Reading Strategy Interventions: Can Literacy Outcomes Be Enhanced for At-Risk Adolescents?

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Many students are entering secondary school reading at levels that are significantly below grade level. In some secondary schools, these students constitute the large majority of the population. A cross-sectional study that involved hundreds of junior and senior high students was conducted by researchers at the University of Kansas Center for Research on Learning (KU-CRL) and revealed an interesting phenomenon related to these students (Warner, Schumaker, Alley, & Deshler, 1980). As shown in Figure 1, the reading achievement of at-risk students and students with high-incidence disabilities, like learning disabilities, plateaus after the seventh grade. The straight, solid line in this figure represents the path of "normal" acquisition of reading skills by average-achieving students. That is, at the conclusion of 1 year of instruction, on average, students should have acquired "1-year's worth" of knowledge and skills as represented by Point A on that line. At the end of the second year, they should be performing

at the level of Point B, and so on. Students who acquire skills and knowledge at this pace are, in turn, able to successfully deal with the curriculum demands that are presented to them. In other words, they can successfully "access the curriculum" and succeed in their courses.
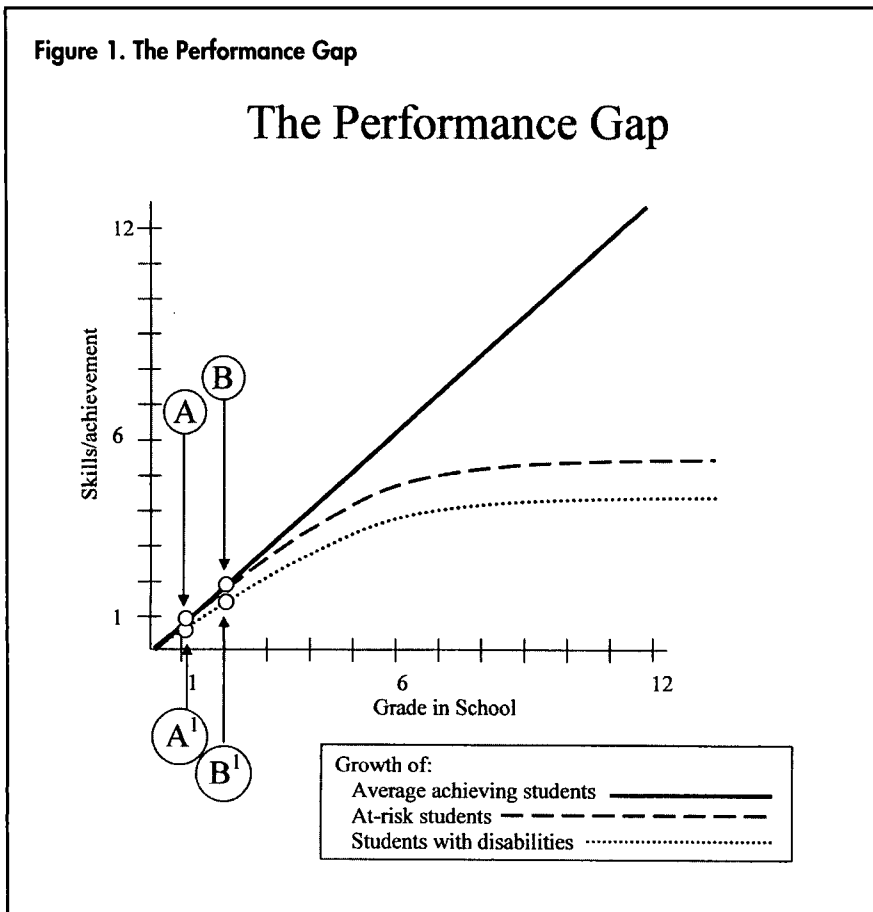
On the other hand, the reading performance of students with disabilities and at-risk students (students who are failing at least one required course each semester) usually does not follow this line of progress. On average, these students perform at the level of Point A^1 at the end of 1 year of schooling, and their achievement travels a path similar to the one depicted by the two dotted curved lines, with at-risk students earning slightly higher reading achievement scores than the students with disabilities.

The area between the solid line (representing normal achievement) and the dotted lines (representing underachievement) depicts the "performance gap" for each group of students. This

represents the gap between what students are expected to achieve and perform in their classes and what they can actually do. Over time, this gap grows larger and larger, and it is especially exacerbated in the later grades when the academic growth of students with disabilities plateaus. As a result of this performance gap, these students are unable to "access the general education curriculum" and meet the demands of required courses for graduation from high school. Their resulting failure leads to discouragement and disengagement from school, and, for too many, this disengagement manifests itself in dropping out of school altogether.

The challenge, then, is to intervene with these students in a significant way so that they can read at their grade level (e.g., if they are in the ninth grade, they read at the ninth-grade level), learn critical information in their required courses, earn passing grades in these courses, graduate, and participate successfully in postsecondary education or employment opportunities.

Figure 1. The Performance Gap

The Performance Gap

Growth of:
Average achieving students ————————
At-risk students — — — — — — — —
Students with disabilities ·····································

Researchers at the KU-CRL Institute for Academic Access have been engaged in developing and evaluating the effects of secondary reading courses for this purpose. A basic premise underlying these programs is the requirement that they be sufficiently effective to enable students to learn to read fluently with good comprehension at their grade level in a relatively short period of time. Because of the realities facing secondary schools in today's world, another premise has been that these programs need to be effective with both students with disabilities and students who are at-risk.

One program option that has proved to be effective is a minicourse in decoding. To select students for the course, all students are tested when they enter a school (e.g., when they enter middle school or high school). Then, students who are decoding below grade level according to a predetermined criterion, are chosen to participate in the minicourse. For example, in some schools, students who are decoding 2 or more years below grade level are selected for participation. Teachers or paraprofessionals (who are under the supervision of a qualified teacher) are assigned to teach the minicourse on a daily basis. Students are excused from their language arts class for a period of time that will be sufficient for them to acquire grade-level decoding skills. The length of their participation depends on the speed of their individual progress in the minicourse (typically, this ranges from 4 to 8 weeks). During the course, they are taught the Word Identification Strategy (Lenz & Hughes, 1990), a reading strategy designed for decoding the kinds of multisyllabic words that students encounter in their secondary textbooks. The instructor of the minicourse uses an instructor's manual (Lenz, Schumaker, Deshler, & Beals, 1984) and follows an eight-stage instructional methodology that has been shown to be effective in teaching learning strategies (Ellis, Deshler, Lenz, Schumaker, & Clark, 1991; Schumaker & Deshler, 2005).

In addition to a pretest at the beginning of instruction and a posttest at the end of instruction, the instructional sequence is as follows. First, the steps of the strategy are described to the students along with how to use the steps. Then the instructor demonstrates how to use the steps, thinking aloud while dissecting several words. Next, the students learn to say the names of the steps so that they can instruct themselves in what to do as they use the strategy. Then they practice using the strategy in materials at their reading level. Once they master that, they apply the strategy to more and more difficult materials until they are using the strategy fluently on materials that are written at their current grade level. When that has been mastered, they apply the strategy to materials used in their courses and outside of school.

A study of the effects of this minicourse involved two high schools (Deshler, Schumaker, & Woodruff, 2004). In the experimental school, the Word Identification Strategy was taught as described above to selected students. In the comparison school, students who were matched to the students in the experimental school by age, ethnicity, gender, and pretest decoding scores received traditional reading instruction in their English classes. Posttest results revealed that students in the experimental school, including those with learning disabilities, had gained an average of 3.4 grade levels in reading decoding skills. All of the experimental students had gained at least one grade level in decoding skills. Matched students in the comparison school made an average gain of .2 of a grade level over the course of the school year. On average, the students in the experimental school were decoding 3 years below grade level during the pretest (at the 5.9 grade level) and at grade level (at the 9.3 grade level) during the posttest. Students in the comparison school were decoding at the sixth-grade level during the pretest (6.1) and also during the posttest (6.3). An ANCOVA revealed that the posttest decoding scores for the two groups on the Slosson (Slosson & Nicholson, 1992) were statistically different, $F(1,121) = 31.078$, $p < .001$, η^2

= .692. This is considered to be a large effect size according to Cohen's descriptions (1988).

Another reading course that has been developed and tested is a reading comprehension strategies course for students who earn reading comprehension scores that are substantially below grade level (Woodruff, Deshler, & Schumaker, 2004). In this semester-long course, students who have already mastered the Word Identification Strategy or who are already decoding fluently are taught a series of reading comprehension strategies, including the Visual Imagery Strategy (Schumaker, Deshler, Zemitzch, & Warner, 1993), the Self-Questioning Strategy (Schumaker, Deshler, Nolan, & Alley, 1994), the Paraphrasing Strategy (Schumaker, Denton, & Deshler, 1984, and the LINCS Vocabulary Strategy (Ellis, 1992). The Visual Imagery Strategy is a strategy that enables students to make a movie in their minds about the information that they are reading. When they use the Self-Questioning Strategy, students ask questions related to the information that they are reading, predict the answers to those questions, and then find and talk about the answers as they read further. With the Paraphrasing Strategy, the students pick out the main ideas and details within each paragraph that they read, and then they translate the main idea and details into their own words. The LINCS Vocabulary Strategy enables them to use a variety of memory tools, including key words, short phrases or sentences (called LINCing Stories), and mental images, to learn the meaning of new words. The instructional methods used to teach these strategies are the same eight stages described above, but they are varied slightly according to the strategy being taught.

In a recent study in two high schools (Woodruff, Deshler, & Schumaker, 2002), students entering the ninth grade who earned reading comprehension scores that were two or more grade levels below the ninth-grade level participated. Twenty-seven students in the experimental school participated in a 1-hour reading strategies class daily for one semester where they were taught the four reading comprehension strategies described above. There were 12 to 15 students in each class. Twenty-seven students in the comparison school, who were matched with the students in the experimental school according to age, ethnicity, gender, and reading comprehension scores, received traditional reading instruction. The Gates-MacGinitie Reading Test (MacGinitie & MacGinitie, 2003) was administered at the beginning and end of the school year. On average, the experimental students earned comprehension scores at the 5.8 grade level on the pretest and at the 6.8 grade level on the posttest. The comparison students, on average, earned comprehension scores at the 6.3 grade level on the pretest and at the 5.8 grade level on the posttest. An ANCOVA, in which the pretest scores served as covariates, revealed that the comprehension posttest scores of the two groups on the Gates-MacGinitie Reading Test were statistically different, $F(1,51) = 9.42$, $p = .003$, $\eta^2 = .156$. This is considered to be a large effect size according to Cohen's descriptions (1988).
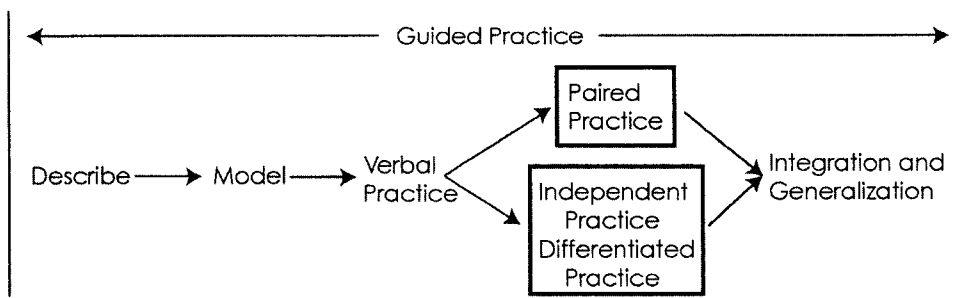
As a consequence of these positive results, researchers at the KU-CRL are now involved in developing and testing the effects of a year-long course for struggling readers who enter high school reading two or more years below grade level but who have learned the basic skills of reading (i.e., read at or above the third-grade level; Deshler, Schumaker, & Hock, 2005). The course is called the Xtreme Reading Course, and it has been designed for teaching classes of 12 to 15 students. The course involves the instruction of key reading strategies including the Word Identification Strategy, the Self-Questioning Strategy, the Visual Imagery Strategy, the Paraphrasing Strategy, and the Inference Strategy. The Inference Strategy (Fritschmann, Schumaker, & Deshler, in preparation) enables students to use clues in the passage to make inferences in relation to inference questions. Additionally, students are taught key classroom skills including how to behave in the classroom, how to participate in discussions, how to work within small groups, and how to work with partners. Students also learn the SCORE Skills, basic social skills for use in school and especially for use in working in cooperative groups (Vernon, Schumaker, & Deshler, 1993). They also work through the Possible Selves Program, a program that enables students to identify their hopes, expectations, and fears and to set goals for the future (Hock, Schumaker, & Deshler, 2003).

A special methodology has been designed for the instruction of strategies in these large classes. (See Figure 2.) Throughout the course, students are engaged by the teacher in a guided practice activity for a part of each class period, whereby the class reads aloud a series of engaging novels and short stories. During this activity, the teacher models expert reader behaviors (e.g., asks questions, makes inferences, talks about the images in her mind) and prompts the students to use steps of the strategies (e.g., asks the students what they are wondering to prompt them to ask questions). This guided practice is scaffolded across time (see Figure 3) so that students become more and more independent in using the strategy currently being taught. That is, at first, before the students have been introduced to the strategy, the teacher simply models use of the strategy during the reading of the novel. Next, the teacher informally prompts the students to use parts of the strategy (e.g., "What are you wondering here?"). Third, after the steps of the strategy have been formally described and modeled, the teacher formally prompts the students to use the steps of the strategy in sequence (e.g., "What clue words are making you wonder here?," "What question is in your mind?," "What is your prediction?," "Did you find an answer to your question?," "What was it?"). These formal prompts are gradually faded out and replaced by vague prompts (e.g., "So what are you thinking now, Jason?," "And what's next?"). Finally, the students take over prompting each other to use the strategy.

Meanwhile, during the remainder of each class hour, formal instruction of the strategy takes place. (See Figure 2.) The strategy is described and modeled,

Figure 2. Instructional Stages

and the teacher ensures that the students can name the steps of the strategy by engaging them in small-group rapid-fire verbal practice of naming the steps. Then students are engaged in a variety of practice activities that are alternated across days. They practice using the strategy with a partner. In this activity, the partners play two roles: the reader role and the coach role. When in the coach role, they prompt each other to use the strategy, and they record the reader's use of the strategy. As the reader, they read a part of the passage aloud and they use the strategy as independently as possible. As the pairs practice, the teacher circulates and provides feedback about how the students are using the strategy. On alternate days, the students practice using the strategy independently and write their responses on a worksheet which is scored by the teacher. While the rest of the class is practicing the strategy independently,
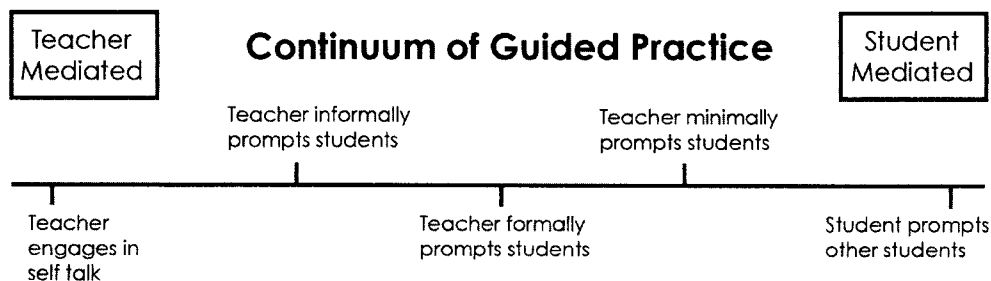
the teacher works with individual students in a Differentiated Practice Activity to provide them with individual feedback on their performance of the strategy. The teacher records the student's performance of the strategy and calculates a score for that performance.

As students begin to practice using a strategy, they begin with passages written at their reading ability level. As they progress and become more and more skillful in using the strategy and in understanding the passages that they are reading (as determined by their scores on comprehension tests taken after reading passages), they will graduate to a series of new reading ability levels. For example, when a student comes into the class reading at the fourth-grade level and is performing the strategy at or above criterion levels (e.g., at or above 80% in both strategy performance and in comprehension), that student graduates to materials written at the fifth-

grade level. Likewise, that student graduates to the sixth-grade level, the seventh-grade level, and so forth, each time he/she performs at or above the criterion level. The goal associated with this progression is for students to comprehend materials written at their current grade level (e.g., if a student is a ninth grader, he/she will comprehend materials written at the ninth-grade level).

The final stage of instruction in a strategy is called "Integration and Generalization." Within this stage, students apply the strategy to a variety of materials, including newspapers, magazines, course textbooks, and novels. They also use *all* the strategies they have learned in combination. In other words, after they learn each additional strategy in isolation, they spend some time integrating the use of all the strategies they have learned thus far before moving on to learn the next strategy in isolation.

Figure 3. Guided Practice Phases

The effects of the Xtreme Reading Course are now being determined in 17 high schools located throughout the nation as a part of a project jointly funded by the Institute of Education Sciences and the Office of Vocational and Adult Education. Within each school, approximately 100 to 120 students have been identified as reading 2 to 4 years below grade level according to standardized tests. Half of those students have been selected to enroll in the Xtreme Reading Course (i.e., serve as the experimental group); the other half of the students has been randomly selected to serve as a control group. The students in the experimental group in each school have been assigned to four class periods taught by a single teacher. All 17 teachers attended a week-long workshop to learn how to teach the course. This project will continue for the next 2 years, and results will be available after the evaluation is complete.

In conclusion, many students, including those with reading disabilities, reach the secondary grades reading well below grade level. Although they may have acquired some of the basic skills associated with reading, they often have not progressed beyond the "fourth-grade hump" (Pressley & El-Dinary, 1997), and they continue to read at the fourth-grade level. In order to close the performance gap with regard to their reading skills in a relatively short period of time, intensive intervention measures are needed so that they can succeed in their required secondary courses. A 28-year-long series of research studies has been conducted by researchers at the KU-CRL to develop and test such interventions. First, instructional methods were developed and validated for teaching individual reading strategies (see Schumaker & Deshler, 2005 for a review). More recently, instruction for the strategies is being delivered and tested within mini-courses and semester- and year-long courses. Results thus far indicate that struggling readers can learn the strategies and that this learning can result in significantly higher scores on standard-ized achievement tests. Students with learning disabilities as well as other at-risk students benefit from the instruction. Additional research is needed to determine whether such courses can indeed close the performance gap so that students are both decoding *and* comprehending at grade level when they complete the instruction.

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