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What is This?
Instructional Strategies for Improving Achievement in Reading, Mathematics, and Science for English Language Learners With Disabilities

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Effective reading, mathematics, and science instructional strategies for English language learners with disabilities participating in state accountability assessments are identified by educators of these students. Among students with disabilities, the importance of various strategies for their learning in a standards-based, assessment-driven environment is highlighted. For 72 educators, reading is seen as the highest importance content area, whereas for 25 students, mathematics, then reading, is seen as the highest importance content area. Several specific instructional strategies are identified as effective through the Multi-Attribute Consensus-Building process, although some variability emerges. Curriculum-based probes have considerable variability in educator weightings, but students weight them as important, feasible, and frequently used. Native language is not frequently mentioned and not particularly supported by students. Implications for further research are discussed.

Keywords: instructional strategies; English language learners with disabilities; reading; mathematics; science; assessment strategies; Multi-Attribute Consensus-Building method

Since the introduction of the No Child Left Behind (NCLB) Act of 2001, there has been emphasis in the field of education on accountability for all children and on the improved academic performance of all students, including English language learners (ELLs) who have Individualized Education Programs. There has been a documented increase in the population of ELLs throughout the U.S. K-12 educational system (Cisneros & Leone, 1995; Zehler, Fleischman, Hopstock, Pendzick, & Stephenson, 2003), and a portion of these students also have disabilities. Modest estimates indicate that 9% of the ELL population are on Individualized Education Programs (Zehler et al., 2003). The actual number could be higher or lower. Individuals disagree about the discrepancies that exist in categorization of students with special needs in different locations and under various political pressures. Moreover, accurate identification, placement, and assessment can take several years because educational specialists want to ensure that students are not reflecting only the challenges of language barrier but in fact have a disability as well. The increase in the population of ELLs with disabilities has been a challenge for schools, and most school systems have not made the curriculum adjustments needed nor have had available qualified educators needed to meet the new demands created by the new populations of students (Artiles & Ortiz, 2002).

Identifying instructional strategies for ELLs with disabilities is essential for a number of reasons. First, state content standards, which are the basis for the assessments on which students must perform in NCLB accountability, typically do not address specific standards-based instructional strategies to be used with ELLs with disabilities to achieve those standards (Albus, Thurlow, & Clapper, 2006; Menken & Holmes, 2000). Second, the dearth of literature on instructional strategies for ELLs with disabilities requires further exploration of the problem (cf. Gersten & Baker, 2000; Gersten, Baker, & Marks, 1998;...
Educators may not have the necessary training for either the language-learning needs or disability needs of their ELLs (Anstrom, 1997; Ortiz, 1997), yet the requirements for providing content-based instruction remain. Both educators and students can provide insights on instructional strategies that may be based on sources other than research and state guidelines. These can then be subjected to rigorous research designs.

Reading, mathematics, and science are all content areas singled out for assessment by NCLB. Although only reading and math are currently included in accountability, there are proposals to include science when NCLB is reauthorized (e.g., Commission on No Child Left Behind, 2007). States’ content standards are the basis not only for their assessments but also for their instruction and curricula. In a standards-based instructional and assessment environment, everything returns to the content standards.

Teachers are an important source of information about instructional strategies for ELLs with disabilities. They are the agents most directly serving these students and providing the link needed to improve their performance in the classroom and on standards-based assessments. Acknowledging the importance of what students have to say means recognizing their active role in the learning process (Kordalewski, 1999). This is particularly important for learners who have been challenged in their access to standards and in demonstration of successful performance. Determining ways to obtain information from ELLs with disabilities about the importance of various instructional strategies is an important goal of research.

This study was designed to focus on instructional strategies for middle school- and junior high school–level ELLs with disabilities. Although it is important to examine instructional practices for ELLs with disabilities at all grade levels, research at the middle school level is particularly important for several reasons. According to McKeon (1994), middle and junior high school ELLs face more instructional challenges, because they may not yet possess the knowledge base that their general education peers have already acquired achieving grade-level content standards. Also, the middle school curriculum may be more challenging for ELLs with disabilities because it places greater cognitive demands on them, particularly in reading instruction (Klingner, Artiles, & Barletta, 2006). Another issue is that school dropout often increases with the advancement of student age (Mikow-Porto, Humphries, Egelson, O’Connell, & Teague, 2004) and drop-out rates are significantly higher for students with disabilities compared to general education students. Thus, research on the middle school and junior high school levels can explore ways of enhancing educational experiences of ELLs with disabilities to limit or reduce their drop-out rate.

### Instructional Research

The small research base on instructional strategies is continually increasing. In the area of reading, for example, research highlights the importance of specific strategies tailored to individual instructional and assessment needs of ELLs with disabilities (England, Collins, & Algozzine, 2002). Some researchers stress the importance of appropriateness of teaching strategies (Langdon, & Algozzine, 2002). Examination of literature on instructional practices generated the following approaches to instruction and assessment of ELLs with disabilities:

1. visuals to reinforce new concepts and vocabulary;
2. rich and relevant vocabulary to keep students engaged and challenged;
3. cooperative learning and peer tutoring;
4. strategic native language use;
5. balance of linguistic and cognitive demands;
6. clear and consistent use when introducing new concepts;
7. opportunities for learners to use both academic and conversational English;
8. feedback that is adapted to the learner’s level of language proficiency;
9. strong home–school connections; and
10. ongoing assessment of effectiveness of instructional strategies (Fletcher, Bos, & Johnson, 1999; Gersten & Baker, 2000; Gersten et al., 1998).

### Participation and Performance in State Assessments

Most states do not report separately participation information or data on the state assessment performance of ELLs with disabilities (Albus & Thurlow, 2005). This may be due to small populations, but even in states with large populations, this group of students is generally not reported separately. Still, the number of states reporting assessment data on ELLs with disabilities is growing. In 2000, only New Jersey officially reported participation results for ELLs with disabilities, excluding data on performance results (Thurlow & Liu, 2001). The following year, three states reported participation data for ELLs with disabilities in general state assessments (Albus, Liu, & Thurlow, 2002). In 2002 through 2003, according to general state assessments, nine states reported participation and performance data for ELLs with disabilities (Albus & Thurlow,
Participants of instructional strategies. The majority of educators reported working with ELLs with disabilities (43%), special education teachers (23%), and English as a Second Language (ESL) teachers (20%). Most participants had more than 10 years of experience and had been in their current jobs from 1 to 5 years. Stage II included 42 educators from eight schools in two urban and five suburban districts. Of the 42 participants, 40% (n = 17) were ESL or bilingual teachers, 24% (n = 10) were special education teachers, and 36% (n = 15) were from other educational areas. Half (50%) of all educators had more than 10 years of professional experience and another 29% had 1 to 5 years of professional experience. The majority of educators reported working with ELLs with disabilities (n = 32). The second largest group of students served by research participants was ELLs (n = 30), followed by general education students (n = 25) and students with disabilities (n = 25).

Student participants in Stage III were 25 Hmong students with disabilities from four urban charter middle schools in the same Midwestern state where the educators were located. More than half of the students (56%) had resided in the United States for over 10 years; 36% of the students had lived in the United States for 5 to 10 years; and 8% of the students were U.S. residents for 1 to 5 years. Sixth- and seventh-graders were the largest groups represented (36% each); they were followed by eighth-graders (16%) and fifth-graders (12%). Boys constituted over two thirds of the study participants. Most of the students (60%) were born in the United States but were in ESL programs. Some students had been born in Thailand (28%) and Laos (12%). The majority of students (64%) had learning disabilities; the next largest group (12%) had speech language impairments; and the remaining 24% of students had either a combination of a learning disability with another disability or some other disability (deaf, hard of hearing, or visually impaired).

Instrumentation

Three types of research instruments were used in this study: demographic surveys for educators and students, instruments to gather weightings of the importance of instructional strategies, and use and feasibility surveys. The demographic surveys were designed and finalized prior to the study while the instruments on strategy importance, use, and feasibility were finalized, as intended, at the end of Stage I of the educator study.

Two surveys—one for educators and one for students—were developed to gather demographic data on research participants. The educator survey included questions on educators’ gender, teaching position and experience, subjects taught, students served, and teaching approaches. The student survey focused on the student’s grade, age, gender, ethnicity, country of origin, primary language, disability type, and length of residence in the United States. The educator survey was used at the beginning of each session and the student survey was completed by students’ teachers prior to the student focus groups.

An MACB instrument was used to enable educators to generate and weight the importance of instructional strategies for content areas included in NCLB. The developed instrument first included questions on the importance of three content areas (reading, mathematics, and science) and then sets of content instructional strategies to which research participants were to add. Educators were asked to brainstorm and weight the importance of instructional strategies on a scale from 1 (very unimportant) to 100 (very important), with the requirement that at least one strategy had to be weighted 100.
Two versions of the MACB strategy instrument were used. The Stage I version included five strategies identified in the literature as recommended (Gersten et al., 1998). These were then added to by educators through the process of defining and weighting the strategies. The results were entered into a computer and projected onto a screen to stimulate discussion and possible changes in weightings. The final result of the Stage I MACB produced the Stage II MACB instrument with reading, mathematics, and science content areas and sets of instructional strategies for each area.

For the student study, the strategies from the Stage II MACB instrument for educators were included in the student MACB instrument. However, the weighting scale was simplified: 1 (very unimportant) to 10 (very important). In addition, strategy names and definitions were adjusted for a middle school comprehension level. For example, “relating reading to student experiences” strategy was changed to “reading what you know from your own life.”

Use and feasibility surveys were used with both educators and students. They were developed to contain the same sets of instructional strategies as the MACB instruments. The use question addressed the frequency of each strategy’s application; research participants had four answer choices: never, sometimes, often, and always. The feasibility question targeted levels of ease of implementation of each strategy; there were four answer choices: low, somewhat low, somewhat high, and high. Similar to adjustments made to the MACB instrument, the language of the use and feasibility surveys for students was simplified to enhance their understanding.

**Procedure**

The project was conducted over a span of 2 years (2003–2005) and predominantly consisted of MACB focus group sessions with educators and students. For study consistency, instructional strategy was defined as “a purposeful activity to engage learners in acquiring new behaviors or knowledge. To be useful for our purposes, an instructional strategy should have clearly defined steps or a clear description of what the teacher does” (Thurlow, Albus, Shyyan, Liu, & Barrera, 2004, p. 4).

The overall study was composed of three stages. In Stage I, educators generated reading, mathematics, and science instructional strategies. Teachers were first asked to give importance weightings to the three content areas, then brainstorm and weight the importance of instructional strategies, and finally, complete surveys on strategy use and feasibility levels. All strategy definitions were compiled into a general glossary to ensure that every participant had the same strategy in mind when providing feedback on its importance, use, and feasibility. In Stage II, we finalized the lists of generated instructional strategies, and educators weighted the importance of reading, mathematics, and science strategies using the MACB approach and completed surveys on degrees of use and feasibility of these strategies. In Stage III, a similar MACB process was used with students; however, the study instruments were simplified to an appropriate reading level, and research activities were minimized to satisfy students’ needs.

At the beginning of the three stages, we administered demographic surveys to collect background information on educators and students. All research participants had an opportunity to discuss instructional strategies and report their importance weightings. The weightings were immediately entered into a Microsoft Excel spreadsheet and projected onto a screen inviting further facilitator-guided discussions, particularly about the strategies, which received dramatically different weightings. Educators and students were invited to change their weightings at any time if preferred; however, we did not enforce complete consensus on every strategy, ensuring participants’ rights to have a different opinion and recording rationale for specific weightings. The use and feasibility surveys were conducted with educators and students at the end of each focus group session.

**Results**

Results of the studies are reported in the order in which educators and students encountered the questions during the MACB sessions, starting with assessing the importance of the content areas, proceeding to the importance of instructional strategies under each content area, and finishing with evaluating use and feasibility of each strategy. Middle school educators and Hmong students with disabilities weighted sets of reading, mathematics, and science instructional strategies. Students’ insights on importance, feasibility, and use of instructional strategies were collected using simplified strategy definitions and weighting scales.

**Importance of Content Areas**

Figure 1 presents the results of weighting the content areas. Results are provided for both educators and students in the figure. Educators assigned weights to the content areas that indicated both reading and math were “very important.” The reading content area was consistently given weights that indicated it was the most
important to the participants; its average rating across all 72 educators was 100.0 ($SD = 0.0$). The mathematics average weighting was slightly lower: 90.7 ($SD = 8.1$). Science received the lowest weighting across all participating educators ($n = 72$), with an average of 78.8 ($SD = 11.2$); this weight was positioned in the “important” area on the weighting scale.

Students’ weightings of importance of content areas were somewhat different from those of educators. Hmong students with disabilities considered all three content areas “very important.” Mathematics was given the highest average weight with the mean score of 9.7 ($SD = 0.6$) on the simplified scale of 10 points. Reading was given the next highest average weight, with an average score of 9.2 ($SD = 1.3$). Science was third, with the mean of 8.6 ($SD = 1.9$).

**Importance of Instructional Strategies**

*Reading.* Table 1 shows the weightings that educators and students gave to the reading instructional strategies that were either in the initial list given to them and retained because of high weightings or added to that list by them and maintained because of high weightings. Both educators and students gave weightings to a total of 22 reading strategies in addition to the original list of sample five strategies they had been given at the beginning of the study. As is evident in Table 1, which lists the strategies in order of the educators’ weightings, there are several strategies that educators and students agree on generally as to their importance. Three strategies—“fluency building”; “direct teaching of vocabulary through listening, seeing, reading, and writing”; and “practicing paraphrasing and retelling”—were chosen as important by both educators and students.

In addition, educators selected two strategies among top important ones that students did not select: “relating reading to student experiences” and “chunking and questioning aloud.” Students weighted “specific informal assessments based on curriculum (curriculum-based probe)” and “tactile vocabulary development steps” as important reading strategies. The curriculum-based probe strategy registered the highest level of variability in weightings from educators receiving the highest scores from special education teachers.

*Mathematics.* Table 2 shows the weightings that educators and students gave to the mathematics strategies. Both educators and students gave weightings to 14 mathematics strategies in addition to the list that they had been given at the start of the initial MACB sessions. Table 2 reveals that the strategies given the most weight (and thus considered most important) by educators are not necessarily the same ones weighted highly by students. Only one strategy—“problem solving instruction and task analysis”—was weighted among the top five important strategies by both educators and students.

Educators selected several other mathematics strategies as highly important: “tactile, concrete experiences of mathematics”; “daily re-looping of previously learned material”; “student think-alouds”; and “teacher think-alouds.”

In addition to the “problem solving instruction and task analysis,” ELLs with disabilities weighted the following strategies as highly important in the area of mathematics: “reciprocal peer tutoring (RPT)”; “model-lead-test strategy instruction (MLT)”; and instructional assessment strategies such as “explicit vocabulary building and random, recurrent assessments”; and “monitoring of progress through group and individual achievement awareness charts.”

*Science.* Weights assigned to science instructional strategies are shown in Table 3. Educators generated 18 strategies beyond the initial ones that had been provided to them. As shown in Table 3, both educators and students agreed on the high importance of the instructional strategy of “using visuals” in the content area of science. Beyond this, educators and students had different perspectives on effective instructional strategies within a standards based accountability educational system.

Educators gave high weight values to four science instructional strategies in addition to the “using visuals” strategy. The highest mean weight overall given by educators was to “hands-on, active participation.” The additional strategies given high weights by educators were “using pictures to demonstrate steps”; “modeling/teacher demonstration”; “using pre-reading strategies in content areas”; and “pre-teaching vocabulary.”
Students gave weightings of importance that identified additional top weighted science strategies: “pre-teaching vocabulary”; “peer tutoring”; “teaching how to pick out the main idea of the text and justify it”; and a “KWL chart,” which identifies what the student knows, wants to know, and has learned. Only the first two—“pre-teaching vocabulary” and “peer tutoring”—reached the “very important” level in student weightings.

Use and Feasibility

We also asked educators and students to comment on the degree of use and feasibility of each instructional strategy. Table 4 summarizes research findings on most used and feasible strategies as selected by research participants. As shown in the table, educators and students did not reach consensus on any of the top used and feasible instructional strategies. Among reading strategies, educators singled out “practicing paraphrasing and retelling” as the most used strategy and “relating reading to student experiences” as the most feasible one. For mathematics, “adjusted speech” (defined as the teacher’s changes in speech patterns and paraphrasing to increase student comprehension) was selected as the most used strategy. The “native language support” strategy was selected as both least used and feasible one, whereas “daily re-looping of previously learned material” was chosen as the most feasible mathematics strategy. For science, educators selected “using visuals” as both most used and feasible strategy.

In the student study, ELLs with disabilities commented on use and feasibility of instructional strategies on behalf of their teachers. Students chose “specific informal assessments based on curriculum (curriculum-based probe)” among the reading strategies as the most used one. In the feasibility category, students identified “partner reading” (defined as having students work together in pairs to read a text to each other and discover the main ideas of the story) as the most feasible strategy. In mathematics, students chose “reinforcing mathematics skills through games,” used as a lesson follow-up to practice mathematics skills in a different context, as the

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Table 1

<table>
<thead>
<tr>
<th>Instructional Strategy and Definition</th>
<th>Educators(^a)</th>
<th>Students(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(M)</td>
<td>(SD)</td>
</tr>
<tr>
<td>Fluency building: Helping students to build fluency in frequently occurring words through short assessments and exercises that give increased exposure to high-frequency words</td>
<td>90.8</td>
<td>9.6</td>
</tr>
<tr>
<td>Direct teaching of vocabulary through listening, seeing, reading, and writing: Teaching vocabulary directly through listening, speaking, reading, and writing in short time segments; students are exposed to vocabulary in different ways, and movement of activities helps hold attention</td>
<td>90.5</td>
<td>10.2</td>
</tr>
<tr>
<td>Relating reading to student experiences: Having students talk about connections in the reading to their own experiences in a large group or small-group setting</td>
<td>88.0</td>
<td>11.0</td>
</tr>
<tr>
<td>Chunking and questioning aloud: Reading a story aloud to a group of students and stopping after certain blocks of text to ask the students specific questions about their comprehension of the story and some key features of the text</td>
<td>87.7</td>
<td>14.6</td>
</tr>
<tr>
<td>Practicing paraphrasing and retelling: Working on specific skills to retell orally or summarize in writing what happened in a story</td>
<td>85.5</td>
<td>11.8</td>
</tr>
<tr>
<td>Specific informal assessments based on curriculum (curriculum-based probe): Having students read aloud three basal reader passages for 1 minute; the teacher marks the place where the student stops and then asks comprehension questions and continues to give probes until the student reaches frustration level as defined by reading rate and median score</td>
<td>65.7</td>
<td>27.6</td>
</tr>
<tr>
<td>Tactile vocabulary development steps: Using three-dimensional or tactile objects to help in developing students’ abilities to write words and letters (e.g., writing letters in sand)</td>
<td>62.4</td>
<td>24.7</td>
</tr>
</tbody>
</table>

Note: The data are based on weightings of 42 educators and 25 students.

\(a\). The Importance Scale for educators is composed of the following: 1–20 = very unimportant, 21–40 = unimportant, 41–60 = neither unimportant nor important, 61–80 = important, 81–100 = very important.

\(b\). The Importance Scale for students is composed of the following: 1–2 = very unimportant, 3–4 = unimportant, 5–6 = neither unimportant nor important, 7–8 = important, 9–10 = very important.
most used and feasible strategy. Students selected the mathematics “ecological approach/generating data from real life experiences” strategy (defined as incorporating all aspects of students’ life, including classroom, family, neighborhood, and community, in teaching life and educational skills) as the least used and feasible one. From the list of the science strategies, students singled out “pre-teaching vocabulary” as the most used strategy and “peer tutoring” as the most feasible strategy.

### Rationales for Weighting Strategies

Educators voiced their rationale for their weightings during the discussion of the strategies in each content area. These rationales were recorded and summarized.

Educators’ weightings seemed to be affected by research data, educational setting, the nature of content areas, and personal experiences. Some teachers were guided by research recommendations and assessment results when making instructional decisions. However, many tended to use individualized approaches dependent on the needs of individual students when relying on scholarly data available in the field. Some participants pointed out the need for differentiated educational settings and context and made their strategy selections based on the advantages and limitations of each particular setting. Another factor that affected educators’

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**Table 2**

**Educator and Student Weightings of Mathematics Instructional Strategies**

<table>
<thead>
<tr>
<th>Instructional Strategy and Definition</th>
<th>Educators&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Students&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Tactile, concrete experiences of mathematics: Using three-dimensional objects in mathematics instruction such as geometrical shapes</td>
<td>93.9</td>
<td>10.6</td>
</tr>
<tr>
<td>Daily relooping of previously learned material: Bringing in previously learned material to build on each day so that students have a base knowledge to start with and learned structures are constantly reinforced</td>
<td>92.9</td>
<td>11.5</td>
</tr>
<tr>
<td>Problem-solving instruction and task analysis: Explicit instruction in the steps to solving a mathematical problem including understanding the question, identifying relevant and irrelevant information, choosing a plan to solve the problem, solving it, and checking answers</td>
<td>92.9</td>
<td>10.5</td>
</tr>
<tr>
<td>Teacher think-alouds: Using explicit explanations of steps of problem solving through teacher modeling metacognitive thought (e.g., demonstrating the thought process used in problem solving)</td>
<td>87.4</td>
<td>16.5</td>
</tr>
<tr>
<td>Student think-alouds: Having students describe the steps of problem solving</td>
<td>86.6</td>
<td>14.0</td>
</tr>
<tr>
<td>Explicit vocabulary building and random, recurrent assessments: Using brief assessments to help students build basic subject-specific vocabulary and also gauge student retention of vocabulary</td>
<td>82.3</td>
<td>12.8</td>
</tr>
<tr>
<td>Model-lead-test strategy instruction: Teaching students to use learning strategies independently in three stages: (a) The teacher models correct use of strategy; (b) the teacher leads students to practice correct use; (c) the teacher tests students’ independent use of it; once students attain a score of 80% correct on two consecutive tests, instruction on the strategy stops</td>
<td>80.1</td>
<td>20.7</td>
</tr>
<tr>
<td>Reciprocal peer tutoring: Having students pair up, choose a team goal to work toward, tutor each other on mathematics problems, and then individually work a sheet of drill problems; students get points for correct problems and work toward a goal</td>
<td>74.6</td>
<td>13.5</td>
</tr>
<tr>
<td>Monitoring of progress through group and individual achievement awareness charts: Using charts to build awareness and motivation of progress for students; the emphasis is on progress so even students working at different levels can chart significant gains</td>
<td>67.4</td>
<td>21.1</td>
</tr>
</tbody>
</table>

Note: The data are based on weightings of 42 educators and 25 students.

<sup>a</sup> The Importance Scale for educators is composed of the following: 1–20 = very unimportant, 21–40 = unimportant, 41–60 = neither unimportant nor important, 61–80 = important, 81–100 = very important.

<sup>b</sup> The Importance Scale for students is composed of the following: 1–2 = very unimportant, 3–4 = unimportant, 5–6 = neither unimportant nor important, 7–8 = important, 9–10 = very important.
weightings was strategy applicability or lack thereof across content areas, because some strategies proved to be more transferable than others. Finally, some educators made their strategy selections based on their previous experiences and prioritized the ones that had worked well in their previous careers.

Our review of the rationales for weighting of the students let us infer that the weightings of instructional strategies by ELLs with disabilities differed, depending on their disability type and country of origin. Students with learning disabilities seemed to prioritize strategies involving repetition (e.g., fluency building), whereas their peers with other disabilities preferred visualization strategies (e.g., graphic organizers). Hmong students with disabilities born abroad (in Laos and Thailand) expected more guidance from their teachers and peers, singling out as important such collectivistic strategies as “monitoring of progress through group and individual achievement awareness charts” (defined as using charts to build awareness and motivation of progress for students) and “peer tutoring.”

### Discussion

This study addressed the identification of effective instructional strategies for ELLs with disabilities in an assessment-driven, standards-based accountability context. We approached educators and students as important
sources of information about effective strategies for this unique group of students for whom little research has been undertaken thus far, to begin to identify potentially effective strategies for further investigation. The study findings addressed the following: (a) educator and student feedback on the importance of reading, mathematics, and science; (b) sets of reading, mathematics, and science instructional strategies, which are important, feasible, and useful in education of ELLs with disabilities; (c) factors affecting research participants’ choices of instructional strategies; and (d) insights of ELLs with disabilities on instructional strategies to be taken into account in grade-level instruction.

The sessions with educators and students served multiple purposes. Teacher and student perceptions of effective instructional strategies for ELLs with disabilities have the ultimate potential to enhance educational achievement of these students. The study clearly stimulated discussions of instructional practices within a framework of state standards and state assessments, confirming these as expectations for ELLs with disabilities. During the study sessions, educators representing different disciplines had an opportunity for professional development by discussing which instructional strategies are offered in the literature and which ones are used by their colleagues. Voices of ELL students with disabilities are not always heard. This study provided an opportunity for these students to express their perceptions about the effectiveness of instructional strategies. Many of the generated strategies can be used to both deliver instructional material and assess students’ progress.

Both educators and students tended to be neutral or positive in their discussions of strategies and assigned the proposed instructional sets high average weightings concentrated in the upper level of the importance, feasibility, and use. Educators unanimously weighted reading as most important, then mathematics. Science was least important, perhaps reflecting its nonrole in current federal accountability systems. If this changes, as has been recommended (Commission on No Child Left Behind, 2007), perceptions may or may not change. Reading was perceived as a basic skill needed for studying other subjects; it was considered an integral part of other content areas. For Hmong students with disabilities, however, mathematics ranked first in importance, followed by reading and science. This difference could be explained by the strong emphasis on teaching mathematics in many Asian countries and a lower perceived need for English language proficiency due to the international nature of mathematics. In the U.S. school system, Asian students have been labeled “the model minority” because of achieving higher average mathematics scores compared to verbal scores (Lee, 1994). According to one of the students who participated in our study, “Math is important because you can know your numbers and learn . . . Math is easy.”

The need for a clear definition of what an instructional strategy is became apparent from the study results. Some participants regarded general approaches or specific curriculum packages as strategies, despite the fact that we provided a definition of what constituted a strategy and gave examples. The lack of distinction may be caused by a lack of clarity about the notions of an approach and strategy in the educational field or the fact that these terms are sometimes used interchangeably. The weighting process also revealed that some instructional strategies were perceived as being effective only in certain educational settings (e.g., learning in groups vs. learning individually, teaching ELL students with disabilities exclusively vs. inclusive teaching, etc.) or with certain categories of students (disability types, cultural backgrounds, etc.).

Educators participating in the study tended to regard participation not only as a way to contribute to the study

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Most Used Strategies</th>
<th>Most Feasible Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Educators</td>
<td>Students</td>
</tr>
<tr>
<td>Reading</td>
<td>Practicing paraphrasing and retelling</td>
<td>Specific informal assessments based on curriculum (curriculum-based probe)</td>
</tr>
<tr>
<td>Math</td>
<td>Adjusted speech</td>
<td>Reinforcing mathematics skills through games</td>
</tr>
<tr>
<td>Science</td>
<td>Using visuals</td>
<td>Preteaching vocabulary</td>
</tr>
</tbody>
</table>

Note: The data are based on responses from 42 educators and 25 students.
but also as a professional development opportunity. The discussions about strategies empowered them with information on how their colleagues teach ELLs with disabilities. They appeared to have lacked previous communication with each other about both what they were doing and what they considered to be effective. The need for further discussions among those educating ELLs with disabilities and their supervisors is clear. Further discussions and experience exchanges on content strategies on school, district, state, and federal levels are also appropriate. The process of designing educational content will be more beneficial if it is carried out based on student input because student voices are not always heard in instructional design. Student input is especially important when students are faced with more complex learning material and greater demands (Langdon, 2002).

**Conclusion**

The findings in this study indicate that standards-based instruction for ELLs with disabilities can be significantly improved based on insights from educators and students. For educators, the implications of this study are that there are several strategies in the field, which educators and students recognize as effective in the content instruction of ELLs with disabilities, and many more promising strategies have yet to be studied with these student populations. Engaging now in serious, field-based studies of some of the strategies identified by educators and students as effective is imperative (e.g., Barrera, Liu, Thurlow, & Chamberlain, 2006; Barrera, Liu, Thurlow, Shyyan, et al., 2006). As there is a buildup of the knowledge base on effective strategies, teacher training programs can be designed to ensure that effective instructional strategies are known and implemented appropriately.

There are some obvious limitations of this study, including the fact that the sample size is from only one state and that the participants might not have had the most recent expert data on instructional strategies. However, we provide the findings as a counterpart and a much-needed update to previous studies (Gersten et al., 1998) that generated data with comparable panels of experts. With the current context of assessment-driven standards-based instruction, there clearly is heightened interest in providing appropriate and effective strategies to all students, including ELLs with disabilities.

This study highlights perceptions of instructional strategies for ELLs with disabilities from educators and students, bringing together two groups of stakeholders in the educational process. It will be important to obtain the perspectives of educational leaders, especially principals—the people responsible for setting the tone for expectations and implementing the instructional strategies for meeting standards of educational practice (Thurlow, Barrera, & Zamora-Durán, 2006). Combining the view of the principal with the views represented here and then bringing in the parent perspective (cf. Vang & Barrera, 2004–2005) will help the field better ensure the appropriate involvement of ELLs with disabilities in the educational system while also ensuring that students are given the instruction they need to perform well on state standards-based assessments of reading, math, and science.

**References**


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