Task-Related and Interpersonal Problem-Solving Training for Increasing School Success in High-Risk Young Adolescents

Katherine A. Larson

The efficacy of task-related and interpersonal problem-solving training for enhancing junior high school performance in difficult-to-teach, low income minority pupils was examined. Forty-eight students from sixth-grade classrooms were targeted as high risk for secondary school failure. These students were randomly assigned to an intervention (n = 24) or a no intervention comparison (n = 24) group. Training was found to significantly improve report card grades and to reduce misbehavior that normally resulted in classroom removal. Attendance in school favored the intervention group but differences were not statistically significant. Implications for special education referral and for instructional needs of high-risk students are discussed.

One challenge to educators concerned with students who manifest mild to moderate learning problems has been to create instructional programs that maximize opportunities for these students to successfully function within mainstream educational environments. Students with learning problems are at great risk for school dropout (Rumberger, 1986) and, since 1976, special education identification and service delivery rates for these students have been consistently increasing (Council of the Great City Schools, 1987; Gerber, 1984). Ineffective classroom behavior, both task related and interpersonal, appears to be a critical variable for school failure as well as for referral to special education.

The present study tested a cognitive behavior modification intervention that provided underachieving, difficult-to-teach junior high students with problem-solving training. The research is a component of Project Main Street, a program focusing on young adolescent learners with the dual purpose of developing an effective mainstream education social skills training program as well as providing initial data describing learner characteristics associated with early secondary special education referral and/or school dropout.

Classroom Behavior and School Success

Concern for classroom behavior problems is nothing new for educators. Behaviors that disrupt the order and routine of a classroom or that are overtly disobedient have historically been perceived by teachers, at all levels, as serious threats to learning and teaching (e.g., Baer, Goodall, & Brown, 1983; Stouffer & Owen, 1953; Wickman, 1938). Substantial evidence indicates that teachers and administrators perceive student misbehavior and/or personal-social difficulties as extremely troublesome. For example, approximately 75% of the teachers and principals from 44 middle and junior high schools ranked "lack of interest/apathy" as their first concern and "rude/defiant behavior" as their second concern (Huber, 1984). Bruner and Felder (1983) surveyed 164 secondary school teachers from a large school district. Teachers were asked to rate 60 items such as facilities, resources, personnel needs, and student characteristics according to the degree to which they believed that each variable contributed to the difficulty of a teaching setting. The highest and second highest ranked items were "lack of support from building administration concerning stu-
dent discipline” (p. 70) and “teaching a large percentage of students whose behavior is hostile and disruptive” (p. 70). Moreover, these two items were the only items that scored a mean rating above 8 on a 9-point scale. Fuchs, Fuchs, Stecker, Goodman, and Bahr (1987), in a survey of 48 upper-elementary classrooms, asked teachers to identify their most difficult-to-teach student. Eighty-five percent of these most-difficult-to-teach students were described by their teachers as primarily deficient in task-related and/or interpersonal behavior while only 15% of these students were described as being difficult to teach primarily because of academic skill deficits.

Teachers are not only disturbed by students with behavior problems, but also apparently feel that success in school depends upon a student displaying effective interpersonal and task-related interactions (Kedar-Voivodos & Tannenbaum, 1979). Indeed, classroom behavior has been found to be an index of a student’s school performance. Although a causal relationship between behavior and achievement has not been clearly demonstrated, several correlational studies have found that behaviors such as impatience, disturbing the class, anxiousness, defiance, lack of task persistence, and not following directions are significantly negatively correlated with achievement and report card grades. For example, Swift and Spivack (1969) found 12 interpersonal and task-related behaviors to be significantly related to junior and senior high achievement in bold normal and emotionally disturbed adolescents equated on IQ. Cobb (1969) found specific classroom behaviors to be predictive of arithmetic achievement across different schools and also highly correlated with achievement in reading and spelling. McKinney, Mason, Perkerson, and Clifford (1975) found that social behaviors observed at the beginning of the school year were predictive of academic achievement at the end of the year.

Classroom Behavior and Risk for Special Education Referral and Placement

There has been little systematic research attempting to describe the reasons for teacher referral of a pupil to special education for mildly handicapped students (Gerber & Semmel, 1984). One such study (Craig, Kaskowitz, & Maigev, 1978), measuring a national sample of over 7,000 elementary students, found classroom social behavior significantly related to teachers’ referring students to special education for mildly handicapped students. Other researchers have pointed out that classroom behavior accounts for much of the variability in referral of mildly handicapped students (e.g., Gesbrecht & Rouh, 1979; Kavale, Alper, & Purcell, 1981).

Special education data further suggest not only that teachers refer disruptive underachievers to special education, but also that task-related and interpersonal classroom behavior is related to actual placement in special education. For example, a few studies have compared special education LD students with nonidentified underachieving students on classroom behavior characteristics. These studies found that LD and nonidentified students were similar in terms of cognitive variables; however, identified students as a group were rated by teachers as exhibiting significantly more behavior problems than nonidentified underachievers (e.g., Shepard & Smith, 1983; Ysseldyke, Algozine, Shin, & McGue, 1982).

A Need for Classroom Behavior Skill Training

Clearly, studies on classroom behavior and school success lead to the conclusion that a substantial proportion of high-risk students, underachievers with behavior problems, and students identified as mildly handicapped need task-related and interpersonal skills training to help them succeed in the mainstream and fulfill their academic and social potential. In addressing this need, two important questions arise. What is the best educational context for delivering social skill training? What is an effective social skill training method?

The Mainstream Education Context. Even if it were economically and socially justifiable, it appears not to be efficacious to remediate social skill deficits independent of the mainstream education environment. In the past, it was thought that placement in special education could remediate classroom behavior and increase mildly handicapped students’ abilities to function in general classrooms. Unfortunately, research has shown that classroom behavior skill training given in special education classes does not readily generalize to enhance a mainstreamed student’s behavior in general classrooms (e.g., Idol-Maestas, 1983; Schumaker & Ellis, 1982; Strain & Shores, 1983). Current knowledge leads to the conclusion that practical and effective systems must be developed for delivering task-related and interpersonal skills training within mainstream classrooms if we are to maximize the opportunity of effectively educating high-risk and handicapped students within classrooms of normally achieving peers.

Social Skill Training. Although special educators often make note of important contributions of behavior modification procedures (Harris, 1982), there is increasing evidence (Meichenbaum, 1979; Sabatino, Miller, & Schmidt, 1981) that cognitive intervention approaches may be especially appropriate for underachieving children because these interventions are hypothesized to enhance internal locus of control, self-regulation, inhibition, means-end thinking, and problem-solving deficits—characteristics associated with socially ineffective mildly handicapped and high-risk students.

Additionally, researchers and clinicians are increasingly concerned with generalization of social skill training (e.g., Glavin, 1974; Schumaker & Ellis, 1982; Stokes & Baer, 1977). It is hypothesized that training in social
cognitive skills is important if generalization of skills across contexts and problems is to be expected (Deshler, Alley, Warner, & Schumaker, 1981). Larson (1985) has speculated that effective social metacognitive skills increase an individual's ability to behave competently across a variety of social problem contexts because such an individual is able to identify variables that help discriminate response requirements.

There is some evidence that social cognitive training enhances overt behavior. Larson and Gerber (1987) and Larson (in press) found that social problem-solving training significantly enhanced overt social behavior in LD difficult-to-manage youth; moreover, changes in social metacognitive knowledge in these youth were significantly and positively correlated with positive changes in overt social behavior. These findings led to an extension of the research in the present study.

Method

Subjects

Sixth-grade Subjects. Students were selected from five elementary schools located in primarily black and Hispanic, low income neighborhoods. Two schools were located within the inner city and three schools were located in a suburban environment. Student achievement scores at these schools were below the state average, and the high school dropout rate of students attending these elementary schools was approximately 60%.

All students attending targeted sixth-grade classrooms could be considered at risk for school failure and school dropout. High-risk students were identified by teachers as the most difficult students to teach in each sixth-grade classroom. Identification was completed by the following method. All students \( N = 474 \) in each classroom were rated by the teacher using a Likert-type, six-item rating scale evaluating a student's (1) need for supervision, (2) level of motivation, (3) academic potential, (4) social interaction skill, (5) teachability, and (6) need for special education. This scale was previously used by Shavelson, Cadwell, and Izu (1977) and Pullis and Cadwell (1982) to measure student characteristics related to teacher decision making. This rating scale has also been found to predict special education referral at both the elementary and secondary school levels (Gerber & Semmel, 1985; Larson, 1985).

For each classroom, the classroom mean and standard deviation of each of the six items on the teacher rating scale were calculated. Then, every student within a given classroom was given a "troublesome" score, which was the total number of rating scale items for which he or she was 1 standard deviation below the classroom mean (i.e., troublesome scores ranged from 0 to 6). Then, for each classroom, the mean and standard deviation of this "troublesome" score were calculated. Students \( n = 117 \) were targeted as high risk if they were at least 1 standard deviation above their classroom mean on the "troublesome" score. Approximately 6 students out of 27 students in each classroom were targeted as high risk using this method.

Because the training program used in the study, Social Thinking Skills (Larson, 1988), is written in English, it was necessary to exclude 26 limited- and non-English-speaking students from the high-risk subject pool. Thus, the sixth-grade high-risk subject pool consisted of 87 students. These high-risk students were randomly assigned to a no-treatment comparison \( n = 43 \) or problem-solving intervention \( n = 44 \) group.

Junior High Subjects. The intervention and comparison sixth grade groups were subsequently reduced by approximately 10 students because students moved away during the sixth grade and during the transition from sixth grade to junior high school. This attrition seemed to be random and was typical of the rate of student turnover for the school district. The school district reports that 25% to 30% of all sixth graders in the research school areas move away during the summer after sixth grade.

An additional 10 students from each group were eliminated by the researcher in order to control for junior high school and sex differences. Other research has documented that school (Good & Brophy, 1986) and sex of the pupil (Irvine, 1985) are important variables related to school success. Consequently, only those intervention students transferring to a junior high school where a comparison student of the same sex had also enrolled were included in the junior high sample.

From the original sixth-grade groups, a junior high intervention sample \( n = 24 \) and a comparison sample \( n = 24 \) were derived. These intervention and comparison students were distributed similarly by sex and number in two junior high schools. It is important to note that the intervention and comparison junior high groups were not statistically different from the original sixth-grade high-risk subject pool \( n = 87 \) in terms of sex, age, academic achievement scores, and teacher rating variables. The intervention and comparison groups were also similar to each other on academic achievement, teacher rating, sex, and age variables. The intervention and comparison groups were somewhat different in terms of race; however, follow-up analysis showed no relationship in this sample between race and junior high school achievement or adjustment. Table 1 describes the junior high intervention and comparison groups.

Procedures

Students were blind to all groups. Sixth-grade teachers were blind to all groups. Junior high teachers were blind to the comparison group. Throughout the study, students, counselors, administrators, and teachers were not aware of the experimental design, nor were they aware of the dependent variables.
Problem-solving Skill Acquisition Training. The intervention students received 45 hours of problem-solving training during the first 10 weeks of sixth grade. Students were trained in small groups by research assistants. The Social Thinking Skills training program was used as the intervention. All lessons in this program are scripted. Research assistants were trained by the researcher and problem-solving sessions were video-taped and reviewed by the researcher to ensure that students received problem-solving training according to the scripted Social Thinking Skills curriculum.

Training was divided into three components. Four sessions in verbal self-instruction taught students to covertly cue themselves to "stop and think" before responding to a social risk situation or classroom difficulty where impulsive responding might cause danger, harm, or rule violation. Students were also taught how to evaluate whether it is more adaptive to ignore a provoking stimulus or to engage in systematic problem solving. Nine sessions in social metacognitive awareness taught students what to think about when facing a social or classroom problem. Students were taught to identify "self" and "other" problem-solving variables present in social and task situations and to evaluate usefulness of information about these variables as a means of assessing problem difficulty and discriminating potential response requirements. Ten lessons in social metacognitive control skills taught students how to think. In this component of training, students were taught an eight-step general problem-solving strategy for effectively using metacognitive awareness information. Students were taught to state the problem specifically, generate solutions, decide on the best solution, anticipate obstructions, work out a step-by-step solution, be prepared with a back-up, execute as planned, and check out feedback.

Training activities consisted of trainer and students reading aloud and following lesson plans distributed to each student. Each lesson was organized around cartoon-like posters, which served to focus discussion and attention. Problem scenarios were presented daily and students practiced applying newly learned skills. To maximize generalization of training, the training curriculum provided opportunities for trainers to employ principles suggested by Stokes and Baer (1977) such as making explicit the usefulness of each problem-solving skill, training on problems similar to problems experienced outside of training sessions, consistently reminding students to use the skills, giving voluntary homework assignments in which students practice skills outside the group, having students self-evaluate their progress in applying the skills and share these evaluations with the group, and providing opportunities for students to be active participants in the learning process. For a more complete description of the training, contact the author.

Problem-Solving Maintenance Training. Seventh-grade intervention students received maintenance training throughout seventh grade. Students met with research assistants for 30 to 45 minutes weekly on a pull-out basis in small groups of 3 or 4 students. The most difficult-to-manage students met with trainers on an individual basis about 30% of the time.

Maintenance training consisted of helping students apply problem-solving skills learned in the sixth grade to problems they were facing in junior high school. Through discussion of relevant variables in the specific problem and through trainer coaching/modeling, students would arrive at a specific solution and role play and/or discuss executing the solution as planned. Students were encouraged to use the elected solution and report back the following week. A variety of problems were reported by students. Trainers attempted to focus the problem-solving sessions on school problems. The majority of training sessions addressed classroom task-related behavior and teacher-student interactions. Peer and home problems were also discussed.

At the 10th week of school, it was decided that research assistants needed more specific feedback from classroom teachers regarding the student's classroom behavior. Therefore, a weekly card was circulated by intervention students. On these cards, teachers wrote comments about a student's classroom behavior, academic work, and attendance for the week. Research assistants used the weekly card evaluations and teacher comments as a focus for the problem-solving sessions. After analysis of the problem noted by classroom teachers, specific solutions were generated and role played, and students were encouraged to improve each week.

At Week 21 of the second semester, in an effort to focus students' problem solving specifically on teacher
weekly card comments, students received items such as pencils, pens, erasers, notebooks, food, stickers, and so forth, if they improved their report from the previous week. Improvement was individually defined, with some students needing to improve in several areas to qualify for the reward while more problematic students were rewarded for improving in one area. Problem-solving training continued as before with circulation of weekly progress cards.

**Comparison Placebo Training.** As part of another study, comparison students received a placebo "values clarification" training during sixth grade. Sixth-grade values clarification training consisted of completing worksheets designed to survey student preferences in a variety of daily living areas such as leisure activity, job/career interests, friendship choices, moral value choices, and so forth. Comparison students completed the survey worksheets in a group and shared choices. Discussion of social or classroom behavior was avoided. Comparison students received no intervention during junior high school.

**Dependent Variables**

**Classroom Removal.** Both schools kept daily written records and referral notices on all disciplinary actions given to students, including classroom removals and school suspensions. These school records were used as a data source. Removal from a classroom or suspension from school is an ecologically valid, direct, and meaningful measure of inappropriate school behavior. Removal hurts students in terms of reduced opportunity to learn, and it diverts supervisory resources away from academic and positive reinforcement activities. Probability of being removed from a class for disciplinary reasons varies as a function of classroom attendance. Therefore, groups were compared on rate of removal. Rate of removal for each student was calculated by dividing the student's number of classroom removals by the student's total class periods in attendance.

**Utilization of School Resources.** Allocation of resources is a critical concern for provision of educational services because resources such as materials, space, and staff time are always finite within a school setting and thus, the degree to which student behavior captures teacher and administrative disciplinary effort directly reduces the staff's effort-potential for academic and other educational activities. Prior experience with secondary school procedures showed that when students are removed from a class for disciplinary reasons, approximately 75% of the time they are also assigned an additional disposition such as after-school-detention, counseling, parent conference, or some other disposition. These additional dispositions result in a doubling or tripling of school staff disciplinary contacts for classroom removal incidents. Therefore, classroom removal was defined as a direct measure of impact of student behavior on school resources in terms of utilization of staff effort and time.

**Report Card Grades.** Both comparison and intervention students were enrolled in English, health, history, math, and two nonacademic classes. School report card grades were distributed to students at 20-week grading intervals. Groups were compared on these classroom grades. Because nonacademic electives varied across students, only academic class report card grades were analyzed. Comparing groups on grade point average was determined inappropriate for several reasons. Grade averages were difficult to analyze effectively due to small sample size, high variance for grades within each group, and because grade averages did not reflect passing versus nonpassing grades, an important threshold marking school success for high-risk students. Therefore, frequencies of specific grades earned by each group in academic classes were compared.

**School Attendance.** Attendance data showed that most of the students had a pattern of "selective truancy" during the school day as opposed to whole school day absences. Consequently, it was necessary to measure each student's school attendance according to number of class period absences during the school year.

**Results**

**Classroom Removal.** The proportion of students within each group removed from class at least once during the school year was slightly greater for the intervention group (83%) than for the comparison group (74%). This was not a statistically significant difference. Table 2 shows the number of incidents and proportion of students within each group who were suspended from school or removed from a classroom for disciplinary reasons.

The comparison group had approximately 40% more incidents of classroom removal than the intervention group, as well as more than twice the number of school suspensions. Groups were not compared on suspension data because there were too few incidents. Groups were compared on rate of classroom removal. Some students in each group (approximately 20% to 25%) were never removed from class for disciplinary reasons. When groups were compared on rate of removal, for students who had been removed from class, the intervention group had a statistically significant lower rate of removal from class during Weeks 1 through 20, \( t (32) = 2.30, p < .03 \), during Weeks 21 through 40, \( t (29) = 2.34, p < .03 \), and over the entire school year, \( t (32) = 2.44, p < .03 \) (see Table 3).

**Utilization of School Resources.** The impact of student classroom behavior on staff time/effort is shown in Table 2 where the total school staff disciplinary contacts for the year for each group are listed.
Table 2. Number of Incidents per Group and Proportion of Students in Each Group Receiving Disciplinary Dispositions for Inappropriate School Behavior

<table>
<thead>
<tr>
<th>Removed from class</th>
<th>Weeks 1-20</th>
<th>Weeks 21-40</th>
<th>Year total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>55 (75)</td>
<td>78 (74)</td>
<td>113 (83)</td>
</tr>
<tr>
<td>Comparison</td>
<td>94 (67)</td>
<td>113 (64)</td>
<td>207 (74)</td>
</tr>
<tr>
<td>Suspended from school</td>
<td>4 (13)</td>
<td>7 (26)</td>
<td>11 (33)</td>
</tr>
<tr>
<td>Comparison</td>
<td>13 (25)</td>
<td>15 (36)</td>
<td>28 (39)</td>
</tr>
<tr>
<td>Detained after school</td>
<td>11 (21)</td>
<td>27 (43)</td>
<td>38 (42)</td>
</tr>
<tr>
<td>Comparison</td>
<td>34 (38)</td>
<td>24 (45)</td>
<td>58 (57)</td>
</tr>
<tr>
<td>Counselled</td>
<td>19 (22)</td>
<td>8 (30)</td>
<td>27 (48)</td>
</tr>
<tr>
<td>Comparison</td>
<td>23 (20)</td>
<td>17 (65)</td>
<td>39 (69)</td>
</tr>
<tr>
<td>Parent conference</td>
<td>16 (46)</td>
<td>12 (26)</td>
<td>28 (50)</td>
</tr>
<tr>
<td>Comparison</td>
<td>17 (54)</td>
<td>24 (48)</td>
<td>41 (85)</td>
</tr>
<tr>
<td>Other disposition</td>
<td>17 (13)</td>
<td>7 (17)</td>
<td>10 (21)</td>
</tr>
<tr>
<td>Comparison</td>
<td>12 (17)</td>
<td>6 (18)</td>
<td>10 (35)</td>
</tr>
</tbody>
</table>

Total disciplinary contacts by school staff: Intervention 40/1, Comparison 646

*aAt 20 weeks, n = 24 Intervention; n = 24 Comparison. **At 40 weeks, n = 23 Intervention; n = 22 Comparison. *Total number of incidents for group. *Proportion of students in group involved in incidents.

Table 3. Group Rate of Removal from Class for Disciplinary Reasons

<table>
<thead>
<tr>
<th>Rate of removal</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeks 1-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>18</td>
<td>.006</td>
<td>.005</td>
<td>2.30*</td>
</tr>
<tr>
<td>Comparison</td>
<td>16</td>
<td>.012</td>
<td>.011</td>
<td></td>
</tr>
<tr>
<td>Weeks 21-40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>17</td>
<td>.010</td>
<td>.006</td>
<td>2.34*</td>
</tr>
<tr>
<td>Comparison</td>
<td>14</td>
<td>.020</td>
<td>.014</td>
<td></td>
</tr>
<tr>
<td>Weeks 1-40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>19</td>
<td>.007</td>
<td>.006</td>
<td>2.44*</td>
</tr>
<tr>
<td>Comparison</td>
<td>15</td>
<td>.015</td>
<td>.012</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rate of removal</th>
<th>n</th>
<th>M diff</th>
<th>SD diff</th>
<th>t</th>
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</thead>
<tbody>
<tr>
<td>Within groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate at Week 20 versus rate at Week 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>23</td>
<td>-.003</td>
<td>.007</td>
<td>1.722</td>
</tr>
<tr>
<td>Comparison</td>
<td>22</td>
<td>-.004</td>
<td>.007</td>
<td>2.80**</td>
</tr>
</tbody>
</table>

*p < .03. **p < .01.

Report Card Grades. Table 4 shows the proportion of specific grades earned by each group. The intervention group students received more A, B, or C grades and fewer D and F grades than students in the comparison group. A chi-square test comparing the intervention and comparison group frequencies of A, B, and C grades versus D and F grades in academic classes was statistically significant on the Week 40 report card, χ² (1, N = 132) = 7.73, p < .01. The Week 20 report card grades favored the intervention group but were not statistically different from those of the comparison group.

Table 4. Specific Report Card Grades as a Proportion of All Grades Earned by Each Group for Academic Classes

<table>
<thead>
<tr>
<th>Proportion of Grades</th>
<th>A &amp; B</th>
<th>C</th>
<th>D</th>
<th>F</th>
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<tbody>
<tr>
<td>Week 20 report</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>.20</td>
<td>.35</td>
<td>.27</td>
<td>.18</td>
</tr>
<tr>
<td>Comparison</td>
<td>.11</td>
<td>.43</td>
<td>.29</td>
<td>.17</td>
</tr>
<tr>
<td>Week 40 report</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>.21</td>
<td>.42</td>
<td>.20</td>
<td>.17</td>
</tr>
<tr>
<td>Comparison</td>
<td>.14</td>
<td>.24</td>
<td>.27</td>
<td>.35</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Work habits</th>
<th>Cooperation</th>
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</thead>
<tbody>
<tr>
<td>Ex</td>
<td>Un</td>
</tr>
<tr>
<td>Week 20 report</td>
<td>.31</td>
</tr>
<tr>
<td>Comparison</td>
<td>.21</td>
</tr>
<tr>
<td>Week 40 report</td>
<td>.26</td>
</tr>
<tr>
<td>Comparison</td>
<td>.17</td>
</tr>
</tbody>
</table>

*p < .01, chi square ABC vs. DF. *p < .05 for work habits, chi square Ex vs. Un.

*CDoes not total 100% because satisfactory grades are not listed. *ExExcellent teacher evaluation. *UnSatisfactory teacher evaluation.

and C grades versus D and F grades in academic classes.

School Attendance. Groups were compared on school attendance. The range (intervention and comparison students combined) for class periods absent was from 2 periods to 426 periods for the school year. There were no statistically significant differences between groups on class periods attended. Data suggest that treatment may have impacted school attendance favorably. That is, total class periods absent for the intervention group were 1,962 (M = 84, SD = 83), whereas the comparison group had 2,526 class period absences (M = 113, SD = 107). Data showed that 35% of the intervention group students were absent during less than 3% of all class periods for the year, whereas 23% of the comparison group students were absent during less than 3% of all class periods. Additionally, from Week 20 to Week 40, 42% of the intervention group students im-

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proved their attendance whereas only 9% of the comparison group students improved their attendance. Conversely, 91% of the comparison group students were absent more often from Week 20 to Week 40, whereas 58% of the intervention students were absent more often as the school year progressed.

Incentives

Because of the small sample, all intervention students participated in the incentive program; consequently it was not possible to determine the specific degree of impact, if any, that incentives had on training outcomes. It was possible, however, to test within-group differences on the dependent variables of rate of classroom removal, academic, work habit, and cooperation school report card grades from Week 20 (i.e., problem-solving training alone) to Week 40 (i.e., problem solving plus incentives) and thus to determine if incentives combined with problem solving are associated with an additive improvement in outcomes.

A paired t test indicated that the comparison group classroom rate of removal increased from the Week 20 (problem-solving training) to the Week 40 (problem-solving training plus incentives) grading period, \( t(21) = 2.8, p < .01 \), whereas the intervention group rate of removal did not change significantly from Week 20 to Week 40 (see Table 3).

To compare within-subject changes on report card grades from Week 20 to Week 40, a repeated measure analysis of variance or analysis of covariance was not utilized because it would have compared differences in grade point average, a variable lacking ecological validity for low achievers, and because of high variance within groups. Instead, the Bowker extension of the McNemar test of symmetry for correlated proportions (Marascuilo & McSweeney, 1977) was used. The Bowker procedure tested the hypothesis that among those grades that changed from Week 20 to Week 40, the probability of change to more favorable grades equaled the probability of change to less favorable grades. In this way it was possible to determine if there was a statistically significant directional improvement in grades from Week 20 to Week 40.

The Bowker analysis showed that academic grades systematically improved, \( X^2(1, n = 68) = 5.26, p < .05 \), for intervention students, whereas the comparison students showed a systemic worsening in grades from Week 20 to Week 40, \( X^2(1, n = 60) = 4.5, p < .05 \). For work habit grades, the intervention students showed no clear direction of change from Week 20 to Week 40, whereas the comparison students showed a tendency to receive less favorable work habit grades, \( X^2(3, n = 56) = 8.84, p < .05 \). For cooperation grades, the intervention students showed a systematic tendency to receive less favorable grades, \( X^2(3, n = 68) = 8.5, p < .05 \), whereas the comparison group showed no systematic directional change in cooperation grades.

Discussion

Problem-Solving Training

As reported, the proportion of students removed from class at least once during the school year was somewhat larger for the intervention group (83%) than the comparison group (74%), yet, the comparison group students who were removed generated about 40% more removal incidents. This is interpreted to mean that the intensity or chronicity of misbehavior in high-risk students was substantially reduced by the treatment program. This explanation is supported by the suspension data, a measure of severe misbehavior, and rate-of-removal data, a measure of chronicity of misbehavior (see Tables 2 and 3).

Problem-solving maintenance training required students to self-evaluate their performance through specification of current school behavior leading to positive and/or negative teacher and peer reactions and/or academic outcomes. Students were helped to expand their repertoire of coping behavior by generating a variety of solutions and evaluating solution impact on the teacher and fellow students as well as on themselves. It is hypothesized that as a result of problem-solving training, student behavior was enhanced by increased ability to self-regulate behavior during classroom activities. Problem-solving training appears to have helped students be more sensitive to teacher feedback, apply more frequent and specific self-monitoring skills, as well as learn and produce a greater variety of personally valid and school-appropriate behavioral solutions.

Skill acquisition training given prior to the summer before junior high school may appear to be a naive training regimen in terms of transfer of skill issues. However, data show that this approach may explain differences between intervention and comparison students in terms of changes over time in classroom referral rates as well as in academic report card grades. That is, comparison students tended to do more poorly on these measures as the school year progressed, whereas intervention students tended to systematically improve or stabilize their performance over time. Thus, providing high-risk students with a problem-solving orientation, vocabulary, and skill at the beginning of their junior high school experience may help to prevent initial adjustment problems from escalating.

As a whole, findings are interpreted to indicate that the comparison students, who received no problem-solving training, displayed more frequent misbehavior and/or more severe misbehavior because they engaged in less self-monitoring, were less sensitive to environmental cues, and had a smaller repertoire of effective behavior options.

Utilization of School Resources

Data clearly show that, in these schools, classroom and school removal as a behavior management strategy...
for difficult-to-teach students had a significant impact on school resources because such a policy greatly increased the number of certified school staff involved in a disciplinary incident. For example, removing a student from a class involved at least two staff—the classroom teacher and the staff person supervising the student who was removed. Frequently the action also involved a third staff person, who counseled or supervised the student after school or during lunch detention. Occasionally a school administrator was also involved in the action.

Indeed, because of increased requirements for supervision, counseling, and so forth, as perceived by teachers, the 48 high-risk students in this study generated nearly 1,050 incidents of school staff disciplinary contacts during the school year. Recalling that our original sampling of sixth graders found that 25% of the sixth-grade students were identified as high-risk, we begin to see the potentially profound impact on school resources resulting from classroom removal incidents for high-risk students. In this study, each junior high school had a student population of approximately 2,000 students, of which 500 can be estimated to be high-risk as defined in this study. Inferring from the comparison student data, we can predict that if these 500 high-risk students attended school at the same rate as the comparison students, then they would have generated approximately 14,681 classroom removal incidents during the school year! This could average 81 incidents per school day. These numbers suggest a possible explanation for increased special education referral—or “pushout”—of underachieving, difficult-to-manage students. That is, by perception by school staff members of needing to allocate an inordinate amount of staff time to manage a small proportion of students may encourage schools to “disown” difficult-to-manage underachievers, thereby increasing special education referrals and/or school pushouts.

In this sample of high-risk students, training students in problem solving reduced classroom removal incidents by 40%. This is an important finding. Nevertheless, data from this study also clearly suggest that efforts that train secondary teachers to manage inappropriate classroom behavior within the mainstream classroom setting would be beneficial to both students and staff.

**Academic Report Card Grades**

Because intervention students received no academic tutoring from research staff, increases in academic grades are attributed to enhanced task-related behavior as a consequence of training. It should be noted, however, that academic report card grades do not necessarily reflect increased learning. It may be that intervention students learned classroom survival skills that were reflected in more favorable report card grades. Third-year data of standardized academic test scores will confirm whether enhanced report card grades are substantially related to actual academic learning in these high-risk adolescents.

It is reasonable to hypothesize, however, that superior evaluations in academic and work habit grades for the intervention group, in conjunction with fewer classroom removals, reflect increased learning because of an increased amount of academic learning time and time-on-task behavior, important elements for learning in underachieving students.

**Work Habit and Cooperation Report Card Grades**

Another potentially important finding comes from the comparison of task-related versus social behavior report card grades. In both intervention and comparison groups, more students received unsatisfactory evaluations in work habit behavior than in cooperation behavior. Moreover, by the end of the year (i.e., Week 40) nearly 60% of the comparison group students received unsatisfactory evaluations in work habit grades. These data imply that high-risk students transitioning from elementary to junior high school have greater difficulty in generating appropriate task-related behavior such as bringing supplies, attending to class activities, getting started on work, completing work, being quiet, and so forth, than generating social behaviors such as following teacher requests, getting along with peers, expressing emotions appropriately, and displaying appropriate interpersonal behavior. That task-related behavior was found to be more problematic than social behavior for high-risk students was surprising, given that other studies have identified disruptive and uncooperative behavior to be the primary concern of teachers (e.g., Bruner & Felder, 1983; Huber, 1984). Data from this study can possibly be explained by other studies comparing elementary and junior high classroom task organization. For example, Ward, Mergendoller, and Tinkonoff (1982), and others, have found that, in junior high classrooms, whole group instruction is the norm, and informal cooperation and collaboration among students are discouraged. Apparently, as students transition to secondary school they are expected to organize and complete teacher-assigned tasks independently. Such expectations appear to be extremely problematic for underachieving students because increases in whole group instruction and decreases in opportunities for cooperative interaction require that
each student be competent in producing a wide variety of task-related and academic behavior skills. Indeed, responding in an effective, independent way to secondary classroom academic expectations seemed to be beyond the ability of most of the high-risk students in this study. It is hopeful to note, however, that with intensive problem-solving training, high-risk intervention students were able to significantly enhance their independent task-related behaviors such that nearly 40% received excellent evaluations from teachers on work habit grades.

Incentives

Again, because of the experimental design, it was not possible to determine the separate or interactive effects of incentives. Data from Week 20 clearly showed a positive effect of problem-solving training alone. Data from Week 40 indicate that incentives did not have a deleterious effect on outcome variables and may have had an enhancement effect. Informal evaluation of the impact of incentives on students' behavior suggests that incentives served to focus student attention and effort on specific problems they were experiencing.

Limitations of the Study

Although teachers were blind to the research design, it is not clear whether junior high teacher classroom behavior toward intervention students was significantly influenced as a consequence of providing weekly evaluations of intervention students. Year 5 of Project Main Street will test this possibility.

There is evidence that teacher behavior toward intervention students was not systematically influenced as a result of asking teachers to evaluate students each week. That is, it was found that during any given week, two or three of each intervention student's six teachers did not give and said that they were unprepared to give a weekly evaluation, despite the fact that the weekly evaluation card was a check format. It appeared that many teachers did not engage in ongoing short-term formative evaluation of high-risk student performance, but instead viewed the evaluation process as summative, occurring in extended chunks of time coinciding with school report card intervals. Consequently, it seemed that many of the teachers did not have a working knowledge of performance for high-risk students. Indeed, not infrequently, teachers would confuse an intervention student with a classmate and, as a consequence, the weekly evaluation would be inaccurate or even contrary to reality. That many teachers were not able to spontaneously and specifically characterize the performance of high-risk students in their classroom is extremely troubling in light of research showing that student learning and achievement is positively enhanced by teacher thought processes that reflect interactive decision mak-

ing (see Clark & Peterson's, 1986, review). This research indicates that a teacher's instructional and planning behaviors should be, in part, determined by ongoing assessment of student behavior. Findings in this study suggest that, for high-risk students, some teachers may be so limited in their working knowledge of student performance that interactive, responsive teaching is precluded. These limited and preliminary findings indicate that systematic investigation of interactive teacher evaluations of high-risk students may be an important and meaningful area of research.

Additionally, the reader is reminded to interpret these data with caution because of limitations in the design due to small sample size. Any generalization of the data should take into account the race, socioeconomic status, and school size of the sample. Final evaluation of the efficacy of problem-solving training for high-risk students awaits long-term follow-up. Of primary concern is whether problem-solving training as part of the general education curriculum can enhance long-term academic learning and reduce school truancy, dropout, and referral to special education.

Practical Implications

Findings suggest that problem-solving acquisition and maintenance training as described in this study can have a positive and meaningful impact on classroom social and task-related behavior and on academic report card grades when high-risk students transition to junior high school. Enhancement of behavior in this instance is especially noteworthy given that experimental students were not specifically cued during class to apply problem-solving skills. If task-related and interpersonal behavior are key variables for school success, these data lend initial support for the efficacy of problem-solving training for reducing risk for school exclusion and/or inappropriate special education referral/placement. Problem-solving training, as specified in this research, appears sufficiently powerful to address needs of individual students, while at the same time this approach appears sufficiently general to allow for small group or whole class learning, a critical curriculum feature for mainstream classroom instruction.

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References


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wealth of material in this issue pertaining to why we have a dropout problem, as well as ideas about what we need to do at both early ages and later on in students’ school lives.

Lorna Idol
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References


