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Effects of a Positive Peer Reporting Intervention on Prosocial Interactions in a General Education Classroom

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ACCEPTANCE

This dissertation, EFFECTS OF A POSITIVE PEER REPORTING INTERVENTION ON PROSOCIAL INTERACTIONS IN A GENERAL EDUCATION CLASSROOM, by CAMELA Y. JOHNSON, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree Doctor of Philosophy in the College of Education, Georgia State University.

The Dissertation Advisory Committee and the student's Department Chair, as representatives of the faculty, certify that this dissertation has met all standards of excellence and scholarship as determined by the faculty. The Dean of the College of Education concurs.

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ABSTRACT

EFFECTS OF A POSITIVE PEER REPORTING INTERVENTION ON PROSOCIAL INTERACTIONS IN A GENERAL EDUCATION CLASSROOM
by
Camela Y. Johnson

Methods for promoting prosocial behavior in educational settings are many and varied. This literature review presents a context for defining and understanding prosocial behavior, including comparisons and contrasts with other behavioral concepts and terms. Understanding peer factors in the development of prosocial behavior can enhance the development and implementation of peer-based interventions. The four main types of peer-based interventions discussed are cooperative-learning groups, group-contingency plans, peer helpers, and positive peer reporting. Each of these interventions has a place in educational settings and should be utilized with social context and individual student characteristics in mind. Behavioral interventions that improve the overall classroom learning environment and are simple to implement and maintain are highly desirable for large general education settings. The accompanying study investigated the effects of a positive peer reporting (PPR) intervention on the social interactions of a group of 2nd grade general education students by using a modified replication of methods from the Grieger, Kaufman, and Grieger (1976) study. This study evaluated the effects of a peer reporting intervention on students' social interactions. A withdrawal design was used to evaluate the changes in the level of students' prosocial interactions across baseline and

intervention phases. Visual analysis of the data across phases indicated that the number of intervals in which students engaged in prosocial interactions increased during the intervention phases, most notably after the initial implementation of the PPR intervention. Social validity data gathered from the participating teacher, students, and parents, indicated positive attitudes about the intervention and its impact on student behavior. These results add to the existing body of literature which demonstrates the success of PPR interventions for increasing students' level of prosocial behaviors.

EFFECTS OF A POSITIVE PEER REPORTING INTERVENTION ON PROSOCIAL INTERACTIONS IN A GENERAL EDUCATION CLASSROOM

by
Camela Y. Johnson

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CHAPTER 1

PEER-BASED INTERVENTIONS TO PROMOTE PROSOCIAL BEHAVIORS IN EDUCATIONAL SETTINGS: A LITERATURE REVIEW

Educators often are faced with student behavior issues that interfere with academic instruction and progress. In addition to dealing with minor behavior problems on a daily basis, many teachers have to handle more extreme behaviors such as fighting, bullying, and threats to themselves and peers (Dollard, Christensen, Colucci, & Epanchin, 1996; Kamps, Kravits, Stolze, & Swaggert, 1999; Mitchem, Young, West, & Benyo, 2001; Moote Jr., Smyth, & Wodarski, 1999).

Student behavior is a nonacademic issue that can have far reaching effects on student performance and overall academic success (Kamps et al., 1999; Maheady, 2001; Montague, Bergeron, & Lago-Delello, 1997). Children demonstrating behavior problems in school settings are at risk for educational difficulties, including the negative impact of disciplinary actions that detract from learning time. They also face the possibility of receiving special education classifications, such as behavior disordered (Erdley & Asher, 1999; Gresham, 1998; Gresham, Sugai, & Horner, 2001; Kamps et al.; Moote Jr. et al., 1999; Ryan, Reid, & Epstein, 2004). In order to help students perform at their optimal level and experience success in the school setting, educators often must try to understand why behavior problems are occurring and devise appropriate interventions to address these problems (Dollard et al., 1996; Farmer & Cadwallader, 2000).

In addition to the impact that problem behaviors can have on an individual child's educational achievement, maladaptive social behaviors tend to have a negative impact on the overall climate in school settings. These behaviors can interfere with a teacher's ability to teach and function efficiently, can encourage other disruption in the classroom, and can detract from other students' enjoyment of school activities (Dollard et al., 1996; Kamps et al., 1999; Mitchem et al., 2001; Moote Jr. et al., 1999).

Many children and adolescents who experience behavior difficulties in the school setting are viewed as lacking in appropriate social skills and behaviors. These students often are described as unable to interact appropriately with peers and/or adults in social situations (DiSalvo & Oswald, 2002; Elksnin & Elksnin, 2003; Gronna, Serna, Kennedy, & Prater, 1999; Odom et al., 1999)

One area of research that has been directed toward this problem is the use of social-skills training for youth. Proponents of social-skills training argue that students who engage in aggressive/violent behaviors are not able to function appropriately in social settings, do not know how to relate to peers and others, and engage in socially maladaptive behaviors (Moote Jr. et al., 1999). These traits may develop for a variety of reasons, but the most commonly cited reasons are lack of opportunities for appropriate socialization in formative years, and exposure to inappropriate role models (Farmer & Cadwallader, 2000; Shaffer, 1994).

Many theories about how social development occurs cite the importance of parent-child interactions and relationships in the first few years of life as crucial to the social development of children (Rubin, Bukowski, & Parker, 1998; Turiel, 1998). This argument is difficult to dispute, but is not necessarily relevant for the purposes of this

review. Since educators can do little to impact the home environment of their students, particularly in the years before students are enrolled in the school system, there is little benefit in focusing on theories that are grounded in parent-child interactions when discussing aspects of social development that occur during the school-age years.

However, there are many interventions based on concepts that are relevant to children during the time they are in school. For instance, peer interactions are a crucial component of many theories of social development (Rubin et al., 1998; Shaffer, 1994; Turiel, 1998). Although students are sent to schools by their parents to learn specific academic subjects, as mentioned earlier, schools are charged with more than the teaching of academics. Peer interactions are a part of everyday school life, in and out of the context of academic learning. Therefore, it is reasonable for educators to incorporate peer interactions as a component of the interventions they might implement to improve students' social functioning (Caldarella & Merrell, 1997; Erdley & Asher, 1999; Rubin et al.).

This review of literature will focus on the social aspects of behavior in educational settings, with particular attention to how peer relationships and interactions impact social behavior during the elementary school age years. The discussion will include a review of the characteristics of prosocial behavior, a description of how peer factors influence the development of social behavior, and a discussion of specific peer-based interventions that can be used to teach and encourage prosocial behavior along with descriptions of researched and effective interventions.

Since there is already a large body of existing literature regarding social behavior in general, the purpose of this review is to add to that body of literature in a way that is

useful for theorists and researchers interested in the social behavior of children. This review will include a synthesis of literature that addresses peer-related factors which impact social behavior and literature on peer-based behavioral strategies. In addition, this review can be used as a reference for researchers and practitioners interested in empirical investigations of the impact of peer-based behavior interventions on children in school settings.

Characteristics of Prosocial Behavior

Definitions of the term prosocial behavior can be quite broad and can vary from one researcher to another (Greener, 2000; Gronna et al., 1999; Jackson & Tisak, 2001; Warden & Christie, 1996). A commonly accepted definition of prosocial behavior is voluntary behavior that benefits others (Avgitidou, 2001; Eisenberg et al., 1996; Jackson & Tisak). Sometimes added detail is given to this definition by specifying that prosocial behavior serves to promote and maintain relationships with others (Greener; Jackson & Tisak).

Wentzel (2003) uses the behaviors helping, sharing, and cooperating as examples of prosocial behavior. In a study assessing developmental changes in children's evaluations of prosocial behavior, Jackson and Tisak (2001) address the behaviors helping, sharing, cooperating, and comforting. Avgitidou (2001) includes altruism and empathy as prosocial behaviors.

Greener (2000) asserts that although the definition of prosocial behavior as it is used in the literature tends to be broad, commonly used examples of prosocial behavior tend to cover a small range of behaviors. In a discussion of how children interpret

prosocial behavior, Greener suggests that children may in fact include a broader range of socially relevant behaviors in their example list. For example, playing together is an important behavior for young school age children, but it often is not included in operational definitions of prosocial behavior.

Another phenomenon that is common in the literature on prosocial behavior is vague reference to the meaning of prosocial behavior, and/or use of overlapping terminology when referring to the same set of behaviors. For example, in the review of literature for a study designed to increase peer reports of prosocial behaviors in a classroom setting, Cashwell, Skinner, and Smith (2001) use the terms social skills and prosocial behavior interchangeably without providing an explicit definition of either term. The authors' accompanying use of the term "appropriate behavior" is the best reference for what they mean by social skills and prosocial behavior. As a part of the experimental design section, the authors give examples of prosocial behaviors that peers can report, such as helping a student pick up dropped books or loaning a pencil to a peer.

In a study of how children's prosocial behavior relates to emotionality, regulation, and social functioning, Eisenberg et al. (1996) compared prosocial behavior and individual characteristics, such as emotionality, temperament, and social skill level. However, they do not provide a distinct definition of the term prosocial behavior. The reader must infer the meaning of the term prosocial behavior based on contextual clues. The authors do provide a few examples of the prosocial behaviors that children were asked to assess from their peers, such as helping, sharing, and being nice.

In the literature focusing on social behavior and social skills, authors also tend to give broad definitions of these terms, such as the ability to interact effectively with others

(Gresham, 1986, 1998; Gresham et al., 2001; Jackson & Tisak, 2001; Moote Jr. et al., 1999; Quinn, Kavale, Mathur, Rutherford Jr., & Forness, 1999; Sheridan, Maughan, & Hungelmann, 1999). As is the case with the term prosocial behavior, specific example behaviors are sometimes given with this broad definition. These examples further describe some of the behaviors that are considered an important part of getting along with others, such as sharing, helping, and cooperating (Caldarella & Merrell, 1997; Jackson & Tisak; Moote Jr. et al.).

In some cases, researchers attempt to give more specific parameters for understanding the term social skills. DiSalvo and Oswald (2002) define social skills as relating to others in a way that reinforces all involved. Elksnin and Elksnin (2003) define social skills by identifying distinct categories such as interpersonal behaviors (giving compliments), peer-related skills (sharing), and teacher-pleasing behavior (following directions).

Some authors cite the importance that social skills and social behavior play in gaining benefits for self and/or others (Eisenberg et al., 1996; Greener & Crick, 1999; Moote Jr. et al., 1999). The importance of peer factors such as peer interaction dynamics and peer acceptance issues are also highlighted in much of the literature on social behaviors (Caldarella & Merrell, 1997; Erdley & Asher, 1999; Farmer & Cadwallader, 2000; Gresham et al., 2001; Gumpel & Frank, 1999; Moote Jr. et al.; Rubin et al., 1998; Shaffer, 1994; Sheridan et al., 1999). A final theme noted in the existing literature is the importance of the social-cognitive aspect of social skills (Erdley & Asher; Farmer & Cadwallader; Jackson & Tisak, 2001; Rubin et al.; Sheridan et al.,).

Another way to understand the construct of social skills is to view it from the perspective of the purpose and/or outcome of specific social behavior(s). Social skills can be understood in this manner from a peer acceptance, behavioral, or social validity perspective (Elliot, Sheridan, & Gresham, 1989).

From the peer acceptance perspective, children are considered socially skilled if their peers accept them. Although this definition can add insight to the discussion of social skills as related to peer influencing factors, it is not necessarily helpful when designing interventions because of the difficulty in systematically identifying behaviors that lead to acceptance or rejection by peers (Elliot et al., 1989). For example, a social behavior that is viewed as acceptable or desirable in one peer group, such as a unique handshake, might be viewed as odd or unacceptable in a different peer group. Therefore, it would be counterproductive to design an intervention based on a set of social skills that may not be adaptive and transferrable from one peer group to the next group (Ryan et al., 2004; Sheridan et al, 1999).

The behavioral definition of social skills proposes that being socially skilled means exhibiting behaviors in specific situations that would most likely guarantee reinforcement. The reinforcement would be contingent upon these behaviors. This definition has more relevance for designing intervention strategies because it allows for the targeting of specific social behaviors that would be acceptable in a broad range of settings (Elliot et al., 1989; Maheady, 2001; Odom et al., 1999; Ryan et al., 2004).

According to the social validity perspective of social skills, which tends to deal with situation-specific behavior, social behaviors are demonstrated to assure the attainment of important social outcomes. For example, a child might demonstrate a

certain behavior to gain peer acceptance, to gain positive regard by parents and teachers, or to increase positive feelings about self (Elliot et al., 1989). Gresham (1986) cites the social validity perspective as having received strong empirical support in the literature on social skills (Farmer & Cadwallader, 2000; Jackson & Tisak, 2001; Masten, 2005).

Another method for describing and understanding the construct of social skills is to utilize a taxonomy system. Caldarella and Merrell (1997) developed a taxonomy of social skills based on a behavioral-dimensions approach for classification of skills. Their taxonomy was developed by analyzing empirical studies of behavior dimensions and identifying the skills most commonly associated with the identified dimensions. The results of the analysis produced five behavior dimensions of social skills: peer relations, self-management, academics, compliance, and assertion.

As this discussion of the links and similarities between the constructs prosocial behavior and social skills indicates, there are more similarities than differences between the two. Therefore, it is sometimes beneficial to make use of terminology commonly associated with one of these terms when discussing the other. Although this discussion is primarily concerned with prosocial behavior (behavior that can initiate, maintain, and enhance interpersonal relationships), much of the literature that addresses social skills (behaviors that are appropriate for a given social context) is helpful when attempting to understand and encourage prosocial behavior.

The concept of deficits is an integral part of the social skills literature and can be useful when discussing a variety of behavioral issues. Skills deficits occur when a child does not possess a necessary social skill, or does not know a critical step in the process of carrying out a particular skill (Elksnin & Elksnin, 2003; Gresham et al., 2001). These

types of deficits are frequently caused by lack of opportunities to learn a skill, or deficits in the attention or retention learning processes (Witt, Elliot, & Gresham, 1988). Interventions most appropriate for acquisition deficits involve the actual teaching of a behavior with techniques such as modeling, coaching, and behavioral rehearsal (Elksnin & Elksnin; Gresham et al.).

Another type of deficit is a performance deficit. Gresham et al. (2001) describe how performance deficits occur when a child has a specific skill in his/her repertoire of behaviors, but does not demonstrate the skill at acceptable levels in given situations (Elksnin & Elksnin, 2003).Performance deficits might occur due to lack of opportunities to perform a certain behavior, or due to lack of motivation precipitated by lack of reinforcement for performing an expected behavior (Witt et al., 1988). Intervention for performance deficits might include arranging antecedents and consequences for desired behaviors. For instance, peer-pairing strategies might be used to initiate certain behaviors, and contingency systems can be used to reward the presence of desired behaviors (Elksnin & Elksnin; Gresham et al.).

Bullis and Davis (1997) investigated two rating measures designed to assess differences between skills and performance deficits. They demonstrated that the measures were useful in predicting differential skills deficits and should be used to design individualized interventions. Gumpel and David (2000) found that students with behavioral disorders suffered from performance deficits, and that these deficits could be offset by an intervention to encourage performance of target skills.

Utilizing concrete definitions and descriptions of prosocial behaviors is an important aspect of developing social behavioral interventions. Since developmental

issues can impact the effectiveness of any intervention implemented for children, it is also helpful to understand how prosocial behavior develops in children. The following section of this review will highlight some of the most relevant theories.

Peer Factors in the Development of Social Behavior

The study of how social behavior develops during childhood is a field generally dominated by psychologists. Most theories of development and learning in some way address how social behavior develops. Some of these theories specifically identify peer influences as one, if not the most important, factor in how social behavior develops. Developmental theories that address social behavior can generally be categorized as biological, cognitive, and environmentalist (Shaffer, 1994). Each of these categories is represented by well-known theorists. For the purposes of this review, the most widely accepted and/or modern theorists from each area will be discussed, as their theories relate to peer factors in social behavior development.

Developmental Theories

Biological theories. Biological theories of development stress the importance of inborn biological traits that determine who we are and how we behave (Shaffer, 1994). Sigmund Freud's psychosexual stages and Erik Erikson's psychosocial stages are two prominent biological theories of development. Both of these theories posit that our social development is guided by our experiences with certain urges and/or instincts that occur as we progress through the developmental stages (Shaffer, 1994).

Freud's theory says little about peer factors in social development as is the case with most psychoanalytic theories of development (Rubin et al., 1998). However, the

theory does address moral development in general. Freud proposed that morality develops as a result of psychological battles within the individual between the desire to do right and the desire for instant gratification (Turiel, 1998). Erikson's theory directly addresses peer issues. In Erikson's Industry versus Inferiority state, which occurs from approximately 6 to 12 years old, peers and teachers begin to take over what was previously the family's role as primary social change agent. Erikson proposed that during this stage children are attempting to master pivotal social and academic skills. They begin to compare themselves with their peers. If their sense of industry is encouraged as they interact with those around them, children at this stage will experience success with relevant skills and develop a sense of self-assurance (Rubin et al., 1998; Shaffer, 1994).

Erickson's next stage, Identity versus Role Confusion, occurs from approximately 12 to 20 years old. During this stage of development, peers are recognized as the primary social agent. Interactions with others allow the adolescent to deal with the "Who am I" question and to establish a basic social identity (Shaffer, 1994).

Harry Stack Sullivan's theory of personality development identifies changes in peer relationships as children age and how these changes impact social behaviors. For instance, in early childhood, peer relations center on play and common activities. Yet, as children progress into the school-age years, concerns about place in the peer group and belongingness become more important. As large group-based peer interactions progress to dyad group formations in adolescence, children learn about reciprocity and equal exchanges through these personal interactions (Jackson & Tisak, 2001; Masten, 2005; Rubin et al., 1998).

Another grouping of biological theories of development occurs under the heading of ethology. Ethologists such as John Bowlby propose that infants are biologically programmed to engage in survival-based behaviors that elicit specific responses from caregivers. For example, a crying infant elicits physical contact from the parent. Social attachments and behaviors are shaped based on the responses elicited from the caregivers. Ethologists acknowledge the importance of learning in the developmental process, but in general they focus on the very early years of a child's life when peer factors are not an issue (Shaffer, 1994).

The behavior genetics approach is a modern theory of behavior and personality. Behavior geneticists are primarily concerned with how personality traits and behavior patterns are formed based on a specific combination of genes. These traits and behaviors are thought to be modified by the person's experiences. Theorists in this field have utilized family, twin, and adoption studies to monitor temperament and behavior patterns in infants and children (Shaffer, 1994).

The interaction of genetic and environmental factors as a part of social development is complex and varies from person to person. In infancy and early childhood, the parents' own temperaments strongly influence the environmental responses that a child will receive and the experiences that child will have. As the child reaches school age, the range of environmental experiences broadens significantly. At this time, interactions with friends and classmates begin to exert a much stronger influence on a child's social development (Shaffer, 1994).

Cognitive theories. Jean Piaget's theory of development is one of the most popular and well-known cognitive theories. Piaget's theory focuses on successive

developmental stages spanning from birth to age 12 and beyond. The successive nature of these stages indicates that each stage builds on the previous stage. During each stage, children must master certain skills and gain certain knowledge in order to successfully complete the stage and move on to the next (Eisenberg & Mussen, 1989; Shaffer, 1994).

Piaget's theory does not specifically focus on the development of social behavior, but the major concepts of his theory can be extrapolated and reframed in a manner similar with other cognitive theories of development that do specifically address social development (Rubin et al., 1998). For instance, as children move into the last two stages of development, they begin to better understand relationships, become less egocentric, and become abstract reasoners. All of these important cognitive changes have a significant impact on a child's social interactions (Eisenberg & Mussen, 1989; Rubin et al.; Shaffer, 1994).

Piaget's theory suggests that the differences between child-child and child-adult relationships play a large role in social and emotional development, which occurs within the context of cognitive development (Shaffer, 1994). According to Piaget, child-child interactions have a greater impact on social development because child-child interactions prevent the complications of unequal power relationships that can occur in child-adult interactions (Rubin et al., 1998). The equal status of these peer interactions allows for free discussion of possibilities and disagreements, and eventually cooperative problem resolution (Rogoff, 1990).

Piaget's theory asserts that interactions that cause cognitive imbalance or discomfort evoke the need for resolution. Cognitive resources are then put to use to

reinstate a sense of cognitive equilibrium. It is from these experiences that children gain social knowledge through cognitive means (Kruger, 1993; Rubin et al., 1998).

Lawrence Kohlberg's theory of socialization is a cognitive development theory that extends the work of Piaget (Shaffer, 1994; Turiel, 1998). While this theory focuses on the cognitive structures involved in moral development, as opposed to peer factors, the features of the theory that focus on relationships allow one to make certain conclusions about the influence of peers on development (Rubin et al., 1998).

Kohlberg's theory proposes that children progress through the cognitive stages as described by Piaget, and that emotional, social, and moral development also occurs progressively in conjunction with cognitive development. The theory also describes social development as a change in self-concept which is spurned by self comparisons with other people and the acquisition of information about the environment (Eisenberg & Mussen, 1989; Shaffer, 1994).

As a child becomes more sophisticated in thinking about and interacting with others, s/he becomes better able to understand others' behaviors and what is needed to maintain relationships. Kohlberg's theory suggests that in terms of social development, children attempt to maintain social equilibrium in their interactions with others. Equilibrium is achieved by establishing a stable identity so that others will react predictably, leading to balance in social interactions (Shaffer, 1994).

Another important theory that addresses social development is credited to Robert Selman. According to Selman, the ability to take roles and understand another person's perspective is a critical aspect of development. His stages of social perspective role-taking begin at 3 years of age and continue until 15 years of age and older. According to

Selman's four stages, children move from an egocentric perspective and social-informational role-taking, to self-reflective role-taking, to mutual role-taking, and finally to the stage of social and conventional system role-taking (Shaffer, 1994).

Peer interactions, such as friendship play, can be examined on a stage by stage basis through Selman's theory. For example, in the first stage a child may think that anyone s/he plays with is a friend. Yet, in the second stage, the same child begins to recognize the reciprocity of friendship. By the time they reach the third stage of role-taking, children are able to understand that there is not always immediate reciprocity from friends and that friends cannot always meet each other's needs. In the last stage, adolescents begin to maintain flexibility in their friendships within the bounds of a mutually caring relationship (Shaffer, 1994).

Lem Vygotsky's theory of cognitive development is another groundbreaking theory in the field of developmental psychology. His theory is sometimes associated with environmentalist perspectives of development because the foundation of the theory is that children grow cognitively through social development (Shaffer, 1994).

The zone of proximal development is a key term in Vygotsky's theory. This zone is the framework within which a novice child engages in a social interaction with an expert (adult or child). During any such interaction, the novice works with the expert in joint problem solving on some skill that the novice cannot solve independently. The social interaction between the novice child and the expert facilitates the cognitive development of the novice child (DeGuerrero & Villamil, 2000; Eisenberg & Mussen, 1989; Montague et al., 1997; Rogoff, 1990; Rubin et al., 1998; Vygotsky, 1978).

According to Vygotsky, development moves from the social realm to the individual realm. This is in direct contrast to Piaget's theory which focuses on the individual first, and then moves to the social realm. Therefore, Vygotsky's approach stresses the importance of early childhood social interactions which provide a strong foundation for development (Rogoff, 1990; Rubin et al., 1998; Vygotsky, 1978).

Environmental theories. The third group of theories that can be used to explain how social development occurs can loosely be termed environmental perspectives. Environmental theories propose that the features of a child's environment, such as people, places, consequences, etc… are the primary influence on development (Lijuan, 1999; Shaffer, 1994).

Albert Bandura's social-learning theory contends that we are largely products of our social-learning experiences (Shaffer, 1994). While his theory shares some similarities to other environmental learning theories, there are also some important distinctions. Bandura's theory recognizes the importance of environmental cues and reinforces, but does not consider these to be the primary determinant of development and/or behavior. Instead, he proposes that the cognitive representation related to given environmental stimuli shape development and behavior (Eisenberg & Mussen, 1989; Shaffer).

Bandura's social-learning theory also promotes the concept of observational learning. Observational learning occurs when children learn novel social behaviors by observing others. Children also use observational learning to gain knowledge about the consequences of specific social behaviors, and to make decisions about whether to engage in these behaviors in future situations (Eisenberg & Mussen, 1989; Rubin et al., 1998; Shaffer, 1994).

Children's primary choices for observational models change as they age. In the preschool years, parents, family, and other caregivers are the most important models. When children reach school-age, peers begin to take precedence as models of social behaviors (Eisenberg & Mussen, 1989). Children tend to pay more attention to models who are similar to them, such as same-sex models, and those who appear socially competent (Rubin et al., 1998). DiSalvo and Oswald (2002) caution that if a child does not know to observe or understand how to interact with a model, then the presence of that model is of little benefit to the child.

Peer interactions play a significant role in how social learning shapes a child's repertoire of social behaviors. Children can learn positive and negative social behaviors from peers. For example, children often imitate the aggressive behaviors of peers and friends, particularly when these behaviors are reinforced by other peers. Children also repeat positive behaviors that they have seen peers display, such as helping others (Eisenberg & Mussen, 1989; Farmer & Cadwallader, 2000; Shaffer, 1994).

Another major environmental perspective on development comes from the ecological viewpoint. Urie Bronfenbrenner proposed a popular ecological view of development. His theory promotes the importance of the natural environment as the major developmental influence for children and adolescents (Eccles & Roeser, 1999; Shaffer, 1994).

In the context of Bronfenbrenner's theory, the natural environment consists of several structures or layers which interact with each other to contribute to the child's development (Eccles & Roeser, 1999). The layer closest to the child is termed the microsystem and consists of entities such as family, peers, school, and neighborhood play

areas. The next environmental layer is termed the exosystem and consists of entities such as extended family, neighbors, and mass media. The outermost layer in the environmental structures is the macrosystem. This layer contains the broad views and customs of the relevant culture (Lijuan, 1999; Shaffer, 1994).

The classroom environment is a major influence on the developing child at the microsystem level. The classroom setting provides students with exposure to peer interactions which encourage and shape social behavior (Eccles & Roeser, 1999; Farmer & Cadwallader, 2000; Lewis & Sugai, 1999; Wentzel, 2003). According to ecological theory, the environment impacts the development of the child and the child impacts the surrounding environment (Shaffer, 1994). Wentzel relates this aspect of ecological theory to the development of social competence.

As discussed above, there are varying theories and viewpoints about how social development occurs and the roles that peers play in this process. Although all of the theories do not directly address peer factors in the development of social behavior, the implication of these factors is easily inferred in most cases. As social development progresses in school-aged children, social behaviors are manifested in various ways and are affected by a variety of factors. Understanding how social behaviors are manifested in peer interactions also can be helpful in the development of behavioral interventions.

Peers and Social Behavior

According to Rubin et al. (1989), when children reach school age, peer interactions increase significantly. In the early childhood years, parents and family provide the main source of social interactions for the developing child. In the school years, the child's focus shifts to interactions with peers. In conjunction with an increased

number of peer interactions in the school-age years, the size of the child's peer group also increases significantly. Although adults continue to be an important part of the child's sphere of influence, peers provide the most age-appropriate feedback regarding success with demonstrating social behaviors (Eccles & Roeser, 1999; Eisenberg & Mussen, 1989; Rubin et al.)

The ways that children group themselves for social interactions with peers provides some insight into how social behaviors are learned and expressed. These groupings tend to change throughout the developmental stages. For example, in the early school age years, children group themselves based on common activities and do not necessarily have intact peer groups at this time (Rubin et al., 1998).

This phenomenon can be viewed from the perspective of Piaget's cognitive theory of development, which describes children from age 2 to 7 years as preoperational. During this Piagetian stage, children are operating with basic cognitive functions and are not yet able to make logical comparisons. They also continue to engage in primarily egocentric thinking (Shaffer, 1994). Therefore, children in this age group are possibly drawn to other children who engage in similar activities because egocentric thinking makes these other children seem more attractive and friendly. Their lack of ability to draw logical conclusions about others does not allow them to see the possibilities for friendship in children who do not engage in similar activities (Eisenberg & Mussen, 1989).

According to Rubin et al. (1998), peer acceptance is most influenced by a child's level of social skills. Children who are considered sociable and display appropriate approach and interaction behaviors are well received by peers. Biological theories of development might propose that personality factors are largely responsible for how

children are received by peers, and consequently responsible for how social behavior develops. For instance, children who might have an isolative or irritable personality would be less receptive to peer-initiated interactions. Therefore, these personality tendencies could have a significant impact on the quantity and quality of peer interactions that a child might experience.

Conversely, children with more easygoing or outgoing personalities are likely to experience increased positive social interactions. These positive interactions among children allow for reinforcement of accepted social behaviors and can become cyclical in nature. They also increase the opportunity for instances of observational learning of accepted social behaviors as described in Bandura's social learning theory (Eisenberg & Mussen, 1989).

When children do not have opportunities to engage in these types of positive social interactions with peers, or for some reason, engage in behavior that is seen as unacceptable, negative peer outcomes are highly likely. For instance, children who do not display proper approach behaviors, or who lack proper control of their social behaviors, may be viewed by peers as disruptive and aggressive (Rubin et al., 1998). Again, this can lead to a negative cycle of poor behaviors and poor social interactions (Eisenberg & Mussen, 1989; Farmer & Cadwallader, 2000).

An important peer phenomenon that is said to mediate the negative impact of poor social skills and interactions is friendship. A solid friendship can act as a buffer against the negative outcomes associated with poor social interactions. The friendship relationship can often provide the socially-rejected child with an avenue to meet and make new friends (Berndt, 2002; Rubin et al., 1998).

Also, one of the inherent features of friendships is that they are necessarily reciprocal relationships (Hall & McGregor, 2000; Rubin et al., 1998). The give and take features of a friendship allow children to practice valuable social skills with immediate feedback in the safety of one-on-one friendship interactions (Berndt, 2002). The concept of safe practice within the peer relationship is an important aspect of Piaget's theory of development (Long, 1998; Rubin et al.).

Another way to view the friendship relationship is from the Vygotskian perspective of the zone of proximal development. Within the friendship relationship, particularly those that provide a social and/or emotional buffer for one of the two friends (Rubin et al., 1998), the more socially-competent friend can act as the experienced guide to elevate the less experienced friend's level of social skills. For example, in a group conversation situation, the more experienced peer can unintentionally demonstrate how to initiate conversation with peers in the group, and the less experienced peer can imitate these initiations.

Hall and McGregor's (2000) study which assessed friendships and popularity issues for peers with and without disabilities highlights the difficulties that some children face as they change developmentally. In this study, children with disabilities who had average numbers of friendships and popularity nominations in early-elementary years experienced significantly fewer nominations in later-elementary years. The authors indicate that teacher facilitation of activities that provide ongoing, age-appropriate social interactions between children with and without disabilities can prevent or lessen the occurrence of these social concerns for children with disabilities (Hall & McGregor; Prater, Bruhl, & Serna, 1998).

As noted above, children experience significant changes in social behavior as they age and develop (Eisenberg & Mussen, 1989; Jackson & Tisak, 2001; Rubin et al., 1998; Shaffer, 1994). The developmental theories reviewed here explain how and why social behavior might change as children age (Rogoff, 1990; Rubin et al.; Shaffer). Understanding the specific peer factors related to the development of social behaviors continues to intrigue psychologists, sociologists, and educators alike. Much of the groundwork has been laid for the identification of various peer factors related to social development, such as play interactions, cooperative groups, and friendships (Rogoff; Rubin et al.). A promising extension to this line of theoretical research is the more practical issue of interventions for social-behavior concerns.

There is a growing body of research utilizing peers as a way to improve the social skills and behaviors of children in educational and community settings. Peer-related interventions for social-behavior concerns are a logical avenue of future research because of the documented influence that peers have on the development of social behaviors (Cashwell et al., 2001; Moroz & Jones, 2002; Skinner, Neddenriep, Robinson, Ervin, & Jones, 2002).

Peer-Based Interventions to Encourage Prosocial Behavior

There are a variety of peer-mediated strategies at the disposal of educators, therapists, researchers, and others interested in improving how children function academically and socially. This discussion continues with descriptions of strategies and related studies. Since the research investigating these interventions generally involves direct observation of behavior or work products to evaluate treatment effectiveness, many

of the studies described utilize single-subject design methodology (Alberto & Troutman, 2005), such as withdrawal and multiple-baseline designs. Some studies also use rating scales and checklists to assess treatment effects and may include varying types of data analysis to determine the statistical significance of treatment effects (Keppel, 1991).

Due to the number of specific strategies that have different names but share similar features, it is helpful to group the strategies under broad descriptive headings. Each of the following four major groupings of peer-mediated interventions will include descriptions of more specific strategies that fall under that heading. The four major areas that will be discussed are cooperative learning, group-contingency plans, peer helpers, and positive peer reporting.

Cooperative Learning

Cooperative learning is a popular instructional strategy among educators. Teachers learn early in their college careers about the positive impact and benefits of cooperative-learning activities for students. Educators are most likely to associate the term cooperative learning with the teaching of specific academic skills. Ryan et al. (2004) define cooperative learning as using teams of students with differing learning abilities to improve the students' understanding of a subject. All members of the team are responsible for learning the material and helping their teammates learn as well.

Box and Little (2003) demonstrated how cooperative-group participants learned from and taught each other at the same time. The researchers used a "jigsaw" cooperative-learning approach to assess changes in social studies knowledge and students' self-concepts. This jigsaw method involved two phases of learning. In the first phase, the students were placed in cooperative groups of four to six students, and each

student in the group was assigned a specific set of questions or activities. Everyone in this initial grouping had different assignments. Then the students were regrouped so that they were working with students from other groups who had been assigned to the same questions and activities. In this second grouping, they worked cooperatively to find the answers and complete the assigned activities. After all tasks were complete, the students went back to their original groups and shared information with each other.

Through this cooperative-learning strategy, Box and Little (2003) provided a clear example of how students can learn as well as teach others when working in cooperative groups. All five of the participating classes had significant gains on their social studies posttest scores. Three of the participating classes experienced an increase on the post assessments of self-concept.

Teachers frequently use cooperative-learning groups to reinforce information that has been presented to students in a traditional lecture format (Prater et al., 1998). An example of this occurs when a teacher instructs her students on how to compare fractions. After providing direct instruction on the concept, she could then put the students into groups and have them work together to find common pairs of fractions using everyday items, such as pizza slices.

An important aspect of cooperative learning is that students understand the importance of working together to achieve a specific goal (Box & Little, 2003; Montague et al., 1997). Using the above example, the teacher would need to introduce the idea of cooperative groups (or pairs) to her students as a distinct behavior separate from academic tasks. This would probably best be done early in the school year, so that it becomes an integral part of the classroom process.

The teacher could explain to her students what cooperative learning means. She could describe how students act when they are working cooperatively and what the atmosphere of the classroom should be when cooperative groups are in place (Lewis & Sugai, 1999). For instance, she might tell her students that a moderate level of noise from talking is acceptable as long as the students are working together toward their common goal.

If students are unfamiliar with the concept of cooperative groups, teachers can emphasize to students the benefits of working this way so that the students will be more likely to buy into the concept. An obvious benefit to the students is that their work is actually made easier when the effort is shared with others (Wentzel, 2003). Students generally enjoy cooperative groups because they can be fun and provide a more stimulating environment for learning (Montague et al., 1997).

Teachers appreciate this strategy because it assists with the ultimate goal of knowledge acquisition (Box & Little, 2003). Cooperative learning is also beneficial to students in a more general sense because it can improve their cognitive skills in some situations. In a study of peer collaboration on socio-moral dilemmas, Kruger (1993) demonstrated how 8-year-olds working in dyads with either a friend or their mother coconstructed solutions to various dilemmas. The purpose of the study was to investigate whether collaboration or conflict proved more beneficial to the process of generating solutions. Although collaboration would appear to be the more obvious means for two parties to arrive at an agreement to any particular problem, the Kruger study demonstrates the importance of conflict when people engage in cognitive discourse.

For example, collaboration and cooperation allow two or more parties to generate possible solutions and come to an agreement about the best course of action. Yet, conflict about possible solutions generates further explanation of each person's viewpoint and necessitates the revising of previously discussed solutions (Kruger, 1993). Kruger found that only the dyads' discussions about solutions that they eventually rejected were significantly related to their posttest scores on a moral-reasoning interview. These results indicate the powerful influence of conflictual discourse.

Although Kruger (1993) focused on the use of collaborative pairs, the concept behind the study is more relevant to cooperative-learning groups than it is to peer helpers or peer pairs for the purposes of this discussion. As Kruger points out, conflict and collaboration will occur when problem solving. This is quite similar to what occurs in cooperative-learning groups. Regardless of the setting, cooperative groups are faced with some question, problem, or task that requires collaboration to arrive at a solution. Conflict will occur as a natural part of this process. These joint processes allow the students involved to experience others' thoughts and views, thereby enriching cognitive development (Kruger).

Students who are able to participate appropriately in these types of interactions with peers also reap significant social benefits. Since collaboration, cooperation, and conflict are a natural part of life for children and adults, the more exposure that students have to these experiences early on, the easier it will be for them to interact with others as adults. These are important social skills that can have an important impact on one's personal and professional functioning. Although cooperative-learning groups are not necessarily the preventative fix for these areas of social deficits, they are an important

preparatory experience that can have a significant impact on future interpersonal interactions (Junge, Manglallan, & Raskauskas (2003).

Wentzel (2003) makes the interesting point that children who work in cooperative-learning groups are exposed to a situation that allows them to hold each other accountable for acceptable conduct. One uncooperative or disruptive student can prevent everyone in the group from completing the task at hand. Therefore, students working together must keep each other on task, agree to help each other, and discourage negative behaviors within the group (Prater et al., 1998; Wentzel).

These features of cooperative-learning groups make them an excellent forum for the teaching and encouragement of prosocial behaviors. Although cooperative-learning groups are more commonly associated with academic strategies, some researchers have demonstrated their use as interventions for social behavior (Etxebarria &Apodaka, 1994; Junge et al., 2003). Since peers are a natural part of the socialization process for children, allowing them to learn about and explore social behaviors in a group format can be an enjoyable and effective intervention.

In a study of a program designed to develop and promote prosocial and altruistic behavior in a school setting, Etxebarria and Apodaka (1994) used a combination of cooperative groups, teacher instruction of concepts, videotaped dramatizations, and social-behavior games. The cooperative learning aspect of the intervention occurred when the children videotaped dramatizations of the behavior in question, and then worked as a group to analyze the videotapes. The students watched the tapes together, discussed the scenarios, and made suggestions about how to better demonstrate the behavior. The best suggestions were used to improve the dramatization and record the

scenario again. In the analysis of postintervention questionnaires, the following areas showed a significant difference from the preintervention results: perspective taking, classroom climate, and consoling and defending classmates.

In a study designed to teach life skills to students in 4-H after school programs, Junge et al. (2003) used cooperative groups as a part of an intervention that also included regular adult guidance. The researchers chose six specific skills from the Targeting Life Skills Model upon which the study was based. The target skills addressed in the study that were most relevant to prosocial behavior were communication skills and accepting differences. The other skills were decision making, wise use of resources, following instructions, and making healthy choices.

The authors do not describe the specific activities that took place as a part of the cooperative groups, but do state that the program was based on hands-on experiential and cooperative learning in a small group format. These small groups allowed students to work closely with each other and trained group leaders. The researchers used pretest and posttest questionnaires that required students to assess their own level of competence in the target life-skills areas. All of the participating students reported some perceived level of increased competence in each of the six target skills, with the older students (grades 3-7) reporting more significant gains (Junge et al., 2003).

As noted earlier, cooperative-learning groups are most frequently associated with the teaching of academic subjects. The studies described above demonstrate how this strategy also can be used to encourage and reinforce social knowledge. Since the strategy is more readily associated with the academic arena, it is incumbent upon adults working

with children in various settings to make more use of cooperative-learning groups as a social intervention.

Group-Contingency Plans

A group-contingency plan is a peer-mediated intervention that is similar to a cooperative-learning group. The purpose of a contingency plan is to encourage students to work together to achieve a reward (Cashwell, 1998; Kelshaw-Levering, Sterling-Turner, & Henry, 2000; Tankersley, 1995). One of the main differences is that students on a contingency plan are working toward some type of reinforcer or reward, whereas students in cooperative groups are assisting each other with completing a task (DiSalvo & Oswald, 2002). The three general types of group-contingency plans are independent, dependent, and interdependent (Heering & Wilder, 2006; Tankersley, 1995). Randomized goals and rewards can be used in conjunction with these plans to maintain student engagement (Heering & Wilder, 2006; Kelshaw-Levering et al., 2000).

Group-contingency plans allow a teacher to use the power of peer-group influence to encourage individual students to engage in an agreed upon target behavior for the entire group (Cashwell, 1998; Heering & Wilder, 2006; Lohrmann & Talerico, 2004). This type of plan is particularly useful when more than a few students are engaging in negative behaviors, or not engaging in desirable behaviors. Instead of having the time-consuming task of maintaining individual intervention plans for multiple students, a teacher can use a group-contingency plan for the entire classroom that allows some or all students to benefit when the target behaviors are demonstrated at a predetermined level.

If only some of the students benefit, then the contingency plan is termed independent. Independent plans have the same goal for all students, but only reward the

students who meet that goal. This is the most time consuming type of contingency plan because the teacher must monitor the behavior of each student (Cashwell, 1998; Heering & Wilder, 2006; Kelshaw-Levering et al., 2000; Tankersley, 1995)

If a teacher wants to focus on the negative behaviors of a few students, but is not able to invest a substantial amount of time into monitoring and rewarding those students individually, then a dependent group-contingency plan may be appropriate. In this case, the reward would be available to all students in the class if the specified behavior is or is not demonstrated by the target students. In this way, the group's reward is contingent on the behavior of a small number of students in the group (Cashwell, 1998; Kelshaw-Levering et al., 2000).

There are some obvious drawbacks to the use of a dependent group-contingency plan. In particular, the few students whose behavior the reward is contingent upon could easily become the targets of negative and aggressive feedback from peers if the group does not earn the reward. It would be incumbent upon the teacher to ensure that all students are positive about participating in the plan, that the students know the consequences for aggression toward the target students if they do not succeed, and that the rest of the class is aware of the need for them to encourage and motivate the target students to improve their behaviors.

Of course, within any given classroom there are generally one or two students who almost always do what is asked of them, and there may be students who almost never do what is asked of them. When designing or choosing a group-contingency plan, the teacher must take these individual factors into account. For example, a teacher may decide that the classroom can earn a popcorn party on Fridays if all students turn in their

morning work every day. However, if there is a student who never does her morning work, regardless of the incentive, the teacher should design a contingency plan that will not allow one student to regularly prevent the entire class from earning a reward. The use of an interdependent contingency plan would accomplish this by setting a goal which stipulates that at least 95% of the students must complete and submit morning work. The teacher then would need more individualized strategies for students who continue to not do their work despite the group contingencies in place.

The existing literature is replete with examples of how group contingencies can be used as an academic and/or behavioral intervention in the classroom. As noted above, contingencies must be set up with a worse case scenario in mind. Romeo (1998) highlights some other potentially negative outcomes when contingency plans are used in classrooms and the expected goal is not met by the class or the specific target students. For example, students who have done what was expected of them but did not receive a reward because other students did not do what was expected may feel resentful of the plan and may feel as if they have been treated unfairly. In addition, students who have engaged in the expected behavior may blame and lash out at students who have not done what is expected of them because these students have “blown it” for everyone else (Romeo, 1998).

Although Romeo (1998) makes the argument that these negative side effects occur when contingency plans are used as a system for classroom behavior management, this author would argue that the discussion of negative impacts is more relevant to the use of contingency plans for academic achievement. The possibility for harm seems much

more likely when this intervention is used with academic goals because of the variability of student academic ability that can occur in any one classroom.

If a teacher sets a group behavioral goal for her entire class, it is within reason that every student in the classroom can achieve that goal given appropriate motivation and effort. However, academic goals are very different. If a teacher decided to set the goal that all students earn 80% or more correct on the weekly spelling test as the criteria for reinforcement, there may be students in the class who will not be able to score 80% correct on a spelling test in a reasonable amount of time because of their low spelling skills. In this type of situation, the class is guaranteed to never receive reinforcement for this academic goal (Popkin & Skinner, 2003).

The teacher may have hoped to use this as a motivation to encourage students to study their spelling words more, but if there are students who will not learn to spell with traditional study methods, their lack of success can lead to the negative peer reactions as noted by Romeo (1998). As noted above, changing this to a purely interdependent plan where the class works together to earn the 80% average would be more fair and achievable for the group.

Interdependent contingency plans are generally favored by researchers as the least likely of the three types of contingency plans to generate negative feelings among peers. Interdependent plans are also most likely to encourage a sense of group cohesiveness, cooperation, and tolerance among students. This is because in addition to sharing a common goal, students working interdependently know that they all have an equal chance to help the whole group earn a reinforcer (Cashwell, 1998; Kelshaw-Levering et al., 2000; Popkin & Skinner, 2003).

Randomization of rewards and contingencies are an excellent way to significantly decrease the chance for negative student reactions toward peers who do not meet the class goals. Randomized plans also prevent students who routinely meet classroom expectations from feeling as if specific students are to blame for the group not meeting their goal. Creating random goals and rewards is a simple process that actually can be generated and maintained by the students themselves (Cashwell, 1998). Cashwell also cites random goals and rewards as a way to prevent disinterest in goals and rewards, and subsequent sabotage of the plan by certain students. Since students do not know ahead of time which goal they are working toward and which reward will be attached to the goal, they are encouraged to maintain expected behaviors since there is always the potential that a goal and/or reward which interests them may be selected.

Popkin and Skinner (2003) made use of randomly-selected contingencies in an intervention designed to increase the academic performance of middle-school students with serious emotional disturbance. The Popkin and Skinner study differs from others with randomized contingency plans in that all aspects of the plan were random, not just the reward and/or contingency. In this study, the researchers also randomized the target behavior. In addition to the same previously mentioned reasons for randomizing the goals and rewards in the group-contingency plan, the target behavior was randomized so that students were not easily able to determine whose behavior might have caused the group to lose out on a reward.

Popkin and Skinner (2003) used a modified multiple baseline across target behaviors design to implement the group-contingency program. Students were assessed on academic performance on spelling, math, and English assignments. The modified

aspect of the design refers to the fact that target behaviors (performance in subject assignments) were added instead of simply replaced in successive treatment implementations. During the intervention phases, the students were rewarded when the class average on daily assignments met the randomly selected criteria.

The results of this study indicated sharp increases in performance in spelling and math immediately after those subjects were added to the group contingency. Performance in English did not increase as dramatically, but the average performance in this English was higher during intervention than in baseline. All students involved experienced educationally valid improvements in academic functioning, particularly students who had previously been performing below average on their daily assignments. Some students' improvements could be attributed to the simple fact that they choose to participate and turn in assignments in order to be a part of the contingency plan (Popkin & Skinner, 2003).

The additional benefit of eliciting student participation in academic tasks when previously it has been lacking is arguably more important to the results of the Popkin and Skinner (2003) study than the general findings of improved academic scores. Within any educational setting, encouraging and increasing student engagement is the first step to academic improvement and success. Although many students are already intrinsically motivated to perform, or easily motivated by extrinsic rewards, some students require extra efforts on the part of teachers to elicit academic participation. The Popkin and Skinner intervention demonstrates how the use of random contingencies and reinforcers can spark student interest and participation, thereby increasing students' attention to instruction.

Kelshaw-Levering et al. (2000) also investigated the benefits of a randomized interdependent contingency plan. Instead of targeting academic performance as in the previously described study, these researchers attempted to decrease four types of disruptive behavior that were occurring on a regular basis in the participating class. The four target behaviors were off-task behavior, inappropriate vocalizations, out-of-area activity, and noncompliance.

For the purposes of data collections and analysis, observations of the target behaviors were conducted on four randomly chosen students during each observation session. This method was chosen to simplify data collection and because disruptive behaviors were so common in the class that random sampling of students tended to be representative of all the students' behaviors as a whole (Kelshaw-Levering et al., 2000).

After baseline data were collected, the initial treatment phase was put into place with random reinforcers and a prespecified behavioral goal for the entire group. Initiation of this phase resulted in a 13% reduction in disruptive behaviors. The next phase was a return to baseline, which resulted in an increase in disruptive behaviors back to initial baseline levels.

In the third phase, the group contingency was reinstated with randomization of all four components (target behavior, target person or group who had to meet the goal, behavioral goal, and reinforcer). At this point, disruptive behaviors decreased approximately 27% from the initial baseline.

As noted earlier, many of the studies assessing peer-mediated interventions utilize direct observations of behavior and single-subject methodology (Ervin, Miller, & Friman, 1996; Gumpel & Frank, 1999; Kelshaw-Levering, et al., 2000; Kohler et al., 1995;

McDonnell, Mathot-Buckner, Thorson, & Fister, 2001). Multiple-baseline designs are common in this area of research because they allow researchers to assess the impact of an intervention as it is implemented across students, settings, and/or behaviors (Gumpel & Frank; Heering & Wilder, 2006; Lohrmann & Talerico, 2004; Popkin & Skinner, 2003).

The Kelshaw-Levering et al. (2000) study provides an interesting alternative to a standard or modified multiple-baseline design. These researchers used a multiphase time-series design, with phases labeled A-B-A-C-B-C. This design allowed the researchers to address an area that is a limitation of multiple-baseline designs. They were able to initiate treatment across all behaviors without having to continue baseline data collection on subsequent behaviors as treatment was implemented with the first behavior (Alberto & Troutman, 2005; Kelshaw-Levering)

Another strength of this design is that the researchers were able to demonstrate experimental control with the return to baseline conditions in the second Phase A. With the withdrawal of treatment in this phase, the disruptive behaviors returned, thereby indicating a relationship between the treatment and target behaviors (Alberto & Troutman, 2005).

The subsequent return to two different treatment conditions (Phases C and B) in the Kelshaw-Levering et al. (2000) study allowed the researchers to assess the impact of a variation of the original treatment (Phase B). In this case, Phase B was the contingency plan with random reinforcers. Phase C added the features of random students, random goals, and random target behaviors. Analysis of data indicated that the condition with randomization of all components was more effective at reducing disruptive behaviors.

While much of the literature on group-contingency plans addresses academic performance (Box & Little, 2003) and academic-related behaviors, such as off-task behaviors (Heering & Wilder, 2006; Ya-yu & Cartledge, 2004), out of area behaviors (Kelshaw-Levering et al., 2000; Lohrmann & Talerico, 2004) and disruptive vocalizations (Davies & Witte, 2000; Kelshaw-Levering et al., 2000), there is less literature on how group-contingency plans can be used to increase prosocial behaviors. This is surprising in light of the fact that these plans are easily adaptable to address most target behaviors, particularly those that relate to cooperation and group cohesiveness (Cashwell, 1998).

Nevin, Johnson, and Johnson (1982) investigated the effects of group and individual contingencies on the academic performance and the social relations of students with special needs. This research contained a series of four studies conducted with first, seventh, and ninth graders in a classroom setting. The researchers used a combination of design methodologies to investigate the effectiveness of the contingency plans, including A-B-A-B, A-B-A, and multiple-baseline design.

In the A-B type designs, the students started off with an individually-contingent reinforcement plan, and then were changed to a group-contingency plan. In the study using a multiple-baseline design, all students started off working under the individual plan. The group contingency was added subsequently across students.

In all cases Nevin et al. (1982) demonstrated positive effects with the group-contingency plans for all dependent variables. Of particular interest to this discussion is that in three of the four studies, questionnaires were included to assess the level of social acceptance of peers with special needs by peers without special needs. Peer nominations

were taken after the individual contingencies were implemented and again after the group contingencies were implemented. Decreases in negative nominations and increases in positive nominations were noted after the group contingencies were implemented.

The Nevin et al. (1982) study is one example of how contingency plans can be used to impact social behaviors. Although this study assessed social interactions through peer-rating questionnaires, direct observations of peer interactions could be added as an extension of this research. In this manner, the researcher could potentially impact specific prosocial behaviors that might be improved through the use of group-contingency plans.

A study that used group contingencies to increase social interactions between young children with autism and peers without autism provides a more specific example of how this intervention can impact social behavior (Kohler et al., 1995). The target students in this study were chosen because they engaged in only occasional interactions with peers and did not use appropriate play skills. These characteristics are not unusual for children with autism, but are certainly not functional in social settings.

Before implementing the contingency, the students were given instruction in several peer-related social behaviors, such as asking someone to join in play and offering to share a toy. The students also were taught to cue each other to engage in these social behaviors when interacting. Based on statistical analysis, the observational data indicated that the students with autism significantly increased the time they spent engaged in social interactions with their peers when the group contingency was in place (Kohler et al., 1995).

Group-contingency plans also can be useful when attempting to change patterns of behavior in a classroom. For example, Skinner, Cashwell, and Skinner (2000)

investigated a method for increasing students' focus on positive social behaviors as opposed to negative behaviors. They designed a system for students to make written reports about their classmates' prosocial behaviors. The premise of making positive peer reports is that this behavior makes students more aware of peers' positive behaviors. The researchers suggest that an increased focus on positive behaviors can thereby encourage more instances of positive social behaviors in the classroom.

The purpose of the Skinner et al. (2000) study was to test the impact of a group-contingency plan on the numbers of positive peer reports made by students. The researchers used an A-B-A-B withdrawal design to determine the effectiveness of the contingency plan. During the first phase, the students were told to make as many peer reports as they wanted to during the day. The number of reports made was counted each day. During the second phase, the contingency plan was implemented. The students were told that when the entire class made a total of 100 peer reports they would earn a 30-minute recess session. In this manner, the students were given an interdependent group-contingency goal. Despite the negative impact of a punishment imposed by a school administrator during the intervention, the researchers were able to demonstrate that the contingency plan had some impact on the number of peer reports made by students.

When contingency plans are used correctly they can be considered humanistic forms of intervention (Cashwell, 1998). Cashwell argues that there is a common misperception that contingency plans are solely for the purpose of eliminating inappropriate behaviors. Upon closer scrutiny, group-contingency plans are intrinsically tied to prosocial skills because of the level of cooperation that is necessary to achieve a goal and earn a reward.

Peer Helpers

The use of peer helpers is another commonly used strategy for students with academic difficulties. Although teachers hold the responsibility for imparting knowledge to students, they often take advantage of the ability of students to learn from each other in one-on-one situations (Maheady, 2001; McDonnell et al., 2001). Peer tutoring is a type of peer helping that generally involves a more knowledgeable peer guiding and/or teaching a less knowledgeable peer (Montague et al., 1997; Ryan et al., 2004). Other terms that fit under the umbrella of peer helping include, peer paring, peer matching, peer modeling, peer training, peer counseling, and peer mediation (Ryan et al.).

Peer pairing strategies are often based on the Vygotskian concept of zone of proximal development, as described above in the discussion of social development. Although peers who are working at the same level can assist each other with review and practice of information, they most likely cannot help each other learn a new concept. In order for a student who does not understand a concept to learn it, s/he must be guided or taught by someone with a higher level of understanding (DeGuerrero & Villamil, 2000; Rubin et al., 1998; Vygotsky, 1978).

Peer pairing with a knowledgeable "tutor" has advantages over other strategies in that the target student is assured of working with someone who understands the concept. Whereas in a cooperative-learning group, it is possible for the target student to be working with students who have the same amount or less knowledge. In addition, peer pairing takes advantage of the features of one-on-one relationships. These relationships give the target student individualized attention, the ability to ask questions in a less threatening atmosphere (only one person will know about errors), and the opportunity to

form a new friendship (Fantuzzo, Manz, Atkins, & Meyers, 2005; Maheady, 2001; Montague et al., 1997).

Of course, there is more to a successful peer pairing than putting together two students who are working on different levels. It is very important to take into account the personalities of the students being paired (Masten, 2005; Mitchem et al, 2001). If two students who do not or cannot get along are paired, then probably there will be little effort put into the task at hand and a great deal of time spent in conflict.

As mentioned previously, peer tutoring is a popular strategy with teachers. This technique allows students to benefit from each others' strengths and positively impact each others' weaknesses. Students with disabilities are excellent candidates for peer pairing because they get to work with a peer who is functioning in the average or above range on any given subject or task (Maheady, 2001; McDonnell et al., 2001; Ryan et al., 2004).

McDonnell et al. (2001) used a comprehensive peer-tutoring intervention for students with disabilities as a way to support their inclusion in general-education classrooms and improve academic and social functioning. The McDonnell et al. intervention included a classwide peer tutoring program, multi-element curriculum, and individualized accommodations. The peer tutoring aspect of the intervention was a modified procedure that used a team of three students who worked together. The modification was made to allow the target student with a disability to have access to one peer who was performing at expected levels and another peer who was performing above expected levels. The three students took turns working as tutor, tutee, and observer. In this way, the target student not only received instruction and assistance from peers, but

also had the opportunity to act as a tutor. The observer provided encouragement and assistance when the student with a disability was not able to handle the tasks of tutor.

The other two aspects of the intervention were the curriculum and the accommodations. The curriculum consisted of a set of instructional objectives adapted from the general-academic curriculum. The accommodations were developed to encourage maximum participation and success with the instructional objectives. For instance, a student with a physical impairment impacting his left hand would be required to perform tasks with his right hand only instead of with both hands as stated in the physical education curriculum. Another example of an accommodation would be for a student with a learning disability to receive spoken instead of written instructions (McDonnell et al., 2001).

The dependent measures for the McDonnell et al. (2001) study were the students' levels of academic responding (writing, reading silently or aloud, discussing the task at hand, etc.), competing behaviors (aggressive behavior, disruptive behavior, off-task behavior, etc.), and posttest scores on curriculum content. The research design was a multiple probe across subjects.

All three of the target students with disabilities demonstrated significant improvements after the intervention was implemented. Levels of academic responding increased by an average of approximately 39%. Levels of competing behaviors decreased by an average of approximately 36%. The posttest scores for these students varied widely and averaged 71%, 33%, and 68%. Since there were no pretest data for these curriculum-based tests, there was no way to assess the exact impact of the intervention on this area.

An interesting aspect of the McDonnell et al. (2001) study is that the nontarget students who participated, the students without disabilities, experienced similarly positive benefits from the intervention. They also demonstrated increased levels of academic responding and decreased levels of competing behaviors. Pretest data were available for the students without disabilities. Their posttest curriculum scores indicated either maintenance or an increase in posttest scores.

In addition to its positive findings for the participants, this study has some important implications for the concept of peer pairing and peer tutoring. Although the intervention was intended as primarily academic, the results address several nonacademic issues that are at the heart of this peer-mediated strategy. One of the most important things that McDonnell et al. (2001) demonstrate through this study is potential benefits for less-able students who are paired with more-able students (DeGeurrero & Villamil, 2000; Fantuzzo et al., 2005; Ryan et al., 2004). The students with disabilities were able to work with two different peers while learning to function in three different roles. While working as the tutee in the three-person group, they were able to get assistance with academic tasks and information. While working as the tutor, they learned about the mechanics of how to help someone else achieve a goal. While working as the observer, they learned about how to provide encouragement and feedback to peers. As they rotated these roles through various instructional trials, the target students with disabilities were able to closely observe their peers engage in the very same behaviors that were expected of them.

Gumpel and Frank (1999) provide another excellent example of how peer tutoring can be used not only to impact the target student's behavior, but also to impact the tutor's

behavior (McDonnell et al., 2001). Gumpel and Frank utilized 6th-grade peer tutors to teach social skills to kindergarten students who were identified as socially rejected and isolated. The two older boys were initially taught five components of a social competence model by one of the researchers. The model included tasks such as identifying social stimuli and entering into social interactions.

After training, the older boys were paired with the younger boys and began teaching them the steps of the model. Part of their jobs as tutors was to review with their tutees any social situations that had occurred since their last meeting. They also reviewed their tutees' self-monitoring sheets that were a part of the five-step model.

The Gumpel and Frank (1999) study utilized a multiple baseline design and data were collected on the participants' target behaviors during two recess periods per day. All four boys demonstrated some level of decrease in instances of no-social interactions, increase in instances of engagement in positive social interactions, and stabilization of effects. Despite some variability in data during the maintenance phase, all participants generally maintained positive effects as evidenced by changes from the baseline data.

The evidence of positive effects for tutors in the Gumpel and Frank (1999) and McDonnell et al. (2001) studies addresses an area of potential controversy in the practice of using peer tutors and peer helpers in general. An argument against this practice is that it could unfairly keep the tutor or model peer from his/her own interests and responsibilities. Yet, this study demonstrates that even the more experienced peer in a helping situation can benefit from assisting a needier peer. Not only do the experienced peers gain knowledge about how to work with and help others, but they also get

additional opportunities to practice the academic and social behaviors that they are teaching (Maheady, 2001; Montague et al, 1997; Ryan et al, 2004).

Providing students with opportunities to observe and practice expected behaviors is a large part of what makes peer-pairing strategies so effective with many students. The combination of observation and practice with the power of the peer relationship can have a significant impact on a student's academic and behavioral performance in the school setting.

As described above, the concepts of observation and practice are integral to any discussion of acquisition and performance of social skills and behavior. Observation of expected social behavior can only occur when students are given opportunities for exposure to appropriate models of social behavior. Although adults can and do frequently act as models for students, having peers act as models can have a significant impact on students' acceptance of and attention to the models.

In a peer-mediated intervention for socially withdrawn and maltreated preschool children, Fantuzzo et al. (2005) also demonstrated the use of peer pairing as a means to increase prosocial peer interactions. This study utilized a technique called Resilient Peer Treatment. The researchers paired socially-withdrawn, maltreated preschool students with "play buddies". The play buddies were peers in the same classrooms with the highest levels of prosocial peer interactions. Adult volunteers also acted as "play supporters." Their role was to set up the play area and provide guidance to the play buddy before the play session started.

During the play session, the two students were able to play with toys, games, and objects commonly found in a preschool classroom. The purpose of the play buddy was to

engage the target student in positive play and social interactions. The adult play supporter was not in the immediate play area during this time, but did make supportive comments to both students after the play session.

Fantuzzo et al. (2005) collected and analyzed data on four different measures using analyses of variances. An observational coding system was used to measure peer social interactions. Under this coding system, behaviors were observed in the areas of solitary play, social attention, associative play, and collaborative play. One set of observations was taken during the play sessions. Another set was done after the intervention, during free play time. A peer-play scale was completed by the teachers to assess their observations of the students' interactive play. Social-skills ratings also were completed by teachers to assess their observations of specific student behaviors.

Observational data collected during the structured play sessions on the students who received the RPT intervention showed significant increases from pre- to posttest in the area of collaborative play. The data also showed a significant decrease in levels of solitary play. No significant differences were found in the areas of social attention and associative play. Observations conducted during free-play sessions generated the same results.

The posttest-rating scales data demonstrated significant improvements for the treatment group on the play interaction subscale. On the social-skills scale there were significant improvements for the participants on the interpersonal-skills scale.

The Fantuzzo et al. (2005) study demonstrates how exposure to peer models and opportunities to interact can lead to positive changes in students' social behavior. However, the additional measure of interactions during the free-play sessions also

addresses an area of research methodology that is lacking in many studies of social behavior. Although this study was conducted in a classroom setting, it occurred in a contrived environment. The play sessions were planned, orchestrated, and monitored. In the real world, where it is most important for students to be able to demonstrate acceptable levels of prosocial behavior, outcomes can be different.

By taking observational data in a more real-world situation, such as free-play time when there is little to no adult direction, the researchers were able to demonstrate the generalizability of treatment effects. As noted above, no intervention is truly successful if the participant cannot take the knowledge or experience and apply it to other settings and situations (Odom et al., 1999, Ryan et al., 2005).

Another example of how peer pairs can be used to impact social behavior is the Mitchem et al. (2001) study which investigated the effects of a classwide peer-assisted, self-management program in a general-education classroom. The intervention in this study was intended to increase time on task and instances of students following instructions and gaining teacher attention appropriately. Although these target behaviors clearly fit in with the concept of teacher-pleasing social behaviors as opposed to behaviors that could be considered strictly prosocial, the intervention easily could be adapted for any range of target behaviors.

In the Mitchem et al. (2001) study, the intervention involved students working in pairs and making ratings of their own and their partner's behaviors based on the expected target behaviors. For example, at the appropriate time, students were cued to rate their own degree of being on task, and then rate their partner's degree of being on task. The pairs later compared their ratings. Based on the predetermined rating match system, each

pair earned points for how well their behavior ratings of each other matched. Students were able to exchange their points for rewards.

The intervention was implemented in a multiple baseline design across classrooms. A significant increase in all three target behaviors occurred each time the intervention was implemented in a classroom. The target students' on-task behaviors went from an average of 35% to 80% time on-task from baseline to intervention. The average whole group time on task was above 80% in each class.

The researchers tested maintenance of the treatment effects by systematically phasing out the intervention. When the peer-pair behavior point cards were removed, instances of the target behaviors decreased noticeably. A one day retraining session was implemented at this point and behaviors improved again. Behavior declined again after students had been out of school for spring-break vacation. At this point the teacher reviewed the rules and expectations and behavior improved.

There appear to have been several factors at play in regards to the intervention in the Mitchem et al. (2001) study described above, such as peer pairs, self-monitoring, and rewards for behavior. The importance of the peer-pairing aspect of this study to the general discussion of peer-based interventions is that the use of peer pairs served to enhance the self-monitoring aspect of the study. Self-monitoring is only effective if it is done accurately and honestly. In a typical classroom setting, the teacher cannot consistently check the reliability of every student's self-rating (Gumpel & David, 2000; Mathes & Bender, 1997). Therefore, peers can provide a natural system of check and balance for each other. This can free up the teacher's time to focus on academic instruction and help students in need of extra assistance.

Positive Peer Reporting

An underutilized, yet promising intervention for social behavior in educational settings is the use of positive peer reporting. This strategy involves giving students the opportunity to make reports about their classmates' positive social behaviors (Elksnin & Elksnin, 2003; Ervin et al., 1996; Moroz & Jones, 2002; Skinner et al., 2002). Cashwell et al. (2001) point out that children often report the negative behavior of peers, but are much less likely to report positive behaviors. This attention to negative behaviors within a classroom setting might direct the teacher's focus to more of the negative behaviors than positive behaviors, thereby interfering with valuable opportunities to reinforce positive behaviors (Montague et al., 1997; Moroz & Jones; Skinner et al.).

Classroom climate can be strongly impacted by what students perceive as a focus on negative behaviors (Montague et al., 1997). For example, a teacher may think it is crucial to classroom management to address every negative behavior that occurs in the classroom. Unfortunately, students' perception of this all too common teacher behavior may be that negative behaviors are more important than positive behaviors (Cashwell et al., 2001).

Students also will quickly attune to the fact that in this type of environment, students who engage in negative behaviors receive more attention from the teacher than the students who are quiet and well behaved. It is also common in these situations for students to focus in on the most disruptive classmates, thereby further feeding the pattern of negative attention-seeking behavior. Encouraging students to focus on positive behaviors may be a way to improve the classroom climate (Maheady, 2001; Wentzel,

2003) and increase the incidence of prosocial behaviors and interactions (Ervin et al., 1996; Moroz & Jones, 2002)

When reviewing the literature in the area of positive peer reporting (PPR), the majority of reviews and research reports refer to the practice as PPR. However, one group of researchers has modified the standard peer-reporting strategy of verbal/vocal reports of behavior to allow students to make written reports. Skinner et al. (2000) have termed this modified method of peer reporting "tootling," a combination of the word tattling and the phrase toot your own horn. Skinner et al. (2002) define tootling as a classwide intervention that targets all children in the group, in contrast to standard peer reporting which generally focuses on one or a few students within a group (Bowers, 1999; Ervin et al., 1996; Moroz & Jones, 2002).

Despite some differences between these two emerging uses of peer reporting, both methods (verbal reports with one or a few students and written reports with an entire class group) share enough similarities to come under the same heading. The most important aspect of these two procedures is that they are intended to "structure the environment that enhances peer relationships" (Skinner et al., 2002). Therefore, the term positive peer reporting (PPR) will be used to refer to both methodologies.

In order for PPR to be successful as a behavior change strategy, the reports must occur at high enough rates to be therapeutic. As discussed above in the section on group-contingency plans, Skinner et al. (2000) used a group-contingent reinforcement to encourage higher rates of peer reports by students. Their results indicated that the intervention positively impacted the number of peer reports submitted. Cashwell et al. (2001) replicated and extended this study by using a contingency plan and publicly

posted feedback to affect numbers of peer reports made by students. The extension aspect of the study was defined as attempting to show that the procedure could be used with younger students--second graders instead of fourth graders.

As in the initial study by Skinner et al. (2000), Cashwell et al. (2001) trained students on the written positive peer-reporting procedure (tootling). Students had access to index cards at their desks throughout the school day and used the cards to write about prosocial behavior that they witnessed during the day. For the purposes of this study, the operational definition of prosocial behavior was helping behavior.

The researchers solicited student and teacher feedback regarding possible reinforcers for the group contingency. Using an A-B-A-B withdrawal design, the researchers collected data on the number of reports made by students under baseline conditions with no contingency in place, and under treatment conditions with a prespecified goal required to earn the reinforcer. Overall, the visual analysis of data from the Cashwell et al. (2001) study indicates that the contingency increased rates of peer reporting.

Although the Cashwell et al. (2001) study demonstrated a positive effect with the use of positive peer reporting, the peer reports in this study were not the actual intervention. Therefore, when attempting to assess the validity of peer reporting as an intervention, it is important to review studies that have used this technique as the independent rather than the dependent variable.

One of the earliest examples of positive peer reporting as a behavioral intervention is the Grieger, Kauffman, and Grieger (1976) study. These researchers used PPR as an intervention to increase positive social interactions among students. The study

was designed under the premises that peers are powerful reinforcers of each others' behaviors and that their recognition of each others' positive behaviors can encourage increased instances of positive behavior. The intervention was implemented in a kindergarten general-education classroom. The students were allowed to randomly give PPRs about their classmates during a regularly scheduled reporting session. Students who were the subject of a positive report from a peer received a "happy face badge."

Grieger et al. (1976) conducted observations to assess changes in the numbers of students engaged in cooperative play and the numbers of aggressive acts among students. The researchers noted a modest impact on the numbers of students engaged in cooperative play. In each of the baseline phases, the median number of students engaged in cooperative play was approximately 42%. This number rose to 55% in the first intervention phase and 60 % in the second intervention phase. The researchers noted a stronger effect from the intervention on the number of aggressive acts among students. Aggressive acts totaled approximately 41 in each of the baseline phases, but decreased to 9 in the first intervention phase and 6 in the second intervention phase.

Despite the positive results in the Grieger et al. (1976) study, there are some limitations of the research design. The researchers in this study used a four phase reversal design, but they modified some features of the second baseline and intervention phases. For example, in the initial intervention phase, the students were rewarded when they received praise from peers. During the second intervention phase, the students were not rewarded when they received praise from peers. During the reversal phase, the students were told to report students who had been unfriendly to them. These modifications caused the design to have one baseline phase and three different interventions instead of

repeating one set of baseline conditions and one set of intervention conditions as in a true withdrawal design. From a single-subject research methodology standpoint, the inconsistency of the design used limits any conclusions that can be made about the results because the researchers did not demonstrate a replication of effects in their study.

Moroz and Jones (2002) utilized peer reporting as an intervention for socially withdrawn children. The participants were three elementary-aged children who were referred by their teachers due to low rates of peer interactions. The researchers utilized a multiple-baseline across participants design with a withdrawal phase. The dependent variable was social involvement, to include engagement or participation in peer interactions. Observational data were collected during unstructured recess time using partial-interval recording. Data were reported as the percentage of intervals engaged in social involvement.

The intervention itself was implemented in the students' respective classrooms. All students were initially instructed on how to provide praise to peers. Then, a "star" was selected from the class to receive public praise from peers on a specific day. The student participant was selected as the star on the first treatment day so that student could receive an immediate social boost from the peer reports. Since the teachers who participated in the study insisted on letting all of the students in their classes have an opportunity to share the role as star, the target students only received a brief period of exposure to the intervention. All students were rewarded for giving praise to others in order to maintain occurrences of peer praise.

The data from the Moroz and Jones (2002) study indicate a fair degree of variability in percentage of intervals the target students spent in social involvement

during the observation periods. One student displayed a dramatic and variable response to the intervention, moving from an initial baseline mean level of social involvement of 8% to a mean of 36% involvement during treatment. Another student had a more moderate, stable response as demonstrated by a change from a baseline mean of 53% level of involvement to a mean of 82%. The third student demonstrated a delayed response in the treatment phase that eventually stabilized from a mean baseline level of 26% to an intervention level of 55%. The last two students' percentages of social involvement decreased after the return to baseline, but the first student maintained a higher and more stable rate of social involvement.

The Moroz and Jones (2002) study has some limitations with regard to design and interpretation of data. The treatment variable is obviously crucial to the integrity of any research study. In this case, although the treatment was carried out as planned, it is valid to question the degree of exposure to the intervention that the target students received. As noted above, because the treatment involved having one star student a day who received praise, the participants were exposed to relatively brief amounts of praise from peers. The treatment condition actually was shared by as many as 25 students in a class throughout the course of the study.

This design feature would have been acceptable had the intention of the study been to simply expose students to an environment where praise is given publicly to different students. However, in this case, the researchers stated that the treatment was to provide public peer praise to the participants. Therefore, the participants' social behavior was evaluated and observed over several days after having potentially received a brief exposure to the intervention.

This limitation has a positive and negative impact on the interpretation of the Moroz and Jones (2002) data. On the positive side, since the participants actually received what could be termed a small dose of the intervention, it is not surprising that the data were highly variable. This means that the treatment was not necessarily ineffective, just perhaps not implemented for enough time. It also indicates that there can be some positive effects with just brief exposure to the intervention. On the negative side, the positive effects that were noted must be accepted with extreme caution. Due to the small amount of intervention that the participants received, coupled with the variability in data, there are many other factors that could have created the positive effects noted.

Bowers (1999) and Ervin et al. (1996) have used public peer reporting as an intervention for socially-rejected children in residential settings. As in Moroz and Jones (2002), nontarget participants were rewarded for praising the target participant. In the Bowers study, peers relayed their positive comments about the target child to a staff member, who then told the child what his peers had said. In the Ervin et al. study, praise was given publicly to the target student in a classroom setting. Two other students were chosen as additional targets of peer praise to prevent complaints about one student receiving all of the attention, but no data were collected on these students.

In the Bowers (1999) study, observational data were collected on positive and negative social interactions with peers. For the target student in this study, the implementation of the treatment resulted in a significant decrease in negative interactions, and a significant increase in positive interactions. Due to the fact the Bowers study utilized an A-B design with no replication of phases, the results must be interpreted with caution.

However, the A-B-A-B reversal design in the Ervin et al., (1996) study allowed for replication of phases and demonstration of experimental control. The participant demonstrated high levels of negative behaviors and low levels of positive behaviors in both baseline phases. The researchers reported that in both intervention phases the participant's negative interactions were at near-zero levels. She displayed positive interactions in 70% of intervals during intervention phases.

In a more recent study, Johnson-Gros and Shriver (2006) developed a verbal PPR intervention for a 4-year-old in a preschool classroom. The purpose of the intervention was to increase compliance and improve the social interactions of the student. Compliance training and PPR through the whole group method were implemented in the classroom. The PPR intervention consisted of group sessions in which classmates were allowed to make positive statements about the "star" student's behavior during center time. Students were rewarded for making positive comments about the star student.

The student's percentage of compliance to directions from teachers during the morning sessions was high and did not increase significantly after the compliance treatment was implemented. However, his compliance behaviors during the afternoon sessions were low during baseline and increased immediately upon implementation of the intervention. His positive social behaviors remained at generally low levels during this phase. After the PPR intervention was added, the student's compliance behaviors remained high and stable and his levels of positive social behaviors increased immediately.

The researchers in this study used an A-B-B+C design which indicates that there was never a return to baseline and a subsequent return to intervention, as there would

have been in a withdrawal design. This limits the ability for the reader to draw strong conclusions about the results.

A study by Morrison and Jones (2007) demonstrates the use of a multiple-baseline design to assess the effects of a PPR intervention across two 3rd-grade, general-education classrooms. The researchers in this study designed a PPR intervention that was informal and allowed the students to volunteer PPRs about anyone in their class during the reporting session. The effect of the intervention was measured through the use of a behavioral index called the Critical Events Index. The researchers adapted the Index for use in the study. The behaviors measured by the Index are considered low-frequency, high-intensity behaviors, such as physical aggression, tantrums, and stealing. The classroom teachers noted each day how many children engaged in each specific behavior. These behaviors were reported as the number of critical events.

The results of the Morrison and Jones (2007) study indicate that after treatment, there was an average of 1 fewer critical events each day in one classroom, and an average of 3 fewer critical events per day in the other classroom. Sociometric nominations also indicated that students nominated a mean of 5 students as socially isolated during the first baseline phase. This number decreased to 1.5 after treatment.

The Morrison and Jones (2007) study is noteworthy because it demonstrates that PPR interventions can be simple, easy to implement, and effective in general-education settings. These are important considerations for general-education teachers who work with large numbers of students and a variety of behavior issues within any one classroom.

As with any behavioral intervention, there are pros and cons to using PPR. While it can be easy to implement, there are relatively little existing data to support its worth in

regard to positively impacting student behavior. In addition, while educators may feel that it is always a good thing to praise others, there are some occasions when the experience may be stressful for students. Yet, the fact that this strategy has been implemented in a variety of settings with mostly positive results should make it appealing to teachers. PPR can be implemented in classrooms in a most basic manner using whole group reporting and a simple set of reinforcers for students who participate appropriately. PPR also can be implemented with more detailed procedures about how the peer reports are made, how students are rewarded for participating, and the type of feedback they might receive. Using PPR as a behavioral intervention can allow teachers the flexibility to develop an intervention that best meets the teacher's and the students' needs. In time, as more empirical evidence is collected to support this strategy, PPR can gain status as an effective and popular social-behavioral intervention.

Summary

This review of literature is intended to be an in-depth review of various factors related to the use of peer-based strategies for social behavior. The information on definitional and development issues is probably most relevant for researchers who are designing and investigating interventions. Educators and other professionals who intend to implement interventions to increase positive behavior would be more interested in the specific descriptions of the various interventions and the identification of successful interventions. Most of the interventions described here are highly feasible for classroom implementation in general- and/or special-education settings. This should make them

attractive alternatives for teachers who are searching for proven interventions for students with behavior concerns.

Another important feature of the interventions described here is that educators do not need to wait until problem behavior occurs to utilize the interventions. All of the four types of peer-based interventions described here (cooperative-learning groups, group-contingency plans, peer helpers, and positive peer reporting) can be adapted for use as preventative strategies (Montague et al., 1997).

As discussed above, inappropriate behaviors in the classroom can negatively impact the offending student's academic and social status, peer relations, instructional sessions, and classroom climate (Maheady, 2001; Mitchem et al., 2001; Montague et al., 1997). Developing proactive, positive, and preventative strategies are crucial aspects of any plan to promote a positive and supportive class and school climate (Lewis & Sugai, 1999; Montague et al.; Wentzel, 2003).

Adapting the peer-based interventions described here into preventative strategies requires the initiative of classroom teachers and school building administrators. Implementing strategies at the start of the academic year is one way to establish clear expectations before incidental behavior problems become habit (Lewis & Sugai, 1999).

For example, with the group-contingency plan intervention, a classroom teacher could set up a simple interdependent contingency plan for students which addresses academics and behavior. A token system could be set up to recognize prosocial behaviors. Each time a student demonstrates a prosocial behavior, that student puts a token in the reward jar. The students could vote on which reward to purchase with all or

part of their tokens. The teacher also could have a predetermined reward that the students would earn when they accumulate the correct number of tokens.

To address academic performance, the teacher might choose to utilize an independent group-contingency plan. An example of this would be to set up a box with multiple goals inside (i.e. complete all morning work for the week, look up all vocabulary words in the dictionary, etc.). The teacher could start with just a small set of goal behaviors and add to them as the year progresses, informing students as new goals are added. Each week, a goal could be randomly chosen. Each student who met the goal would receive a predetermined reinforcement. Randomly choosing each week's goal would encourage students' efforts toward a variety of goals.

This is just one example of how a peer-based intervention can easily become a preventative strategy. In this case, the teacher would be preventing negative behaviors by recognizing and rewarding positive behaviors through the use of the interdependent behavior-contingency plan. By setting up a randomized, independent contingency academic plan, the teacher would be letting the students know in advance that their academic efforts will be recognized, and hopefully spark the students' interests in academic effort. An increased interest in academics can further divert students' attention from any negative behaviors that might be occurring in the classroom. Regardless of how it is done, preventative strategies should be a part of every class and school setting. Since classrooms and schools are rich with peer interactions, peer-based strategies are a natural choice for these settings.

Addressing Limitations of Existing Research

As is the case with most behaviorally-based research, developing and validating peer-based interventions for social behavior that will generalize to other settings and maintain improved behavior is challenging at best. This is a definite limitation in the existing literature as noted by the fact that many studies do not address generalization and maintenance in any aspect of reporting (Choi & Heckenlaible-Gotto, 1998; Ervin et al., 1996; Junge et al., 2001; Skinner et al., 2000).

Successful generalization and maintenance of treatment effects should not be an afterthought of research design. In an intervention designed to encourage peer interactions for a child with language delays, Johnson and Golden (1997) demonstrated that incorporating generalization promoting strategies into the intervention plan before implementation increased the likelihood that behaviors generalized to other settings.

Certainly researchers do not design studies and interventions with the intention to ignore generalization and maintenance features. It is more likely that a researcher has a specific intervention in mind and factors that might promote maintenance and generalization simply do not fit into the parameters of the study. For example, if a researcher is solely interested in social behavior and implements a behavioral intervention with students who have significant academic performance issues as well as behavioral concerns, competing factors may decrease effectiveness of the treatment. If the behavioral intervention is successful with the students, but their lack of academic effort is not addressed, negative academic outcomes in other classes may hinder any chance for the behavioral changes to generalize to those other classes.

To prevent this type of indirect effect on treatment outcomes, researchers can program for generalization by ensuring that the target behaviors are relevant to more than one aspect of the participants' lives and by being flexible enough to add additional target behaviors. To insure generalization, the behaviors taught should be those that are likely to be maintained due to contingent reinforcement by people outside the training situation. Also, the training should address the variety of people, situations, and settings the child will encounter in the natural environment (Johnson & Golden, 1997).

Programming for maintenance effects can be more complicated. Although a researcher may feel safe in saying that a particular intervention was successful, it is generally difficult to predict how long it will continue to positively impact the participant. Ensuring that the treatment is appropriate for the behavior and strong enough to bring about a significant change in behavior are ways to address maintenance issues (Gumpel & David, 2000).

Including peers in the training process (an inherent part of the group session method) also can aid in encouraging the maintenance of newly learned skills (Bullis & Davis, 1997; Johnson & Golden, 1997). When peers are involved in the learning and practice of new skills and the target student is comfortable in this learning environment, there is a strong likelihood that s/he will feel comfortable continuing to demonstrate these behaviors (Gronna et al., 1999).

Another related limitation in the existing literature is that while some researchers might state that their treatment generalized to other settings or behaviors, or that it maintained *x* number of weeks post treatment, they generally do not offer possible explanations for these effects (Fantuzzo et al., 2005; Gumpel & Frank, 1999; Mitchem et

al., 2001). For example, Mitchem et al. reported that students maintained improvements in behavior throughout the systematic withdrawal of the peer-assisted intervention. They do not explain how the intervention was designed to create this effect, or which aspects of the research design might have led to this conclusion. More attention to this aspect of the reporting of results is needed so that readers do not have to infer a researcher's hypotheses and intentions regarding generalization and maintenance.

In general, the topic of peer-based interventions is still growing. This is particularly true as it relates to interventions for social instead of academic behaviors. As discussed above, inconsistent definitions and interpretations of social behavior terminology are problem areas in the literature. Although conceptual differences can be found in any field of research, ongoing inconsistencies can have a negative impact on the interpretive validity of data.

For example, if two groups of researchers use the same intervention to investigate its impact on prosocial behaviors, and achieve different results, they might draw the conclusion that their two studies could not demonstrate a replication of positive effects for that particular treatment. However, if the two sets of researchers used different definitions and/or different examples of target behaviors under the heading of prosocial behavior, there may be something about the different behaviors that responded variably to the treatment. It may be the case that if the researchers were using definitions and sets of prosocial behavior that are more closely aligned, they would achieve similar responses to treatment.

Another problem with inconsistencies in ways to define and describe prosocial behavior is that it can have a negative impact on how people outside the field view the

body of research. In order to bolster claims of validity and success of treatment effects, researchers should attempt to present a more consistent conceptualization of the topic.

Future Directions

As noted above, consistency in the use of the term prosocial behaviors is an important future direction for this line of research. In the Jackson and Tisak (2001) study about how developmental differences affect perceptions of prosocial behaviors, the authors noted that there is value in understanding how students view prosocial behavior. Their views about these behaviors were shown to change as they get older, and it is quite possible that these changing views can impact treatment effects across ages. More studies are needed that examine these changes and assess how the changes can impact various interventions.

An example of a possible study to investigate this phenomenon would be to choose one specific, well-defined prosocial behavior and collect questionnaire data about the behavior from children in several different age groups. Then, an intervention could be developed to encourage this specific behavior. The intervention could then be implemented with children who are the same ages as the questionnaire groups. Although there would be some limitations with making connections about two different groups of children, valuable information and insight could be gained. There are several possible research questions that could be generated from this type of study. How do feelings about a particular behavior compare with treatment response for the same behavior in same-aged students? How do variations of a treatment impact a behavior that is viewed differently across age groups? Are children aware that their view of a specific behavior may change over time and impact their social interactions?

Another possible avenue for future research into peer-based interventions for social behavior is to focus on combinations of treatments as opposed to one specific intervention. Some researchers have demonstrated success when two or more peer-based strategies are combined (Cashwell et al., 2001; Skinner et al., 2000). Since no one method will work for all students or in all classrooms, it is important for teachers to have access to research-validated methods for combining interventions.

However, researchers must also keep in mind that classroom teachers generally work in isolation. Therefore, any intervention or combination of interventions must be feasible to implement, evaluate, and maintain. Also, keeping the concept of programming for generalization in mind, researchers can design feasible interventions that will allow two or more teachers to team up and implement the intervention across settings.

In closing, the literature and research in the field of peer-based strategies for prosocial behaviors is varied and presents interventions that are practical to implement. The developmental and social characteristics of school-aged children lend themselves well to these types of interventions. In most cases, students take a great deal of pleasure in interacting with their peers. Student acceptance and enjoyment of any intervention can only serve to enhance its effectiveness. It is hoped that researchers will continue to develop and report on new methods to investigate this type of behavioral intervention. It is also hoped teachers and other educators will find increasing use for such interventions in classrooms and school settings.

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CHAPTER 2

EFFECTS OF A POSITIVE PEER REPORTING INTERVENTION ON PROSOCIAL INTERACTIONS IN A GENERAL EDUCATION CLASSROOM

Public schools historically have been considered one of the most important sources of socialization for children (Rubin, Bukowski, & Parker, 1998; Shaffer, 1994). During the school-age years, children can exert a strong influence on the behavior of peers, in positive and negative ways (Carden Smith & Fowler, 1984; Hoff & Ronk, 2006; Morrison & Jones, 2007). The negative behaviors that sometimes occur as a result of peer influence and interactions can have a major impact on classroom and school climate, and can affect time spent on academic tasks. Decreasing problem behaviors in school settings is frequently a top priority among educators (Mitchem, Young, West, & Benyo, 2001).

Schools use a variety of strategies to address student behavior problems. When identifying potential interventions, teachers have to take several factors into account, such as expediency of setting up the intervention, proven success of the intervention, and maintenance of the intervention (Kamps, Kravits, Stolze, & Swaggart, 1999). Due to the scheduling constraints that teachers often face when trying to meet state mandated curriculum requirements, they generally do not have an abundance of time to initiate or maintain any given intervention (Maheady, 2001).

Another issue for teachers to consider when planning behavioral interventions is how to get the most effect from chosen interventions. Teachers naturally would be most

interested in interventions that address multiple behavioral issues. Peer-mediated strategies have proven to be successful with a number of education-related issues, such as improving classroom behavior (Morrison & Jones, 2007), improving social behavior (Gumpel & Frank, 1999), and increasing academic performance (Maheady, 2001), yet these strategies are underutilized by educators (Maheady).

The premise behind peer-mediated interventions is that because peers are an integral part of schooling and the learning process, they can exert powerful reinforcement for various social and academic behaviors (DiSalvo & Oswald, 2002; Greco & Morris, 2001; Maheady, 2001; Montague, Bergeron, & Lago-Delello, 1997; Morrison & Jones, 2007; Ryan, Reid, & Epstein, 2004; Skinner, Neddenriep, Robinson, Ervin, & Jones, 2002). Therefore, peers are a natural and readily available source of reinforcement. In addition, when using peers to assist or reinforce target behaviors, the nontarget peer usually benefits from the interaction as well (DiSalvo & Oswald; Gumpel & Frank, 1999; Mastropieri & Scruggs, 2001; Montague et al.).

One type of peer-mediated intervention that can be used for children with behavioral concerns is positive peer reporting (PPR). PPR involves providing students with opportunities to make positive statements about their peers in a controlled situation. This technique has been used in therapeutic and educational settings for a variety of desired outcomes (Jones, Young, & Friman, 2000; Morrison & Jones, 2007; Ryan et al., 2004; Skinner et al., 2002).

PPR interventions can make students more aware of the positive social behaviors of their peers. Therefore, teachers can view PPR as a means to encourage more occurrences of prosocial behaviors and to increase numbers of positive social interactions

among their students. This strategy is designed to shift student focus from negative behaviors to positive behaviors, thereby improving the overall classroom climate (Moroz & Jones, 2002; Skinner et al., 2002). Since classroom climate is widely believed to influence student behavior and student performance (Dollard, Christensen, Colucci, & Epanchin, 1996; Montague et al., 1997; Wentzel, 2003), PPR is a worthwhile intervention for teachers to add to their repertoire.

Researchers who have used PPR interventions in classroom settings have demonstrated some success with positive behavioral changes. Morrison and Jones (2007) used a verbal PPR method in a third-grade general education classroom setting. The intervention was a 15-minute session in which the students were allowed to make positive statements about their classmates through a random selection process.

Morrison and Jones (2007) measured the dependent variables for the study by using an adapted version of the Critical Events Index (CEI), which accounts for low-frequency, high-intensity behaviors exhibited by individual children. Examples of the behaviors that were included on the adapted index were stealing, tantrums, physical aggression, obscene language, and lack of interest in activities.

The results indicated some reduction in the mean number of critical events in both classrooms from baseline to treatment. The first classroom went from a mean of 4.17 to a mean of 3.17 critical events per day, or 1 less event per day. The second classroom went from a mean of 10.72 to a mean of 7.87 critical events per day, or close to 3 fewer events per day (Morrison & Jones, 2007). In addition, the first class experienced approximately 2 fewer critical events during lunch after the treatment was implemented. The second class experienced approximately 4 fewer critical events during lunch after treatment.

Grieger, Kaufmann, and Grieger (1976) conducted one of the earliest studies using a peer reporting intervention to improve behavior. Their PPR technique was used in a kindergarten general education class to assess its affect on cooperative play and aggressive behavior. The intervention consisted of allowing the students to name a classmate who had been friendly to them during the free play period and to describe the friendly behavior. Students who received positive praise from a peer were given a happy face badge.

Grieger et al. (1976) found some increase in the median number of students engaged in cooperative play from baseline (42%) to the first intervention phase (55%). This number returned to baseline levels during the reversal phase, and then rose to 60% in the final intervention phase in which no reinforcer was provided.

The results indicated a much greater impact on the number of aggressive acts. This number decreased from 42 in the baseline phase to 9 during the first intervention phase. The number of aggressive acts rose to 40 again during the reversal phase, and then decreased to 6 during the final intervention phase, when no reinforcement was provided. However, these results must be interpreted with some caution because the researchers used a modified form of the intervention in the third and fourth phases, and there was no return to the original baseline condition, which would have demonstrated experimental control of the dependent variable (Alberto & Troutman, 2006).

The Grieger et al. (1976) and the Morrison and Jones (2007) studies both demonstrate how peer-praise strategies can be used successfully in general education classrooms to increase rates of positive behaviors and interactions. These studies used interventions that general education teachers could implement in the classroom with

varying degrees of effort and could manage easily by allowing the students to do much of the daily maintenance of the intervention.

Although these two studies both demonstrated that PPR can be implemented easily in classroom settings, the Grieger et al. (1976) study also demonstrates a common theme across existing PPR research: attempting to increase prosocial interactions among peers. As noted above, peer-mediated strategies can be used to address a number of school-related behaviors, but PPR interventions are generally designed to improve the social interactions of the target students and to increase their level of prosocial interactions with peers (Bowers, 1999; Bowers, Woods, Carlyon, & Friman, 2000; Ervin, Miller, & Friman, 1996; Grieger et al.; Jones et al., 2000; Moroz & Jones, 2002; Morrison & Jones, 2007).

Some studies also measured decreases in numbers of negative interactions after implementation of the intervention (Bowers, 1999; Bowers et al., 2000; Grieger et al., 1976; Hoff & Ronk, 2006). However, when considering the concept of incompatible behaviors (Alberto & Troutman, 2006), it could be argued that students cannot engage in simultaneously prosocial and negative interactions. Therefore, it generally would be necessary only to measure increases in prosocial interactions to assess the positive impact of a PPR intervention.

In another example of an intervention designed to positively impact the participants' social interactions, Johnson-Gros and Shriver (2006) used a whole group verbal PPR intervention in a preschool classroom to increase compliance and increase the social interactions of a 4-year-old male student. Compliance training was conducted prior to the PPR intervention and subsequently was used in conjunction with PPR. The PPR

intervention consisted of group sessions in which classmates were allowed to make positive statements about the star student's behavior during center time.

Data collected on the student's compliance behaviors indicated that after the PPR intervention was added to the compliance intervention, the student's compliance behaviors remained high, but did not increase from the prior phase. However, his time spent engaged in positive social behaviors increased immediately during the morning observation session. Despite some variability in data, his positive social behaviors also increased during the afternoon session.

Hoff and Ronk (2006) utilized a PPR intervention similar to the one used in the Johnson-Gros and Shriver (2006) study. In the Hoff and Ronk study, the participants were seven students in a self-contained special education class. On each day of the intervention phases, one of the seven students was chosen as the Most Valuable Person (MVP) for the day and was the object of all student praise. The other students complimented the MVP for positive behaviors throughout the day. During the PPR sessions at the end of the day, classmates could voluntarily make verbal reports about the MVP's positive behaviors noted earlier in the day. They reported an approximately 7-10% classwide increase in prosocial interactions after the treatment was implemented in both intervention phases. Negative interactions were already at low levels and did not demonstrate more than minor changes in response to the intervention.

A possible concern with the Hoff and Ronk (2006) treatment intervention is one that can be found in other studies using the star student method of determining who receives peer praise (Ervin et al, 1996; Johnson-Gros & Shriver, 2006; Moroz & Jones, 2002). In these types of interventions, only one student is able to receive peer praise

throughout the day. Although this is an inherent feature of this form of PPR, it is possible that limiting peer praise to only one student per day may impact students' responses to the intervention. Some students may feel that if they are not eligible to receive PPRs then it is not worth the effort to engage in positive behavior.

The use of the star student method and the whole group reporting method is a major difference in the existing literature. PPR research conducted in residential or therapeutic settings has been done using the star student or most valuable person method of reporting (Bowers, 1999; Bowers et al., 2000; Ervin et al., 1996; Jones et al., 2000). Some PPR research conducted in educational settings also has been done using either the star student method (Moroz & Jones, 2002), or a modified version of this method (Morrison & Jones, 2007). However, there are several studies done in educational settings that were done using a whole group reporting method that allowed every student in the group the opportunity to give and receive peer praise during each intervention session (Cashwell, Skinner, & Smith, 2001; Grieger et al., 1976; Hoff & Ronk, 2006; Skinner, Cashwell, & Skinner, 2000).

The star student method of implementing PPR can be considered a concern, but not necessarily a limitation of this body of research. However, there are some general limitations in the existing literature that must be addressed. Some of the studies that reported positive behavioral effects for the participants did not utilize a research design that demonstrated a functional relation between the independent and dependent variables (Bowers, 1999; Grieger et al., 1976; Johnson-Gros & Shriver, 2006).

For example, in the Johnson-Gros and Shriver (2006) study, the researchers used an A-B-B+C design. There was never a return to baseline and a subsequent return to

intervention, as there would have been in a withdrawal design. Therefore, the researchers were not able to demonstrate a clear functional relation between the independent and dependent variables or a replication of the treatment effects (Alberto & Troutman, 2006). This weakens the argument that the intervention was the sole or major factor in the student's behavior change and caution must be used in the interpretation of these findings. It should be noted that the researchers chose to not withdraw the treatment due to the student's aggressive behaviors and the need for immediate and ongoing intervention (Johnson-Gros & Shriver).

Another limitation of existing research is the fact that there are relatively few studies (utilizing sound research methodology) that demonstrate positive behavioral effects from PPR interventions (Bowers et al., 2000; Ervin et al., 1996; Hoff & Ronk, 2006; Jones et al., 2000; Moroz & Jones, 2002; Morrison & Jones, 2007). Although this lack of research exists in the group of studies that implement PPR in therapeutic settings as well as in the group of studies based in educational settings, it is arguably more of an issue for general educational settings. In general education settings teachers often are responsible for 20 to 30 children at a time and are under stringent guidelines with regard to how instructional time is spent. These factors provide significant roadblocks to the development of individualized behavioral interventions. Therefore, general education teachers could benefit greatly from proven interventions that can directly impact all of the students in a classroom efficiently and effectively.

As others have noted, additional empirical support for the positive impact of PPR interventions is needed (Johnson-Gros & Shriver, 2006; Morrison & Jones, 2007; Skinner et al., 2002). The current study was designed to add to the body of evidence regarding the

success of PPR in general education settings as a means of promoting prosocial behaviors in students. It was conducted as a modified replication of the Grieger et al. (1976) study.

The Grieger et al. (1976) study used PPR in a general education setting. Despite the limitations of the research design used in their study, it provides a good example of how PPR can be used as a simple intervention in a large classroom setting to promote positive social interactions among students. The most significant modification to the Grieger et al. research design that occurred in the current study was the use of a withdrawal design. This design allowed the researcher to assess the impact of one specific intervention and to attempt to demonstrate experimental control of the dependent variable.

As discussed above, researchers have demonstrated success with making positive behavioral changes through the use of PPR interventions (Grieger et al., 1976; Johnson-Gros & Shriver, 2006; Moroz & Jones, 2002). Students in general and special education settings have been shown to benefit from PPR interventions as evidenced by increased levels of positive interactions with peers after PPR was implemented in their classrooms (Grieger et al.; Hoff & Ronk, 2006; Johnson-Gros & Shriver; Moroz & Jones).

PPR has the potential to be an effective behavioral intervention in classrooms. There are several features of the PPR interventions used in existing research studies that make it an effective and feasible intervention. For example, in the Grieger et al. (1976) study, the researchers implemented a PPR intervention that included all of the students in the participating classroom and rewarded them for making PPRs. There were able to conduct the intervention within a 10-minute time frame. Also, Grieger et al. had no formal process for the students to present or receive PPRs and no scripted procedures for

the teacher to lead the PPR sessions as in the Moroz and Jones (2002) and Morrison and Jones (2007) studies.

This study was designed to implement and assess the features of existing PPR interventions that make them efficient and feasible for general education classrooms, while adding to the existing literature on the effectiveness of PPR interventions for making positive behavioral changes. This study used a PPR intervention to make a positive behavioral impact in a general classroom setting. The guiding research question was: Can the use of PPR in a second grade general education classroom increase the level of prosocial interactions among students? It was anticipated that the PPR intervention would encourage students to focus more on positive behaviors and as a result spend more time engaged in prosocial interactions.

The researcher also proposed that if the intervention demonstrated a positive behavioral impact, it would provide researchers and educators with evidence of an effective, simple behavioral intervention that can increase prosocial behaviors in a general education setting. It also would provide researchers and theorists with additional empirical support for the effectiveness of peer reporting interventions for addressing behavior concerns in general education settings.

Method

Participants and Setting

The participants for this study were 7- to 8-year-old students in a second grade general education classroom. The school is located in a suburban area of a major metropolitan city in the Southeastern United States. The school population is

predominately African-American and the classroom mirrored the larger school demographics.

All intervention and data collection activities took place in the classroom at approximately the same times each day. The participating teacher was present during all research activities and assisted with data collection. An additional school staff member also assisted with data collection.

All students participating in the study had an informed consent to participate signed by their parent or legal guardian before the study began. Out of the 20 students in the classroom, 15 returned signed parental consents to participate. The researcher also met with each student individually to describe the basic procedures of the study and to obtain written informed assent. All of these 15 students signed informed student assents to participate. The students did not receive any compensation for agreeing to participate in the study other than the stickers that were given as a part of the treatment procedures described below.

Dependent Variable

The dependent variable for this study was the percentage of intervals students were engaged in prosocial interactions. A prosocial interaction was defined as a student engaged in (or attempting to engage in) an appropriate, positive social or academic exchange with a peer. Behaviors such as helping, cooperating, showing empathy, sharing, showing good manners, and making positive comments are examples of interactions that were considered prosocial (Caldarella & Merrell, 1997; Greener, 2000; Greener & Crick, 1999; Jackson & Tisak, 2001).

Helping was defined as doing something to assist another person engage in an activity or complete a task. Cooperating was defined as working with another person to complete a task or accomplish a goal. Showing empathy was defined as saying or doing something to comfort another person or to show understanding of their feelings. Showing good manners was defined as statements or actions toward another person intended to show respect, deference, or politeness, such as saying" thank you" or "excuse me," or moving aside when a person needed space. Making positive comments was defined as saying something to another person that would be considered pleasant, complimentary, or encouraging. These behavioral definitions also were used to describe potential PPRs to the participating students.

Since the observer was not be able to hear everything that the students were saying to one another during the observation sessions, facial expressions, body language, and general demeanor weighed heavily in judging an interaction as prosocial. Students who appeared to be talking to one another politely, sharing information or supplies, helping one another, playing cooperatively, and so forth were noted as engaging in a prosocial interaction. Verbal and nonverbal interactions were counted if the appropriate behaviors were demonstrated.

There were some situations in which one student attempted to engage in a prosocial interaction with another student and either got no response from that student or got a negative response. In that situation, the student who initiated a prosocial interaction was counted as engaging in a prosocial interaction. The student who did not respond or responded negatively was not noted as engaging in a prosocial interaction. This coding depended upon it being the student in question's turn in the observation sequence.

Many negative responses were obvious to the observer, such as when one student made an ugly face at a classmate. However, some negative behaviors were less obvious to the observer. If a student appeared to be saying something harmful or inappropriate to another student based on the target student's reaction, this negated the coding of a prosocial interaction for that student if it was the offending student's turn to be observed.

Data were reported at the group level based on the calculated percentage of intervals of observed prosocial interactions across all students. This percentage was calculated by dividing the number of intervals with observed prosocial interactions across all students by the total number of intervals in the entire observation session. This number was multiplied by 100.

Data Collection Procedures

Data were collected using a whole interval recording procedure. The students were coded as engaged in a prosocial interaction only if their prosocial behaviors continued throughout the entire interval. Whole interval recording is generally used to record behaviors that might occur across several intervals, such as social interactions (Alberto & Troutman, 2006). A whole interval recording method was used instead of a partial interval recording procedure, as in the Grieger et al. (1976) study, because it was felt that the latter method might provide an overestimate of the students' level of prosocial interactions.

All observation sessions occurred at approximately the same time each day and this time was determined by the researcher and participating teacher based on available time in the daily class schedule. The participating students' names were placed in a predetermined sequence on the data collection form (Appendix A) and the students were

observed in the same sequence for each 120-second rotation. Each student was observed 10 times during an observation session. Observation sessions ranged from 11 minutes to 20 minutes long, depending upon how many students were present during the session. There were as few as 8 students and as many as 15 students present for the observation sessions. Since 3 students returned parental consents to participate after the researcher began collecting baseline and intervention data, the total number of students participating throughout the study ranged from 12 to 15.

Each observation interval in the planned 120-second rotation sequence was 8 seconds long. The 8-second intervals included 5 seconds to observe each student and 3 seconds to record the observation and visually locate the next student in the rotation. The researcher used a tape recording and earphones with appropriately timed cues to prevent the need to monitor a timing device while conducting the observations. The recording had the appropriate number of cues to account for each 5-second observe portion and 3-second record/locate portion of the intervals during the entire observation session.

The tape recording for the observation intervals began with the cue "observe." After this cue, a 5-second time span occurred on the tape. On the 5th second, the cue to "record" the observed behavior was given. At this point, the researcher or the second data collector made note in the appropriate space on the data collection form if the student was engaged in a prosocial interaction for the entire 5-second interval. A "+" was used to indicate this. If the student observed was not engaged in a prosocial interaction for the entire 5-second interval, no mark was made on the observation form. The researcher (or second observer) then located the next student in the rotation in preparation for the next observation interval. On the 8th second, the cue "next" was given on the tape,

immediately followed by the cue "observe." At this point, the observer began the next 5-second observation interval.

On some occasions, because of the activities the students were engaged in, it was not possible to locate the next student in the sequence quickly enough to proceed with the next observation interval. In these situations, the recorded interval was allowed to pass and the observer used the next recorded interval to proceed with the observation sequence. On days when reliability data were collected, the researcher and the second observer used a hand signal (index finger raised in the air) to indicate the need to bypass a recorded interval. In those situations, both data collectors waited for the next recorded observe cue on the tape to observe the next student in the sequence. Extra cues were added to the tape to allow for these situations.

There were generally one or two students out of the classroom for reading instruction each day during the scheduled intervention and observation sessions. Each data collection sheet indicated which students were present during the day's research sessions. A coding system on the data collection sheet (see Appendix A) was used to indicate which students were observed during each observation session.

Since the intention of the intervention was to positively affect observed social interactions, the researcher felt that it was important to take into account that students sometimes were not in the classroom during the intervention sessions. Some students were out of the classroom during the intervention but in the classroom during the same day's observation session. In order to balance the intervention and observation conditions across all participating students, students who were not in the classroom on a given day during the intervention session were not observed during the observation session later in

the same day. These students were treated as being out of the room during the observation session. This procedure insured that the data collected during the intervention phases represented students who were present for the day's treatment and observation sessions for any given data point.

Independent Variable

The independent variable for this study was the PPR intervention. The intervention occurred in the general education classroom. The PPR sessions consisted of students being given the opportunity to make oral reports about a peer's prosocial behavior. There was no formal selection process to determine how students made these reports, other than students raising their hands to request permission to make a report (Grieger et al., 1976; Hoff & Ronk, 2006; Moroz & Jones, 2002).

The PPR sessions occurred at a time in the school day after students had approximately two hours to interact with one another in various academic and/or school-related activities. Ensuring that the PPR sessions did not occur too early in the day allowed the students to have something to report regarding peers' behaviors. Each PPR session lasted approximately 10 minutes. The sessions were designed to be brief so that they did not interfere with the regular academic program.

During the PPR sessions, students were allowed to remain sitting wherever they were at the end of the activity directly preceding the session, or they returned to their regular seats in the classroom. The session began with the researcher reminding the students that it was time for the classroom "good behavior reports" activity and giving a brief reminder about the kinds of behaviors they should be reporting. The researcher then

reviewed the morning's activities preceding the PPR session to serve as a reminder to students about some of the interactions they had with their classmates.

After reviewing the events of the day, the researcher solicited positive peer reports (PPRs) from the students by saying, "Would anyone like to tell the group about something good that another classmate said to or did for someone else?" Any students who raised their hands were called on one by one to give a verbal report of a peer's prosocial behavior. The participating students received training on what constitutes PPRs before data collection began. The students were given explanations and descriptions of specific behaviors that would be considered prosocial. The behaviors that students were directed to report as prosocial (helping, cooperating, showing empathy, sharing, showing good manners, and making positive comments) are included in the above description of the dependent variable.

After a student made a peer report during the PPR session, the researcher provided immediate, brief feedback on the report. If the peer report was an appropriate reference to a peer's prosocial behavior, the researcher said something like, "Marsha, thanks for your good behavior report about James. James, thank you for helping the teacher collect the homework papers."

If a student offered a peer report that did not fit the target criteria, the researcher said something like, "Nicole, it was nice of you to notice that Marcus turned in his homework this morning, but we would like you to tell us about something good that he said to or did for someone else. For example, did he offer to put your homework in the tray when he turned in his homework? That would be a good behavior that you could tell us about during our good behavior reports activity."

Both students involved received a sticker when an appropriate peer report was made. The stickers were given to the students immediately after an appropriate report was made. All of the stickers given during a given PPR session were basically the same to eliminate any discussion or conflict about who got a certain type of sticker. The students placed their earned stickers in a sticker book that they made during a training session (discussed below) with the researcher.

In keeping with the brief feedback that was given by the researcher during the PPR session, if students were told that their peer report did not meet the criteria of an appropriate report, then neither student received a sticker. Not giving a sticker to either student in these instances kept the intervention procedures as fair and balanced as possible. Although the students demonstrated some mild disappointment in these situations, they recovered quickly and were generally able to restate their report or make an alternate appropriate report and receive a sticker.

Research Design

This study used a withdrawal design to assess the impact of the PPR intervention on the students' prosocial interactions. The first phase of the withdrawal design was the baseline phase (Phase A) with no PPR intervention. In this phase, data collection on the target behaviors occurred during the scheduled observation period. The criterion for phase change was a stable data set. Data for each phase were considered stable if the data points for prosocial behaviors fell within 50% of the mean of the data for that phase (Alberto & Troutman, 2006).

The first treatment phase (Phase B) was initiated after a stable data set was obtained in baseline. Although the final 3 data points in Phase A indicated the beginnings

of a downward trend, the decision to move to the next phase was made because the existing data set was stable and the researcher wanted to ensure that a suitable number of data points could be collected to complete all four phases before the end of the school year. Phase B continued until a stable data set was obtained. Phase A then was reinstated with no intervention in place. Data collection continued in this phase until the data were stable. Then, the second Phase B was implemented. Data collection in this fourth and final phase of the withdrawal design continued until the data were stable.

Procedures

Training sessions. Before initiating treatments, students participated in two 20-minute training sessions on making PPRs. Student training occurred after the initial baseline data were collected to prevent the occurrence of carryover learning effects from the peer report training on the baseline data. The training sessions occurred at the same time of day that the PPR sessions occurred. The researcher made efforts to ensure that the students participating in the study joined in the discussion during the training sessions, either on their own or after encouragement from the researcher.

The first training session included discussion of prosocial interactions, why it is important to be able to recognize and comment on these behaviors, and how positive comments about others can improve the classroom atmosphere (see Appendix I). The first session began with the researcher explaining to the students what prosocial behavior is, through the use of explanation and example. The students were encouraged to give examples of prosocial behavior. Students were thanked for giving examples that fit into the definition of prosocial behavior. When the students gave examples that did not fit the

target definition, the researcher thanked the students for providing an example of a behavior and then immediately gave corrective feedback on their example.

For instance, if a student offered the example of one student walking next to another in the hallway (without engaging in verbal or nonverbal communication) as a prosocial interaction, the researcher said something like: “Michael, thank you for that example. Even though it might be ok to walk next to someone in the hallway, that behavior does not fit the definition of prosocial behavior that we talked about earlier. Remember, we said that prosocial behavior is one person saying something nice to or doing something nice for another person. Walking next to someone in the hall does not mean that you are doing something nice for that person. How could we change your example to make it fit with our definition of prosocial behavior?”

If the student was not able to modify the example correctly, the researcher solicited some examples from other students with the intention of helping the first student understand the target behavior from another student’s viewpoint. If the other students were not able to offer an acceptable modification to the example, the researcher presented a modified example to the students. In the above example, the researcher would have said: “A way to make this example fit our definition of prosocial behavior would be to say one student was walking next to another student in the hallway helping him carry his books to class. This is an example of prosocial behavior because one person is helping the other person.”

After ensuring that relevant aspects of prosocial behaviors were introduced to the students, the researcher briefly discussed the importance of recognizing these behaviors in others. This part of the training session taught the students that seeing good behavior in

others can help people be more aware of their own behaviors and make improvements as needed. The researcher also discussed how people feel good when someone says something positive about them. The students were asked to volunteer stories about a time when someone said something nice to them and how it made them feel.

The group discussion continued with a review of how making positive comments about other students, and in turn making them feel positive, might affect the classroom atmosphere. The students were asked to present their ideas of how they thought the classroom climate could be affected by students making positive statements about each other. The researcher ensured that students were able to see how the discussion of prosocial behaviors of classmates could lead to a better atmosphere in the classroom by leading students to interact more positively with each other.

The first student training session ended with the researcher thanking the students for participating in the discussion and asking the students if they had any questions about the topics discussed. After answering student questions, the researcher notified students that there would be another training session the next day to discuss the upcoming classroom "project."

The second training session began with a brief review of the definition of prosocial behavior and the importance of recognizing this behavior in others. The researcher explained to the students that the main part of the project would involve them having sessions where they would give positive praise to their peers about behaviors that they had seen during the day. The researcher referred to these sessions as the "good behavior reports activity." The students were told what time of the day the sessions would occur.

The researcher then explained to the students how the PPR sessions would be conducted, as detailed above in the description of the independent variable. The students were allowed to ask questions about the peer report sessions. The researcher answered all questions and provided clarification of the procedures as needed.

After all questions were answered and the researcher was satisfied that the students would be comfortable with the peer reporting intervention, the students were allowed to make the sticker books (see Appendix B) discussed above in the description of the independent variable. Another brief review was conducted on the first day of treatment implementation.

Teacher selection and training. The teacher for this project was selected because she was a second grade teacher and was herself a graduate student who was familiar with issues related to school-based research. Since the researcher also was the school counselor at the school where the study was be conducted, the teacher had engaged in prior conversations with the researcher regarding various student behavior issues that she wanted to address in her classroom.

After all required approvals were granted (including signed informed consents from the teacher and an additional school staff member), the researcher met with the teacher to provide background information on the peer reporting intervention and a detailed description of the research procedures. The researcher and the teacher discussed and agreed upon the best times of day to implement the intervention and to conduct observations for data collection, keeping in mind that the intervention would be most successful when done after the students had a reasonable amount of time to interact with each other.

The researcher reviewed with the teacher her role in the research procedures, primarily to collect procedural integrity data. The researcher explained the purpose of collecting procedural integrity data, how it would be done, and showed the teacher the associated form.

Due to the intensive nature of the observation data collection process, the researcher decided that it would not be feasible for the teacher to accurately collect data on the students' behaviors and still attend to the needs of the classroom. Therefore, another staff member in the school was selected as the secondary observer. This staff member was chosen because she was not a classroom teacher and she had significant schedule flexibility. This staff member also was a graduate student and was familiar and comfortable with research issues.

The researcher then met with the staff member to briefly explain the features of the study and to describe the research procedures, with particular attention to defining and recognizing prosocial interactions and noting them on the observation form. A hypothetical data collection session was conducted with the staff member using the observation form. This practice session resembled an actual data collection session as much as possible in terms of the time of day and the activity in which the students were engaged, except that the observers consulted with each other at every recording interval and discussed the behaviors they observed as the students interacted. This consultative method of practicing data collection allowed the second data collector to better understand the target behaviors and increased observer agreement. The researcher and the second observer were seated next to each other during this process in order to share the same cued recording for the 8-second observation recording intervals.

Second and third abbreviated practice data collection sessions occurred immediately following the first practice session and included the use of the recorded cues. Reliability was calculated for the last two practice sessions as described below. Interobserver reliability for both practice sessions was less than 90% (78% and 87%), so the researcher reviewed the dependent variable and the data collection procedures with the staff member. Two additional abbreviated practice data collection sessions were held and the reliability was calculated at acceptable levels (91% and 93%).

Procedural integrity. A procedural integrity checklist was used (see Appendix C) to ensure that the intervention was implemented as it was designed. The classroom teacher conducted the procedural integrity checks on 29% of the intervention sessions. Integrity was calculated by dividing the number of steps followed by the total number of steps multiplied by 100. The procedural integrity rating across both intervention phases was 100%.

Interobserver reliability. Interobserver reliability (IOR) was calculated on 24% of the observation sessions across both A Phases and both B Phases. IOR was calculated using point by point agreement. The researcher and secondary observer noted on the observation form when each student was engaged in prosocial interactions during the corresponding interval. Each matching interval between the researcher's and the secondary observer's data was counted as an agreement or a disagreement. The number of agreements was divided by the number of agreements plus the number of disagreements. This quotient was multiplied by 100 to calculate IOR. IOR remained at or above 90% across all phases, with the following phase averages: Phase A-94%; Phase B-97%; second Phase A-90%; second Phase B-94%.

Social validity. All social validity measures in this study were developed by the researcher in conjunction with a consulting researcher. Social validity was assessed preintervention and postintervention through teacher and parent informal surveys (see Appendixes D through G). Both sets of surveys contained items related to the implementation and the impact of school-based behavioral interventions. There also were specific questions regarding the use of peer reporting as a behavioral intervention. The teacher and parent surveys used a 5-point scale in which the respondents rated each item from strongly disagree to strongly agree.

The teacher preintervention survey was given to the participating teacher before the teacher and student training sessions were conducted, and before data collection began. The postintervention survey was given to the teacher immediately after the last data collection session of the study. All parent surveys were anonymous and contained no identifying data about parents or students. The parent preintervention surveys were sent home to all parents of participating students before the student training sessions were conducted. The postintervention surveys were sent to parents the final day of data collection.

Social validity ratings collected from the teacher before the intervention indicated that she was neutral about whether students would respond positively to the intervention and if the intervention would positively impact classroom climate. She either agreed or strongly agreed with items related to the effectiveness and practicality of classroom-based behavioral interventions. The postintervention teacher ratings indicated that she agreed or strongly agreed with items related to students' positive responses to the PPR intervention and with items related to the effectiveness and practicality of the PPR

intervention. The teacher also strongly agreed that she would be willing to continue using the PPR intervention in her classroom.

The return rate for the parent preintervention surveys was 8 of 15 (53%). On the items related to their child's and other students' positive responses to behavioral interventions, 6 out of 8 parents either agreed or strongly agreed that there would be positive outcomes for the students. The other two parents expressed neutral opinions about whether the students would benefit from the intervention. Five out of eight parents either agreed or strongly agreed with the items about the importance and benefits of implementing behavioral interventions in the classroom. The other three parents rated these items in the disagree to neutral range.

The return rate for the parent postintervention surveys was 5 of 15 (33%). ratings indicated that 5 out of 5 parents agreed or strongly agreed with items related to the importance and benefits of implementing behavioral interventions in the classroom. On the items related to positive outcomes for their child and other students after the behavioral intervention, 4 out of 5 parents agreed that there were positive outcomes.

All of the participating students were given a postintervention informal social validity survey (Appendix H) after data collection was completed and all 15 students completed the survey. The questions on the student survey related to their feelings about participating in the study and to behavioral outcomes after the intervention. The student surveys contained a set of three faces for each item that allowed students to respond by circling a smiley face, a neutral face, or a negative face. All of the survey items were read aloud to the students in a group session.

The student postintervention ratings indicated that 13 of 15 students felt positively about participating in the intervention. On items related to the impact of the intervention on students' behaviors, 10 of the 15 students expressed that positive changes had occurred for themselves or other students.

Results

The impact of the PPR intervention on the percent of intervals in which students engaged in prosocial interactions is represented in Figure 1. The classwide mean percentage of intervals with prosocial interactions during the initial baseline was 16% (range 11-19). In the first PPR phase, the numbers of observed prosocial interactions increased immediately upon implementation of the intervention. In this phase, the mean percentage of prosocial behaviors was 59% (range 52-64) of observed intervals.

When the treatment was withdrawn during the second baseline phase, the observed prosocial interactions decreased immediately. The mean of intervals with prosocial interactions in this phase was 37% (range 34-43). In the final phase, after reimplementation of the PPR intervention, the mean percent of intervals with prosocial interactions increased to 45% (range 37-51).

For the first two phase changes, from the initial baseline to the first treatment phase, and from the first treatment to the second baseline phases, there were 100% nonoverlapping data points. From the second baseline to the second treatment phase, there was 57% nonoverlapping data points.

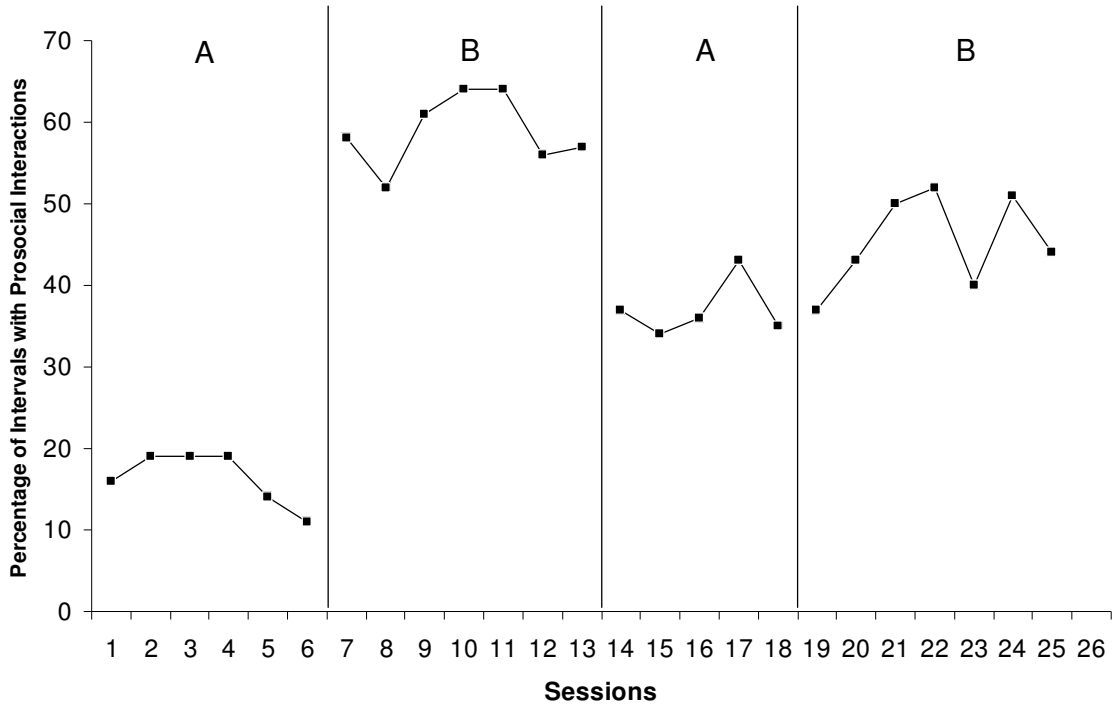

Figure 1. The percentage of intervals in which second-grade general education students engaged in prosocial interactions with and without the PPR intervention.

Discussion

The PPR intervention was successful at increasing the percentage of intervals that the participating students spent engaged in prosocial interactions. In the initial baseline phases, the students were observed to engage in low levels of prosocial interactions. The dramatic increase in prosocial interactions observed after the PPR intervention was implemented suggests that the students were able to transfer the positive atmosphere generated during the PPR sessions to their daily interactions with classmates. This result is very much in line with the premise behind PPR interventions, which is to increase students' focus on positive events in the environment, decrease attention to negative

behaviors, and thereby encourage positive social interactions (Grieger et al., 1976; Hoff & Ronk, 2006; Skinner et al., 2002).

Further experimental control of the dependent variable is demonstrated by an immediate decrease in the levels of prosocial interactions upon withdrawal of the PPR intervention. During the second baseline phase, the students were not engaged in structured opportunities to express positive comments about their classmates' behaviors. It was likely that the students returned to a typical pattern of focusing on negative behaviors in the classroom (Skinner et al., 2002), and were more likely to engage in negative interactions with each other.

The second implementation of the intervention demonstrated a less dramatic, but overall increase in the levels of prosocial interactions from the prior phase. The data from this phase indicate a decrease of 14% in the mean levels of prosocial interactions from the first treatment phase to the second treatment phase (59% to 45%). This might indicate that during the initial implementation of the PPR intervention, there was a novelty effect that led to an increased focus on making positive comments and being friendly among the students, leading to the dramatic increase in the levels of prosocial interactions. However, during the second PPR implementation, while the students also were more aware of each other's positive behaviors and were more likely to engage in prosocial interactions, the novelty aspect of the intervention had worn off. Therefore, the findings of the second intervention phase might represent a more realistic picture (for this group of students) of typical levels of prosocial interactions in the classroom when a PPR intervention is in place.

One limitation of this study is that the activity that the students engaged in during the observation sessions changed after the first baseline phase. Before the study began, the researcher consulted with the teacher regarding the best time of day for the observation sessions and the need to observe the students during an activity that allowed for moderate to high levels of peer interactions. The teacher agreed that she could implement this type of activity for each day during the observation session time. However, after beginning to collect baseline data, the researcher noted that the classroom activity that was in place during the observation time was generally a math question and answer session led by the teacher that only allowed for sporadic peer interactions.

The researcher discussed this with the teacher and the teacher agreed that she could further modify the activity that occurred during the observation time so that students could interact more freely. The activity change occurred on the first day of treatment implementation. The new activity also was based on math, but was a "centers" type activity in which students worked together in small groups and could change to different centers at least once during the session time. The students were free to talk to others in their group and free to move about the room to some degree during the activity. The teacher gave the students directions at the beginning of the activity and then allowed them to set the pace of the centers. She only intervened when there was a disruption or significant conflict.

This change in activity greatly increased the opportunities for students to interact with one another. Since this change occurred at the start of the first intervention phase, it possibly caused a disproportionate increase in the level of prosocial interactions. If this

same activity had been in place during the initial baseline phase, the increase from baseline to intervention might not have been as dramatic.

Despite the impact that the change in classroom activity might have had on the level of prosocial interactions among the students, it is still evident from analysis of the data that the intervention impacted the level of prosocial interactions. This is best validated by the fact that the percent of intervals that the students engaged in prosocial interactions decreased upon withdrawal of the intervention, and later increased again (though not as dramatically as during the first phase change) when the intervention was implemented a second time.

During these three final phases the students worked in centers groups under the same structure and guidelines in each phase, and the level of prosocial behavior decreased upon withdrawal of the intervention and increased upon subsequent implementation of the intervention. However, replications of this study and future studies with similar methodology should ensure that the activities that students engage in during observation sessions are consistent throughout the study and allow maximum opportunities for student social interactions.

Another factor that may have impacted student interactions during the observation sessions was the fact that a substitute teacher was in charge of the classroom for several days toward the end of the study due to the teacher's absence from school. This occurred on the last day of the second baseline phase, and the first two days of the second intervention phase. The researcher noted during this time that the students' behaviors were more disruptive than when their regular teacher was present. This general tendency toward misbehavior when the substitute was present likely increased the students'

negative interactions with one another resulting in fewer observed intervals with prosocial interactions. The aforementioned two data points at the start of the second intervention phase represent the first two of four overlapping data points for the entire data set.

Although it is highly likely that the substitute's presence impacted the data presented here, teacher absences are a natural occurrence in school settings and cannot be avoided or planned for in terms of their impact on student behavior. In the current study, the researcher ensured that all research procedures remained consistent during the teacher's absence. However, there was no way to maintain the same classroom climate that existed when the regular teacher was in attendance. Therefore, the data collected during the specified time frame of the teacher's absence must be viewed in light of the impact of her absence.

Future studies could assess the strength of a given PPR intervention by intentionally observing students' behaviors when an alternate teacher is present in the classroom. If a group of students' level of prosocial behavior can be shown to increase after the implementation of a PPR intervention, and then be maintained at that higher level under the instruction of an alternate teacher, it would provide important evidence for generalizability of the PPR intervention.

Up to the point of the first two overlapping data points in the second treatment phase, the data across the first three phases represented a pattern in the students' behaviors. When no treatment was in place, prosocial interactions generally occurred at low levels. When the PPR intervention was in place, prosocial interactions generally occurred at higher levels. This pattern in the data strongly supports the proposal that a

PPR intervention can increase prosocial interactions among students in a general education setting.

One of the most important goals of the current study was to demonstrate the success of a feasible, easy to implement PPR intervention that can positively impact student behavior. This study demonstrated the success of the PPR intervention. The PPR intervention described here was designed to be simple and almost effortless for the classroom teacher, making it very feasible for a general education teacher to implement and maintain. It also could be used in a special education setting, with the opportunity for greater attention to detail and additional reporting and reinforcement opportunities in classes with small numbers of students.

There were several aspects of the PPR intervention in the current study that should make it highly attractive to general education teachers. Once the students were briefly trained on how to make PPRs, they were able to participate in the PPR sessions with little guidance or direction from the researcher. It also was very easy to initiate and continue the PPR sessions each day. The researcher allowed the participating students to assist with some of the housekeeping-type tasks. This is further evidence that general education teachers could realistically implement the same PPR intervention in their classrooms without being responsible for all of the necessary tasks.

For example, the sticker books were an aspect of the research procedures that created a compact system for dispensing and maintaining the reinforcers without disrupting regular classroom procedures. During the sticker book making activity, the researcher allowed the students to direct much of this process and they frequently helped each other during the activity. A general education teacher could use this aspect of the

procedures to his/her advantage by assigning students in the class to monitor and maintain the sticker books and to assist new students with making a sticker book throughout the school year. This would free the teacher from this task.

During the treatment phases, the researcher randomly assigned students in the classroom to distribute and collect the sticker books before and after the PPR sessions. Having the students handle this tasks allowed the researcher more time to initiate and continue the PPR sessions each day. While a student passed out the sticker books, the researcher briefly reviewed the guidelines for making PPRs and solicited PPRs from the students. At the end of the session, the researcher gave the students general corrective feedback while a student collected the sticker books and returned them to the designated location in the classroom.

Another benefit of the sticker books is that they allowed students to periodically enjoy the stickers they received for making PPRs while keeping the stickers contained in one location. In addition, the researcher was able to increasingly give the students more responsibility for dispensing the reinforcement stickers to themselves as time progressed. As the students became more familiar with the procedures for earning reinforcement for making PPRs, the researcher was able to give a sheet of stickers to a student, have the student take a sticker off the sheet and put it in the sticker book, and return the sheet to the researcher. This allowed the researcher to continue the flow of the reporting session and allowed the students to receive an immediate reinforcement for their PPRs.

Throughout the course of the study, the researcher periodically discussed these added benefits of the PPR procedures with the teacher. She expressed that classroom interventions that give some maintenance responsibilities to the students are more

attractive to teachers. On the postintervention teacher social validity survey, the teacher strongly agreed that she would be willing to continue using the PPR intervention in her classroom.

Skinner et al. (2002) make some important points about how classroom climate and teacher behavior can influence whether positive or negative behaviors are the focus of the students. When a teacher focuses on negative behaviors and fails to acknowledge positive behaviors, then the students receive a message that they also should focus on negative behaviors. This can lead to a negative atmosphere and increased incidences of problem behaviors, particularly as an attention-seeking mechanism.

Changing the teacher's behavior is an important part of changing a classroom's climate from negative to positive. Although the participating classroom in this study did not have what would be considered a generally negative climate, the teacher did express concerns about some student behavior problems. During the study, the researcher noticed that the teacher occasionally joined in some of the discussions that occurred as the students made PPRs.

For example, when the researcher asked the students for details about a peer report and they were not able to accurately elaborate, the teacher offered input to clarify their PPRs. Also, when the researcher attempted to elicit PPRs from students who were not participating in a PPR session, the teacher joined in the discussion and reminded those students about events that had occurred that they could use to make a peer report. These subtle teacher behaviors indicated that teachers probably can learn to focus more on positive behaviors in their classrooms, and provide reinforcement for these behaviors, by encouraging the students to be positive toward one another.

Implications for Future Research

This study investigated the effectiveness of a PPR intervention for increasing the prosocial behaviors of students in a general education classroom. The positive impact of the intervention on the students' behaviors suggests that PPR can be useful as a general education behavioral strategy. These positive results add to the growing body of evidence of successful PPR strategies. The results presented here also satisfy a common recommendation in the existing literature: Research should be conducted using sound research methodology to assess the impact of PPR on behavior in educational settings (Cashwell et al., 2001; Johnson-Gros & Shriver, 2006; Skinner et al., 2000). This study also adds to recommendations in the existing literature by utilizing a simple and effective peer-based intervention (Skinner et al., 2002).

Generalizability of the findings to other settings was not addressed in the current study but is an important aspect of behavioral interventions. In order to be broadly relevant in educational settings, behavioral interventions must improve behavior across multiple settings because students must function in many settings throughout the typical school day. In line with the above recommendation that future research monitor students in socially-rich environments, it also would enhance PPR research findings if students were observed in settings other than where the intervention occurred. This would demonstrate that a PPR intervention can be implemented in a general education classroom, yet be effective for improving students' behaviors in the cafeteria, on the playground, during music class, and other school settings.

Investigating PPR interventions in educational settings will require more attention to traditional academic outcomes, as opposed to strictly behavioral outcomes, in order to

gain the acceptance of the broader educational community. Therefore, it will be necessary for future research of PPR in educational settings to expand the categories of dependent variables that are typically assessed. For example, researchers could examine outcome measures such as office/discipline referrals and grade point averages for students who participate in a PPR intervention. This line of research also would address the issue of generalizability because office referrals and grade averages generally are impacted by behaviors that occur outside of the student's general classroom. If these two areas can be shown to improve in response to a PPR intervention, it would provide strong evidence that such interventions can positively impact a student in more than one educational setting.

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APPENDIXES

APPENDIX A

OBSERVATION DATA COLLECTION SHEET

Date_____
Session #_____
Treatment or Baseline

5 second observe/3 second record per 8 second interval

Rounds	1	2	3	4	5	6	7	8	9	10
Student1										
Student2										
Student3										
Student4										
Student5										
Student6										
Student7										
Student8										
Student9										
Student10										
Student11										
Student12										
Student13										
Student14										
Student15										

+ prosocial interaction
√ student present for PPR session
√ and name circled student present for PPR session and observation

____ students X 10 rounds = _____ observation intervals

_____ intervals with positive interactions

_____ % intervals with positive interactions

IOR

_____disagreements

_____agreements / _____agreements + _____disagreements X 100 = _____%

APPENDIX B

STICKER BOOK MAKING ACTIVITY

Materials:

cardstock

wax paper

stapler

crayons, colored pencils, and markers

Preparation of materials:

Cut cardstock into 4 inch squares.

Cut wax paper into four inch squares.

Student participation:

Give students two squares of cardstock.

Have the students decorate one square of the cardstock as the front of their sticker book and one side as the back of the sticker book.

Give each student at least 10 squares of wax paper for the inside of the book.

Assist the students with attaching the two pieces of cardstock to the wax paper in book form by stapling the cardstock to the outside of the wax paper.

Students can place stickers on both sides of each piece of wax paper and move them around as desired.

APPENDIX C

PROCEDURAL INTEGRITY CHECKLIST FOR PPR INTERVENTION

1.	Researcher informs students that they are about to begin their good behavior reports activity.	Y	N
2.	Researcher reminds students that good behavior reports are about good behavior they saw a classmate do.	Y	N
3.	Researcher solicits behavior reports from students by asking them if they would like to make any reports.	Y	N
4.	Researcher calls on students who have raised their hand, and reminds those who have not done so to raise their hand if they have something to report.	Y	N
5.	Researcher praises every student who makes an appropriate report recognizing a peer's good behavior. Mark "+" in a new block below for each instance that this occurs.	Y	N
6.	Researcher gives a sticker to every student making an appropriate report and to every student who is the subject of the report. Mark an "O" around each "**+**" in the corresponding block below for each instance that this occurs.	Y	N
7.	Researcher tells the student that the report does not meet criteria for PPRs every time this occurs. Mark a "-" in a new block for each instance that this occurs.	Y	N
8.	Researcher gives corrective feedback and no stickers for all reports that do not match the criteria for PPRs. Mark an "O" around each "-" in the corresponding block below for each instance that this occurs.	Y	N
9.	Researcher thanks students for participating in the good behavior reports activity.	Y	N

Example of numbers 5, 6, and 7 above:

⊕	⊕	—	+	⊕	⊕	⊕	⊕	⊕	Θ

APPENDIX D

PREINTERVENTION TEACHER SOCIAL VALIDITY SURVEY

Please indicate the extent to which you agree with each of the following statements.

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

1. Students recognize the importance of prosocial behavior.

   1 2 3 4 5

2. Group-directed behavioral interventions are effective in the classroom setting.

   1 2 3 4 5

3. It is practical for classroom teachers to implement group-directed behavioral interventions in the classroom setting.

   1 2 3 4 5

4. Students will respond positively to a peer-based behavioral intervention.

   1 2 3 4 5

5. Peer-based behavioral interventions will positively impact classroom climate.

   1 2 3 4 5

APPENDIX E

POSTINTERVENTION TEACHER SOCIAL VALIDITY SURVEY

Please indicate the extent to which you agree with each of the following statements.

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

1. Students recognized the importance of prosocial behavior.

   1 2 3 4 5

2. The group-directed behavioral intervention was effective in the classroom setting.

   1 2 3 4 5

3. It was practical to implement the group-directed behavioral intervention in the classroom.

   1 2 3 4 5

4. Students responded positively to the peer-based behavioral intervention.

   1 2 3 4 5

5. The peer-based behavioral intervention positively impacted classroom climate.

   1 2 3 4 5

6. I would be willing to continue using the positive peer reporting intervention in my classroom.

   1 2 3 4 5

APPENDIX F

PREINTERVENTION PARENT SOCIAL VALIDITY SURVEY

Please indicate the extent to which you agree with each of the following statements.

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

1. Teachers should attempt to improve students' social interactions in the classroom setting.

   1 2 3 4 5

2. Reporting positive behavior in the classroom will improve students' social interactions.

   1 2 3 4 5

3. Students benefit from hearing classmates say positive things about them.

   1 2 3 4 5

4. I would like my child to be in a classroom where his/her positive behaviors are recognized by other students.

   1 2 3 4 5

5. My child would respond positively to positive comments about his/her behavior with other students.

   1 2 3 4 5

APPENDIX G

POSTINTERVENTION PARENT SOCIAL VALIDITY SURVEY

Please indicate the extent to which you agree with each of the following statements.

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

1. My child had a good reaction to reporting positive behavior in his/her classroom.

   1 2 3 4 5

2. I have noticed an improvement in my child's social interactions since the children started reporting positive behavior.

   1 2 3 4 5

3. I think teachers should implement similar interventions in the classroom on a regular basis.

   1 2 3 4 5

4. I want my child to be in a classroom where positive behaviors are recognized by other students.

   1 2 3 4 5

5. My child expressed positive feelings about hearing classmates say nice things about him/her.

   1 2 3 4 5

APPENDIX H

POSTINTERVENTION STUDENT SOCIAL VALIDITY SURVEY

Please tell how you feel about making good behavior reports in your classroom. Circle the face that matches how you feel about each question.

1. I had fun making good behavior reports.

2. It was easy to make good behavior reports.

3. I get along better with other kids after getting to make good behavior reports in class.

4. Other kids get along better with each other after getting to make good behavior reports.

5. I want to keep making good behavior reports in class after the project is done.

APPENDIX I

OUTLINE OF STUDENT TRAINING SESSION ONE

Introduce term prosocial behavior.

- Describe social behaviors – interpersonal interactions.
- Define prosocial behaviors – behaviors that benefit others and maintain interpersonal relationships.
- Give students examples of prosocial behaviors (see description of dependent variable for behavioral definitions), such as helping a peer clean out his desk, cleaning the board for the teacher, or sharing paper with a peer.
- Request examples of prosocial behaviors from students.
- Thank each student for any example given.
- Provide corrective feedback on incorrect examples.
- Encourage other students to participate in providing corrective feedback to students who give incorrect examples.

Discuss how we recognize prosocial behaviors in others – direct interactions with someone engaging in prosocial behavior, seeing another person engage in prosocial behavior, being told about someone engaging in prosocial behavior, etc.

- Discuss benefits of recognizing prosocial behaviors in others, such as being more positive, seeing positive aspects of environments, being more aware of own positive behaviors, making others feel good about being recognized for their positive behaviors, etc.
- Have students volunteer stories of times when someone said something nice to them and how it made them feel.

Discuss how making positive comments about others can positively impact the classroom environment.

Provide examples of how being positive with others could positively impact the classroom environment, such as causing students to be nice to one another, leading to students sharing with each other more, causing the teacher to reward students more for positive behavior, etc.

Thank students for participating in discussion.

Take questions from students about topics presented in training session.

Notify students when next training session will occur.