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Self-Managed Groups: Fitting Self-Management Approaches Into Classroom Systems

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Abstract
Examines the factors limiting the use of classroom self-management interventions. Self-management approaches that contribute to its inappropriateness and impracticality; Review peer tutoring as a strategy with self-management features in classroom use; Combination of student choice and student management with interdependent group reward contingencies; Reciprocal peer teaching.

Keywords
self-management, psychology, peer counseling

Disciplines
Education | Psychology

Abstract: Factors limiting the use of traditional, classroom self-management interventions are considered. These factors include aspects of self-management approaches contributing to the innappropriateness and impracticality of these interventions for classroom-wide use. Reciprocal Peer Tutoring (RPT) is presented as a strategy with self-management features that holds promise for classroom use. RPT combines student choice and student managements with interdependent group reward contingencies and reciprocal peer teaching. An example of the design, implementation, and evaluation of a school-based RPT intervention for an urban public elementary school is presented. The illustration is followed by a discussion identifying RPT features which may have enhanced utilization.

Public education faces many complex problems that resist traditional solutions. Dramatic changes in the structure of the family and erosion of neighborhood and community institutions have placed schools in the position of assuming greater responsibility for meeting the psychological, as well as the educational, needs of students. This problem is compounded by deep cuts in public education budgets and a drop in the public's confidence in our public education system. Moreover, the effects of this dilemma are particularly acute for an increasing heterogeneous population of children--those who, for a variety of reasons (e.g., ethnicity, poverty, family discord, and stress) do not fit readily into the mold of established instructional environments.

For school psychologists to respond effectively to this problem, they need to investigate instructional strategies and mental health interventions that are tailored to meet the needs of our diverse student population and are practical given limited classroom resources and constraints. In other words, the professional mandate must be twofold--to develop more effective techniques that maximize classroom resources (Reschly, 1988) and to demonstrate that teachers can and will use them.

Behavioral self-management approaches originally were proposed as a way to meet some of the acute needs facing schools. Proponents of self-management asserted that this approach would provide an alternative educational technique that could be tailored to individual student needs while at the same time fostering more student involvement in their own academic achievement. Additionally, self-management approaches were assumed to be more cost effective for teachers, presumably requiring less teacher instructional programming time (Rosenbaum & Drabman, 1979) and they were expected to have more generalization potential than traditional teacher directed approaches (Stokes & Baer, 1977). Subsequently, methods were developed to teach students how to effectively monitor, evaluate, and reward their own academic performance and classroom conduct. Consistent with the behavioral model, these methods were rigorously tested in laboratory and classroom settings by researchers using single-subject experimental designs. Experimental demonstrations showed that individual students could be taught to use self-management skills to produce desired changes in behavior (e.g., Sulzer-Azaroff & Mayer, 1986).

Unfortunately, reviews analyzing over a decade of school-based, self-management demonstrations have suggested these strategies have not passed important "teacher utilization" tests (Baer, 1984; Fantozzo, Rohrbeck, & Azar, 1987). The first failure with self-management methods has been the lack of evidence that sufficient control has been transferred from teacher to student during self-management interventions. Rather, reviews have indicated that most of the intervention components in these programs were predominantly teacher, not student, managed (Fantuzzo et at, 1987; Fantuzzo & Polite, 1990). Indeed, the term "self-management. often was misleading because only one component of the intervention (e.g., self-observation) was student directed (Jones, Nelson, & Kazdin, 1977). Likewise, there were no data to support claims that self-management procedures enhance students' academic motivation. Second, there has been little documentation that self-management strategies have produced changes that generalized to nontreatment times or settings, or that these procedures have positively affected relevant collateral classroom behaviors (Fantuzzo & Polite, 1990).

Third, both minimal transfer of control from teacher to student and lack of generalization argue against an initial assumption that self-management approaches are cost effective. If behavior change is solely a function of teacher directed intervention and there is no spread of intervention effects, then it is not difficult to understand why teachers would find self-management strategies unrealistic for classroom use. This may help explain why, to date, there is no published study documenting classroomwide use of self-management procedures by teachers.

Lack of teacher utilization of self-management strategies represents a fundamental misfit between the individual, person-centered, experimental demonstration of self-management and the realities of classroom settings. The tendency of self-management methods to focus on individual behavior change while neglecting the classroom setting and complex student-classroom interactions was doomed to failure. Because classrooms are behavioral systems wherein teachers attempt to meet educational objectives by handling hundreds of teacher-student and student-student classroom interactions daily, it was unrealistic to expect teachers to design 30 or more intensive, individual self-management programs and to treat them as orthogonal, single-subject experiments. The amount of effort involved in implementing interventions for individual students and the level of intrusiveness to classroom functioning rendered these strategies impractical for teachers (Martens & Witt, 1988). Therefore, to date, the self-management approach does not "fit. the "classroom as a whole." Teachers have not been as interested in this approach as behaviorists expected.

Behaviorists inadvertently focused this lack of fit between self-management approaches and classroom systems by designing the procedures and conducting demonstrations without direct teacher input about the feasibility of the technology. This oversight is not specific to self-management research; in general, basic research has emphasized knowledge production while leaving its use to "naturally occurring dissemination and application" processes (Heller & Monahan, 1977, p. 74). Unfortunately, in this case, the task of putting behavioral self-management findings into usable form was left to the front line practitioners, teachers, already overtaxed by their

demanding jobs and not excited about assuming another mayor responsibility.

The next generation of behavioral self-management approaches needs to build on the initial goals of the self-management approach -- increasing student choice and management in education and helping teachers to more cost efficiently promote academic achievement and social competency--by combining self-management techniques with strategies more responsive to the classroom ecology and capitalizing on existing classroom resource systems.

The purpose of this article is to present Reciprocal Peer Tutoring (RPT) as an alternative means of achieving the self-management objectives (promoting active student involvement in learning and providing teachers with a cost effective method of supervising student progress). A case illustration of the design, implementation, and evaluation of a school-based RPT intervention will be presented. This will be followed by a discussion of why we believe RPT and related peer-mediated, group interventions are more potent and more ecologically valid for classroom use than more traditional individualized, student, self-management approaches.

RECIPROCAL PEER TUTORING

Background

RPT is an intervention strategy combining self-management methods, group interdependent reward contingencies, and reciprocal peer teaching to promote academic and social competency. Like the original self-management approach, RPT methods are based on the recognition that students can make significant contributions to the management of their academic progress. However, in contrast to the individual student focus of self-management methods, RPT is designed to cultivate student resources in a peer group context.

In the past 2 decades, educational reseachers have been investigating a number of classroom-based strategies designed to harness peer influences. Cooperative learning and peer tutoring are two major categories of peer-mediated intervention. Cooperative learning describes a variety of programs in which children work together to reach the goal of simultaneous learning, which is often mediated by the achievement of group goals or rewards (Maher & Zins, 1987). In a recent review of cooperative learning strategies, Slavin (1990) demonstrated these methods have been applied to a variety of student populations from primary grades through high school and have been used to target a broad range of academic subjects (e.g., math, reading, language, spelling, writing, and science). Overall, research studies comparing school-based cooperative learning approaches with traditional methods already in place indicate that over 70% of the cooperative learning interventions (49 out of 68 comparisons) have resulted in significantly greater academic gains. Moreover, studies show that cooperative learning methods are associated with a number of positive collateral effects such as improvements in self-esteem, increased academic motivation, improved peer relationships, and increases in on-task behavior (Slavin, 1990).

Extensive reviews of these strategies have identified two core intervention components associated with the greatest academic gains--group rewards and individual accountability. Findings indicate students working to earn team rewards learn substantially more than students

who either work together but receive no rewards, or work for individual rewards (Slavin, 1980). These results from educational research complement findings in the behavioral literature. For example, Pigott and Heggie (1986) examined school-based comparisons of individual and group reward contingencies and found that cooperative group reward interventions targeting academic performance were superior to individual reward interventions.

The effectiveness of group rewards is enhanced by the second core intervention component, individual accountability or interdependence (Slavin, 1983). Individual accountability exists when each group member's performance is clearly visible to the other members and the group reward depends upon the contribution of all the individual group members. Because each group member makes a unique contribution to the group's success, the group members are interdependent. Moreover, if the contributions toward a group reward are based on individual improvement over ba,seline performance levels, then every group member has an equal opportunity to help their group succeed.

Results of peer tutoring provide further documentation of ways in which students learn from their peers (Jenkins & Jenkins, 1986). Peers who have served as tutors have effectively increased students' academic engaged time and error correction, and produced significant gains in achievement (Greenwood, Carta, & Hall, 1988). Furthermore, a number of studies have underscored the value of peer tutoring for the peer tutor; findings indicate peer teachers evidence more academic gains than the students they teach (Annie, 1983; Greenwood et al., 1988).

The RPT strategy as developed and tested by Fantuzzo and his associates is an attempt to maximize these effective features of cooperative learning and peer tutoring by combining them with the objectives of self-management (Fantuzzo, King, & Heller, in press; Fantuzzo, Polite, & Grayson, 1990; Pigott, Fantuzzo, & Clement, 1986; Pigott, Fantuzzo, Heggie, & Clement, 1985; Wolfe, Fantozzo, & Wolfe, 1986; Wolfe, Fantuzzo, & Wolters, 1984; Wolters, Pigott, Fantuzzo, & Clement, 1984). In other words, the basic idea of this strategy is to increase student choice and participation in the management of their own group interdependent reward contingencies and reciprocal peer teaching methods. The following case study provides a specific illustration of how these intervention components were adapted to meet the needs of a large urban public elementary school in Philadelphia.

Case Example

The School District of Philadelphia is the nation's fifth-largest public school system and it reflects the woes of many large urban school systems: one out of four students fail middle school, 24% of the high school students flunk two or more subjects each year, and the average SAT score for the district is 126 points below the national mean and 106 points below the mean for urban cities (Barrientos, 1991).

While searching for a school in which to test our RPT intervention, we found a principal who was interested in developing a peer tutoring program for her school She was particularb concerned about the fourth-and fifth-grade students who were at risk due to the high failure rate of middle

school students. In collaboration with the principal and the fourth- and fifth-grade teachers, standardized achievement test data were analyzed to determine the students' area of greatest academic deficiency. Because nearly 70% of the students were below the 60th percentile of the school district's norms on math computation, math computation was selected as the target for RPT intervention.

The research team then worked with the fourth- and fifth-grade teachers to develop an RPT strategy that fit their classroom environments. A number of versions of an RPT program were considered until both the teachers and the researchers identified a strategy that was both acceptable to the teachers while remaining faithful to important RPT principles.

In this "modified RPT procedure," children of comparable ability were paired in dyads and given specific guidelines to enable them to act as instructional partners for one another and manage their own group reward contingencies. The procedure involved two major components -- the peer-managed reward procedures and the reciprocal peer teaching methods.

The group reward component included a set of procedures which allowed students to choose their group rewards from a menu of available options and to select team goals for math performance from a range of choices representing improvements over baseline performance levels. Just prior to the first intervention session classroom "rewards" were selected. Rewards consisted of special activities (e.g., opportunities for the children to act as teacher's helper, messenger, or be permitted time to work on a special project) that were available and regularly used by the classroom teacher. A master list of these opportunities was compiled and this list served as a menu for dyads to use when selecting their rewards.

For the duration of the intervention, dyads selected team goals on a weekly basis. Goals were selected from a restricted range of goal choices that approximated the sum of the improvement scores of each team member (improvement scores were teacher estimates of realistic and reachable academic objectives). After choosing their team goal, dyads recorded their expected individual contribution to the team (each student's individual goal), the sum of the individual goals (each dyed's team goal) and their reward choice on a team "goal sheet" the "score card."

At the beginning of each session, children were instructed to choose who would act as "teacher" first. They opened their folders and handed math flash cards to their partners. Each math flash card had one math problem printed on it; the back of the card showed the problem plus computational steps and the answer. Teachers held up flash cards for their students and instructed them to compute the problem on a structured worksheet. These sheets were divided into sections: "try 1," "try 2," "help," and "try 3." Students then computed the problem while their teachers observed their work. When they finished, teachers checked to see whether the problem was solved correctly. If correct, teachers praised their students and presented the next problem. If the solution was incorrect, teachers gave students instructional prompts read from a prompt card and instructed them to try again in worksheet box marked "try 2. (The instructional prompt cards were developed by the classroom teacher and they reflected specific instructions related to

common mistakes.) If students did not solve the problem correctly on the second try, teachers helped them by computing the problem in the box marked "Help." As teachers completed the problem, they explained in their own way what they were doing at each step and answered any questions. If teachers had trouble answering questions, they called on the classroom teacher for assistance. Finally, teachers told students to try the problem again in the box marked "try 3." After 10 minutes of this tutoring process, children switched teacher-student roles for a second 10-minute tutoring segment. The classroom teacher supervised these team teaching sessions and identified useful assistance strategies that peer teachers could use to help their students. Periodically, the teacher asked successful dyads to demonstrate effective strategies with the class.

Following the 10-minute reciprocal peer teaching session, a problem drill sheet consisting of 16 problems was distributed. Each child worked on their own for a fixed period of time (e.g., 710 minutes). After the time was up, children switched papers with their partners and used an answer sheet to correct their partner's work (self-observation). Dyads then determined their team's total score by counting the number of problems that each team member completed correctly (self-recording). Children compared their team score with their team goal to determine if their goal was met and if the team had "won" (self-evaluation). If the team won, they put a happy face sticker on their score sheet (self-administered secondary reward). After five wins, the team was permitted to obtain their previously determined team reward and scheduled a time with the teacher when they could engage in the reward activity (self-administration of primary reward).[1]

Even though the peer-managed group reward component and the reciprocal peer teaching were acceptable to the teachers, we recognized that both sets of procedures required additional teacher time and supervision. Therefore, before we attempted to implement the full RPI strategy (both components) for all of the 180 fourth- and fifth-grade students (school-wide), we designed a test to investigate the relative efficacy of these components with 80 of the most at-risk students (i.e., students demonstrating the lowest math achievement and the most behavior problems) and to determine the acceptability of the procedures to students and teachers.

For the evaluation, the 80 students were randomly assigned to one of five conditions: (a) peer teaching plus group reward, (b) group reward only, (c) peer teaching only, (d) working student dyads with no training in peer teaching and no group reward (attention placebo), and (e) a control group of nonparticipants. Data were collected on the rate of correct math computations, teacher ratings of classroom conduct, and student ratings of perceived scholastic competency, self-control, and peer acceptance (Fantuzzo et al., in press).

Findings indicated both additive and distinctive effects of the peer managed group reward and peer teaching components of the RPT intervention. First, the combination of reciprocal teaching and group reward contingencies for math performance yielded the highest academic gains in mathematics. Students receiving this combination of intervention components evidenced rates of accurate math computations superior to the students in all other conditions. Ninety-two percent of

the students who received the full RPT intervention showed clear pre- to post-assessment increases in math. Second, group reward main effects indicated students in the reward conditions (the peer teaching plus group reward and group reward only groups) were reported as displaying higher levels of appropriate classroom conduct than students in the nonreward conditions. Third, while the reward component had a unique effect on classroom conduct, the peer teaching component had a distinctive effect on perceived competencies. Students who experienced peer teaching (both groups 1 and 3) reported significantly higher levels of self-perceived scholastic competency and self-control than students who did not participate in peer teaching. Fourth, all students who were active participants (i.e., teamed in dyads) showed significantly greater perceived social competence than the uninvolved students in the control group. Finally, intervention integrity and participant satisfaction data also supported the significance of these findings. Students in the RPT condition accurately implemented the intervention as planned and both students and teachers gave the intervention high satisfaction ratings.

The next steps involved working with the participating teachers to modify the RPT procedures to further enhance their fit to the classroom and investigate ways to encourage parents to support this collaborative learning process. Evaluation projects currently are underway evaluating the additive effects of RPT plus parental involvement on student academic and psychological adjustment.

"Goodness of Fit"

Both the content and process features illustrated in the above case demonstrate an effective way to promote teacher utilization of self-management methods. The RPT strategy developed for this elementary school was designed to maximize aspects of self-management approaches by encouraging students to be more active participants in their learning. Student selection of academic goals and rewards and student management were two central features taken from the self-management literature. In the RPT intervention, students selected their team reward from a menu of options readily available in the classroom setting. Additionally, students selected their improvement objectives (i.e., team goals) from a list of teacher approved academic objectives.

Management of the group reward contingencies also enabled students to experience more control of their own daily and weekly progress. RPT procedures allowed students to self-monitor their academic performance, self-evaluate their goal attainment, and self-administer group rewards. When asked why they liked the RPT intervention, many students answered, "It was fun! It was like a game.. In other words, this strategy was a better fit for these students, because it involved enjoyable activity with peers.

The reciprocal peer teaching component significantly added to students' experience of satisfaction and empowered students to play a more active role in their education. In addition, students who were peer teachers perceived themselves as more in control and more scholastically competent than those who did not have the opportunity to participate in peer tutoring. These findings are supported by researchers who have documented the intrinsic reward value of peer teaching

activity. Benward and Deci (1984) found that students who prepared lessons to teach peers and actually taught the lessons perceived themselves as more intrinsically motivated and more actively and positively involved in the learning process than students who were not peer teachers.

At the same time, the use of the peer system contributes to RPT's appropriateness in two ways. First, an intervention that promotes positive peer relationships is more developmentally appropriate for grade school children than one that potentially isolates individual students from their peers. Peers have been found to be an important socializing influence; they have effected aggression and cooperation in many cultures (Whiting & Whiting, 1975). Throughout the school years, children depend on their peers as social models and reinforcing agents. By fourth grade, children rely on friends as a major source of social support and assistance (Berndt & Perry, 1986). Thus, using peer relationships to promote educational improvement may be ecologically appropriate for classrooms.

Second, BPT's use of peer groups also is more appropriate for classroom use than individual self-management procedures due to its practicality. Given its emphasis on collaborative learning, the RPT model is a more common vehicle for classroom instruction than individually tailored student instruction. Teachers frequently use groups to facilitate instruction. It is not uncommon for teachers to place children in small reading or math groups as an instructional management strategy.

We strongly believe that RPT intervention features are necessary but not sufficient for successful teacher utilization of self-management procedures. However, unless researchers attend to the process of intervention development, good ideas such as those represented by RPT methods will merely be shelved in our libraries. Useful intervention development requires researchers to extend beyond mere demonstration" and enter into genuine partnerships with teachers. This means seeking partners who voluntarily help researchers produce methods that work for teachers. "Work for teachers. means that teachers must feel that they can successfully use new methods.

Three aspects of this collaboration were demonstrated in the case example. First, teachers selected the target (math computations) with researcher assistance and worked to fine tune the strategy. Almost any major academic subject (e.g., reading, spelling, and science) could be targeted for RPT intervention. All that would be required are discrete performance objectives and tests or worksheets to evaluate progress. Second, teachers approved of a test to determine the cost benefit of discrete intervention components. Third, with the results of this test in hand, the teachers and researchers have continued to work on refinements of this RPT example and searched for ways to optimize natural resources (e.g., by incorporating parents). Thus this example illustrates that intervention development is an ongoing process of fit, and not a one-shot demonstration. Working on the fit process in the context of a successful working relationship bolsters the relationship and improves the usefulness of the strategy.

In sum, we believe that self-management research has much to offer school psychologists. The RPT intervention which combines peer-managed group interdependent reward contingencies and

reciprocal peer teaching techniques, capitalizes on the student choice and student management methods drawn from this research literature and is responsive to the classroom as a behavioral system. These RPT components brought together by a collaborative team of teachers and researchers hold great promise as a means of meeting the diverse educational and psychological needs of our current student population.

FOOTNOTE

[1] For more specific information on the procedures which details the steps followed to implement the interventions, see Fantuzzo, King, and Heller (in press) or contact the first author directly.

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