Improving Problem Solving of Elementary Students With Mild Disabilities

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Twenty-one 4th- and 5th-grade students with learning disabilities and emotional disabilities were assigned at random to a control condition or to an experimental condition in which they were taught, over a 9-week period, a five-step self-determination strategy for solving school- or home-related problems. Maintenance was assessed 3 weeks after the completion of the posttests. Results revealed that students in the experimental condition statistically outperformed students in the control condition in their abilities to learn a problem-solving strategy and to apply that strategy to scenarios. Experimental condition students also demonstrated their ability to generalize the use of that strategy to a classroom problem and retained their learning on a 3-week postintervention maintenance test. Results are discussed in terms of future research and implications for practice.

Keywords: problem solving; self-determination; mild disabilities; elementary students

During the past decade, self-determination has emerged as an important consideration in educational programming and service delivery for persons with disabilities (Field & Hoffman, 2002). Since the early 1990s, it has come to be regarded as best practice in education (Agran & Wehmeyer, 2003; Wehmeyer, Field, Doren, Jones, & Mason, 2004). Pennell (2001) described the self-determination movement as a call for shifting power from the system to the individual, thus allowing people to choose how they live. Algozzine, Browder, Karvonen, Test, and Wood (2001) argued that self-determination is one of the most important current issues in the field of special education and rehabilitation (see also Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000).

Self-determination is a construct associated with individualistic values and personal characteristics, such as autonomy, independence, and internal locus of control, intrinsic motivation, self-advocacy, and self-efficacy. Wehmeyer (2006) stated that “self-determined behavior refers to volitional actions which enable one to act as the primary causal agent in one’s life and to maintain or improve the quality of one’s life” (p. 117). Self-determination instruction refers to teaching people how to increase control of their own lives and destinies (Agran & Wehmeyer, 2003). According to Harrison, Arnold, and Love (1997), self-determination skills include communicating preferences, setting realistic and attainable goals, exhibiting self-advocacy skills, and identifying and solving problems. Martin and Marshall (1995) maintained that students with special needs may be at risk for school dropout, unemployment or under-employment, low earnings, and dependent living situations; therefore, increased empowerment through instruction in self-determination skills is necessary.

An important component of self-determination is problem solving. It has been suggested that the strategies employed to promote self-determination and self-regulation have in common a purpose of helping individuals solve problems (Agran, Blanchard, Wehmeyer, & Hughes, 2002; Agran & Hughes, 1997). By becoming better problem solvers, students are better able to state goals, identify discrepancies between goals and present reality, identify and decide among response alternatives, and self-regulate learning.

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Many researchers (e.g., Agran, Blanchard, & Wehmeyer, 2000; Durlack, Rose, & Bursuck, 1994; Palmer & Wehmeyer, 1998) have demonstrated the importance of self-determination instruction, particularly at the secondary level (see Algozzine et al., 2001, for a review). More recently, Benitez, Lattimore, and Wehmeyer (2005) and Columbus and Mithaug (2003) described the positive effects of self-determination problem-solving interventions for adolescents with mild disabilities, particularly those of senior high school age, learning, for example, problem solving for career and vocational planning.

However, research on the elementary level is much more limited. Palmer and Wehmeyer (2003) trained teachers to implement the self-determined learning model of instruction with primary grade (K-3) students with a variety of special needs and reported that students as young as 5 years of age could learn to set goals and work through the model with teacher support and assistance. Other researchers have focused on some aspects of self-determination at the elementary level; however, these studies have generally focused on such features as academic self-monitoring or goal setting (Konrad, Fowler, Walker, Test, & Wood, 2007). Little research exists on the effects of training problem-solving skills related to self-determination to students with mild disabilities, particularly in or approaching the process of transitioning from elementary to middle school. There is a need to begin training students skills related to self-determination at younger ages so students will have had numerous opportunities to practice these skills before they transition to other environments (Mastropieri & Scruggs, 2007).

The transition to middle school can often be very difficult. According to Midgley and Urdan (1992), students making this transition are faced with less positive feelings about their academic potential, declining grades and motivation, physiological changes, and the influence of peers and other social concerns. For example, students with mild disabilities, such as learning disabilities and behavioral disorders, will need to identify when they do not understand academic assignments and determine how to go about getting assistance.

Considering past Individuals with Disabilities Education Act (IDEA) mandates and recent legislation (No Child Left Behind Act of 2001), it is important that students with disabilities not only be able to access the general education curriculum but also be held to high academic standards. These current trends toward promoting access to the general curriculum provide opportunities for promoting skills relevant to self-determination and participation in the general education curriculum (Palmer, Wehmeyer, Gipson, & Agran, 2004; Wehmeyer et al., 2004). To achieve these goals, students must explicitly be taught such skills as goal setting, problem solving, and decision making. The purpose of the present study, therefore, was to add to the body of research on self-determination by considering the effect of the explicit instruction of problem identification and problem solving on elementary students with mild disabilities (learning disabilities and emotional disabilities). Although problem solving is only one component of global self-determination (see Chambers et al., 2007), it is nevertheless a skill critical for success in inclusive environments.

The present investigation considered the following five research questions: (a) To what extent can elementary-age students with mild disabilities learn the steps to solving a problem and apply them to relevant scenarios? (b) To what extent does self-determination problem-solving strategy instruction influence students’ perceptions of their problem-solving skills? (c) To what extent does self-determination instruction influence the perceived self-efficacy of elementary-age students with mild disabilities? (d) Do self-determination problem-solving strategies transfer to classroom activities? (e) Do students maintain the problem-solving skills after the conclusion of the study?

Method

Design

Self-determination instruction was evaluated using a pretest–posttest randomized control group design. Stratified random assignment was used to assign fourth- and fifth-grade students with mild disabilities (learning disabilities and emotional disabilities) to either the experimental condition or the control condition.

Setting and Participants

This study was conducted in a K-6 public elementary school in a suburb of a large metropolitan area in the Eastern United States. The district in which this school is located educates approximately 164,000 students. This large and diverse elementary school is home to 837 students, an instructional staff of 73, and a wide variety of programs including special education services, gifted and talented services, and limited English proficiency services. The school’s population is made up of students categorized as Asian (16.5%), Black (18.8%), Hispanic (14.6%), White (41.5%), and “other” (8.5%). Students who receive free or reduced-fee lunches represent 29.8%
of the school’s population, along with 21.4% of students reported as being of limited English proficiency.

The participants were 21 fourth- and fifth-grade students who met state and federal definitions for learning disabilities or emotional disabilities and were selected with respect to their appropriateness for this investigation. Each student was enrolled in one of four general education fourth- and fifth-grade classrooms, which serve students in a combination resource and inclusive model. General education, special education, and English for Speakers of Other Languages (ESOL) staff supported students in these classrooms. Four students from a self-contained program for students with emotional disabilities who were mainstreamed into the 2 fifth-grade classrooms were also included. Special education classifications included 15 (71.4%) students identified as having learning disabilities and 6 (28.6%) as having emotional disabilities. Students ranged in age from 9.4 to 12.5 years, with a mean of 10.95 (SD = .82). Thirteen (61.9%) boys and 8 (38.1%) girls participated in the study, categorized as 12 (57.1%) White, 4 (19.0%) Hispanic, 3 (14.3%) African American, and 2 (9.5%) Asian. Demographic data for all students are presented in Tables 1 and 2.

### Materials

#### Dependent Measures

Dependent measures for both conditions included student knowledge of the five steps to solving a problem (problem-solving pretest and posttest), ability to apply the problem-solving strategy to different scenarios (scenario pretest and posttest), a student problem-solving questionnaire, a self-efficacy questionnaire, and generalization and maintenance measures. Scenario pretests and posttests presented scenarios that required students to produce three solutions. For example, one scenario stated, “Jennifer has to get her planner signed every night by her mom or dad so she can earn class points. Her mom and dad work late and she goes to bed before they get home.”

The problem-solving questionnaire, developed by Palmer et al. (2004), was developed to determine changes in problem-solving skills and examine students’ knowledge of problem-solving steps and their capacity to apply the steps to situations. Items included “What steps do you take to solve a problem?” and “In your own words, write about what each word or phrase (e.g., “problem,” “solution,” or “solving a problem”) means to you.” Control condition 8-week test–retest reliability of this measure was given at $r = .640, p = .034$.

Students’ perceived self-efficacy related to problem solving was measured using a seven-item researcher-developed questionnaire with items on a scale of 1 (not sure at all) to 7 (very sure). Sample items included the following: “How sure are you that you can solve problems you have at school?” “How sure are you that you can identify a problem you are having at school?” “How sure are you that you can tell someone what the problem is?” Alpha reliability of the self-efficacy measure was assessed at .84 and .79, respectively, for pre- and posttest.

Students’ ability to apply the problem-solving strategy to a classroom problem was assessed using a math activity titled “Martian Math” adapted from *Instant Math Games That Teach: 38 Hands-On Math Games* (Creative Teaching Press, 1995). This task contained symbols such as asterisks, stars, checkmarks, and hearts in place of
actual numbers. The symbols were arranged into a number of addition and subtraction problems (e.g., * + □ = ♥). Students were presented with numbered boxes and directed: “Write the Martian Math symbol for each number.” No further directions were presented. This was intended to be a difficult and unfamiliar task for students. The intent was to determine whether students could identify that they had a problem (e.g., no directions, needed help) by approaching the teacher, indicating they had a problem, and verbalizing the problem (e.g., I need help, there are no directions). It was anticipated that experimental condition students would better be able to identify the problem as one requiring teacher assistance and then, with or without prompting, be able to identify and suggest a possible solution for completing the task. Students were evaluated on whether they approached the teacher, identified their problem (with or without prompting), and were able to produce solutions to their problem (with or without prompting). Alpha reliability of the generalization measure was assessed at .71. Condition-specific instructional materials are now described.

**Instructional Materials**

Experimental condition materials included session outlines, problem-solving flashcards, problem-solving strategy practice sheets, and scenario practice sheets. All treatment sessions followed a predetermined, outlined lesson plan. For example, following the first lesson plan, the lesson plan for each day began with a review of the problem-solving steps, followed by an introduction of a scenario, and then by directions for practicing the scenarios. Lesson plans included opportunities for students to identify or produce problem-solving solutions, share best solutions, discuss best solutions, and role play.

Flashcards containing picture cues on one side with corresponding numbers and the problem-solving steps on the reverse side were developed to teach the problem-solving strategy. The five problem-solving steps were (1) identify the problem, (2) think of solutions, (3) pick the best one, (4) try it out, and (5) see if it worked. For example, to cue the students to remember Step 1, identify the problem, students were presented with a picture of someone buried in snow holding up an “SOS” sign (Figure 1). For Step 3, pick the best solution, students were presented with a picture of a woman that is deciding between two meals presented to her by a chef.

Two different types of practice activities were developed to teach the problem-solving steps. The first contained picture cues and spaces for writing the corresponding problem-solving step. The second practice sheet eliminated the pictures but contained the numbers 1 to 5 and spaces for listing the problem-solving steps.

In addition, two types of scenario activities were developed that contained brief vignettes of students having school or home problems. One activity included possible solutions to the problems, and the other required students to produce their own solutions. Both activities required students to justify their best solution. For example, “Lee is in the cafeteria line getting lunch. She sees her classmate put a carton of chocolate milk in his pocket. She knows stealing is wrong but is afraid to tattle.” Corresponding directions instructed students to underline the sentence that described the problem in the scenario, circle the best solution from a list of presented solutions (first type of practice activity), or to produce three possible solutions (second type of practice activity).

**Procedures**

**Both Conditions**

First, permission was obtained from the university, school district, school, parents, and students. Throughout the duration of the study, all students continued to be seen by their regularly assigned teachers. Pretest and
posttest data were collected during the 1st and 9th weeks for both conditions, and maintenance was assessed 3 weeks after the completion of the study. All questionnaires were read aloud to accommodate the needs of students with reading difficulties. For students who had difficulty writing, a researcher scribed student responses. Students in both conditions were also administered a generalization measure during Week 8 and a maintenance measure 3 weeks after the completion of the intervention. The length of treatment and intervals for generalization and maintenance were determined from the previous literature and consideration of appropriate implementation periods.

Experimental Condition

Training phase. During Weeks 2 through 7, students participated in self-determination instruction. Lessons were taught once per week for 6 weeks, lasting between 30 to 40 min per session, to students in small groups (n = 4 for fourth grade, n = 6 for fifth grade). Self-determination skills were introduced for each of the following areas: identifying a classroom problem that requires self-determination, generating possible solutions to that problem, picking the best solution, asking for help, and asking accommodations. Fidelity checks, described in a following section, were conducted during 50% of the sessions by an observer who completed a fidelity checklist.

The initial lesson on the problem-solving steps introduced information on the problem-solving strategy. Discussion focused on defining problems, and students brainstormed examples of problems children their age experience at school and home. Instruction also included identifying possible solutions to problems and the importance of thinking of more than one solution when first attempts to solve problems were unsuccessful. Students’ problems included, for example, trouble with friends or bullies, not completing homework, and needing help on classwork or homework. Students’ problem solutions involved asking parents or teachers for help and making better choices.

Students were then provided with a set of five blank note cards and a copy of the problem-solving practice activity with the picture cues, and they were asked to make flashcards. On one side of the note card, they pasted the picture cue and on the reverse side they wrote the number that corresponded to that step in the problem-solving strategy (see Figure 1). Students were encouraged to use the flashcards to learn the problem-solving steps.

Each subsequent lesson began with review and practice of the five steps to solving a problem using flashcards and practice activities. For example, one scenario consisted of the following:

Marty is in language arts class. He has trouble reading out loud. His teacher likes to call on students to read from the novel they are reading. He gets very nervous when the teacher calls on him and is afraid the students will make fun of him if he makes a mistake.

Directions instructed students to underline the sentence that described the problem in the scenario. During initial training, a list of solutions were presented to students and they were asked to circle the best solution from the list. In subsequent training, students were asked to produce three possible solutions and justify why they thought the solution they chose would work best.

Maintenance phase. Students in the experimental condition were presented with a maintenance measure consisting of a maintenance scenario worksheet and a problem-solving posttest 3 weeks after the study ended.

Control Condition

During Weeks 2 through 7, students participated in silent sustained reading in their regular classrooms. This was a grade-level-wide half hour of uninterrupted silent reading. During sustained silent reading time, students were expected to read a book or magazine of choice. Teachers monitored students’ individual reading to ensure students remained on task for the duration of the 30- to 40-min period 1 day per week.

Scoring

Scoring rubrics were developed for each measure. On the problem-solving strategy pretests and posttests, students received 1 point for each step listed correctly in sequence. On the scenario worksheet pretests and posttests, students earned 1 point for correctly underlining the problem, 1 additional point for each solution generated (three total were possible), and 1 point for identifying the solution they thought would work best and writing why they thought it would work best.

The problem-solving questionnaire consisted of eight items that resulted in a total of 23 possible points. Students could earn from 1 to 5 points, depending on the item. For Item 1, students were asked, “What steps do you take to solve a problem? If someone told you, ‘Here is a problem,’ what would you do?” and they received up
to 5 points for listing the five steps to solving a problem. For Item 2, students received up to 2 points for defining the words problem and solution. For Item 3, students earned 1 point for explaining how they would know if the way they solved a problem was a good idea. For Items 4 through 8, students read a short vignette (e.g., “Your ride does not come after school . . .”) and answered the following questions: “What is the problem?” “How will you solve the problem?” “How well do you think it will work?” Students received a total of 3 possible points for each of these questions. Three raters were provided with a rubric that included examples of acceptable responses. These raters met and discussed discrepancies until 100% agreement was reached on all responses.

Student performance on the generalization measure was evaluated using a rubric. Six items assessed whether students could apply the problem-solving strategy to a classroom problem. Questions were devised to determine whether students could independently identify a problem they were having and generate solutions, or whether they required prompting with questions such as “What is the problem?” “How will you solve the problem?” “How well do you think it will work?” Students received a total of 3 possible points for each of these questions. Three raters were provided with a rubric that included examples of acceptable responses. These raters met and discussed discrepancies until 100% agreement was reached on all responses.

Table 3
Means and Standard Deviations of Outcome Measures

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Pretest M (SD)</th>
<th>Posttest M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem-solving strategy pre- and posttests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>10</td>
<td>0.00 (0.00)</td>
<td>5.00 (0.00)</td>
</tr>
<tr>
<td>Control</td>
<td>11</td>
<td>0.00 (0.00)</td>
<td>0.00 (0.00)</td>
</tr>
<tr>
<td>Scenario pre- and posttests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>10</td>
<td>1.70 (1.57)</td>
<td>4.30 (0.68)</td>
</tr>
<tr>
<td>Control</td>
<td>11</td>
<td>2.36 (1.29)</td>
<td>1.73 (1.56)</td>
</tr>
<tr>
<td>Problem-solving questionnaire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>10</td>
<td>11.20 (4.05)</td>
<td>19.40 (2.63)</td>
</tr>
<tr>
<td>Control</td>
<td>11</td>
<td>9.82 (5.31)</td>
<td>10.36 (5.03)</td>
</tr>
<tr>
<td>Problem-solving self-efficacy measure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>10</td>
<td>4.73 (1.71)</td>
<td>5.61 (0.83)</td>
</tr>
<tr>
<td>Control</td>
<td>11</td>
<td>5.12 (0.91)</td>
<td>5.45 (1.16)</td>
</tr>
<tr>
<td>Generalization measure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>9</td>
<td>3.44 (1.13)</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>7</td>
<td>2.14 (1.07)</td>
<td></td>
</tr>
</tbody>
</table>

Two different fidelity checklists (one for sessions without role play and one for sessions with role play) were designed to establish whether the researcher accomplished the required tasks for each session. The five tasks consisted of (a) review the problem-solving steps, (b) introduce scenario and directions, (c) allow students to share choice or generated solutions, (d) discuss best solutions, and (e) role play scenarios with best choice. Data indicated that all treatments were implemented faithfully throughout the intervention.

**Results**

Data from pre- and post-measures are provided in Table 3. There were no significant differences between conditions on any measures at pretest (all \( p > .05 \)). Because of restricted variance from floor and ceiling effects on the problem-solving strategy test, nonparametric tests were employed to analyze differences at posttest. Statistically significant differences were obtained between the experimental and control groups according to a Mann-Whitney U test, \( z = -4.47, p = .000 \), favoring the experimental condition. This finding indicated that students in the experimental group significantly outperformed students in the control group on learning the problem-solving strategy.

Differences on the posttest scenario problem-solving test by condition were analyzed using an ANCOVA, with the pretest as covariate, which yielded a significant difference, \( F(1, 18) = 21.46, p < .001 \), favoring the experimental condition (see Note 1). This finding indicated that students in the experimental condition were significantly
better able to apply the problem-solving strategy to scenarios after instruction than students in the control group.

Differences on the problem-solving questionnaire posttest were analyzed using an ANCOVA, with the pretest as covariate, which yielded significant differences between groups, \( F(1, 18) = 34.25, p < .001 \), favoring students in the experimental condition. Although the mean scores on the self-efficacy measure increased for students in the experimental condition from pretest (\( M = 4.73, SD = 1.71 \)) to posttest (\( M = 5.61, SD = 0.83 \)), no statistically significant differences were obtained between groups on an ANCOVA on posttest scores, using pretest as a covariate, \( F(1, 17) = .33, p = .576 \).

Generalization data were calculated and entered into an independent samples \( t \) test. These findings yielded statistically significant differences between conditions on the students’ overall ability to generalize the problem-solving strategy to a classroom problem, \( r(14) = 2.34, p = .035 \). Chi-square tests of individual generalization items revealed that more students in the experimental condition (7 experimental students vs. 1 control student) were able to identify the problem independently, \( \chi^2(1) = 6.35, p = .012 \), and were more able (8 experimental students vs. 2 control students) to generate solutions to the problem with the aid of a prompt question “How might you solve the problem?” \( \chi^2(1) = 6.11, p = .013 \).

Maintenance performance of experimental condition students was measured by comparing the results of the problem-solving strategy and scenario posttests with their scores on the maintenance measure (same problem-solving strategy and scenario measures administered at posttest) administered 3 weeks after completion of the study. Students performed identically on the problem-solving strategy from posttest (\( M = 5.00, SD = 0.00 \)) to maintenance test (\( M = 5.00, SD = 0.00 \)), indicating that students in the experimental group maintained their ability to list the steps to solving a problem 3 weeks after the study had ended. Also, no significant differences were found in students’ ability to apply the problem-solving strategy to scenarios from posttest (\( M = 4.30, SD = 0.68 \)) to maintenance (\( M = 3.90, SD = 0.99 \)), \( t(9) = .94, p = .37 \), suggesting that students in the experimental condition also maintained the ability to apply the problem-solving strategy to scenarios.

Supplemental analyses were conducted to determine whether differences existed between disability category (learning disability and emotional disability) and grade level (fourth and fifth grades) for each question. No statistically significant differences were found by disability category or grade level at pretest and posttest (all \( ps > .05 \)).

**Discussion**

The purpose of this study was to examine the effect of the explicit instruction of problem-solving skills using random assignment of elementary-age students with mild disabilities to experimental conditions. Overall, findings revealed that experimental condition fourth- and fifth-grade students outperformed control students on (a) the problem-solving strategy and its application to scenarios, (b) the problem-solving questionnaire and self-determination skills, (c) the generalization measure, and (d) the maintenance measure. Experimental students also maintained their performance 3 weeks after intervention.

Experimental students, however, did not gain significantly on the overall self-efficacy measure as a result of the intervention. One possible explanation for this may be that the 9-week intervention on problem solving was simply insufficient to influence a broader self-efficacy measure. Another possible explanation could involve the difficulties of students with disabilities to rate their own abilities accurately. Similar results relating to self-efficacy miscalibrations are reported in the literature. In a literature review (Klassen, 2002) of 22 self-efficacy studies, 8 of the studies addressed the apparent miscalibration of efficacy beliefs in students with learning disabilities. Results of these 8 studies indicated that students with learning disabilities often overestimate efficacy beliefs and appear to be unrealistically optimistic about their capabilities. The authors indicated that this could be considered naïve overconfidence, poor self-knowledge, or even a protective mechanism on the part of the students to hide their true academic difficulties. Although the 8 studies did not address problem-solving skills, they did address other academic skills including writing, reading, and mathematics. In other studies related to writing, strategy instruction, and goal setting (Sawyer, Graham, & Harris, 1992; Voth & Graham, 1999) results indicated goal setting or strategy instruction did not influence students’ self-efficacy related to writing.

The results of this study contribute to and extend the knowledge base with regard to the instruction of self-determination skills, specifically, problem solving, to elementary students with mild disabilities. This study extends past research to include elementary students with emotional and learning disabilities. The results of this study suggest that fourth- and fifth-grade students with mild disabilities can learn a problem-solving strategy when taught over a 9-week period. Although the treatment of individuals with disabilities and special education programs...
have greatly improved over the years, students with disabilities continue to face futures clouded by increased probabilities for school dropout, unemployment or underemployment, low earnings, and dependent living situations (Martin & Marshall, 1995). Research has supported the importance of self-determination skills; however, in practice more than one third of teachers are unfamiliar with the concept of self-determination and how to teach it (Grigal, Neubert, Moon, & Graham, 2003; Wehmeyer, Agran, & Hughes, 2000). This has resulted in many students not learning skills needed to manage their lives. Although many teachers do believe that self-determination skills are important (Karvonen, Test, Wood, Browder, & Algozzine, 2004; Wehmeyer, Agran, et al., 2000), many other teachers do not teach these skills or include them as goals in individualized education programs (Test et al., 2004).

Although recently there have been more studies conducted with children at the elementary level (Martin et al., 2003; Palmer & Wehmeyer, 2003), more research is needed to determine the extent to which specific self-determination skills can be explicitly taught to younger students. It has been argued that self-determination skills taught across the life span are critical for overall student success (Wehmeyer & Field, 2007). Students must be provided with opportunities to practice using these self-determination and problem-solving skills on a regular basis both in resource and self-contained settings, as well as in naturally occurring situations in the general education setting. Future research should also consider longer maintenance intervals and the generalization of these skills beyond the resource or self-contained setting (e.g., to general education, home, or community settings) on a variety of measures. With the No Child Left Behind Act of 2001 and the IDEA being aligned so closely, the current trend is toward students with disabilities accessing the general curriculum and the expectation that these students will achieve at much higher levels than before.

It will be important to determine through future research whether the development of self-determination skills in younger students facilitates this access and results in higher achievement.

Note

1. Because total degrees of freedom could be considered minimal for use of ANCOVA, a parallel analysis was conducted using the non-parametric Mann-Whitney U test on pre-post scenario gain score data, which also yielded statistical significance (z = 3.159, p = .002).

References


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