status. The students' sociometric status was assessed during baseline and at the end of treatment implementation in order to determine if their social status changed as a result of undergoing the peer mentoring procedures.

Social Skills Improvement System-Rating Scales (SSIS-RS). The SSIS-RS (Gresham and Elliott, 1990) is a technically adequate measure of social skills, problem behaviors, and academic competence in children aged 3-18. The teacher version of the SSIS-RS was completed before baseline data collection to screen participants for inclusion, as the problem behavior subscale was used as an exclusionary criterion for the mentees. Also, at the end of intervention implementation, the teachers completed the SSIS-RS to assess any changes in the social skills subscale that may have resulted from engaging in the peer mentoring intervention.

Treatment integrity. A graduate student not otherwise affiliated with the studies collected treatment integrity data during 20% of CICO sessions. The observer used a checklist of the four steps involved in each type of session to record the mentor's behavior. The primary experimenter trained the graduate student observer to a criterion of 100% inter-observer agreement (IOA) during mentor training sessions, and IOA checks occurred frequently throughout the course of the studies.

Chapter 3
Study 1: Nonreciprocal Peer Mentoring

Methods

Participants. Four socially neglected students identified by the aformentioned multiple gating procedure acted as the mentees in Study 1. All students attended the same school in the Southeastern United States. Each mentee was paired with a popular mentor from their classroom, resulting in eight overall participants. The selection of dyads occurred between the primary experimenter and each teacher, as same-gender students were paired as much as possible. Two dyads (Madeleine/Amy and Taylor/Andrea consisted of students from the same classroom, while the other two dyads were from different classrooms. Demographic information for each dyad can be found in Table 1.

Madeleine. Madeleine was an 11-year-old Caucasian female in the fifth grade who exhibited difficulty with initiating social interactions. Her DBR consisted of items assessing the extent to which she joined ongoing group discussions, raised her hand when she needed help, volunteered answers in class, interacted well with peers, and started conversations with peers. Madeleine was paired with Amy, a 10-year-old Asian American female in her classroom.

Ferdinand. Ferdinand, a 12-year-old African American 5th grade student, was paired with Michael, an 11-year old African American peer. Ferdinand's target behaviors were finishing classwork appropriately, ignoring classmates who were distracting, joining in with group discussions, interacting well with peers, and having a prepared answer when he raised his hand in class.

Taylor. Taylor was an 11-year-old African American fifth grader who was paired with Andrea, also an 11-year-old African American student in her class. Taylor's DBR consisted of

the following items: act appropriately when unsupervised, interact well with peers, control attitude when corrected or disciplined, start conversations with peers, and take responsibility for actions.

Gertrude. Gertrude was a 10-year-old fourth grade female who was paired with John, a 10-year-old male in her classroom. Gertrude's DBR items included speaking with an appropriate voice level, interacting with peers in groups and at recess, following directions, asking for help when needed, and starting conversations with peers.

Design. Study 1 was conducted using a concurrent multiple baseline across dyads. After the first target student demonstrated stable baseline performance, Nonreciprocal Peer Mentoring was implemented, whereby a popular student served as a mentor. The intervention was then implemented with each successive pair of students after a delay to demonstrate that the changes in the target students' behavior were solely a function of the intervention. Teachers completed the SSIS and classroom sociometric ratings were obtained before treatment was implemented and after the intervention was removed.

Procedure. The training and mentoring procedures were identical to the ones previously described. The only source of reinforcement available to the mentors was a reward for completing all of the eight treatment integrity steps on their checklist during training. During implementation of the intervention, the participating students conducted their check-in and check-out sessions in the presence of a teacher who was otherwise unaffiliated with the study. The supervising teacher informed the mentors of their mentees' goals and oversaw the reinforcement delivery at the end of each day.

Results

Madeleine. Results for Study 1 can be found in Figure 1 and Table 2. Madeleine exhibited a steady baseline, earning an average of 12.3 DBR points across 3 days. When treatment was implemented, she immediately achieved 21 points on the first day of implementation. Madeleine then regressed slightly, but never to the level of points she earned in baseline. Madeleine's performance steadily increased, resulting in an overall average in the treatment phase of 18 points.

Ferdinand. Ferdinand demonstrated a steady downward trend in baseline. When treatment was implemented, Ferdinand achieved his highest point total from baseline and showed another downward trend in points. Ferdinand's points were variable in treatment, sometimes falling below his lowest baseline point; however, at the end of the treatment phase, Ferdinand demonstrated a steady increase in points and he ended the treatment phase with two points that were higher than his baseline performance. There was no discernible difference in average scores between baseline and treatment for Ferdinand, but the second half of his treatment phase showed a steady increase in responding.

Taylor. Taylor demonstrated relatively low baseline performance (M=10.8). When peer mentoring was implemented, Taylor immediately improved her performance, and, excluding one day, her points in the treatment phase were much higher than the ones she earned during the baseline phase. Her average points in baseline increased to 20.4.

Gertrude. Gertrude demonstrated a variable baseline during which she earned 18 points on two days (M=14.6). After the peer mentoring intervention was implemented, Gertrude's performance became less variable, as she exhibited a steady increase in points during treatment (M=18.2).

SSIS. Standard scores from the teachers' ratings of the participants' social skills can be found in Table 3. Each of the students' social skills subscale scores increased after the intervention was implemented. All participants ended with average social skills ratings according to their teachers.

Social status. Mixed results were obtained in reference to the sociometric ratings before and after the intervention was implemented. A summary of the sociometric data can be found in Table 4. Taylor's classmates indicated that she improved to the average range after the intervention was implemented, as she was nominated as most liked more often than she was previously mentioned. Ferdinand and Gertrude remained in the neglected range after treatment was implemented. Two of Madeleine's classmates mentioned her as liked least after the intervention was implemented, which resulted in her falling to rejected status.

Treatment integrity. Following their training, each of the mentors implemented the intervention with 100% integrity throughout the duration of the study, and no performance feedback was required to improve their intervention delivery.

Discussion

The results of Study 1 demonstrate that the Nonreciprocal Peer Mentoring procedure may be an effective method of increasing the prosocial behavior exhibited by socially neglected students. Gains were seen in teacher DBR ratings for three out of the four participants, and all participants demonstrated steady increases in the points they earned each day. Also, all participants were rated by their teachers as having average social skills when the intervention concluded. Although Taylor's sociometric status increased to the average range, the other three participants' social statuses did not improve after the intervention was implemented. It was also demonstrated that peers can successfully monitor each other's performance on social skills goals

and appropriately provide social reinforcement and encouragement to their peers during a social skills intervention.

Chapter 4
Study 2: Reciprocal Peer Mentoring

Methods

Participants. Four elementary school students who were identified as socially neglected using the previously described procedure participated in Study 2. The two dyads of students attended 3rd grade in two different schools in the Southeastern United States. The first two students in each classroom who were identitied as socially neglected, who provided assent, and whose parents provided informed consent, were paired into dyads. Demographic information for each dyad can be found in Table 5.

Thomas and Jeremy. Thomas was a 9-year-old African American male who had difficulty with accepting consequences appropriately, speaking with an appropriate voice level, remaining on task, and interacting well with peers. Jeremy, an 8-year-old African American male, was paired with Thomas. Jeremy's target behaviors included interacting well with peers, appropriately accepting corrective criticism, and remaining on task.

Arthur and Catherine. Arthur, a 9-year-old Asian American student, was paired with Catherine, an 8-year-old African American female in his class. Arthur's target behaviors included raising his hand for help when needed, interacting appropriately with peers, and joining ongoing discussions. Catherine demonstrated difficulty with talking to peers at appropriate times, raising her hand for help when needed, and remaining on task during assignments.

Design. The methodological design for Study 2 consisted of a multiple baseline design across dyads. The peer mentoring sessions occurred concurrently between the participants. Specifically, two check-in and check-out sessions occurred each day, as both student engaged in peer mentoring with their partner.

Procedure. During baseline data collection, each of the four students were be trained to be mentors, but they were not informed about their partner. During training, the participants used the training checklist and they received reinforcement for 100% integrity. The teachers filled out each student's DBR without the intervention in place during baseline. When Reciprocal Peer Mentoring was implemented, the students met each day in the presence of the primary experimenter or a graduate student. Independent reward contingencies were used, such that participants received reinforcement if they achieved their goal for the day, regardless of their partner's behavior.

Results

Thomas and Jeremy. Results for both dyads can be found in Table 6 and Figure 2. Thomas demonstrated stable baseline performance, earning an average of 16 points on his daily DBR. When Reciprocal Peer Mentoring was implemented, Thomas's performance increased to an average of 21.5 points. Although his daily performance was more variable in the treatment phase, Thomas never earned points that were lower than baseline levels. After a slightly variable baseline (M=16.2), Jeremy's performance immediately increased to near perfect levels when Reciprocal Peer Mentoring was implemented, resulting in a treatment DBR average of 24.4 points.

Arthur and Catherine. Both Arthur and Catherine demonstrated variable baseline performance, as they each exhibited appropriate responding on some days while they faltered on others. Their variable performance continued in the treatment phase, as they did not consistently achieve their daily behavioral goals. Both participants demonstrated slight increases in their scores, as they earned an average of 15.6 and 15.4 points in baseline and 19.3 and 17.7 points during the treatment phase.

SSIS. Standard scores from each student's pre- and post-intervention SSIS scores can be found in Table 7. According to his teacher, Jeremy's social skills increased slightly after undergoing Reciprocal Peer Mentoring. Regarding the other participants, however, their teachers reported slightly decreased social skills after the intervention was implemented.

Social status. A summary of the participants' social status before and after undergoing the Reciprocal Peer Mentoring intervention can be found in Table 8. Jeremy's social status improved to the average range after the intervention was implemented, as he received some ratings of being liked most from his peers. Thomas remained in the neglected range after the intervention concluded. Regarding the other dyad, the participants' teacher discontinued the sociometric rating procedure because she felt that it was disrupting the classroom environment. As such, post-intervention sociometric ratings were not able to be reported for Arthur and Catherine.

Treatment integrity. Treatment integrity data indicated that each of the students completed all of the steps of RPM 100% of the time during the intervention phase. No buffer sessions or performance feedback was required to achieve 100% treatment integrity.

Discussion

The results of Study 2 provide preliminary evidence that Reciprocal Peer Mentoring may be an effective intervention to increase the social skills exhibited by socially neglected students. Each of the four participants demonstrated increases in the points they earned on their personalized DBR forms, although slight, inconsistent increases were observed for the second dyad. Mixed results were obtained from the teachers' SSIS forms and the classroom sociometric data, and the sociometric procedure was discontinued in one classroom. The greatest gains in the intervention were observed with Jeremy, who started the study with the highest teacher-reported

social skills. As such, future research should systematically assign students based on social skills ratings to determine if RPM is differentially effective for students exhibiting variable levels of baseline social skills. It is also noteworthy that there was a difference in engagement and cohesion between the participants in the two dyads, whereby Thomas and Jeremy enjoyed worked with each other well and supported each other while Arthur and Catherine were less friendly with each other. Future research should examine whether better and more consistent gains are seen when students are paired with peers with whom they would prefer to work.

Chapter 5
Discussion

Taken together, the results from the two present studies preliminarily support the use of Nonreciprocal and Reciprocal Peer Mentoring, which uses the Check-In/Check-Out methodological paradigm with peers serving as mentors. The current studies also lend credence to the idea that the Check-In/Check-Out intervention can be applied to specifically target social skills rather than externalizing problem behavior. It was also demonstrated that students are capable of supporting one another, encouraging each other, and delivering praise statements contingent on the performance of peers. The current studies also constitute an extension of the DBR literature (e.g. Dougerty & Dougherty, 1977; Chafouleas, Riley-Tillman, & Christ, 2009), as daily teacher reports of social skills were sent home to parents and signed. A strength of the current studies is that multiple outcome measures were used to assess social skills, which was highlighted by Gresham and Nagle (1980). Of all 8 target participants, only 2 students improved their social status following the intervention. This finding is consistent with the research literature, which posits that sociometric ratings may not be sensitive to immediate changes in prosocial behavior (e.g. Gresham & Nagle, 1980). Further research should be conducted to gather more support for the use of NPM and RPM with students who exhibit social skills deficits in the school environment.

Limitations

Limitations are inherent in any study, and these studies are not without some potential drawbacks. First, the designs used in the two studies do not include any reversal of conditions back to baseline, which demonstrates less stringent experimental control; however, reversing the intervention may have been impossible in these studies because the participants were paired with

peers in their classrooms. Instructing students not to speak to each other would have been an unnatural and potentially impossible task in a school setting. Also, students of different genders were paired in some of the dyads, which may or may not have influenced the results that were obtained. Particular attention was paid to pairing students in same-gender dyads, but opposite-gender pairs were sometimes warranted. Another potential limitation of the current studies was that the teachers were aware of when the intervention began, as the students were pulled from their classrooms at the same time, which may have altered their ratings on the daily DBR forms. It is of note, however, that many of the students' performance did not immediately improve on the first day of intervention implementation, so it is unlikely that the teachers' knowledge that the intervention started influenced their ratings. Finally, no maintenance data was obtained following the conclusion of the intervention, as the studies were conducted toward the end of the school year.

Future directions

The current group of studies raises many potential opportunities for future research. First, NPM and RPM should be implemented with more students to gather more support for their use. The interventions should be directly compared with adult-led Check-In/Check-Out for prosocial behavior to determine the relative effectiveness of each procedure. Future studies should also address treatment acceptability and compare the acceptability of student-led and adult-led mentoring programs. Both Reciprocal and Nonreciprocal Peer Mentoring should be investigated as a method to decrease externalizing behavior problems in schools, such that students exhibiting conduct problems should be paired with peers to improve their behavior. The application of the intervention to students exhibiting other behavior problems, such as inattention, hyperactivity, depression, and anxiety should be examined. Collateral effects of

NPM and RPM should be examined as well, such as its effects on internalizing behavior problems and academic performance when those constructs are not the primary outcome measures. Also, NPM and RPM should be evaluated with more than two students in a group, and as a classwide intervention. These studies would demonstrate the increased relative efficiency of this intervention over other social skills interventions, thereby exponentially increasing the number of students that can be affected by the intervention at one time. Finally, some methodological aspects of the intervention should be investigated, such as whether students would prefer to choose their mentors and/or the behaviors that are targeted and if their performance is affected by the opportunities to have more input in the intervention. Demographic matching should also be investigated, as students' differential performance when paired with peers of similar gender, ethnicity, age, social skills, etc. should be observed. The interdependency of the intervention should also be manipulated, as students may demonstrate increased performance if they have a joint DBR that they work on together and if they must both meet their goal to obtain reinforcement. Overall, future studies should attempt to maximize both the efficiency and the effectiveness of the intervention and to examine its application to different behavior problems in schools.

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Appendix A
Tables and Figures

Table 1
Study 1: Demographic Information

	Name	Age	Ethnicity	Gender	Grade
Mentee 1	Madeleine	11	Caucasian	Female	5th
Mentor 1	Amy	10	Asian American	Female	5th
Mentee 2	Ferdinand	12	African American	Male	5th
Mentor 2	Michael	11	African American	Male	5th
Mentee 3	Taylor	11	African American	Female	5th
Mentor 3	Andrea	11	African American	Female	5th
Mentee 4	Gertrude	10	African American	Female	4th
Mentor 4	John	10	African American	Male	4th

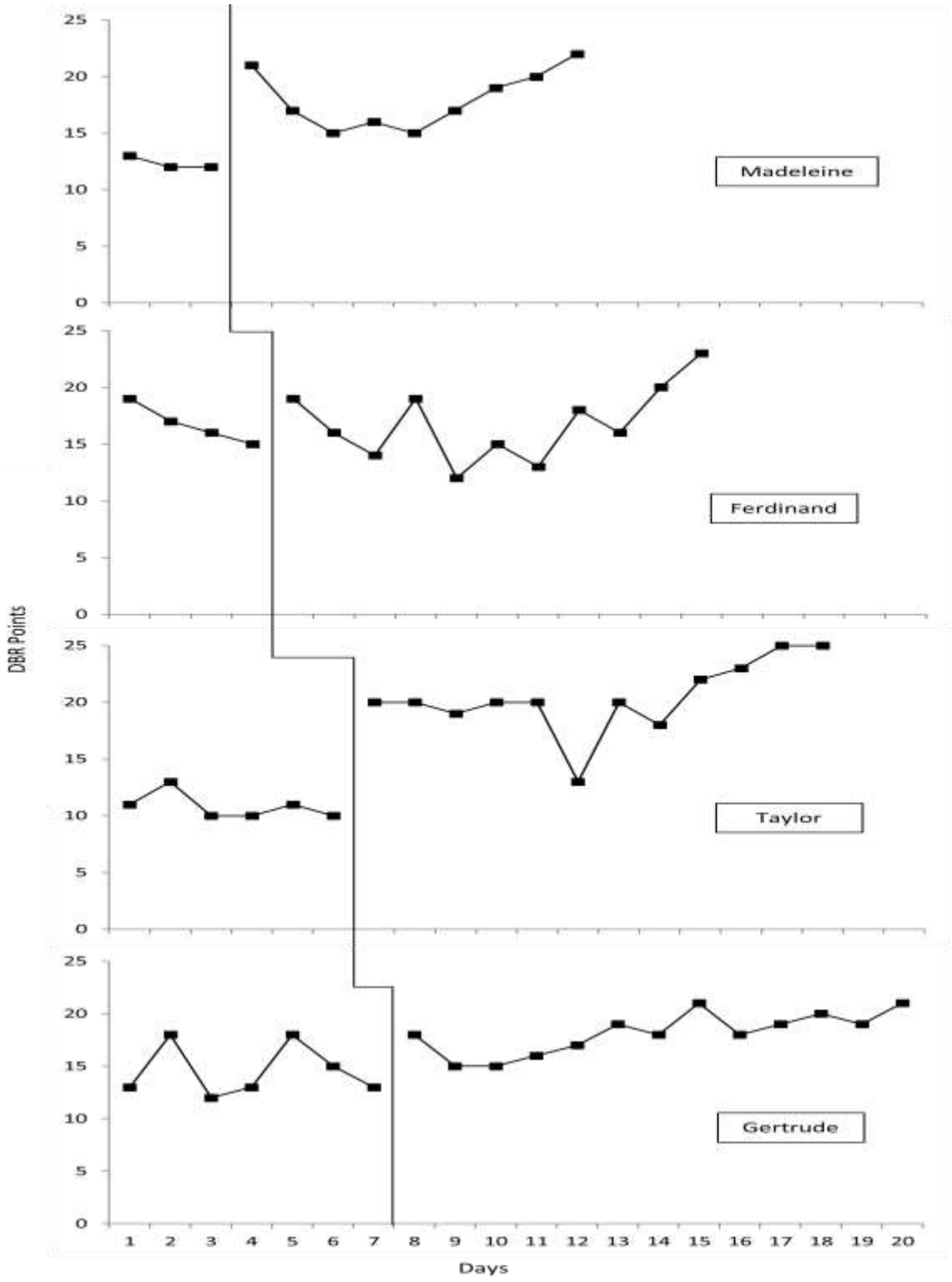


Figure 1. Study 1 Results. This figure contains the DBR data for the Nonreciprocal Peer Mentoring intervention.

Table 2
Study 1: Average DBR Points in Baseline and Treatment

Participant Name	Baseline DBR Average	Treatment DBR Average
Madeleine	12.3	18
Ferdinand	16.8	16.8
Taylor	10.8	20.4
Gertrude	14.6	18.2

Table 3
Study 1: Social Skills Intervention System (SSIS) Pre and Post Scores (M=100)

Participant Name	Social Skills Index (PRE)	Social Skills Index (POST)
Madeleine	78	94
Ferdinand	85	94
Taylor	82	105
Gertrude	58	103

Table 4
Study 1: Sociometric Status

Participant Name	Sociometric Status (PRE)	Sociometric Status (POST)
Madeleine	Neglected	Rejected
Ferdinand	Neglected	Neglected
Taylor	Neglected	Average
Gertrude	Neglected	Neglected

Table 5
Study 2: Demographic Information

	Name	Age	Ethnicity	Gender	Grade
Dyad 1	Thomas	9	African American	Male	3rd
	Jeremy	8	African American	Male	3rd
Dyad 2	Arthur	9	Asian American	Male	3rd
	Catherine	8	African American	Female	3rd

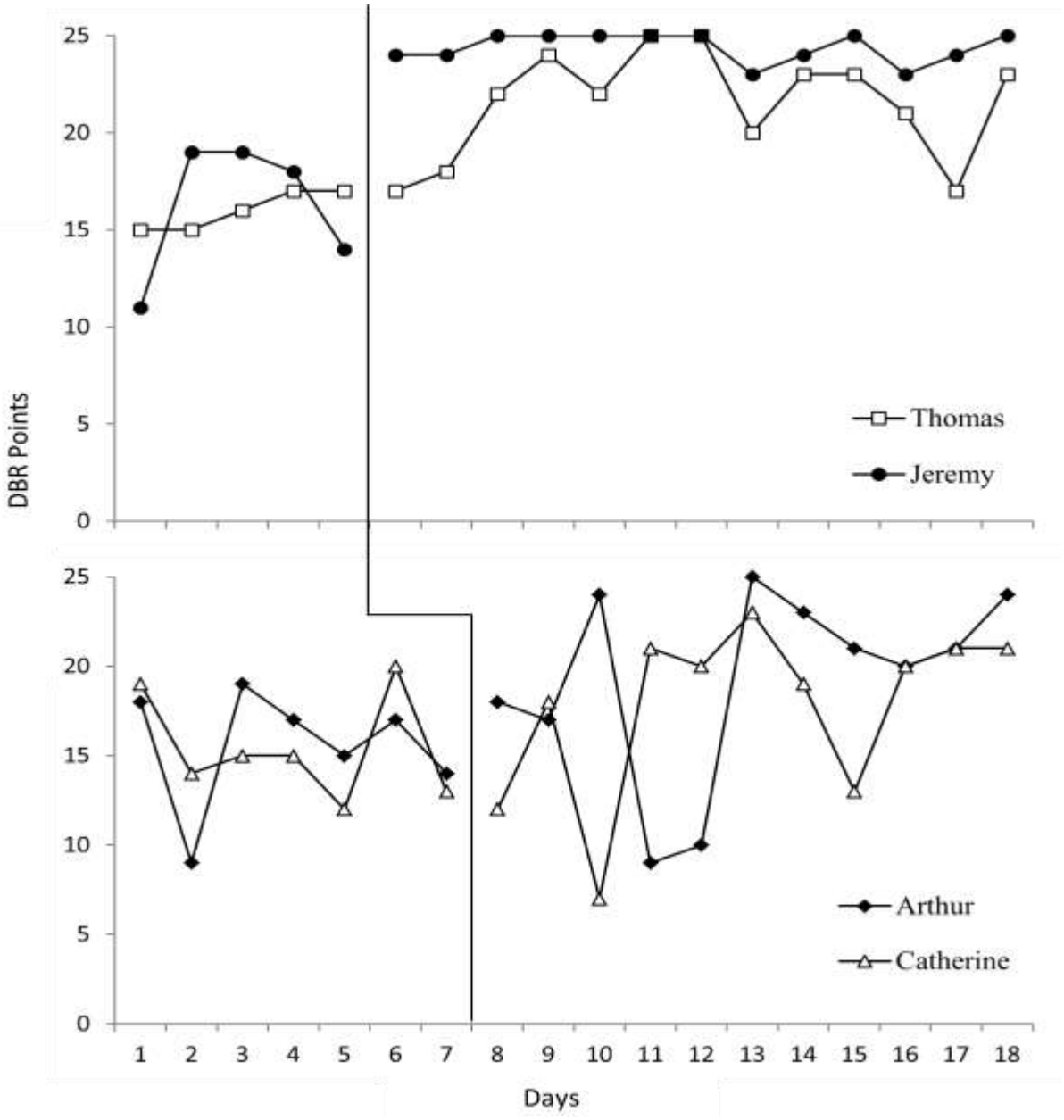


Figure 2. Study 2 Results. This figure illustrates the DBR data for the Reciprocal Peer Mentoring intervention. In this demonstration, Thomas and Jeremy are paired and Arthur and Catherine are paired.

Table 6
Study 2: Average DBR Points in Baseline and Treatment

Participant Name	Baseline DBR Average	Treatment DBR Average
Thomas	16	21.5
Jeremy	16.2	24.4
Arthur	15.6	19.3
Catherine	15.4	17.7

Table 7
Study 2: Social Skills Intervention System (SSIS) Pre and Post Scores (M=100)

Participant Name	Social Skills Index (PRE)	Social Skills Index (POST)
Thomas	79	64
Jeremy	104	118
Arthur	88	85
Catherine	81	71

Table 8
Study 2: Sociometric Status

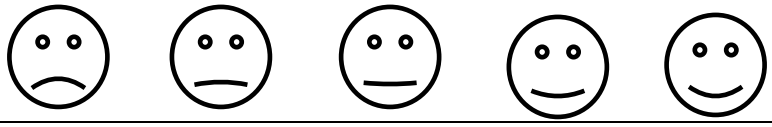
Participant Name	Sociometric Status (PRE)	Sociometric Status (POST)
Thomas	Neglected	Neglected
Jeremy	Neglected	Average
Arthur	Neglected	--
Catherine	Neglected	--

--Post-treatment sociometric status ratings were discontinued in this classroom.

Appendix B
Mentor Checklist

Check-In	
	Try to collect the DBR from the day before
	Remind your mentee about each target behavior
	Tell your mentee his/her goal (At least 12 points, better than middle of last 3 days, or 20 points)
	Tell your mentee he/she will do great today!
Check-Out	
	Total the number of points your mentee earned
	Tell him/her they did a good job and they will do great tomorrow!
	Let your mentee pick from the treasure box if he/she met his/her goal
	Give your mentee his/her DBR to bring home
_____/8	

Appendix C
Madeleine's Direct Behavior Rating (DBR) Form

Behavior	Never	Sometimes	Often	Very Often	Always	Points
Volunteer answers in class						**___/5**
Interact well with peers						**___/5**
Join in during group discussions						**___/5**
Start conversations with peers						**___/5**
Ask for help when needed						**___/5**
Total Points						**___/25**

Appendix D
Institutional Review Board Certification

Application for Approval of Projects Which Use Human Subjects

This application is used for projects/studies that cannot be reviewed through the exemption process.

LSU

Institutional Review Board
Dr. Robert Mathews, Chair
131 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.6792
irb@lsu.edu
lsu.edu/irb

– Applicant, Please fill out the application in its entirety and include two copies of the competed application as well as parts A-E, listed below. Once the application is completed, please submit to the IRB Office for review and please allow ample time for the application to be reviewed Expedited reviews usually takes 2 weeks. Carefully completed applications should be submitted 3 weeks before a meeting to ensure a prompt decision.

– A Complete Application Includes All of the Following:
- **(A)** Two copies of this completed form and two copies of part B thru E.
- **(B)** A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1&2)
- **(C)** Copies of all instruments to be used.
  *If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
- **(D)** The consent form that you will use in the study (see part 3 for more information.)
- **(E)** Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB. Training link: (http://phrp.nihtraining.com/users/login.php.)
- **(F)** IRB Security of Data Agreement: (http://www.lsu.edu/irb/IRB%20Security%20of%20Data.pdf)

1) Principal Investigator*: Dr. Frank Gresham **Rank** Professor

*PI **must be** an LSU Faculty Member

Dept: Psychology **Ph:** 2255784663 **E-mail:** frankgresham@yahoo.com

2) Co Investigator(s): please include department, rank, phone and e-mail for each

Tai A. Collins, M.A. Graduate Student 5043521781 tcoll21@tigers.lsu.edu

IRB# 3244 LSU Proposal #

- ○ Full
- ◉ Expedited
- ✓ Human Subjects Training
- ✓ Complete Application

3) Project Title: Reciprocal Peer Mentoring: Increasing The Social Skills of Neglected Students

4) Proposal Start Date: 3/15/12 **5) Proposed Duration Months:** 2

6) Number of Subjects Requested: 15 **7) LSU Proposal #:**

8) Funding Sought From: N/A

ASSURANCE OF PRINCIPAL INVESTIGATOR named above

I accept personal responsibility for the conduct of this study (including ensuring compliance of co-investigators/co-workers) in accordance with the documents submitted herewith and the following guidelines for human subject protection: The Belmont Report, LSU's Assurance (FWA00003892) with OHRP and 45 CFR 46 (available from http://www.lsu.edu/irb). I also understand that copies of all consent forms **must be maintained at LSU for three years after the completion of the project.** If I leave LSU before that time, the consent forms should be preserved in the Departmental Office.

Signature of PI Frank N. Gresham Date 2/9/12

ASSURANCE OF STUDENT/PROJECT COORDINATOR named above. If multiple Co-Investigators, please create a "signature page" for all Co-Investigators to sign. Attach the "signature page" to the application.

I agree to adhere to the terms of this document and am familiar with the documents referenced above.

Signature of Co-PI (s) Tai Collins Date 2/9/12

Copy Approved By:
Dr. Robert C. Mathews, Chairman
Institutional Review Board
Louisiana State University
203 B-1 David Boyd Hall
225-578-8692 | www.lsu.edu/irb
Approval Expires: 2/23/2013

Project Report and Continuation Application

(Complete and return to IRB, 131 David Boyd Hall.
Direct questions to IRB Chairman Robert Mathews 578-8692.)

Institutional Review Board
Dr. Robert Mathews, Chair
131 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

IRB#: 3244 **Your Current Approval Expires On:** 2/22/2013

Review type: Expedited **Risk Factor:** Minimal **Date Sent:** 12/3/2012

PI: Frank Gresham **Dept:** Psychology **Phone:** 225-578-4663

Student/Co-Investigator: Tai Collins

Project Title: Reciprocal Peer Mentoring: Increasing the Social Skills of Neglected Students

Number of Subjects Authorized: 15

Please read the entire application. Missing information will delay approval!

I. PROJECT FUNDED BY: LSU proposal #:

II. PROJECT STATUS: Check the appropriate blank(s); and complete the following:

___ 1. **Active**, subject **enrollment continuing**; # subjects enrolled: ____
✓ 2. **Active**, subject **enrollment complete**; # subjects enrolled: ____
___ 3. **Active**, subject **enrollment complete**; work with subjects continues.
___ 4. **Active, work with subjects complete**; data analysis in progress.
___ 5. Project **start postponed**
___ 6. **Project complete;** end date __/__/__
___ 7. **Project cancelled**: no human subjects used.

III. PROTOCOL: (Check one).

✓ Protocol continues as previously approved
___ Changes are requested*
- *List (on separate sheet) any changes to approved protocol.*

IV. UNEXPECTED PROBLEMS: (did anything occur that increased risks to participants):

- State number of events since study inception: 0 since last report: 0
- If such events occurred, describe them and how they affect risks in your study, in an attached report.
- Have there been any **previously unreported** events? Y/N ___ ?
  (if YES, attach report describing event and any corrective action).

V. CONSENT FORM AND RISK/BENEFIT RATIO:

Does new knowledge or adverse events change the risk/benefit ratio? Y/N N
Is a corresponding change in the consent form needed? Y/N N

VI. ATTACH A BRIEF, FACTUAL SUMMARY of project progress/results to show continued participation of subjects is justified; or to provide a final report on project findings.

VII. ATTACH CURRENT CONSENT FORM (only if subject enrollment is continuing); and check the appropriate blank:

___ 1. Form is unchanged since last approved
___ 2. Approval of revision requested herewith (identify changes)

Signature of Principal Investigator: Frank Gresham **Date:** 12-6-12

IRB Action:
✓ Continuation approved; **Approval Expires:** 12/6/13
___ Disapproved
___ File closed

Signed Robert C Mathews Date 12/7/12

Form date: April 16, 2008

The Vita

Tai Collins was born in New Orleans, Louisiana. He received a Bachelor of Arts in Psychology with a minor in Africana Studies from Loyola University New Orleans in 2008. Tai began attending Louisiana State University in 2008, and he earned a Masters of Arts degree in Psychology in 2010. He went on to complete the requirements for the degree of Doctor of Philosophy in Psychology in 2013. Currently, Tai is preparing to begin his career as an Assistant Professor in the school psychology program at the University of Cincinnati.