A Reading Instruction Intervention Program for English-Language Learners Who Are Struggling Readers

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We used a multiple baseline across students design to evaluate the effects of an intervention program consisting of vocabulary instruction, error correction, and fluency building on oral reading rate and comprehension of five English-language learners who were struggling readers in a primary school. During the first intervention condition (new passage each session), the first author (a) explained the meanings of new vocabulary words from the session's passage, used each vocabulary word in a sentence, and asked the learner to use each word in a sentence; (b) corrected oral reading errors during the learner's initial oral reading of the passage; (c) asked the learner to read the passage as fast as she or he could for three consecutive trials; and (d) asked five literal comprehension questions about the passage. The same procedures were used during the second intervention condition (same passage to criterion), except the same passage was used across sessions until the learner reached a predetermined number of words read correctly per minute. During the *new passage each session* condition, the oral reading rate of all five learners showed marked improvements over their performance during baseline. During the *same passage to criterion* condition, four of five learners reached the predetermined fluency criterion of 100 correct words per minute. The mean number of comprehension questions answered correctly per session was notably higher during both intervention conditions than during baseline.

Among those overrepresented in special education programs, culturally and linguistically diverse, at-risk children, in particular, are in "quadruple jeopardy" (Utley, 1995). Most notably, multiple compounding factors, such as poverty, language, culture, and a disabling condition, significantly diminish opportunities for success in mainstream classrooms and increase the likelihood of placement in a special education program. Minority English-language learners, particularly those with disabilities, face the compounding challenges of learning a new language while simultaneously mastering subject matter and coping with attendant learning problems imposed by their disabilities (Correa & Heward, 2000; Gersten & Jimenez, 1998).

Most recent views of language-minority learners, particularly in the area of reading, are shaped by research on learners of English as a first language (e.g., Fitzgerald, 1995; Grabe, 1991). Based on her review of research on reading instruction for learners of English as a second language (ESL), Fitzgerald reported that instructional strategies found effective for teaching native English speakers were also found effective for teaching ESL learners. Fitzgerald further suggested that teachers could base second-language reading instruction on research conducted with native English speakers acquiring literacy skills. Sound practices for teaching native English-speaking students also tend to be sound practices for students who are learning English, although those practices may require modifications (Fitzgerald, 1995; Gersten & Jimenez, 1994; Hague, 1987).

For students with learning disabilities (LD), current research has focused primarily on improving basic reading skills and strategic reading behaviors (Graham & Johnson, 1989). Although direct instruction and mastery learning are recommended approaches for poor readers (e.g., Guthrie & Tyler, 1978), less is known about the instructional components most critical to the development of reading skills among English-language learners (Linan-Thompson, Vaughn, Hickman-Davis, & Kouzekanani, 2003). In fact, Figueroa, Fradd, and Correa (1989) highlight the absence of a "substantial body of empirical data on actual, well-controlled interventions. Bilingual special education does not yet have this body of knowledge" (p. 178). Although this situation has improved somewhat, em-

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pirical data in the research literature on effective instructional practices for English-language learners remains limited (Gersten & Baker, 2000).

Three teaching strategies, vocabulary instruction, error correction, and repeated readings, have been shown to improve students' word recognition skills and reading fluency necessary for effective reading comprehension. Although the effects of these strategies on oral reading are positive, whether or not these procedures have significant effects on reading comprehension remains inconclusive (Graham & Johnson, 1989; Mastropieri & Scruggs, 1997).

Critical Elements of a Reading Instruction Intervention Program

The reading instruction intervention program used in this study was based on syntheses of reading research that identified critical components of reading instruction for language-minority learners as well as learners with LD (e.g., Mastropieri & Scruggs, 1997). A careful review of the literature showed that the use of vocabulary instruction, error correction, and repeated readings with ESL students with LD is lacking.

Vocabulary Instruction

Vocabulary knowledge has long been recognized as foundational to reading comprehension. Students with LD often have vocabulary deficits (Carlisle, 1993), and ongoing work has investigated the use of varied vocabulary instructional approaches for students with LD (Jitendra, Edwards, Sacks, & Jacobson, 2004).

The goal of vocabulary instruction is to help students (a) develop and apply vocabulary knowledge, (b) connect new vocabulary to existing knowledge and experience, (c) understand text, and (d) develop better use of strategies to figure out new vocabulary independently. Effective vocabulary instruction provides both definitional and contextual information about the meaning of new words. It also involves students in the active learning of new words and offers multiple exposures to meaningful information about words and related words (Linan-Thompson et al., 2003).

Despite established robust research findings showing the reciprocal relationship between vocabulary and reading comprehension (Snow, 2002), vocabulary instruction is deemphasized in current reading intervention practices. Hence, although recent attention has been given to the importance of vocabulary development in reading comprehension (Snow, 2002; Snow, Burns, & Griffin, 1998), there is a dearth of research on vocabulary instruction for students with LD. In a recent review of the extant literature on vocabulary instruction for students with LD, a total of 19 empirically based vocabulary studies that comprised 27 investigations were located for the period 1978 to 2002 (Jitendra et al., 2004). Vocabulary instructional approaches, such as keyword or mnemonic approaches, cognitive strategy instruction, direct instruction, constant time delay, and activity-based methods, were shown to be generally effective with students with LD; results for computer-assisted instruction were mixed, however. There is therefore a cogent need for further research to investigate the effects of vocabulary instruction for students who are poor readers as well as those who may have LD and to examine maintenance and generalization effects.

Error Correction

A significant element of a reading intervention program is its provision for teacher feedback on student errors on oral reading tasks. Goodman's landmark research on miscue analysis techniques (Rasinski & Hoffman, 2003) raised awareness and understanding of readers' processing strategies that underlie miscues in reading. More than 20 studies on teacher feedback to miscues were conducted in the late 1980s and early 1990s. Of these, several are widely cited in the literature as supporting immediate correction of all errors (e.g., Grossen & Carnine, 1993). At the same time, this finding is in tension with the work of Hoffman and others (e.g., Hoffman & Clements, 1984), who studied the nature and quality of teacher feedback in relation to patterns of readers' miscues. Hoffman and colleagues have recommended that teachers, when providing feedback, should (a) ignore miscues that do not change the text's meaning; (b) include an element of delay before responding to meaning-change miscues so as to give the reader an opportunity to self-monitor and self-correct performance; and (c) begin with a focus on meaning construction.

A popular oral reading correction procedure combines word supply with drill: that is, the correct response for each error is practiced several times. Although this procedure has proven to be effective in helping students with LD improve performance on word recognition in isolation and, to a lesser extent, in context (Graham & Johnson, 1989), findings concerning its effect on reading comprehension are mixed (Mastropieri & Scruggs, 1997). Further research is therefore needed to shed light on promising practices in oral reading correction to help poor readers and those with LD.

Fluency Building

The term *fluency* refers to the speed and accuracy with which a student reads text orally (Chard, Vaughn, & Tyler, 2002). Fluency is a critical but often overlooked component of reading programs (Allington, 1983; Kameenui & Simmons, 2001). The U.S. National Research Council's Committee for the Prevention of Reading Failure noted that

> because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency, both the

> latter should be regularly assessed in the classroom, permitting timely and effective instructional response when difficulty or delay is apparent. (Snow et al., 1998, p. 7)

The National Reading Panel's extensive review of reading research (NRP; 2000) identified key directions for further research to examine the relationship between guided oral reading instruction and the development of fluency. In particular, the NRP identified a need for research into specific components of instructional practice (e.g., oral reading, guidance, repetition) most responsible for improved fluency. The panel noted a pressing need for rigorous experimental research on the impact of specific elements of instructional programs on different populations of students.

The best known oral reading method for developing fluency is the method of repeated readings (Kuhn & Stahl, 2000, in Rasinski & Hoffman, 2003). In this method, the reader practices reading a short text passage until he or she reaches a predetermined level of fluency. The NRP (2000) identified 98 articles on guided repeated oral reading and determined that the mean weighted effect size in studies of this method was 0.41, indicating that the approach has moderate impact on reading achievement (Chard et al., 2002).

In addition, studies on the use of repetition in a basic reading skills training program show that three or four repeated readings of the same passage lead to positive gains in fluency and comprehension of the passage; the effects diminish as the number of readings exceeds four trials (Mastropieri & Scruggs, 1997). To determine the number of times that learners should read a text for the most fluency benefit, O'Shea, Sindelar, and O'Shea (1987) used three intervention levels to study the relative influence of the number of repetitions on fluency: a single reading, three repeated readings, and seven repeated readings. It was found that seven readings resulted in higher reading fluency than three readings, which were significantly better than a single reading. However, there were no differences between three and seven repeated readings in story retelling measures, although significantly higher reading fluency scores were obtained as compared with the single reading condition.

In terms of criteria for repeated reading, Weinstein and Cooke (1992) compared repeated reading using a fixed-rate criterion of 90 words per minute (i.e., students reread a passage twice daily until a specified criterion of 90 words per minute was met) with a criterion based on individual improvement (i.e., students reread a passage until they achieved three successive improvements) as a basis for increasing the difficulty of the text. They found the fixed-rate criterion more effective than the individual improvement criterion in improving oral reading fluency. Mean gain for the fixed-rate phase was 62% as compared with a mean gain of 58% for the individual improvement phase. Generalization after the individual improvement phase, however, was marked, from 5% to 89%, but was mixed for the fixed-rate phase, ranging from 25% to 56%.

Studies generally indicate that an increase in fluency leads to an increase in comprehension and vice versa (Vaughn et al., 2000), although there is ongoing debate as to the nature of the relationship between fluency and comprehension. Many struggling readers and those with LD have not developed the skill of reading automatically or incidentally. The theory of automatic information processing suggests that slow reading consumes working memory and prevents the individual from actively thinking about the text while reading (Chard et al., 2002). For example, Breznitz (1987) conducted four experiments on first-grade students in both Israel and the United States to determine the effects of accelerated reading rates on students' ability to decode mistakes and to comprehend altered and unaltered text passages. In a fast-paced condition in all four experiments, students were required to maintain their own maximal oral reading rates. When presented with texts at students' maximal reading rates, students made fewer oral reading errors and attained higher reading comprehension scores. Conversely, when students were presented with texts at their slower reading rates, their comprehension scores decreased significantly, despite improved accuracy in decoding. In these experiments, poor readers, in particular, showed tangible improvements when they were put through fast-paced reading conditions that required and encouraged them to read faster.

Moreover, as struggling readers typically lack confidence in reading, it is important for teachers to help these students set goals that are specific and challenging but achievable. It is important for students to see their own progress in the early stages of the intervention (Alberto & Troutman, 2003). One way for students to monitor their progress is through the use of self-recording. Self-recorded data provide both student and teacher with concrete feedback regarding behavior and help to identify reinforcers for effective reading. Self-recording is used to monitor initial progress in reading, and it appears to be effective in maintaining behavior changes resulting from teacher-oriented strategies (Alberto & Troutman, 2003).

In summary, a basic reading instruction program for poor readers and those with LD should employ an intensive and structured reading approach based on both direct instruction and mastery learning. The critical elements of a reading instruction program should focus on specific teaching strategies identified by rigorous experimental research as important to improving the reading fluency necessary for effective comprehension. Future research should seek to determine the number of repeated reading trials as well as the specific criteria for repeated reading (e.g., fixed-rate or individual improvement criteria) that lead to the greatest gains in fluency (Chard et al., 2002). The present study investigated the effects of an intensive intervention program consisting of vocabulary instruction, error correction, and fluency building on the oral reading rate and reading comprehension of elementary-level English-language learners who were struggling readers. A sec-

ondary purpose of the study was to examine the effectiveness of two fluency-building methods with these students.

Method

Setting and Participants

The present study was conducted in a public elementary school with an enrollment of approximately 500 students, more than 100 of whom were identified by the public school district as English-language learners.

As the study was of a single-subject experimental design, the research team asked the teachers to nominate a small number of learners for participation. A group of five elementary-level English-language learners, two girls and three boys, were selected by the ESL and special education teachers as most in need of additional assistance in improving their reading proficiency. Teachers' nominations were based on their experience and acquaintance with these five students and their performance in school; teachers had worked with the students for a minimum of 2 years. No other students were nominated by their teachers for participation in the study. Because of the school district's policy on confidentiality issues regarding the students' IQ and achievement levels in the area of their disability, no such information was provided to the research team. The research team valued the teacher referrals because teachers can be a valuable and unbiased source of information about children's behavior (Abidin & Robinson, 2002; Loeber, Green, & Lahey, 1990).

Based on the assessment guidelines developed by the Office of English as a Second Language in the school district, the five students, Bo, Fran, Illeana, Mark, and Mu, were at Level 2 of the five English as Second Language (ESL) levels, at which literacy skills are beginning to develop, students function well below grade level, and intensive ESL is needed. All five learners received ESL instruction. The school district followed the federal Individuals with Disabilities Education Improvement Act (IDEA) guidelines to identify students with LD (see Heward, 2006). Bo and Fran were diagnosed by the school district as having specific learning disabilities and spent a part of each school day in a resource room. Bo was also on medication for attention-deficit disorders. Illeana was diagnosed as having developmental disabilities and was served in a self-contained classroom. Mark and Mu attended general education classes and were not diagnosed as having any disability. None of the learners received speech and language therapy. Demographic and school-related information for each learner is presented in Table 1.

Before the study, the first author administered the *Brigance Diagnostic Inventory of Basic Skills* (Brigance, 1983) to obtain background information related to each student's functional level of reading to ascertain suitability of reading materials for use with the learners in the study (see Note). Table 1 gives the results of this test.

All experimental sessions were conducted one-on-one in a quiet classroom with teaching materials that were readily available. In each experimental session, instruction for individual learners lasted approximately 35 min.

Reading Materials

The first author and special education and ESL teachers selected daily reading materials for the study and verified the suitability of the reading materials based on their knowledge of the learners, years of experience teaching reading, and pre-study informal assessment data obtained by the first author. They also validated the relevance of the comprehension questions for each passage. Reading passages were selected from commercial reading materials (e.g., *Reading for Understanding* by Instructional Fair, Inc.). The texts were narrative in nature. The readability of the passages was determined through the use of the Flesch Reading Ease and Flesch-Kincaid grade-level functions in Microsoft Word. Upper-first-grade reading

TABLE 1. Demographic and School-Related Data for Student Participants

Student	Gender	Age (years)	Ethnicity	Native language	Years in U.S.	Grade	Disabilities	WR 1	OR 1	RC 1
Bo	M	9.6	Cambodian	Khmer	Born in U.S.	3	SLD	Primer	Primer	Primer
Fran	F	9.4	Puerto Rican	Spanish	3 years 4 months	3	SLD	1st	Primer	Primer
Illeana	F	10.4	Puerto Rican	Spanish	Born in U.S.	4	DD	1st	Primer	Primer
Mark	M	11.1	Ethiopian	Amharic	2 years 10 months	5	None	1st	1st	1st
Mu	M	9.6	Ethiopian	Amharic	3 years 3 months	3	None	Primer	Primer	Primer

Note. SLD = specific learning disabilities; DD = developmental disabilities; 1 = *Brigance Diagnostic Inventory of Basic Skills* (Brigance, 1983), administered prior to study; WR = word recognition; OR = oral reading; RC = reading comprehension.

materials were selected for Bo, Illeana, Mark, and Mu. The passages contained 75 to 95 words. The passages for Fran contained 85 to 110 words. After the first nine sessions conducted during the baseline period, the first-grade reading materials used for Fran were deemed too easy for her and the materials were changed to those at the third-grade level. All passages were typed, double-spaced in the 16-point Times New Roman font on 8½- × 11-in. sheets of paper. Pictures and titles of reading passages (if any) were deleted so that learners were required to obtain answers to the comprehension questions from the text itself (Graham & Johnson, 1989; Vargas, 1984).

Definitions and Measurement of Dependent Variables

Words Read Correctly per Minute. The number of words read correctly per minute was defined as the number of words a student pronounced correctly that corresponded to the words in the printed passage, divided by the total amount of time the student spent reading the passage.

Words Read Incorrectly per Minute. The number of words read incorrectly per minute was defined as the number of words read incorrectly divided by the total amount of time that the student was engaged in reading the passage. Any of five types of oral reading errors were scored as incorrect words: omissions, substitutions, repetitions, insertions, and reversals.

Measurement of Reading Rate. Oral reading rate was measured as the number of words read correctly per minute and the number of words read incorrectly per minute. During each session, each learner read a passage out loud three times. Each learner's oral reading was audiotaped to provide a permanent record of reading rate as well as to obtain data on interobserver agreement (IOA). After the session, the tape was replayed and all words incorrectly read were marked. The number of correct and incorrect words read as well as the total amount of time each student was engaged in reading the passage were also noted.

Correct Answers to Comprehension Questions. Comprehension was measured as the number of correct answers to literal comprehension questions drawn from the reading passage used in the study. Five literal comprehension questions for each passage were developed (e.g., Who were in the playground when the accident occurred?). There was only one correct answer to each literal comprehension question, and correct responses were those that corresponded to a prepared answer key. Learners were not asked to give opinions, make predictions or inferences, or draw conclusions about the stories. Each learner's answers to comprehension questions were audiotaped for scoring and IOA computation purposes.

Procedures to Enhance Believability of Data

Interobserver Agreement on Dependent Variables. The first author served as the primary observer in the present study. A graduate student who was pursuing a master's degree in special education served as the second observer. To enhance IOA, before the start of the experiment, the first author and the second observer conducted several pilot sessions in which they tried out the scoring protocols and practiced using the scoring procedures. The IOA was computed using the following formula: percentage agreement = number of agreements ÷ (number of agreements + number of disagreements) × 100.

The second observer independently and randomly listened to a sample constituting 22% of individual learners' oral reading and responses to comprehension questions and then followed scoring and recording protocols. Mean IOA for words read correctly and incorrectly per minute for all five learners were 98.5% (with a range from 98.4% to 98.7%) and 94.8% (with a range from 93.7% to 97.3%), respectively. The mean agreement for the scoring of correct responses to comprehension questions was 100% for all five learners for all observed sessions.

Procedural Reliability. A procedural checklist listed the specific sequence of instruction and feedback statements made by the first author for each experimental phase. An independent observer completed the procedural checklist for a sample constituting 20% of learner responses for each experimental phase. A step-by-step score was calculated based on the observations of the observer for the required elements of each session. Procedural reliability was 100% for all sessions observed during baseline, story telling, intervention, and maintenance.

Experimental Design

A multiple baseline across subjects design was used to analyze the effects of intervention on learners' oral reading rate and comprehension (Cooper, Heron, & Heward, 1987). After steady state responding has been achieved under baseline conditions, the intervention is applied to one of the learners while the rest of the learners remain at baseline condition. When the learner has attained criterion-level or stable responding, the same intervention is applied to another learner, and so on.

Procedure

A standard routine for each daily session was established throughout the study. Before each session, the first author randomly selected 1 passage from a list of 100 instructional passages and set up the tape recorder for recording. The first author brought the learner to the experimental setting and spent a brief moment (1 to 2 min) developing rapport with the learner. At the close of each session, the first author always

thanked the learner for participating and offered praise for working hard. Table 2 presents the total number of sessions conducted for each learner in each phase.

Baseline. The first author asked each learner to read each passage three times, with a reminder to read each word aloud without concern about making any mistakes. Each learner was told to skip a word if he or she could not read it and to move on to reading the next word. The learner was told not to ask any questions while reading. After each learner completed reading the assigned passage once, the first author asked five literal comprehension questions. If a question was unclear, it was repeated once. Each learner was allowed 5 s to respond to a question. If a learner paused more than 5 s before responding, the response was marked incorrect. Answers to literal comprehension questions were tape-recorded for future scoring as well as to obtain IOA data.

After each learner responded to all comprehension questions, the first author directed the learner to read the same passage a second time. Comprehension questions that were incorrectly answered following the first reading trial were then asked. After the learner responded to the questions, the learner was asked to read the passage a third time. Questions that the learner could not answer during the second reading trial (if any) were then asked. If the learner was able to answer all five comprehension questions during the first reading trial, the first author would not make any further assessment on comprehension after the second and third reading trials.

Story Telling. The story-telling procedures were implemented as an experimental control. The first author began each session by asking each learner to choose a storybook of interest. The story was read to the learner for approximately 15 min and the learner was asked to raise questions (if any) about the story. The learner was then asked five to eight literal comprehension questions about the story. Learners' responses to the questions, however, were not scored or recorded. No feedback or response prompts were provided to the learner. After the story-telling activity was completed, the first author implemented the procedures of the baseline phase as described earlier.

Story telling served two purposes. First, the sessions in the subsequent intervention conditions (detailed in the next section) included approximately 25 min of vocabulary instruction, an initial reading of a passage with the first author's feedback (error correction), and either fluency-building reading trials or repeated readings with learner self-charting. Approximately 25 min of reading-related activities were included in the story telling to control for the instructional time in the intervention conditions. Second, the data collected in the story-telling phase would show if learners' engagement in related reading activities (i.e., story telling by the first author) improved their oral reading and reading comprehension skills, without systematic instruction. In this phase, learners received the same amount of instructional time as in the sessions conducted during the intervention process. Any improvement in reading rate and comprehension would therefore be attributable to the differential effects of the control and experimental conditions.

New Passage Each Session. Sessions in this intervention condition consisted of three components: (a) vocabulary instruction, (b) initial untimed reading of an entire passage with error correction, and (c) three fluency-building reading trials.

Vocabulary instruction. Prior to the session, the first author selected five or six vocabulary words important to the understanding of the session's passage. Each selected vocabulary word was printed on a 3- × 5-in. index card. These vocabulary words could be nouns, adjectives, or verbs. During the vocabulary instruction, the first author held up individual flash cards about 2 ft. away from each learner and announced,

> I am going to teach you some new words that are used in today's reading passage. When I hold up a flash card, I want you to look at the word very carefully. If you already know the meaning of the word, please tell me what the word means. You can also

TABLE 2. Total Number of Sessions Conducted for Each Learner in Each Phase

Learner	Baseline	Story telling	New passage each session	Same passage to criterion	Maintenance	Generality probes
Mu	7	7	21	13 (4, 4, 5)[a]	11	15
Bo	9	10	17	22 (5, 10, 7)	7	16
Mark	11	9	13	15 (3, 6, 6)	11	19
Illeana	14	10	12	14 (3, 5, 6)	8	16
Fran	16	14	15	7 (3, 4, —)	6	15

[a]Number of sessions to reach fluency criterion for each passage.

> choose to use the word in a sentence. Here is the first one. This word is sad. The word sad means unhappy. See my face when I am sad (the first author used his facial gestures to demonstrate a sad face). I am going to say a sentence using the word sad. Please listen. . . . Can you tell me what sad means. Can you show me a sad face?

If the learner was able to say what *sad* means, the first author moved on to the next word. If the learner was unable to state the meaning of the word, the first author repeated the steps described above. A picture was sometimes used to demonstrate what a word meant.

Initial untimed reading with error correction. Before the start of this procedure, the first author prepared an additional copy of the passage for himself. After the vocabulary instruction, the first author asked each learner to read the entire passage (initial reading). When the learner made an error, the first author underlined the error and waited until the learner read to the end of the sentence. The first author provided error correction by pointing out the error and saying the word correctly, asking the learner to imitate the correct word pronunciation. The above procedures were repeated two more times (i.e., the correct pronunciation was first given, and the learner was then asked to attempt the correct pronunciation). Two words before and two words after the target word were read, and the learner was asked to read the five-word phrase. If the sentence was short, the learner was asked to repeat the sentence. Variations to the five-word phrase include asking the learner to read four words either to the right or left side of the target word (e.g., They play in the *mud,* or *Pigs* like to stay clean). Alternatively, the learner read one word on one side of the target word and three words on the other (e.g., They like to *sit* in, or when *pigs* get very hot).

After all errors had been corrected, the learner was asked to read the next sentence, following the above procedures. If the learner did not make any errors while reading the sentence, the first author praised the learner and asked the learner to read the second sentence again.

Fluency-building reading trials with learner self-charting. After the initial reading, the first author asked each learner to read the passage three times. The first author began the session with these instructions:

> I'd like you to read this passage as fast as you can. If you don't know how to read a word, just say "pass" and immediately read the next one. Let me know when you are ready. Are you ready? You may start.

After the learner finished reading the passage the first time, he or she was asked five literal comprehension questions. After the learner responded to all questions, he or she was informed about the number of correct words read and the number of correct responses given to comprehension questions. The learner was then given a color marker and told to record performance scores on prepared charts. A statement offering praise and encouragement followed: "Great job; you have 40 words and one question correct. Try to read the passage faster this time to break your own record." After the learner finished reading the passage and responding to comprehension questions, the first author told the learner to plot performance scores on the charts again, and then instructed: "You read faster this time. Can you record your scores on your charts?" If the learner's present scores did not exceed the previous scores, the first author said to the learner, "Good try. Please record your scores on your chart." Before the learner read the passage the third time, another word of encouragement was given: "I want you to beat your past two scores. You can do it." After the learner finished reading the passage and answering the comprehension questions the third time, the first author told the learner to record the scores again. Before the end of the session, the first author shared the charts with the learner and praised the learner for trying hard.

Same Passage to Criterion

After steady state responding of all learners had been achieved under new passage each session, same passage to criterion was implemented. This intervention condition differed from the previous one in that each learner read the same passage repeatedly until a predetermined criterion was met, at which point a new passage was introduced. Daily instructional sessions consisted of the three components described earlier: (a) vocabulary instruction, (b) initial reading of the entire passage with error correction, and (c) three reading trials. In each session, however, instead of asking each learner to read a passage as fast as the learner could manage, as required in the new passage each session condition described earlier, in this condition, the learner was told to achieve a target level of fluency of a predetermined number of words read correctly per minute (e.g., "If you can read 75 words or more per minute, you will meet our goal set for this passage"). If the learner was unable to achieve the goal, the first author verbally praised the learner for trying hard. If the learner was able to achieve the goal, the first author verbally praised the learner for doing so.

During same passage to criterion, for each learner, it was possible that a reading passage could be used for more than one session. The number of sessions for which a reading passage was used depended on how fast the learner could meet the fluency criterion set for the passage. If the learner was able to answer all five comprehension questions correctly during the first reading session, the learner would not be asked the same comprehension questions during the subsequent sessions. Comprehension questions that the learner did not answer correctly in the previous session would be asked again in the subsequent session.

Maintenance

For each session during the maintenance phase, the first author randomly selected one passage that had been read during the new passage each session intervention and had each learner read the passage three times and answer comprehension questions after each reading. Unlike in the intervention conditions, however, learners were not told to read the passage as fast as they could, nor was any predetermined fluency criterion established. Learners could opt to record their own performance if they wished, although they were not explicitly asked to do so during the maintenance phase.

Generality Probes

Generality probes were administered throughout the study. A new, untaught instructional passage was used for each generality probe for each individual learner. The level of difficulty of the passages used in the probes was identical to that of the passages used in each phase of the study. Learners were given 5 min to read an untaught passage; they were not required to read the passage aloud. After 5 min, the first author asked learners five questions related to the passage. Learners' responses to comprehension questions were scored and recorded. During a probe, the first author began by asking a learner to start reading a passage. If the learner appeared not to be reading the passage, the first author would remind the learner, "Please pay attention to the passage." When the learner signaled that reading was completed, the first author asked five literal comprehension questions related to the passage. The learner had 5 s to respond to each question. The number of correct answers to literal comprehension questions was recorded. The first author did not provide any contingent praise, feedback, and response prompt to the learner, although learners were praised for trying hard at the end of the session.

Results

Words Read Correctly and Incorrectly per Minute

Figure 1 shows the number of words read correctly and incorrectly per minute by each learner. Table 3 summarizes the mean number and range of words read correctly and incorrectly per minute by each learner across all phases.

Words Read Correctly per Minute. As compared with baseline, both intervention conditions produced an increase in correct reading rate for Mu, Bo, Mark, Illeana, and Fran of 11.1, 0.9, 23.4, 14.5, and 19.8 words, respectively, in new passage each session (average gain across learners is 13.9 more correct words), and of 35.7, 0.3, 44.7, 39.5, and 34.2 words, respectively, in same passage to criterion (average gain across learners is 31.4 more correct words). When compared with story telling, similar results were noted in that the new passage each session and same passage to criterion interventions produced an increase in correct reading rate, with learners, on average, reading 12.1 and 29.6 more correct words per minute, respectively. During maintenance, learners, on average, read 23.0 and 21.2 more correct words per minute as compared with baseline and story telling, respectively. In both intervention conditions, the highest numbers of words read correctly per minute for Mu, Bo, Mark, Illeana, and Fran were 54, 66, 102, 69, and 88, respectively, during new passage each session, and 105, 75, 139, 105, and 108, respectively, during same passage to criterion, with the students making more rapid progress for the sessions conducted during the same passage to criterion intervention as compared with the sessions conducted during the new passage each session intervention, possibly in part because the students received repeated feedback about their reading of the same passage for the same passage to criterion intervention. The highest numbers of words read correctly per minute during baseline for Mu, Bo, Mark, Illeana, and Fran were 35, 62, 64, 52, and 54, respectively.

Words Read Incorrectly per Minute. Both intervention conditions, as compared with baseline, notably decreased the incorrect reading rates for Mu, Bo, Mark, Illeana, and Fran by 21.7, 12.2, 11.1, 7.7, and 5.8 words, respectively, during new passage each session (average decrease across learners is 11.7 fewer incorrect words), and by 27.4, 16.6, 10, 7.5, and 5 words, respectively, during same passage to criterion (average decrease across learners is 13.5 fewer incorrect words). As compared with their performance during story telling, the learners, on average, read 17.8 and 19.6 fewer incorrect words per minute during new passage each session and same passage to criterion, respectively. During maintenance, as compared with baseline and story telling, all learners read 13.3 and 19.4 fewer incorrect words per minute, respectively. In some reading trials during new passage each session and same passage to criterion, Mu, Mark, Illeana, and Fran did not emit any reading errors.

Number of Correct Answers to Literal Comprehension Questions

Figure 2 shows the number of correct answers to comprehension questions given by learners in each phase. Table 4 displays the mean number of correct answers to comprehension questions in each experimental phase and outcomes to generality probes for all learners. Learners, on average, emitted 1.0 correct answer during baseline, 1.2 correct answers during story telling, 4.1 correct answers during new passage each session, 4.8 correct answers during same passage to criterion, and 4.3 correct answers during maintenance. All learners showed a notable increase in their comprehension scores on taught passages during the two intervention conditions. For the generality probes, as compared with baseline, learners, on average, attained 0.7 and 1.3 more correct responses to compre-

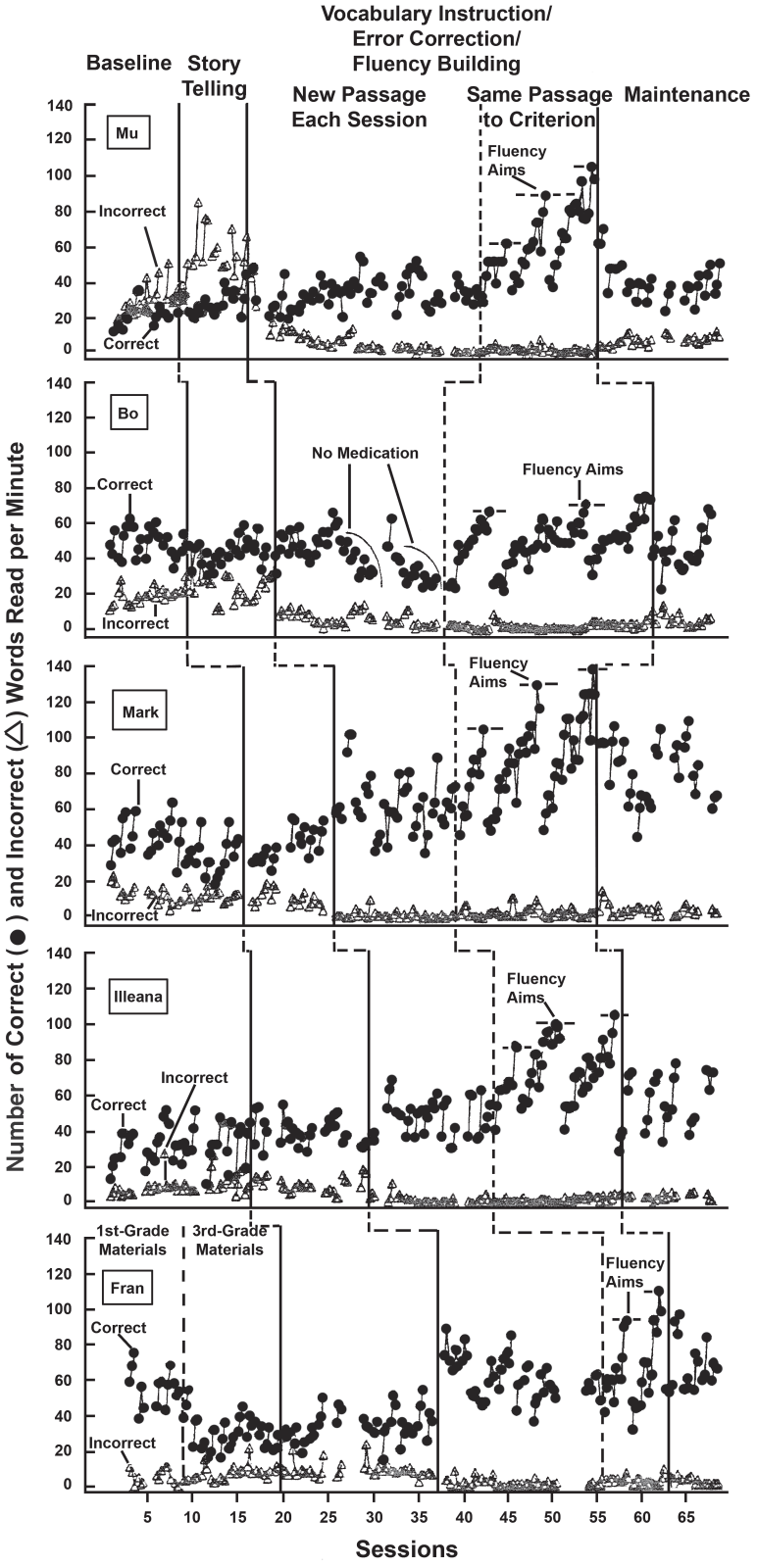

FIGURE 1. Number of words read correctly (solid circle) and incorrectly (open triangle) per minute by five English-language learners for three oral reading trials conducted each session. Breaks in data path during same passage to criterion phase show when passage was changed.

TABLE 3. Mean Number and Range of Words Read Correctly and Incorrectly per Minute for Each Learner in Each Phase

Student	Baseline	Story telling	Intervention (new passage each session)	Intervention (same passage to criterion)			Maintenance
				1st passage	2nd passage	3rd passage	
Mu	23.4[a]	28.9	34.5	45.2	58.8	73.2	41.2
	(13–35)[b]	(20–44)	(20–54)	(28–62)	(36–89)	(38–105)	(24–70)
	29.6[c]	55.2	7.9	2.3	3.0	1.4	7.7
	(14–43)	(34–85)	(0–27)	(0–6)	(0–8)	(0–8)	(3–13)
Bo	49.0	42.5	49.9	47.4	46.9	53.7	45.8
	(35–62)	(29–59)	(24–66)	(24–67)	(22–71)	(31–75)	(23–68)
	19.0	23.9	6.8	1.8	1.9	3.6	5.9
	(11–30)	(11–43)	(1–14)	(0–3)	(0–9)	(1–6)	(2–14)
Mark	39.8	40.2	63.2	76.0	84.5	93.0	82.1
	(18–64)	(26–55)	(37–102)	(46–105)	(49–130)	(49–139)	(45–110)
	12.5	10.6	1.4	1.7	3.7	2.2	4.3
	(4–23)	(4–18)	(0–10)	(0–7)	(1–11)	(0–6)	(1–15)
Illeana	33.2	39.8	47.7	66.1	79.5	72.4	56.0
	(10–52)	(29–55)	(31–69)	(41–88)	(53–100)	(41–105)	(29–78)
	9.7	10.3	2.0	1.0	1.0	2.6	3.5
	(4–28)	(3–19)	(0–11)	(0–3)	(0–3)	(1–5)	(0–6)
Fran	30.5	33.7	50.3	64.0	65.3	—	65.7
	(16–54)	(15–54)	(36–88)	(41–92)	(31–108)	(—)	(52–95)
	8.1	9.4	2.3	3.7	2.5	—	2.5
	(3–22)	(3–24)	(0–9)	(2–7)	(0–9)	(—)	(0–6)
Group mean	35.2	37.0	49.1	59.9	67.0	73.0	58.2
	15.8	21.9	4.1	2.1	2.4	2.5	2.5

[a]Mean number of words read correctly per minute. [b]Range. [c]Mean number of words read incorrectly per minute.

hension questions during new passage each session and same passage to criterion, respectively. As compared with story telling, all learners attained 0.8 and 1.4 more correct responses to comprehension questions, respectively. In maintenance, as compared with baseline and story telling, the learners attained 1.4 and 1.5 more correct answers to comprehension questions, respectively.

Discussion

Educators have been calling for more well-controlled research studies and the development of effective and viable instructional strategies for teaching English-language learners (August & Hakuta, 1997; Baca & Cervantes, 1998; Figueroa et al., 1989; Gersten & Baker, 2000; Gersten & Woodward, 1994), as English-language learners are one of the largest groups of learners who have difficulty in developing English literacy in general and vocabulary and comprehension in particular (August & Hakuta, 1997; Denton, Anthony, Parker, & Hasbrouck, 2004).

This study examined the effects of an intervention program consisting of vocabulary instruction, error correction, and fluency building on the oral reading rates and reading comprehension of five English-language learners who are struggling readers. The results of this study demonstrate that the intervention program improves the oral reading rates and reading comprehension of all five learners and gives support to other studies that these strategies, either implemented alone or used with other techniques, can help improve learners' reading rates and reading comprehension (e.g., Beck, Perfetti, & McKeown, 1982; Dowhower, 1987; Pany & McCoy, 1988; Rousseau, Tam, & Ramnarain, 1993). It is important to bear in mind, however, that each intervention is multicomponential and further research is required to examine the efficacy of individual components.

All learners improved their oral reading rates and reading comprehension during the two intervention conditions, new passage each session and same passage to criterion, as compared with their performance in the baseline and story-telling phases. This suggests that vocabulary instruction and error correction helped increase the number of words read cor-

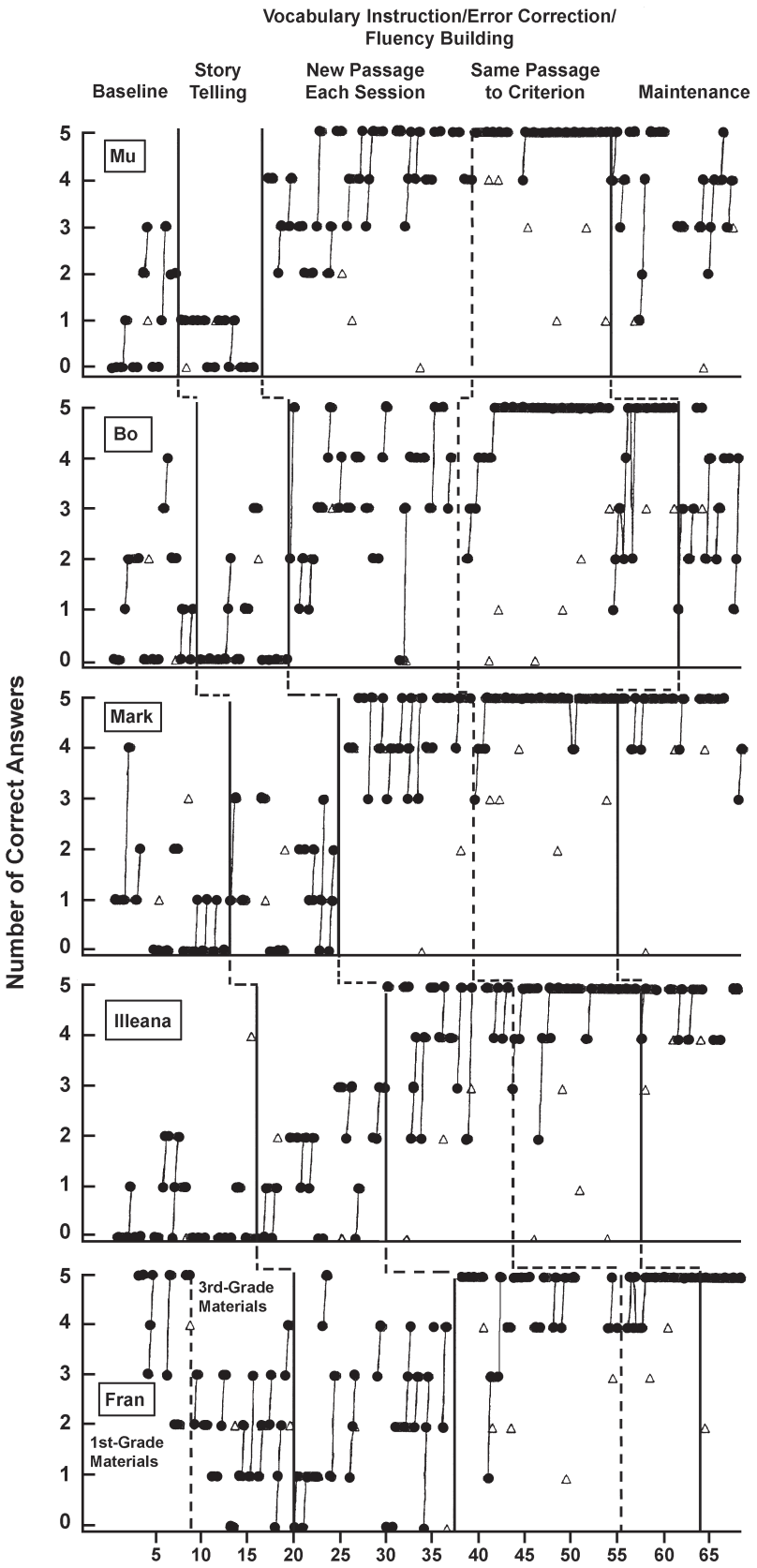

FIGURE 2. Number of correct answers to comprehension questions by five English-language learners for three trials conducted each session. Open triangles represent generality probes.

TABLE 4. Mean Number of Comprehension Questions Answered Correctly by Each Student in Each Phase

Student	Baseline	Story telling	Intervention (new passage each session)	Intervention (same passage to criterion)	Maintenance
Mu	1.0 (1.0)[a]	0.7 (0.5)	3.8 (1.0)	4.9 (2.7)	3.9 (1.3)
Bo	1.1 (1.0)	0.5 (1.0)	3.2 (1.5)	4.4 (1.9)	3.1 (3.0)
Mark	0.8 (1.3)	1.3 (1.5)	4.5 (2.5)	4.8 (3.3)	4.7 (3.0)
Illeana	0.4 (0.8)	1.5 (1.0)	4.3 (1.7)	4.8 (1.0)	4.8 (3.7)
Fran	1.8 (2.0)	2.2 (1.3)	4.5 (2.7)	4.7 (3.5)	5.0 (2.0)
Group mean	1.0 (1.2)	1.2 (1.1)	4.1 (1.9)	4.8 (2.5)	4.3 (2.6)

[a]Generality probes for untaught passages.

rectly, and concomitantly appreciably decrease the number of words read incorrectly. The error correction procedure used in this study was somewhat different from the recommendation made by Rasinski and Hoffman (2003), in which they discouraged the correction of miscues that do not change the text's meaning. It is also important to point out that previous research on the reading proficiency of English-language learners with disabilities suggested that immediate, corrective feedback to all errors helps improve word recognition and reading comprehension (Rousseau & Tam, 1991; Rousseau et al., 1993). This was indeed the case in the present study, as all learners benefited from the first author's correction of every oral reading error that was made, regardless of whether the error was in relation to pronunciation or to meaning of the text.

In the intervention program, the fluency-building component is likely to have helped all learners improve their oral reading rates, although one of the students only showed marginal improvement in reading rate. The present study did not examine the linkage between reading fluency and comprehension, although fluency training was part of the intervention program. Several findings, however, warrant discussion.

First, the oral reading rates of all learners improved during new passage each session and same passage to criterion (see Table 3); their reading comprehension on taught passages also improved (see Table 4). All learners except Bo recorded gains in reading rates ranging from 44% to 65% for the new passage each session intervention and 114% to 213% for the same passage to criterion intervention. This far exceeds the 40% gain in target over current rereading rate, a figure recommended by Carnine, Silbert, and Kameenui (1997) to ensure students receive practice on familiar material sufficient to improve their rates on new reading. In addition, gains in reading comprehension of three to four more correct responses during the two intervention conditions, as compared with baseline, were noted. Although the data may suggest that the improved reading comprehension on taught passages is the result of learners' improved oral reading rates, we cannot conclude that this is the case because of possible ceiling effects, as there are only five comprehension questions following each taught passage.

Second, each learner's oral reading rate and number of correct responses to comprehension questions were higher during same passage to criterion than during new passage each session. In new passage each session, for each of three reading trials, learners were asked to read an instructional passage as fast as they could; no predetermined reading rate was set. During same passage to criterion, the first author set fluency aims for each learner. Each learner subsequently met the aims and, as a result, obtained higher oral reading rates. This suggests that English-language learners benefit more from repeated readings that require them to reread the same passage until a predetermined reading rate has been achieved because they have more opportunities for massed practice on familiar material (as required in same passage to criterion). This is of particular importance to poor readers who may show no significant gains in word recognition or reading rate when no rate criterion is set for them (Dowhower, 1994). When repeated readings were used during same passage to criterion, all learners except Bo were able to read more than 100 words correctly per minute (range was from 105 to 139 words per minute).

During the new passage each session intervention, although all learners improved their oral reading rates, only one learner (Mark) could read more than 100 words per minute (he attained a rate of 102 words per minute).

The same passage to criterion intervention appears to be notably more effective than the new passage each session intervention in that in the former, repeated readings helped four out of five learners meet the fluency criterion of 100 correct words per minute, a criterion recommended by reading researchers (Koorland, Keel, & Ueberhorst, 1990; Mercer & Mercer, 1998). The four learners also met the desired reading rates set by Carnine et al. (1997) for various instructional levels. In the new passage each session intervention, that only one learner (Mark) could read more than 100 words per minute suggests that it might take more than three reading trials per session for poor readers, particularly English-language learners, to become fluent with a passage. This proposition contradicts some studies, which show that fluency gains diminish as the number of readings exceeds four trials (Mastropieri & Scruggs, 1997). In fact, O'Shea et al. (1987) found that students with LD read more fluently with seven readings of the same text than they did with just three readings.

Third, whereas learners' oral reading rates on taught passages improved during new passage each session and same passage to criterion, all learners also attained a higher number of correct answers to comprehension questions on untaught passages during the two conditions, as compared with their comprehension scores on untaught passages during baseline and story telling. In addition, learners' oral reading rates on taught passages were higher during same passage to criterion than new passage each session, and four out of five learners obtained a higher number of correct answers to comprehension questions on untaught passages when generality probes were administered during same passage to criterion as compared with their performance when generality probes were administered during new passage each session. In general, for four out of five learners, comprehension scores improved in generality probes used in both intervention phases, as well as in the maintenance phase, as compared with baseline and story telling, although for Mu, there was no improvement in comprehension scores in the new passage each session intervention as compared with baseline, and for Illeana, there was marginal improvement in same passage to criterion intervention as compared with baseline. Taken together, however, these results suggest that an increased oral reading rate on taught passages might have positive effects on reading comprehension of both taught and untaught passages. The present findings lend some support to the idea that when the number of words read per minute increases, learner comprehension may also improve (Markell & Deno, 1997; Slocum, Street, & Gilbert, 1995).

In maintenance, the reading passages used in new passage each session were used again and learners received no intervention. Table 3 shows that in maintenance, the highest numbers of words read correctly for Mark and Fran were 110 and 95, respectively. These scores were the highest among learners during maintenance. Mark and Fran were also the best readers among the learners during the two intervention conditions: The highest number of words read correctly for Mark and Fran were 139 and 108, respectively. These findings suggest that a higher level of fluency achieved during intervention may help learners to maintain fluency after intervention is withdrawn, although these findings are interpreted rather cautiously, as students may be able to remember aspects of what was taught to them during new passage each session.

Taken together, these results underscore the importance of structured, explicit, and direct instruction (such as new passage each session and same passage to criterion interventions) to help English-language learners, in particular those with disabilities, improve their reading proficiency.

Implications for Practice

The critical elements of the reading instruction program developed in this study, such as systematic and structured instruction, opportunity to read and to experience frequent success, adequate feedback and practice, and direct and frequent monitoring, constitute an effective intervention for English-language learners at risk (Gersten & Baker, 2000; Guthrie, Schafer, & Huang, 2001). The reading program developed in this study can serve as a valuable supplemental instructional program for English-language learners who are struggling readers and one that is easily implemented in the classroom or even home setting. This is of particular significance as teachers might have low expectations for students who are learning English as a second language, and changing teacher perceptions about at-risk learners may be the important first step to ongoing improvement in classroom practice, as Haager and Windmueller (2001) have pointed out.

There is a dearth of well-controlled, systematic research on effective instructional strategies for teaching English-language learners with and without disabilities. The findings of this study may not extend to other English-language learners, as there were only five learners in the study and the needs of English-language learners vary from learner to learner. This is an exploratory study, and there is an important need for follow-up studies to examine the effectiveness of the methods used in this study with English-language learners with and without disabilities who are struggling readers. This study has shown that if learners are explicitly informed of the goals they need to achieve, as well as provided with opportunities to read and experience success, they will become more effective readers. English-language learners who are struggling readers are found in many classrooms and are waiting to be nurtured and developed—one child at a time.

NOTE

Fran was classified as having a specific learning disability and identified by the school district as an English-language learner. She was

included in the study because she was referred by the special education and ESL teachers. The first author administered the *Brigance Diagnostic Inventory of Basic Skills* prior to the study. Fran performed below grade level on this assessment, possibly because of her lack of familiarity with the first author. The outcome of the Brigance assessment was used to determine the set of reading materials that was appropriate for Fran and that was to be used in the study. At the beginning of the research study, however, the first author found out that Fran was able to read first-grade reading materials without difficulty and without instruction (baseline). The first author therefore used third-grade reading materials for the rest of the study.

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