Exceptionality: A Special Education Journal

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/hexc20

Curriculum Enhancements in Inclusive Secondary Social Studies Classrooms

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Available online: 04 May 2011

To cite this article: Lisa Marshak, Margo A. Mastropieri & Thomas E. Scruggs (2011): Curriculum Enhancements in Inclusive Secondary Social Studies Classrooms, Exceptionality: A Special Education Journal, 19:2, 61-74

To link to this article: http://dx.doi.org/10.1080/09362835.2011.562092

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This investigation compared the use of traditional instruction with that of classwide peer tutoring using materials containing embedded mnemonic strategies to provide strategic information and supplemental practice of important content. Eight inclusive seventh grade social studies classes with 186 students, of whom 42 were classified with mild disabilities, were randomly assigned to treatment and traditional conditions, delivered over 10 weeks of instruction. All students were given a pretest, three unit tests, and a posttest. Overall findings revealed that experimental condition classes statistically outperformed comparison condition classes on content learned; this was true for target content (taught directly in the experimental condition) as well as nontarget content (related information not included in the experimental condition). Implications for inclusive content area instruction are provided.
learning needs, within the context of an inclusive classroom setting. Although this model offers great promise for reaching all students with diverse learning needs, one potential problem is that some students may be perceived as receiving easier or “dumbed-down” materials and instruction, and become self-conscious or feel stigmatized by this perception. Adolescents in particular appear to wish not to be treated differently from peers (Vaughn, Schumm, & Kouzekanani, 1993); Fuchs and Fuchs (1994) suggested,

> Mainstream teachers attempting to accommodate a wide diversity of students must orchestrate a greater number of activities and materials, substantially complicating their job. Further, these different activities and materials tend to separate students with and without disabilities, reducing the amount and quality of social interaction between them. (p. 302)

In order to address this significant potential problem and still preserve the concept of appropriately differentiated instruction, Mastropieri, Scruggs, and colleagues have proposed a model referred to as “differentiated curriculum enhancements” (Scruggs, Mastropieri, Marshak, & Mills, 2009). The idea behind this model is that all students receive the same materials and instructional procedures, and the differentiation is built into the instructional program so that each student is able to differentially benefit according to his or her individual learning needs. In all cases to date, classwide peer tutoring (Fuchs, Fuchs, & Kazdin, 1999; Maheady, Harper, & Mallette, 2002) or small group learning is used to individualize instruction. In general, this model is consistent with the principles of universal design (Center for Universal Design, 1997).

We wished to create truly inclusive instructional materials that would address issues of different types of content and ease of implementation by teachers. To date, three types of differentiated curriculum enhancements have been implemented, all of which have resulted in substantial academic gains. The first type is tutoring with “fact sheets,” which is similar to that employed in previous investigations of classwide peer tutoring in secondary content areas (e.g., Maheady, Sacca, & Harper, 1988) and was developed to promote ease of teacher implementation. In this model, all students receive the same easily-developed fact sheets—based on the critical core content for a subject area—and receive specific instruction on classwide peer tutoring techniques and progress monitoring procedures so that all students receive sufficient instruction to achieve mastery before moving on to additional fact sheets. The methods and materials are the same for all students; however, the amount of time can be altered, either within the tutoring session—where one of the tutoring pair receives more needed time—or in additional sessions outside the general tutoring program. This model has been previously employed in secondary history classes (Mastropieri, Scruggs, & Marshak, 2008; Scruggs, Mastropieri, & Marshak, 2009) and in secondary science classes (McDuffie, Mastropieri, & Scruggs, 2009). In all cases, classrooms that incorporated tutoring with fact sheets scored higher on unit tests than classrooms that employed traditional instruction. In the Scruggs and colleagues (2009) investigation, it was observed that the intervention increased learning over traditional instruction in both target content (content covered in the tutoring materials) and nontarget content (related content not covered in the tutoring materials).

The second type of differentiated curriculum enhancements is differentiated activities, and may be more appropriate for content oriented more to application and understanding than to verbal recall of academic content. In this type of intervention, students work in pairs or
small groups on relevant activities developed on different difficulty levels. Mastropieri and coauthors (2006) developed methods and materials for students undertaking a science unit on scientific methods, including, for example, independent and dependent variables, qualitative and quantitative research questions, and how to include data into various graphs and charts. Activities were provided at three graduated levels; as students completed each activity area, they progressed toward more complicated applications of the same content. Again, all students completed all activities; however, differentiation occurred with respect to how much time, or how many trials, were required at different difficulty levels of each activity. The peer-mediated intervention also allowed students of different skills levels to work together and help each other develop mastery. Students employing differentiated activities outperformed traditional condition students on unit tests as well as end-of-year high-stakes tests (see also Simpkins, Scruggs, & Mastropieri, 2009).

A third type of differentiated curriculum enhancements is embedded mnemonic strategies, which was developed to maximize learner outcomes. In this intervention, students tutor one another on critical content, similar to the fact sheet studies. However, if tutoring partners exhibit difficulty on some information, included mnemonic elaborations are provided to facilitate learning when needed. For example, if tutoring partners exhibit difficulty remembering that “thermic” refers to “heat,” they are shown an illustration (contained within the materials) of a thermos containing a hot beverage as a mnemonic aide. Although all students were provided with the same materials, mnemonic elaborations were intended to be used only in situations where students exhibited difficulty with recall. These materials and procedures were evaluated in high school chemistry classes, where experimental condition students statistically outperformed those in a traditional instruction condition (Mastropieri, Scruggs, & Graetz, 2005).

Mnemonic instruction has been repeatedly demonstrated to be effective with students with special needs (see Mastropieri & Scruggs, 1989; Scruggs & Mastropieri, 2000; Scruggs, Mastropieri, Berkeley, & Marshak, 2010) in a variety of settings. However, with the exception of a single investigation in science classes (Mastropieri et al., 2005), the utility of employing peers to teach mnemonic strategies has not been studied. The purpose of the present investigation, then, was to evaluate the implementation of peer tutoring with embedded mnemonic pictures within a differentiated curriculum enhancements intervention in inclusive secondary history classrooms. Similar to Scruggs and colleagues’ (2009) investigation, we also examined the effects of the experimental condition on nontarget and target content.

METHOD

Eight 7th grade classes were stratified by class status: team taught ($n = 4$) and taught by a single general education teacher ($n = 4$), and then were assigned at random to either the experimental condition or traditional instruction condition. The 60-item posttest contained 30 items that had been included in the mnemonic tutoring materials (target items), and 30 items that had not been included (nontarget items). Both conditions used the same teacher-designed lessons and activities. However, students in the experimental condition used supplemental materials that contained embedded mnemonic strategies delivered through classwide peer tutoring.
Participants

This study was conducted in a suburban school district in a mid-Atlantic state. One hundred eighty-six students in eight 7th grade inclusive social studies classrooms participated in this study. Forty-two of the students enrolled in the inclusive classes met federal and state criteria for disability classification, under the Individuals with Disabilities Education Act or Section 504 of the Rehabilitation Services Act. Fifty-four percent of the participants were males, and a range of racial and ethnic backgrounds was represented including 89 Caucasian students, 29 Hispanic American students, 22 African American students, 40 Asian American students, five multi-racial students, and one American Indian student. Students spent a 50-minute period in history three days per week and a 90-minute block period one day per week. Students with disabilities spent the majority of the school day in inclusive classes.

The mean age of the typically achieving students was 152.18 months \((SD = 5.16)\), and the mean age of the students with special needs was 153.05 months \((SD = 5.089)\). Mean score of the typically achieving students on the Stanford Diagnostic Reading Test (4th ed.), administered at the beginning of the school year, was 984.48 \((SD = 199.9)\); mean score of the students with disabilities on the Stanford Diagnostic Reading Test (4th ed.) was 832.40 \((SD = 232.59)\). Of the 42 students with special needs, 18 were identified with learning disabilities (including three also enrolled in the ESOL Program), seven with other health impairments, five with autism, one with speech and language impairment, four with emotional/behavioral disabilities, one with physical impairments, and six students served under Section 504. Mean IQ score for this sample was 98.89 \((SD = 12.02)\).

The five teachers who participated in the study included three general education teachers and two special education teachers. All the teachers were Caucasian females with masters degrees. The general education teachers were 29, 38, and 47 years of age, and had from three, 15, and 27 years’ experience teaching, respectively. The special education teachers were 33 and 36 years of age, and had eight and 13 years’ experience teaching, respectively.

Materials

**Teacher Materials: Both Conditions**

Instructional materials common to both conditions included district adopted textbook and ancillaries. *The American Journey: Reconstruction to the Present* (Appleby, Brinkley, & McPherson, 2005) was the primary text used by each teacher. The seventh grade social studies curriculum followed a state-mandated curriculum for *United States History II 1877–Present* in preparation for an end-of-course standardized test. The curriculum was based on eight standards and was split into 10 units. The present investigation focused on standards for Industrialization, Progressive Movement, and Imperialism. The local district provided a pacing guide that provided teachers with a timeline for each unit with time to review before the end-of-course assessment.

The teacher-designed activities consisted of teacher lecture, class notes, class activities, and accompanying textbook materials. Teachers created graphic organizers that accompanied topics in each unit with guided notes, fill-in-the-blank items, matching items, vocabulary, and short answer items.
Each teacher received a teacher manual. For the teachers who taught only class sections in the traditional instruction condition, their entire binder was devoted to this condition. For the teachers who taught class sections in both conditions, their binder was split in half with the first half devoted to the traditional instruction condition and the second half devoted to the experimental condition. Contents are described under each condition.

**Experimental condition.** Inside the first section of the manual was a set of questions with answers that described the study’s purpose and general procedures. The second section of the manual was devoted to forms and copies of assessments. Included was a copy of the student assent form, parent consent form, teacher consent form, rules for classwide peer tutoring, student record sheet, teacher record sheet, tutoring condition classroom observation sheet, traditional condition observation sheet, pre-/posttest, and unit test. The third section of the manual contained all scripts and transparencies teachers used during days 1–4 of implementation for each unit.

**Traditional condition.** Teachers were provided a manual that paralleled the first part of the teacher manual for the experimental condition. Inside the first section of the manual was a set of questions with answers that described the study’s purpose and general procedures. The second section of the manual was devoted to forms and copies of assessments. Included were copies of the same forms provided in the experimental condition materials, except for those directly associated with classwide peer tutoring.

**Student Materials**

Both conditions used the same textbook and accompanying materials. The materials were adopted by the district for students enrolled in 7th grade history.

**Experimental condition.** Students used the same materials as stated in the traditional condition. Additional materials were developed based on previous research-based strategy instruction with special populations (Mastropieri, Scruggs, & Graetz, 2005; Mastropieri et al., 2001). Materials included lesson plans for introducing the rules and procedures, identifying and correcting errors, using elaborative strategies, and recording daily progress with the information contained in the experimental materials. All students received two-pocket folders containing self-recording sheets on which students recorded the date and length of time during each tutoring session.

Content information identified by all teachers as critical for the school year, based on district standards, was used to develop the tutoring materials. All teachers selected 60 test items considered to be of importance to all students in meeting district standards for the three units. Of these 60 items, 30 were selected as the basis for the content for the experimental condition. These materials supplemented the lessons taught traditionally. Ten individual 5” × 9” note cards were created for each unit. One side of the card contained pictures of the interactive strategy, and the other side of the card contained the peer tutoring directions and listed the question, answer, and the mnemonic strategy students should use to remember the content. For example, to help students learn that John D. Rockefeller was a businessman who controlled
the oil business, a keyword mnemonic strategy was developed (Scruggs, Mastropieri, Berkeley, & Marshak, 2010). In the case of Rockefeller, the keyword “rock” was used since it sounds like the first part of Rockefeller and can be pictured. The keyword is then shown interacting with the to-be-remembered information, in this case, a rock with oil being poured on it. One side of the card contained pictures of the interactive strategy, while the other side of the card contained the peer tutoring directions and listed the question, answer, directions if the students answers the question correctly or incorrectly, and the mnemonic strategy students should use to remember the answer, as shown in Figure 1. Each instructional unit had 5” × 9” envelopes containing peer-tutoring cards and directions for that unit. Each peer tutoring dyad had one envelope for each instructional unit.

Traditional condition. Materials in the traditional instruction condition consisted of student notes, graphic organizers, and other teacher-created materials. With the exception of the tutoring materials, materials in the traditional condition were the same as materials in the experimental condition.

<table>
<thead>
<tr>
<th>Ask:</th>
<th>Who was John Rockefeller?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listen for:</td>
<td>Businessman that controlled the oil business.</td>
</tr>
<tr>
<td>If correct:</td>
<td>Go on to next card.</td>
</tr>
<tr>
<td>If wrong: Say:</td>
<td>Say: The keyword for Rockefeller is rock.</td>
</tr>
<tr>
<td>Say:</td>
<td>To help you remember that the Rockefeller was a businessman who controlled the oil business, remember this picture of a rock with oil on top of it.</td>
</tr>
<tr>
<td>Ask:</td>
<td>Who is John Rockefeller?</td>
</tr>
<tr>
<td>Listen for:</td>
<td>Businessman that controlled the oil business.</td>
</tr>
<tr>
<td>If correct:</td>
<td>Go onto the next card.</td>
</tr>
<tr>
<td>If wrong:</td>
<td>Start again on this card.</td>
</tr>
</tbody>
</table>

FIGURE 1 Illustration of mnemonic picture for Rockefeller = controlled the oil business (questions on reverse of the card) (color figure available online).
Procedure

Both Conditions

Once district, student, and parent permissions were obtained, the eight 7th grade classes were stratified by class status (team taught and general education) and were then randomly assigned to either the experimental condition or the traditional instruction only condition. The intervention in its entirety was conducted over 10 weeks and included pretesting, instruction, unit testing, cumulative posttesting, and administration of surveys evaluating attitudes toward the instruction.

Students were administered a pretest during the first day of implementation and a posttest on the last day of implementation. In between these measures, teachers spent two to three weeks teaching each unit: (a) Industrialization, (b) Progressive Movement, and (c) Imperialism.

Each day, teachers in both conditions began class with a warm-up activity. The teacher placed a transparency on the overhead projector. Students were instructed to take their copy out of their binders, choose the correct answer, and review it with the teacher. During the main activity, teachers typically gave the students a graphic organizer for students to take notes from a reading passage, primary source document, map, video clip, simulation, and/or class lecture. For example, during the Progressive Movement unit, all five teachers used a PowerPoint presentation during a class lecture. The teacher lectured about each slide and instructed students to copy the highlighted items onto their notes sheet as she progressed through the slides. When students finished, they placed the activity in their binders and used them to complete the study guide at the end of the unit. During the Imperialism unit, all five teachers used copies of the New York World newspaper from 1898 to explain the definition of yellow journalism. The teacher projected a transparency listing the facts from the explosion of the USS Maine. Then, the teacher placed transparencies of the front page of various newspapers reporting the event. Students then completed a t-chart to compare them. When students finished, they placed the activity in their binders and used them to complete the study guide at the end of the unit.

During the main instructional activity, teachers used graphic organizers for students to take notes from a reading passage, primary source document, map, video clip, simulation, and/or class lecture. For example, during the Industrialization Unit, all teachers showed a video on Sears Catalogue to teach about the growth of national markets. Students watched the video and completed a graphic organizer about national markets and catalog sales. The teachers reviewed the worksheet and then showed the students examples from an 1897 Sears Catalog reproduction where they compared the prices in 1897 to 2008. To prepare for tests, all the teachers used the same study guide. These guides had fill-in-the blank, multiple choice, and matching questions. Students completed them on their own, and then teachers went over it in class to make sure the students had the correct answers. Students in both conditions took the same assessments at the end of each unit and the same cumulative assessment at the end of the three units. Teachers also administered a survey to students at the end of the intervention to evaluate student perceptions of the activities in each condition.

Experimental Condition

Throughout the intervention, the teacher provided instruction using the traditional materials described previously and supplemented the lessons with the experimental materials. Teachers
implemented the intervention four times during each unit, for a total of 12 sessions. On the first day of the intervention in the Industrialization Unit, the teacher followed a script that provided exact statements and directions for teachers to use each day the cards were used. Teachers then paired students and asked students to choose who would be the “general” and who would be the “admiral” of each pair. Students were then instructed to have the admirals collect an envelope with the cards inside from the teacher and to begin the activity. When students were engaged in the activity, the teacher walked around the room, making sure students studied the picture while their partner read the strategy on the back. After 15 minutes, the teacher explained how to complete the student record sheet. She directed students to record the date and length of time they used the cards in the appropriate boxes and then collected the envelopes and folders.

The script for the first day of implementation was the most detailed. For example, teachers were told to begin with the following introduction:

Today we are going to use some cards to help us learn social studies information.

I will pair you up so we can use the cards in partners. On the front of the card will be a picture and on the back will be the instructions. I will pair you up later, but first let’s look at an example.

The instructions told the teacher to place a colored photograph on the overhead projector showing students what it looks like to quiz each other. Next, the script told the teacher to point out that while one student read the strategy on the back, the other student studied the picture on the front. Next, the script read to model the activity by placing a transparency of one of the cards on the overhead. The instructions directed teachers to display a picture, for example, similar to that in Figure 1, and to say the following:

Say: While I read the back of the card, you look at the picture.

Say: It says for me to “ask who is John Rockefeller.” Who is John Rockefeller?

Say: Then it says “listen for an answer.” Does anyone know the answer?

Say: Right. He’s the businessman who controlled the oil business.

Say: Let’s pretend no one knew the answer. The script says I should say, “the keyword for Rockefeller is rock. To help you remember that the Rockefeller was a businessman who controlled the oil business, remember this picture of a rock with oil on top of it.”

Say: Then it says I should ask it again, “Who was John Rockefeller?”

Say: Right. He was the businessman who controlled the oil business. If you guys still didn’t know the answer, I would have read the card again.

Say: Let’s do one more together.

Teachers were then instructed to model another card, then to review the directions with the class:

1. What should my partner do when I am reading the back of the card? (Look at the picture.) Remember that the whole purpose of these cards is to use the picture to help you remember the history information.
2. (Pass out their folders.) Each person gets a two-pocket folder for this activity. Inside the folder are directions. Let’s go over those directions.
3. On the other side is a record sheet. At the end of today’s activity, we will write the date and length of time we used the materials.

The next part of the directions asked teachers to pair off students and to identify the “admirals” and “generals” in each group (each tutoring pair had one admiral and one general). Teachers were then provided instructions to ensure that peer tutoring directions were being followed appropriately (students would read cards to partners, provide corrective feedback, switch roles and follow the same steps, and then after 15 minutes, record the relevant information and turn in materials).

The script for day 2 of implementation during Industrialization was almost exactly the same as day 1; however, it directed teachers to model only one card rather than two cards. The script for day 3 and day 4 was the same as the script for day 2, except the teacher was not instructed to model another card. The teacher was instructed to remind students to study the picture when their peer was reading the back of the cards.

The script for day 1 of implementation during the Progressive Movement and Imperialism units was the same as day 1 for Industrialization except the card the teachers used to model the activity was one from the Progressive Movement unit. The script for days 2–4 was the same except the teacher was not instructed to model the activity.

**Traditional Condition**

During this condition, the teachers directed all aspects of instruction. Lessons began with a daily review, teacher presentation of new information, guided, and independent practice and simulation activities. Students participated in answering teacher questioning of content, taking notes independently, and completing relevant work. Time spent tutoring in the experimental condition was replaced generally with relevant worksheet activities and other seatwork involving chapter content, which were taken from publisher materials designed to accompany the text.

**DATA SOURCES**

**Unit Tests**

The three unit tests consisted of questions from the posttests of the corresponding unit (Industrialization, Progressive Movement, and Imperialism). These tests had 20 items each, in multiple choice format, and included both target and nontarget items. Alpha reliabilities for unit tests were assessed at .872 (Industrialization), .772 (Progressive Movement), and .852 (Imperialism).

**Pretest/Posttest**

The pretest and the posttest were the same measure. They had the same 60 multiple choice questions to assess content knowledge, including 20 items from each unit. Sample items included the following:
26. Who was Susan B. Anthony?
   a. She was a political Boss that bribed people for vote
   b. She fought to end the drinking of alcohol
   c. She fought for a woman’s right to vote
   d. She ran Hull house which provided medical care, day care, and job training to immigrants

51. What happened to the Philippines after the Spanish American War?
   a. They earned their independence
   b. Spain took control
   c. The United States took control
   d. Cuba took control

Of the 60 test items, 30 had been included in the mnemonic tutoring materials in the experimental condition (and referred to as target items), while 30 had been taught traditionally (and referred to as nontarget items). In the traditional condition, all 60 items had been taught traditionally. Alpha reliability was assessed at .746 for the pretest, and .942 for the posttest.

Pretest and posttests were administered to students, who used electronic scantron sheets to fill in their answers. If according to the student’s Individual Education Plan, a student received the accommodation of writing on tests, the student did not use a scantron but instead circled his or her answers on the test.

Surveys
A survey was administered to all students. The items included three-level Likert type questions and open-ended questions. One example of a Likert type question was, “I like social studies this year.” Students rated their agreement to this question by circling either a sad face: ☹, a neutral face: ⊙, or a happy face: ☀. An example of an open-ended question was, “If you think similar mnemonic cards could be used in other classes, list which classes.” Students in the experimental condition also answered questions addressing their attitudes about using the experimental materials. The teacher survey addressed teacher attitudes about using the experimental materials and also consisted of Likert scale and open-ended questions.

Fidelity of Treatment
To document treatment fidelity, classrooms were observed during all three units of instruction. Each class in the traditional condition was observed twice during each unit for a total of six observations per class. The observer used a checklist that was divided into three sections: (a) beginning of the class period; (b) main activity of the class period; and (c) wrap-up of class period. The observer also wrote examples of what was observed, what the teacher/students did, and what materials were used. Space was provided for the observer to describe the activities.

Each class in the experimental condition was observed twice per unit during the peer tutoring activities and twice per unit during traditional instruction activities, for a total of 12 observations per class. In each of these, the observer completed a checklist and provided written observations. For tutoring activities, the observer checked off the appropriate tutoring tasks (e.g., students are paired; each folder has a record sheet; if student does not know the answer, partner reads strategy on the back of the card). For 30% of observations, a second observer was present,
who agreed on 100% of checklist items. Treatment fidelity was judged to be very high (95%) for both conditions.

RESULTS

Unit Tests

Gain scores on unit tests were computed by subtracting posttest from pretest on each of the three tests. Mean gain scores by condition and group for each unit test are reported in Table 1. As can be seen in Table 1, gain scores for all three unit tests were higher in the experimental condition, and the scores of students with disabilities paralleled scores of students without disabilities. Since classes were assigned at random to experimental conditions, class was employed as the unit of analysis on unit tests as well as on the cumulative posttest. Gain score data for the three unit tests were analyzed by \( t \)-tests applied to class mean scores by condition, which revealed significant differences favoring the experimental condition for the Industrialization, \( t(6) = 3.02, p = .023 \), Progressive Movement, \( t(6) = 3.05, p = .023 \), and Imperialism units, \( t(6) = 4.67, p = .003 \).

Cumulative Posttest

Total Scores

Gain scores were computed by subtracting posttest from pretest, for target items, nontarget items, and total scores. Descriptive gain score data by condition, student type, and item type

<table>
<thead>
<tr>
<th>Condition</th>
<th>Experimental</th>
<th>Traditional</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>72</td>
<td>11.78 (3.02)</td>
<td>72</td>
</tr>
<tr>
<td>Special Education</td>
<td>23</td>
<td>10.74 (3.61)</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>11.53 (3.18)</td>
<td>91</td>
</tr>
<tr>
<td>Progressive Movement Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>72</td>
<td>11.40 (3.41)</td>
<td>72</td>
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<tr>
<td>Special Education</td>
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<td>10.30 (3.53)</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>11.14 (3.45)</td>
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</tr>
<tr>
<td>Imperialism Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>72</td>
<td>10.90 (3.46)</td>
<td>72</td>
</tr>
<tr>
<td>Special Education</td>
<td>23</td>
<td>10.96 (3.95)</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>10.92 (3.56)</td>
<td>91</td>
</tr>
</tbody>
</table>

Note. ES = effect size. All effect sizes favored students in the experimental condition.
TABLE 2
Gain Scores by Student Group and Condition

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Traditional</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>(SD)</td>
<td>n</td>
</tr>
<tr>
<td>Total Gain Scores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>72</td>
<td>33.00 (8.44)</td>
<td>72</td>
</tr>
<tr>
<td>Special Education</td>
<td>23</td>
<td>31.95 (6.17)</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>32.75 (7.93)</td>
<td>91</td>
</tr>
<tr>
<td>Target Items</td>
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</tr>
<tr>
<td>General Education</td>
<td>72</td>
<td>17.11 (4.96)</td>
<td>72</td>
</tr>
<tr>
<td>Special Education</td>
<td>23</td>
<td>17.08 (3.55)</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>17.10 (4.64)</td>
<td>91</td>
</tr>
<tr>
<td>Nontarget Items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>72</td>
<td>15.88 (4.73)</td>
<td>72</td>
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<tr>
<td>Special Education</td>
<td>23</td>
<td>14.86 (4.54)</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>15.64 (4.68)</td>
<td>91</td>
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</tbody>
</table>

are reported in Table 2. Gain scores based on class means were entered into a two condition (experimental vs. traditional) by two item type (target vs. nontarget items) analysis of variance (ANOVA) with repeated measures on the item type variable, which yielded a statistically significant main effect for experimental condition, \( F(1,6) = 12.28, p = .013 \), favoring the experimental condition, and for item type by condition interaction, \( F(1,6) = 29.744, p = .002 \), with classes in the experimental condition scoring differentially higher on the target items and traditional condition classes scoring higher on the nontarget items (see Table 2). However, experimental classes scored statistically higher overall on both item types (\( p = .021 \) in both cases, according to Mann Whitney \( U \) tests). The main effect for item type, across conditions, was not statistically significant, \( F(1,6) = 1.146, p = .160 \). As seen in Table 2, treatment effects for students with disabilities paralleled those for students without disabilities.

**Survey Responses**

General education students and students with disabilities in the experimental condition generally agreed that they enjoyed using the mnemonic materials (means of 2.26 and 2.26, respectively, on a 3-point scale), that they were easy to use (2.75 and 2.83), helped them learn (2.57 and 2.52), and helped them do better on tests (2.68 and 2.43). When asked if similar mnemonic cards could be used in other classes, general education students scored a mean of 2.42 and students with disabilities scored a mean of 2.17. Students listed science, math, and English as subjects in which mnemonic materials could also be used. However, students in experimental and control classes scored similarly positively when asked if they enjoyed social studies this year (means of 2.87 and 2.83, respectively).

Analysis of teacher reports revealed positive support for the experimental condition (three teachers participated in this condition), citing for benefits student interactions, student enthusiasm, student learning, and increased student active participation. These teachers generally
agreed or strongly agreed that mnemonics helped improve instruction and that they would like
to use mnemonics in the future. All teachers agreed that students were on task and actively
engaged when tutoring with the mnemonic materials. Analysis of observer notes taken during
fidelity observations also supported these conclusions.

DISCUSSION

In the present investigation, social studies classes of students with and without mild disabilities
who had engaged in classwide peer tutoring with mnemonic strategies significantly outper-
formed students provided with more traditional activities. This finding replicates and extends
previous findings on the use of differentiated curriculum enhancements in a variety of formats
and presents additional confirmation of the ability of students to use mnemonic strategies in
peer-tutoring contexts.

Mnemonic tutoring materials were not difficult to develop, but they were more time-
consuming than the fact sheets employed in previous investigations. However, the mnemonic
materials did lead to very substantial gains in learning (e.g., $ES = 1.23$ for target items on the
cumulative recall test). Further, the use of clip art and text boxes have substantially facilitated
material development in recent years, particularly for teachers and researchers with less artistic
ability.

Another interesting finding is that experimental condition classes performed higher on
nontarget items (that had not been part of the tutoring intervention) as well as the target items.
This finding was also observed in the Scruggs, Mastropieri, and Marshak (2009) investigation,
and suggests that interventions that increase a substantial portion of unit content may also
enable higher levels of learning of related content. Thus, experimental condition students who
had learned that imperialism involves taking control of other countries (target item) may also
have been more likely to remember that the United States took control of the Philippines after
the Spanish-American War (nontarget item).

This investigation extends previous efforts to provide instructional support to students with
mild disabilities in inclusive secondary classrooms. Previous investigations, grouped under the
label “differentiated curriculum enhancements,” have employed different methods, with the
common theme that students with mild disabilities receive appropriate support without being
singled out with different methods or materials. In all cases, all students received the same
materials as their general education peers but also received the practice and strategy instruction
necessary to help them succeed. In addition, in all cases, students receiving these supports
significantly outperformed students who were traditionally taught.

As students with mild disabilities enter inclusive secondary content area classrooms, they
typically find limited classroom time allocated to strategic instruction or targeted practice
for learning academic content (Scruggs, Mastropieri, & McDuffie, 2007). The results of the
present investigation suggest that students in inclusive history classes can tutor each other
using strategic mnemonic instruction in critical content area materials, and that when they do
so, their content area learning improves at a rate greater than that attained through more tradi-
tional instruction. Teachers of secondary students should consider classwide peer tutoring with
strategic mnemonic instruction as an important method for delivering high-quality instruction
to all students.
REFERENCES


