

Examining the Relationships Between Reading Achievement and Tutoring Duration and Content for Gifted Culturally and Linguistically Diverse Students From Low-Income Backgrounds

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This article describes a study designed to examine the relationship of tutoring in specific reading comprehension strategies to gains in reading achievement for children enrolled in self-contained classrooms for gifted students from low-income, culturally and linguistically diverse backgrounds and heterogeneous with respect to reading achievement. Participants were 58 students in grades 3–5, including 12 English learners. Eleven adult tutors received training in decoding and 3 basic and 3 higher level reading comprehension strategies consistent with the district’s reading program and adapted to include increasing levels of challenge and support for English learners. Scores on a standardized reading achievement test and an assessment of reading fluency served as outcome measures. Findings suggest that tutoring in decoding and higher level reading comprehension strategies supported gains in reading achievement. Gifted students who are English learners appear to benefit from tutoring in decoding and the full range of lower and higher level reading comprehension strategies.

Tutoring of children by adults supplements classroom instruction by providing additional one-to-one or small-group support. The perceived effectiveness of such support is evident in the establishment of federal (e.g., America Reads; U.S. Department of Education, n.d.) and local tutoring programs for students who have difficulty reading, including children who are English learners (e.g., Morrow & Woo, 2001). Growing literature identifies features of tutoring programs most likely to produce achievement gains (e.g., Slavin, Madden, & Chambers, 2001). However, recent studies indicate a need to examine the nature of instruction that occurs during tutoring, as well as

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the type of outcome measures and duration and intensity of tutoring and tutor training (Wasik, 1997, 1998).

Both the nature of instruction and measurement of performance may be particularly critical in designing tutoring programs for gifted children from diverse language, cultural, and economic backgrounds who are potentially at risk for poor school performance. Depending on criteria for program admission, this is a heterogeneous group with respect to academic achievement and English fluency, including both underachieving and advanced readers. Gifted students who are English learners require both specific instruction in English-language development and intellectually challenging content (Kitano & Espinosa, 1995; Kitano & Pedersen, 2002), suggesting that these students may benefit from tutoring that considers both objectives. Standardized tests, such as the Stanford Achievement Tests, may not accurately measure the progress of students who are English learners (Thompson, DiCerbo, Mahoney, & MacSwan, 2002). Poverty affects the development of English proficiency (Hakuta, Butler, & Witt, 2000) and poverty, independent of English proficiency level, affects academic achievement levels (González, 2002).

This article describes a study designed to examine the relationship of tutoring strategies to the academic achievement of third- through fifth-grade children enrolled in self-contained classrooms for gifted students from low-income, culturally and linguistically diverse backgrounds and heterogeneous with respect to reading achievement. The article begins with a brief review of the literature followed by a description of the tutoring program, study design, results, and implications.

Literature Review

Two literature bases have relevance for the study: research on factors contributing to the effectiveness of tutoring programs and teaching strategies effective for improving the academic achievement of gifted learners whose primary language is not English.

Tutoring

The tutoring effectiveness literature primarily investigates factors influencing the efficacy of tutoring for learners who underachieve in reading. Effectiveness of tutoring in increasing students' academic achievement may depend on a number of factors. A review of tutoring programs using adult volunteers (Wasik, 1997, 1998) found little documentation of effects on achievement. Only 2 of 17 programs reviewed described evaluation studies using experimental design. Both demonstrated positive achievement gains among children receiving one-to-one tutoring by volunteers. Wasik (1998) found inconsistency among programs reviewed with respect to the relationship between number of tutoring sessions and effect on achievement. Quality of tutoring and the characteristics of children given larger or smaller numbers of sessions may contribute to discrepant findings.

From her review of volunteer tutoring programs in reading, Wasik (1998) found several similarities among programs that may contribute to positive outcomes: a knowledgeable coordinator who provides expert guidance and feedback to tutors, structure in tutoring sessions, and training of tutors. Structure in tutoring sessions includes actively involving children in reading and word analysis, scaffolding (e.g., providing clues and breaking tasks into smaller parts rather than giving students the correct answers), and explicitly modeling effective strategies (e.g., sounding out words or using context clues). Wasik (1998) suggested that training may be more important for programs emphasizing higher level reading and writing activities and requiring informed judgments by tutors, with less training needed for implementing tutor-proof materials. Wasik (1998) also noted that, although all programs focus on children with reading problems, this group is not homogeneous. Some greatly benefit from tutoring and begin to read at grade level, some improve but read below grade level, and some make little progress.

Elbaum, Vaughn, Hughes, and Moody (2000) conducted a meta-analysis of 31 studies investigating the effectiveness of adult-delivered tutoring programs in reading using control groups for comparison of outcomes. With regard to factors affecting tutoring effectiveness, their analyses indicated that (a) tutors whose students made

the greatest gains were college students, (b) a focus on reading comprehension produced the largest effect, (c) use of nonstandardized achievement measures (assumedly more related to instruction) produced larger effects than the use of standardized measures, (d) total instructional time was not reliably associated with effect size, and (e) intensity appeared more related to effect size than duration. The authors concluded that well-designed one-to-one and small-group tutoring using trained college students and volunteers can contribute significantly to improved reading outcomes for many students at risk for reading failure.

Snow (2002) reviewed 23 studies describing research on tutoring of at-risk students by professionals, adult volunteers, and cross-age tutors. Although no studies were available that compared professionals and volunteers as tutors, several using competent volunteers reported effects as large as those employing professionals. Characteristics found common to successful tutoring programs included training well-matched to the tutors, monitoring and adapting of tutoring sessions, diagnostic/prescriptive interactions, availability of materials and space, and identification and retention of quality tutors. Additionally, Snow concluded that a strong guiding purpose that directs tutors in decision making may be an essential contributor to effective tutoring.

The U.S. Department of Education (Office of the Deputy Secretary, 2001) reviewed research on adult and peer tutoring programs serving children with below-average reading skills. The report concluded that tutored children show significant gains in reading skills compared with similar students who do not receive such tutoring. The report identified a number of program characteristics associated with achievement: incorporating research-based elements, structured sessions with carefully scripted instruction, careful monitoring and reinforcement of progress, extensive training for tutors, formal time commitments by tutors, frequent and regular sessions, and close coordination with classroom instruction and curriculum.

A recent, well-designed study by Denton, Anthony, Parker, and Hasbrouck (2004) compared the effects of two tutoring interventions and nontutored control groups on the reading achievement of second- through fifth-grade English learners who were experiencing

difficulty in English reading. The interventions were selected based on research on instructional strategies effective for native English readers and English learners. Students who scored below grade-one equivalency on the Word Attack subtest of the Woodcock Reading Mastery Tests were provided tutoring focused on systematic instruction in English decoding (Read Well program) and vocabulary, concentrating on phonological elements different in Spanish and English and building on prior knowledge. Students who scored at or above grade-one equivalency received tutoring in repeated reading (Read Naturally) to develop oral reading fluency, contextualized vocabulary, and comprehension. Trained and supervised undergraduate students implemented tutoring 3 times a week for 10 weeks. Compared to nontutored controls, students who received systematic phonics instruction made significant progress in word identification but not word attack or passage comprehension on the Woodcock Reading Mastery subtests. The repeated reading intervention showed no significant effects compared to the control condition. The investigators conclude that English learners need explicit instruction in English phonology and speculate that increased fluency may negatively affect comprehension if students require time to integrate what they are reading in a second language.

Reviews of tutoring studies using underachieving readers agree that additional, well-controlled empirical evaluations of tutoring programs are needed. Nevertheless, the available research provides a preliminary knowledge base concerning program features related to achievement gains.

Instructional Strategies for Gifted English Learners

An early review of literature on gifted English learners (Kitano & Espinosa, 1995) described this population as a heterogeneous group with respect to primary language, level of proficiency in primary language and in English, experiential background, income level, culture, and talent area. Despite Bernal's (1978) observation that gifted Mexican American children may rapidly acquire English, they may not demonstrate their growing proficiency on standardized tests, especially if they come from low-income homes. According

to González (2002), “These resilient children also develop social and/or academic proficiency in both first and second languages at a younger age and in a faster manner; as research demonstrates, however, their progress is not shown consistently by standardized tests” (p. 57). Moreover, the expectation that gifted students should acquire English rapidly must be qualified by equivocal research findings examining the relationship between intelligence and second language acquisition. Other important variables include quality of instruction (De Avila, 1997), comfort and motivation level, and language aptitude.

Kitano and Espinosa (1995) concluded from their review of literature that best practices for gifted English learners include instructional strategies appropriate for gifted learners in general: incorporating student strengths; demonstrating high expectations through challenging content; employing student-centered approaches that promote active learning; emphasizing oral and written language development; and valuing students’ languages, cultures, and experiences. More recent literature offers suggestions derived from gifted education frameworks (Granada, 2002; Robisheaux, 2002) and from teachers who work with gifted English learners (Kitano & Pedersen, 2002).

Kitano and Pedersen (2002) sought to identify best practices in reading instruction for gifted English learners by synthesizing research-supported strategies from the literature and holding two structured focus groups with teachers who teach gifted English learners. These teachers recommended nine strategies consistent with students’ identified needs and with the literature on best practice for the general population of English learners: (a) assess children’s interests and background knowledge and relate new concepts to background knowledge; (b) show (e.g., through visuals and graphic organizers) rather than tell students; provide many examples and nonexamples; (c) conference with children individually on how to use specific strategies; (d) employ reciprocal teaching and literature circles in which students in small groups ask questions of their peers about a text, make predictions, draw inferences, and summarize; (e) model reading and thinking strategies; (f) use direct instruction to teach basic skills and help children develop automaticity; (g) use strategies

that promote higher level and creative thinking and content depth and complexity; (h) tier instruction to provide appropriate levels of challenge; and (i) have students create and refer to schema journals to support high-level schema (e.g., include graphic organizers defining different genre, such as fiction and nonfiction, historical fiction, fairy tales).

These recommendations for teaching reading to gifted students who are English learners are consistent with what the research literature identifies as best practices for all learners, including those believed to be at risk for school achievement problems. One of the most important findings of this body of research is the usefulness of providing students with explicit instruction in reading comprehension strategies. As the National Reading Panel (2000) concluded from its comprehensive review of research

the evidence suggests that teaching a combination of reading comprehension techniques is the most effective. When students use them appropriately, they assist in recall, question answering, question generation, and summarization of texts. (Findings and Determinations section, ¶ 45)

Experts such as Block and Pressley (2002), Block (2004), and Harvey and Goudvis (2000) have identified a number of effective reading comprehension strategies. For example, Pressley (2002) discussed four strategies found effective in improving comprehension in students in the upper elementary grades: use of prior knowledge, mental imagery, questioning, and summarization.

Empirical studies (Doherty, Hilberg, Pinal, & Tharp, 2003; Gersten & Baker, 2000) and reviews of research (e.g., Jiménez, 2002) support specific strategies for promoting achievement among the general population of English learners. However, few studies have examined the efficacy of specific strategies for gifted English learners.

Literature on reading instruction for gifted students (e.g., Collins & Alex, 1995; VanTassel-Baska & Sher, 2003) emphasizes the need to engage gifted learners who have mastered basic reading skills in critical and creative reading through advanced curriculum and content, selection of books that use varied and complex language structures, author study, and formal language study (grammar, vocabulary, syn-

tax, etymology, history). Advanced reading skills for gifted learners include analysis, interpretation, critical thinking, evaluation (e.g., judging quality), and interacting with text in imaginative ways.

The separate literatures on tutoring of students at risk for reading failure and instructional strategies for English learners, gifted English learners, and gifted students in general suggest features of tutoring programs most likely to support achievement gains for gifted learners from culturally and linguistically diverse backgrounds. These include training matched to tutor skill levels, systematic progress monitoring, and tutoring sessions structured around appropriate reading comprehension strategies coordinated with classroom instruction. For culturally and linguistically diverse gifted learners from poverty backgrounds whose reading levels range from at risk to advanced, reading comprehension strategies would include emphasis on higher level thinking, challenging content, connecting with and building children's background knowledge and experience, use of visuals and graphic organizers, and modeling of effective reading and thinking strategies. Achievement gains from tutoring are more likely to be evidenced on nonstandardized rather than standardized measures.

Purpose and Design

The purpose of this study was to investigate the effects of a tutoring intervention incorporating literature-supported features on the reading achievement of gifted students from low-income backgrounds enrolled in special "Open Gate" classrooms in a large urban school district. Open Gate (Fox, 2001) is a partnership between the San Diego Unified School District's Gifted and Talented Education (GATE) program and the Human Development Foundation (HDF), a nonprofit organization whose mission is to provide educational opportunities for children with high potential and extremely limited economic means. The investigators initiated this study when the executive director of the Human Development Foundation requested training of tutors and an evaluation of the impact of tutoring on reading achievement.

The Open Gate Program

Open Gate provides the resources, advocacy, and logistics needed for gifted children in very low-income families to attend self-contained GATE classes for grades 3–5. Individual and small-group tutoring comprises the major supplemental academic component of Open Gate. All students enrolled in the program receive tutoring whether they are achieving below, at, or above grade level in reading. Tutoring focuses on facilitating continued progress. In addition to tutoring, services include assistance with transportation costs for students and family members to participate in the program, social services support, and resources for school supplies and field trips.

Open Gate classrooms are “seminar” classrooms, defined by the district as self-contained classrooms for “highly” gifted students (3 standard deviations above the mean or 99.9th percentile rank on district-identified measures) with a maximum enrollment of 20. Students who score between the 99.6th and 99.8th percentile rank may be considered for seminar programs based on factors (economic, language, emotional, or health) that may depress test scores. Hence, students qualify for enrollment in Open Gate at the end of second grade by scoring in the 99.6 percentile at the minimum on the Raven Progressive Matrices and meeting federal criteria for free or reduced-price lunch (economic factors). Children enroll in Open Gate in the third grade and continue in the program with the same teacher through fifth grade. All seminar teachers, including those in Open Gate classrooms, are certified as educators of the gifted by the district. Currently, there are five Open Gate classrooms located in three elementary schools within the district. The major goals established by the Open Gate program are that by the end of the fifth grade, students score at or above the 75th percentile in reading and the 80th percentile in mathematics on the state-mandated standardized achievement test.

Each classroom offers a challenging literacy- and standards-based curriculum with instructional activities varying by individual teacher. All teachers in the district, including seminar teachers, are required to comply with the district’s reform initiative called the “Blueprint for School Success” (Betts, Zau, & King, 2005). The Blueprint mandates 3 hours of literacy instruction per day using six reading com-

prehension strategies (questioning, making connections, visualizing, inferring, determining importance, and synthesizing) identified as characterizing fluent readers (Harvey & Goudvis, 2000; Zimmerman & Keene, 1997). Reading is taught within a balanced literacy framework through reading aloud; shared, guided, and independent reading; word/language study; and interactive, modeled, shared, guided, and independent writing (Fountas & Pinnell, 2001; San Diego City Schools, 2004).

The Tutoring Program

The first step in the development of the tutoring program for students in Open Gate classrooms was an attempt to identify effective tutoring strategies for the specific population served by this program. We approached this task following a multivocal literature model (Ogawa & Malen, 1991) that included reviewing available literature and conducting focus groups with teachers already working with similar populations (Kitano & Pedersen, 2002). We also conducted a focus group consisting of university and school district experts in reading, English language development, sheltered literacy instruction, and gifted education. From the literature and focus groups, we developed a checklist of instructional strategies hypothesized as effective for gifted learners from low-income, culturally and linguistically diverse backgrounds.

We then met with the Open Gate teachers to understand their context and approaches to reading, which were necessarily consistent with the district's reform effort, the Blueprint. The teachers' expressed needs, our identification of critical considerations for the specific population, and knowledge of the tutors' skill levels served as the basis for selecting tutoring strategies. We adopted the six district-mandated reading comprehension strategies for tutor training and added decoding as a seventh strategy. Consistent with the literature and expert opinion, the strategies included making connections to learners' prior knowledge and experience, tutor modeling of the comprehension strategies, and use of graphic organizers.

As Figure 1 illustrates, the six reading comprehension strategies can be conceptualized along two dimensions. In the first dimension,

which is based upon the work of Harvey and Goudvis (2000), the strategies are arranged hierarchically from most basic (making connections) to most advanced (synthesizing). In this study, we identified the first three strategies (making connections, questioning, and visualizing/imagining) as lower level strategies and the last three (inferring, determining importance, and synthesizing) as higher level strategies. To address gifted students' need to be challenged, we added increasing levels of challenge for each of the six comprehension strategies (Kitano, 2005). That is, for each strategy, there are at least three levels of complexity or challenge for the learner. In the making connections strategy, for example, finding connections between a text and one's self is a less complex task than finding connections or patterns between one text and another text. Tutors were instructed to model and provide practice in all strategies, beginning with the most basic, and to help students move along the continuum toward the most advanced challenges.

Method

This study examined tutoring in relation to reading achievement of children enrolled in Open Gate during the 2003–2004 academic year. The major research question was: Are specific strategies used by tutors related to children's reading achievement gains? The study investigated gains of Open Gate students in three classrooms throughout one academic year on a standardized reading test and an informal measure of reading achievement and the relationship between tutoring strategies and achievement gains. We also examined the relationship between duration of tutoring and achievement gains, although such an association is not substantiated in the research literature (e.g., Elbaum et al., 2000).

The original design included a fourth seminar classroom that enrolled students who qualified for Open Gate but did not receive tutoring services. We had hoped to include this classroom as a control group to permit a comparison of achievement gains of students who received and did not receive tutoring. However, events outside our control rendered questionable the comparability of the class-



	Strategies	Basic
	Making Connections	<i>Text to self:</i> “It reminds me of . . .” “How does this connection help you understand the story?”
	Questioning	<i>Yes/No/Answerable:</i> “What do you wonder?” “What seems confusing?” “What do you want/need to know in order to understand?”
	Visualizing and Imagining	Picture events to fill in information; create visual images.
	Inferring	<i>Predict:</i> “What do you think the story is about?” “What do you think will happen next?” “Were your predictions accurate?” “What clues, evidence support your idea?”
	Determining Importance	<i>Main ideas and concepts:</i> “What features of the text indicate important concepts?” “Read to answer this question.” “Rewrite as a newspaper article.”
	Synthesizing	<i>Summarize:</i> Retell to capture essence of story and provide personal response. “What has happened so far?” “What do you think of character X so far?”
Challenging		

Figure 1. Reading comprehension strategies.

	Challenging
<p><i>Text to world:</i> Relate characters, plot lines, themes, and perspectives to historical or current events.</p>	<p><i>Text to text:</i> Compare characters, plot lines, themes, messages, writing styles, and perspectives across texts. What patterns do you see?</p>
<p><i>Unanswered:</i> Questions address deeper themes, bigger ideas. “Why does the rabbit want to be a different color?”</p>	<p><i>Ethical, existential, evaluative:</i> Questions raise issues about ethics, life in general, or values. “Why do pets have to die?” “Was Goldilocks a good person?”</p>
<p>Use all senses and details from the text; elaborate.</p>	<p>Use images and senses to make comparisons.</p>
<p><i>Points of view; cause and effect:</i> “How do you think character X might feel?” “Why did that happen?” “What is the author’s message?” “What events or factors influenced the character?” “What clues, evidence support your idea?”</p>	<p><i>Hidden rules and structures:</i> “What in our society made it possible for that to happen?” “Can it happen today?” “What clues, evidence support your idea?”</p>
<p><i>Forming an opinion:</i> Reading opposing perspectives to form an opinion.</p>	<p><i>Expert vs. novice: depth and detail; relevance for purpose and audience:</i> Prepare a brief presentation for a younger audience; for experts.</p>
<p><i>Themes and big ideas:</i> “What are the bigger ideas in . . .” Capture theme in one or two words. Create a bumper sticker.</p>	<p><i>Reassembling parts into something new:</i> Create a new ending consistent with beginning and middle. Retell from a different character’s perspective. Note author’s craft and reproduce.</p>

rooms and reliability of achievement data. A decision was made to eliminate the comparison from the design.

Participants

As noted earlier, children qualify for the district's gifted program through administration of the Raven Progressive Matrices test during the second grade. To qualify for the Open Gate seminar program, students must receive a minimum score of 99.6 percentile and meet income criteria (i.e., eligibility for free or reduced-price lunch). During the period of this study, Open Gate consisted of three seminar classrooms, defined by the district as self-contained classrooms for gifted students with a maximum enrollment of 20.

A total of 58 children (34 males and 23 females) were enrolled in the three classrooms (grade 3, grade 5, and grade 3/4/5 combination classrooms). Of the 58 students, 27 were enrolled in third grade, 10 in fourth, and 21 in fifth. Families reported seven different home languages, with 43 (74%) of the children living in homes with a primary language other than English. Spanish was the most common language spoken in the home (29 families). Other languages were Vietnamese, Cantonese, Chinese, Lao, and Hmong. For 5 children, both English and Spanish were spoken in the home, and for 10 children, English only. Of the 58 children, 34 were identified as Latino, 9 Vietnamese, 3 African American, 2 Chinese, 1 Hmong, 1 Laotian, 1 White, and 7 were of mixed ethnicity (e.g., African American and Guamanian, Chinese and Vietnamese).

Information was available from the district about the students' English language status. Each year, schools administer the California English Language Development Test (CELDT; CTB McGraw-Hill, n.d.) at the beginning of the school year or upon enrollment to children living in families where English is not the home language. CELDT scores are used to categorize English language proficiency as beginning, early intermediate, intermediate, early advanced, or advanced. Students scoring in the first three categories are considered English learners. Teachers estimate that between 60% and 65% of Open Gate students in the study entered school in kindergarten

or grade 1 as English learners, consistent with the language of the home.

At the start of the study, 12 students continued to be identified as English learners by the CELDT, totaling 21% of the sample. Additionally, 8 students (14%) scored at the early advanced level on the CELDT. Thus, 35% of the sample had not yet achieved full English fluent status when the study commenced at the beginning of the 2003–2004 school year.

Tutors are recruited from local universities and paid as hourly employees of the Human Development Foundation. Position advertisements indicate a preference for tutors who are bilingual in English and one of the children's primary languages. Most tutors are undergraduate university students. During the period of this study, 11 tutors served as tutors for the 58 students. Nine were undergraduates recruited from local universities, one was a retired teacher, and one was a former Open Gate tutor hired by the program to oversee tutor activities on site. Ten were bilingual in English and one of the languages represented by the children.

Measures

Two measures were used to determine the amount of progress made by students in the Open Gate program over the 2003–2004 school year. The first was the California Achievement Test, Sixth Edition Survey (CAT/6), a well-known standardized achievement test published by CTB McGraw-Hill (2000). This test, mandated by the state of California, is administered by schools to students in grades 2 and above each spring to assess yearly progress. Results were available from the school district for the Spring 2003 and Spring 2004 CAT/6 administrations to Open Gate students in these achievement areas: Total Reading, Total Mathematics, Language Arts, and Spelling.

Two types of CAT/6 scores were used in analyses: National Percentile Rank (NPR) Scores and Normal Curve Equivalent (NCE) Scores. According to the State of California's (2006) explanations of CAT/6 scores, "A national percentile rank is the percentage of scores for students in a national sample of students, in the same grade, tested at a comparable time of the school year, that fall

below the scale score for the student” (National Percentage Rank [NPR] section, ¶ 12). Salvia and Ysseldyke (2004) recommend the use of percentile rank scores for reporting results because they are easily understood by parents and professionals and because percentile ranks can be computed on interval or ratio data (e.g., raw scores on standardized tests). Normal curve equivalents, in contrast, are normalized standard scores developed for reported student progress in federally funded programs (McLoughlin & Lewis, 2005; “NCE Scores,” 2004). NCE scores are distributed with a mean of 50 and a standard deviation of 21.06. They are recommended over other types of scores by some authors (e.g., Rudner & Schater, 2002) for use in determining if students make gains over time.

The second strategy used in this study to assess reading progress was a classroom measure of reading fluency from the Read Naturally, Inc. system (Ihnot, 1992). In this measure (referred to as the reading fluency measure in this article), the student reads a passage of text aloud for a period of one minute as the tutor marks errors. The Words Read Correctly (WRC) score is determined by subtracting the number of errors from the total number of words read.

Reading fluency was selected as one of the skills to evaluate when determining growth in reading performance for several reasons. First, it is a developmental skill: Students are expected to increase the number of words they are able to read quickly and accurately as they progress through the grades (Hasbrouck & Tindal, 2005). Second, reading fluency plays an important role in reading comprehension (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Kuhn & Stahl, 2003; Pikulski & Chard, 2005; Rasinski, Blachowicz, & Lems, 2006; Therrien, 2004). For example, in a study of more than 1,000 elementary grade students, Alonzo and Tindal (2004) reported strong correlations between a measure of reading fluency and the state-mandated achievement test ($r = .61$) and moderate correlations between reading fluency and district reading comprehension tests ($r = .42$ to $.48$).

Perhaps the most important reason for inclusion of the reading fluency measure in this study was its sensitivity to changes in student performance (McLoughlin & Lewis, 2005). Unlike norm-referenced standardized tests such as the CAT/6, informal classroom

measures such as this are more likely to detect small differences in reading skills from one part of the school year to another. Thus, the reading fluency measure was administered three times during the school year: in the fall, in the winter, and in the spring.

Procedures

Tutors received 10 hours of training over a full day early in the fall (after meeting the teachers and students) and a half day 2 months later. The first day focused on defining and employing decoding and the six comprehension strategies. Tutors received a notebook with sample tutoring lessons and graphic organizers for each strategy. The examples represented a continuum of increasing levels of challenge within each strategy (see Figure 1). Training included role-playing and analysis of videotapes showing tutors using the decoding and comprehension strategies with various levels of challenge. The half-day follow-up session encouraged tutors to share examples of their implementation of the strategies (one check for fidelity) and to problem solve any issues. An on-site tutoring manager (former Open Gate tutor) monitored the tutoring and provided additional support for tutors as needed.

To ensure fidelity with the strategies and provide a global measure of quality of tutoring, one tutoring session for each child was observed. The observer was trained by the investigators to take near-verbatim notes, check off the strategy (or strategies) observed, assign a global rating of quality from 1 (*low*) to 10 (*high*), interview the tutor about his or her objectives for the session, and obtain a global rating from the tutor using the same scale. Training of the observer included use of tutoring videotapes. Interrater reliability of 92% for the observer and two investigators was achieved on the checklist and global quality rating.

The executive director of the Human Development Foundation, assisted by the on-site manager, assigned each tutor to approximately 5 students based on matching students' primary language with tutors' primary or second language. Teachers identified the comprehension strategies for the focus of each tutoring session based on the student's needs. For each tutoring session, tutors recorded the name

of the tutee(s), the duration of the session, and strategies employed. The on-site manager administered the reading fluency measure to each child before tutoring commenced in the fall, midyear, and at the end of the academic year. The teachers administered the CAT/6 in the late spring of each year following a state-mandated protocol.

Results

This study focused on the relationship between tutoring and reading achievement gains for gifted children from low-income backgrounds and, in order to tease out that relationship, data were analyzed around five related questions:

1. Did the students make gains in reading?
2. How many hours of tutoring did children receive and what reading comprehension strategies were taught during tutoring?
3. Is there a relationship between reading gains and number of hours of tutoring received?
4. Is there a relationship between reading gains and the types of reading comprehension strategies taught?
5. What factors play the most important roles in producing reading achievement?

Gains in Reading Achievement

To determine if Open Gate students made gains in reading achievement from year to year, analyses were performed using two types of achievement measures. The first type was the state-mandated CAT/6 achievement test. NPR scores from the Spring 2003 administration (pretest) were compared to those from the Spring 2004 administration (posttest). Results of a paired sample *t*-test revealed a significant gain over the 1-year period, as Table 1 shows. However, when this analysis was repeated with NCE scores from the CAT/6, no differences were detected. It is also important to note that students' NCE scores at both times of testing remained above the group mean.

Table 1
Changes in Student Reading Achievement
Over One Year ($N = 58$)

	State-Mandated Achievement Test		Reading Fluency Measure
	CAT/6 NPR Mean (<i>SD</i>)	CAT/6 NCE Mean (<i>SD</i>)	Words per minute correct Mean (<i>SD</i>)
Pretest	55.7 (26.8)	54.3 (17.2)	109.7 (39.0)
Posttest	62.3 (25.7)	58.0 (18.8)	152.8 (41.0)
Comparison	$t = 2.20, df = 57,$ $p = .032$	$t = -1.777, df = 56,$ $p = .081$	$t = -18.77, df = 57,$ $p < .001$

The reading fluency measure, the second type of achievement measure, provides data on the number of words a student is able to read correctly within a 1-minute period. Students' performance on measures of reading fluency was compared from the start of the school year (Fall 2003) to the end (Spring 2004). Students made significant gains in reading fluency over the course of the school year, as Table 1 shows.

As noted earlier, our original design included a control classroom (in which students did not receive tutoring) for comparison of achievement gains, and a series of external events compromised comparability and reliability of data. Subsequently, as part of its evaluation of the entire gifted program, the district included as part of its overall investigation a sample of 18 economically disadvantaged seminar students at Open Gate schools who did not participate in Open Gate. The district's results indicated that 26.4% of 53 Open Gate students (who participated in our study) scored at the advanced level on the state-mandated criterion-referenced California Standards Test as compared to 16.7% of the control (i.e., seminar students at the same schools), 37.7% and 33.3%, respectively, scored at the proficient level. On the norm-referenced CAT 6, 22.6% of the Open Gate students scored in the top quintile compared to 16.7% of controls; 39.6% and 27.8% respectively scored in the second quintile. The District report (San Diego Unified School District, 2005) concludes that "based on CST and CAT/6 test results, elementary-

Table 2
Amount of Tutoring Time by Activity

Reading Skill Addressed	Content of Tutoring Activities	Mean Number of Hours (<i>SD</i>)
Decoding	Figuring Out Words	6.4 (6.4)
Reading Comprehension	Making Connections	6.4 (3.3)
Reading Comprehension	Questioning	6.4 (3.6)
Reading Comprehension	Visualizing and Imagining	4.4 (3.4)
Reading Comprehension	Inferring	7.7 (3.6)
Reading Comprehension	Determining Importance	6.9 (3.3)
Reading Comprehension	Synthesis	5.0 (3.0)
None	Writing	6.4 (5.1)
None	Other Activities	15.0 (0.4)
Total: All tutoring hours		64.7 (20.0)

level Seminar students who were enrolled in Open GATE classrooms . . . outperformed Seminar students at these same schools who did *not* participate in Open GATE” (p. 11). Caution in interpretation is needed because of the small numbers and because all that is known about the comparability of the two groups is their low-income status and their inclusion in seminar programs for highly gifted students as defined by the district.

Number of Tutoring Hours and Types of Strategies Taught by Tutors

On average, Open Gate students received a total of 64.7 hours of tutoring ($SD = 20.0$) on average during the school year. Table 2 provides information on the content of the tutoring activities and the average number of hours of tutoring provided for each.

The majority of tutoring time was spent in activities related to reading, with the most time allocated to comprehension strategies rather than to decoding or to the allied skill of writing. Tutoring activities classified as “other” most typically related to completing admission applications for middle school and assistance with work in curricular areas other than reading (e.g., science projects, speeches, social studies reports, math problems).

Number of Tutoring Hours and Achievement Gains

In this analysis, we examined the relationship between the number of hours of tutoring received in 2003–2004 school year and the gains in reading performance achieved during that time period. No relationship was found between total number of tutoring hours and gains in reading either on the standardized CAT/6 test (NPR or NCE scores) or on reading fluency measures. This result was expected given results of previous studies such as those reviewed by Elbaum et al. (2000).

Types of Strategies Taught by Tutors and Achievement Gains

To determine the effect of different types of tutoring content on growth in reading, the relationship between numbers of hours spent on various types of tutoring activities and change in reading performance during the 2003–2004 school year was assessed for the whole sample ($N = 58$) using Pearson correlation coefficient analyses. No relationship was found between change in performance on the CAT/6 (NPR or NCE scores), the state-mandated achievement test, and the number of hours spent overall in tutoring or the quantity of time spent in teaching strategies related to decoding, reading comprehension (either lower or higher level), writing, or other activities.

In contrast, as indicated in Table 3, several significant relationships were detected between change in reading fluency as assessed by the Read Naturally measure and type of tutoring activity. Because classroom measures such as these are designed to detect small incremental changes in skill development, it would be expected that the nature of tutoring activity would influence performance in reading fluency. Reading fluency increased as a function of the amount of tutoring time spent on teaching the decoding strategy (figuring out words), one of the lower level reading comprehension strategies (visualizing and imagining), and two of the higher level reading comprehension strategies (determining importance and synthesis). In addition, when time spent on all three higher level comprehension strategies is combined, there is a positive relationship between tutoring time and gain in reading fluency.

Table 3
Relationship Between Reading Gains and Quantity
of Different Types of Tutoring Activities

Type of Tutoring Activity	Gains in Reading Fluency	
	All Students (<i>N</i> = 58)	English Learners (<i>n</i> = 12)
Decoding:	<i>r</i> = .376	<i>r</i> = .731
Figuring Out Words	<i>p</i> = .004	<i>p</i> = .007
*Making Connections	NS	NS
*Questioning	NS	NS
*Visualizing and Imagining	<i>r</i> = .406 <i>p</i> = .002	<i>r</i> = .746 <i>p</i> = .005
Total for All Lower Level Reading Comprehension Strategies	NS	NS
**Inferring	NS	NS
**Determining Importance	<i>r</i> = .277 <i>p</i> = .035	<i>r</i> = .636 <i>p</i> = .026
**Synthesis	<i>r</i> = .501 <i>p</i> < .001	NS
Total for All Higher Level Reading Comprehension Strategies	<i>r</i> = .392 <i>p</i> = .002	NS
Writing	NS	NS
Other Activities	<i>r</i> = -.259 <i>p</i> = .049	NS

Note. *Categorized as lower level reading comprehension strategies. **Categorized as higher level reading comprehension strategies. NS = Not significant.

It is also interesting to note that the tutoring category labeled “other activities” is negatively related to growth in reading fluency. That is, the more time spent in “other” activities, the less likely the student was to show reading growth ($r = -.259, p = .049$). This category included a myriad of activities that could not be classified as either reading or writing tasks.

Because students who are English learners may be at higher risk for underachievement in reading than their English-speaking coun-

terparts, we repeated the correlational analyses for that portion of the sample identified as English learners ($n = 12$). Those results also appear in Table 3. Gain in reading fluency was positively related to number of tutoring hours in decoding strategies (figuring out words) and two reading comprehension strategies: visualizing/imaging and determining importance.

Factors Contributing to Reading Achievement

Multiple regression analyses were performed to determine the effects of a number of variables on current reading achievement. In the first analysis, a stepwise multiple regression utilized Spring 2004 CAT/6 performance (NCE scores) as the independent variable. The variables tested as predictors were (a) total amount of tutoring (measured by total number of hours of tutoring); (b) type of tutoring (including measures of amount of tutoring in figuring out words, lower level comprehension strategies, upper level comprehension strategies, and writing); (c) English language status (i.e., whether identified as English learner); (d) grade in school; and (e) gender.

Only one factor, English language status, emerged as a significant predictor of current reading performance as measured by standardized tests. According to these results, English language status accounted for less than one tenth (7.9%) of the variance in test performance (Adjusted R Square = .079, $F = 5.878$, $p = .019$).

This analysis was repeated using Spring 2004 reading fluency as the independent variable. Two models identifying alternative factors were found. In Model 1, English language status again emerged as the one significant predictor. That status accounted for around one tenth (12.6%) of the variance in reading fluency performance (Adjusted R Square = .126, $F = 9.201$, $p = .004$). In Model 2, grade in school was the only predictor and it accounted for almost one fifth (17.1%) of the variance in reading fluency (Adjusted R Square = .171, $F = 6.876$, $p = .002$).

To better understand the role of English language status in relation to reading skill (as measured by the CAT/6), descriptive statistics were calculated for students by grade and by language status. As can be seen by the means plotted in Figure 2, English learners show

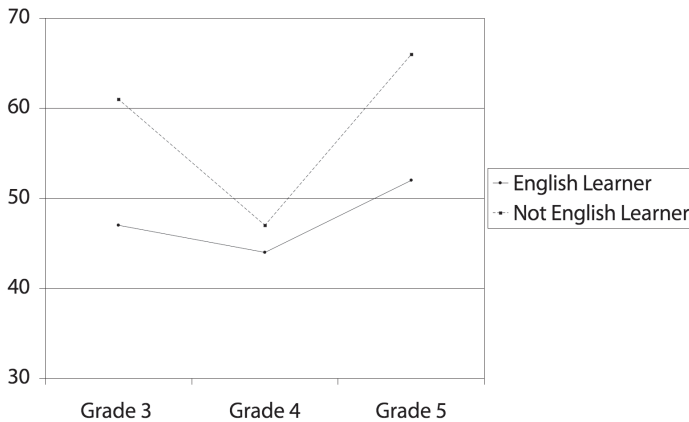


Figure 2. Spring 2004 CAT/6 reading normal curve equivalent scores by English status and grade in school.

lower reading performance than their English speaking counterparts across all grade levels, although the most dramatic differences occur at the lowest and the highest grades.

Discussion

The results indicated that as a group, Open Gate students showed significant gains over 1 academic year in reading on both the state standardized achievement test NPR scores and on a classroom reading fluency measure. Loss of the study's control group precludes conclusions regarding the superiority of tutoring to no tutoring in raising achievement or fluency scores. However, the district's comparison of Open Gate students with a small sample of "other economically disadvantaged seminar students" attending programs for the highly gifted at the same schools suggests that tutoring may have positive effects on reading outcomes (San Diego Unified School District, 2005). Students received an average of 65 hours of tutoring during the academic year, of which approximately 43 were focused on decoding and reading comprehension. The total number of tutoring hours for one school year was not related to gains in reading performance during the same year. These findings are consistent

with earlier literature (Elbaum et al., 2000; Wasik, 1998) reporting inconsistent or no relationships between quantity of tutoring and achievement.

The main purpose of the study was to determine whether tutoring focusing on specific reading comprehension strategies was related to gains in reading achievement. For the group as a whole, none of the reading strategies correlated significantly with standardized test score gains. However, specific strategies showed a relationship with increased reading fluency: decoding, visualizing/imagining, determining importance, and synthesis. The three higher level strategies together were related to reading achievement gains, but not the lower three. As might be predicted, nonreading activities were negatively correlated with gains. For the smaller group of gifted students who were English learners, analyses showed a significant relationship between gains in reading fluency and tutoring in decoding, visualizing/imagining, and determining importance.

Earlier studies suggest that what transpires in tutoring sessions has greater impact on achievement than time spent in the sessions. Denton et al. (2004) reported that systematic phonics tutoring improved word identification but not reading comprehension scores for English learners working below grade level on word-attack skills. Our findings for gifted students from culturally and linguistically diverse backgrounds suggest that tutoring in decoding and higher level comprehension skills supports gains in reading fluency, which correlates with reading comprehension (Therrien, 2004). However, gifted students who continue their status as English learners in third, fourth, and fifth grades appear to benefit from the full range of tutoring strategies that includes decoding and lower and higher level comprehension strategies.

Regression analyses indicated that English learner status was a significant predictor of current reading performance on the standardized achievement test but accounted for only a small portion of the variance. According to Bernal (2005), most gifted students who enter kindergarten as limited English speakers are reclassified as English fluent by the end of second grade, although academic proficiency in English may require one or more additional years. Gifted students who continue English-learner status into fifth grade

appear to need interventions other than tutoring to improve reading achievement and may benefit from earlier identification, evaluation, and services. As noted by Wasik (1998), some students gain significantly from tutoring, some show moderate improvement, and some make little progress. For gifted students from culturally and linguistically diverse backgrounds, delayed development of English fluency relative to gifted peers may signal a need for early and extensive intervention.

Further research is needed to substantiate and extend the findings of this study, particularly in relation to English learners. The small number of English learners in our sample represents a limitation of this study as does the absence of a control group. In addition, it is important to note that the study was conducted in a large urban school district on the West coast with a highly diverse population; results are most pertinent to similar districts.

In conclusion, findings suggest that tutoring in decoding and higher level reading comprehension strategies supports gains in reading achievement of gifted elementary age students from low-income, culturally and linguistically diverse backgrounds. Gifted students within this group who are English learners appear to benefit from tutoring in decoding and the full range of lower and higher level reading comprehension strategies.

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