

TEST SCORE GAINS FOR OPEN COURT SCHOOLS IN CALIFORNIA
RESULTS FROM THREE COHORTS OF SCHOOLS

Douglas J. McRae
January, 2002

Executive Summary

In a report dated May, 2000, the author described the results of an analysis of test score gains for roughly 300 schools in California using the SRA/Open Court reading program. The analysis focused on the Total Reading scores on the *Stanford 9* component of the California Standardized Testing and Reporting (STAR) program from Spring 1998 and Spring 1999, and compared test score gains for the Open Court schools to test score gains for randomly selected comparison schools.

In a subsequent update dated January, 2001, the author described results from an analysis that increased the number of both Open Court and comparison schools by 40 schools and extended the analysis to include both one year (Spring 1999 to Spring 2000) and two year (Spring 1998 to Spring 2000) gain scores.

The current report provides a significant expansion of the previous two reports. The number of schools contributing to these analyses is more than doubled to over 700 schools enrolling more than 375,000 students. In addition, STAR test scores from the Spring 2001 administration of the *Stanford 9* are added to the analyses. Both categorization of schools by type and the comparison group of schools are updated to reflect Spring 2001 status. The report presents 3-year gain scores (Spring 1998 to Spring 2001), 2-year gain scores (Spring 1999 to Spring 2001), and 1-year gain scores (Spring 2000 to Spring 2001) for cohorts of Open Court and comparison schools. In addition, scores from *California Standards Tests* are added to the analysis for the first time.

The results in this report show that Open Court schools outgain Non-Open Court comparison schools by 50 to 75 percent [19 points vs 12 points for grade 2, 13 points vs 7 points for grade 3] based on 3-year gain scores involving about 300 schools. The largest differences involve schools serving concentrations of Low Socio-Economic Status students, where the differences over 3 years are most impressive [23 point gains for Open Court schools compared to 9 point gains for Non-Open Court schools]. Based on 1-year gains for more than 700 schools, Open Court schools outgain Non-Open Court comparison schools by a factor of four [5.2 points vs 1.2 points for grade 2]. *The results of the study provide clear and convincing evidence that students attending schools using Open Court materials acquire basic reading skills faster than students attending demographically similar schools not using Open Court materials.*

Introduction

Learning to read early and well is critical not only for success in school but for success in life in general. Children who are good readers at the end of first grade usually are motivated to read more thereby becoming stronger readers. As these students read more, they increase their background knowledge, expand their vocabulary, and interact with and learn about a wide range of text. In contrast, students who do not learn to read well by the end of first grade are at risk for not just reading failure but school failure. Unlike peers who are good readers, these students are less motivated to read and miss out on opportunities to develop background, build vocabulary, and interact with a wide variety of texts. Stanovich (1986) has termed this the Matthew effect since those who read become richer in knowledge and the ability to read while those who do not read become poorer, resulting in an increasing gap between the two groups. Consequently, educators, parents, and others concerned with teaching our children to read are trying to identify the elements of successful reading programs and support their implementation.

The United States Congress passed a comprehensive education plan in December, 2001, that was signed by the President in January, 2002. This plan emphasizes the importance of teaching reading early and teaching it well using materials that reflect current scientifically-based knowledge about reading instruction. This current legislation supports and extends the Reading Excellence Act (REA), US Department of Education, which awarded grants to 14 states in the 1990's to improve K-3 student achievement in reading using "scientifically-based research and effective practices that have been replicated effectively." The use of research-based materials and strong beginning reading instruction has also received support and action at the state level. Boards of education and legislators in California, Texas, North Carolina, and Indiana have strongly recommended that state funds be allocated for reading materials that are research-based. In addition, organizations like the American Federation of Teachers (AFT) have taken an active role in reviewing current reading programs and making recommendations based upon what research says coupled with classroom success for specific programs.

In *Starting Out Right: A Guide to Promoting Children's Reading Success* (1999), the editors (Burns, Griffin, and Snow) cite Open Court materials published by SRA/McGraw-Hill as the example of a commercial reading program that is well balanced and reflects the current research on beginning reading instruction. The authors note that Open Court develops phonemic awareness, the alphabetic principle, and the understanding of how print works. As the program progresses, it explicitly teaches sound-spelling correspondence to support decoding (reading) and encoding (spelling) with the goal being children reading literature independently by the middle of first grade. Unlike other reading programs, Open Court has included all of these elements in its programs since the early 1960's.

The Open Court reading curriculum exemplifies the research findings of Marilyn Adams [whose work on beginning reading instruction *Learning to Read: Thinking and Learning about Print*

(1990) is the most frequently cited research for beginning reading today] as well as the conclusions reported in *The Report of the National Reading Panel: Teaching Children to Read* (2000). While the former reflects a careful review of beginning reading research, the conclusions in the *The Report of the National Reading Panel: Teaching Children to Read* are based upon a comprehensive meta-analysis of experimental and quasi-experimental studies of sufficient size, number, scope, and quality to determine the effectiveness of specific practices related to critical instructional areas for reading. The instructional components identified as critical to beginning reading instruction in both these publications are the development of phonemic awareness, knowledge of the alphabetic principle, explicit phonics instruction, practice in building fluency, the development of vocabulary, and instruction in comprehension strategies and skills.

Developing phonemic awareness is critical to learning to read and spell successfully. Phonemic awareness, the insight that words are made up of sounds, should be introduced early in the school curriculum. Two key areas that seem to be particularly critical for instruction are oral blending and segmentation (Adams, 1990; The National Reading Panel, 2000). Beginning in kindergarten, Open Court focuses on increasing children's phonemic awareness. Beginning with phonological awareness, children listen for environmental sounds, manipulate words, compare word length, clap syllables, and work with rhymes. Gradually, children begin to work with individual sounds, phonemes, as they learn to blend sounds to make words and segment words into their component phonemes through a clearly defined instructional sequence. At the same time, children are also developing their understanding of the alphabetic principle – that sounds can be mapped onto letters – as children connect sound and letters and blend them to read words.

Comprehension is the goal of reading. Comprehension depends on rapid word recognition, which depends on the ability to map speech sounds to spellings quickly and accurately. By encouraging children to examine every letter of every new word they encounter, and by helping them link speech sounds to their spellings, phonics instruction provides children with a powerful strategy to decode written language and to read or access unfamiliar words confidently as they encounter them in text. An extensive body of research suggests that for many children, an explicit systematic approach to teaching sound/spelling correspondences, phonics, is more effective than an implicit or indirect approach (Adams, 1990; Bond & Dykstra, 1967; Foorman, Francis, Novy, & Liberman, 1991). This research is supported by the findings of *The Report of the National Reading Panel: Teaching Children to Read* (2000) which provides solid support for systematic and explicit phonics when introduced early.

Children using Open Court are systematically and explicitly introduced to sounds and spellings. This includes teaching letter shapes, sounds, and spellings with sufficient opportunities for students to practice and apply their phonics knowledge. Adams (1990) notes, however, that teaching sounds and spellings is not enough. Children need specific instruction on how to blend. Blending instruction in Open Court is explicit and has been recognized as instructionally sound and effective.

The purpose for teaching children to blend and read words is to give them a strategy for accessing words they have never encountered while reading (Adams, 1990). Consequently, once children know how to blend, they must apply those skills to reading words fluently and effortlessly so they can direct all of their cognitive energies to the true purpose of reading – making sense of text (Carnine, et al, 1997). Fluency develops over time as students practice reading. In the early stages of fluency development, students should be reading manageable text that allows them to practice their growing knowledge of sound-symbol relationships. In first grade this means decodable text – stories that contain a high proportion of words with the sounds and spellings that have been taught. Repeated practice reading words that use newly learned sounds and spellings in connected text helps solidify phonics knowledge and build fluency. In the early years, Open Court provides sufficient decodable text for students to build fluency and automaticity. Recognizing that fluency develops over time and that some students will need continued support in grades 2 and 3, Open court has decodables at these grade levels as well.

Phonics is taught in first grade and systematically reviewed in second and third grade. In *Putting Reading First: The Research Building Blocks for Teaching Children to Read (2001)*, the authors note “(s)ystematic phonics instruction results in better growth in children’s ability to comprehend what they read than non-systematic or no phonics instruction. This is not surprising because the ability to read the words in text accurately and quickly is highly related to successful reading comprehension.”

In addition, as children develop phonemic awareness and learn to connect individual sound/spelling correspondences, their growing knowledge will show itself in their ability to correctly represent the spellings that map onto the words they say and read (Moats, 1997; Shefelbine, 1995). As part of explicit, systematic instruction in phonics in Open Court, dictation reinforces and solidifies the students growing understanding of the alphabetic principle by requiring them to use their knowledge of sounds and symbols not only to read, but to write words. Introducing children to dictation gives them a strategy for reflecting thoughtfully on the words they hear in order to segment them into sounds and then assign spellings to those sounds. Dictation, which is an integral component of Open Court phonics, reinforces student knowledge of sound/spelling relationships and common letter sequences. Using phonics as a tool for spelling also enhances reading proficiency (Adams & Bruck, 1995; Snow, Burns, & Griffin, 1998).

Findings from research are also clear that phonics instruction is only a means to an end, and that end is comprehension. Adams (1990) recommends that “along with phonics instruction, young children should be . . . listening to stories and informational texts read aloud to them.” Comprehension instruction along with work on vocabulary begin at the kindergarten level. In *Putting Reading First: The Research Building Blocks for Teaching Children to Read*, the authors emphasize that comprehension can be improved by teaching children how to use specific comprehension strategies. Comprehension is defined as “intentional thinking during which meaning is constructed through interaction between the text and the reader.” Thus, readers derive meaning from the text when they engage in intentional problem solving thinking processes (National Reading Panel, 2000).

The comprehension instruction in Open Court reflects the fundamental principle that students not only need to learn critical research-based reading strategies but also to apply them to all text intentionally on an as needed basis to monitor understanding, to resolve problems, and to make sense of what they are reading. Strategy instruction in Open Court is derived from the research on reciprocal teaching introduced by Palinscar and Brown (1984), the transactional strategy instruction of Pressley et al (1992), and the need for engagement and reader decision making for using strategies flexibly and in combination of Anderson and Roit (1993). When strategies are initially introduced, they are modeled by the teacher using think-aloud techniques developed by Bereiter and Bird (1986). Models – think alouds - include what the strategy is, why the strategy is being used, and how to use the strategy to resolve ambiguity, clarify meaning, and check understanding. Responsibility for the independent use of strategies is gradually turned over to students as teachers begin prompting strategy use. Ultimately students are encouraged to use strategies differentially as needed to clarify text and monitor understanding. Students learn to use strategies before reading to set goals, make predictions, and ask questions. During reading, students use strategies to monitor understanding, make connections, and clarify meaning. Strategy use continues after reading, as students reflect on text, discuss predictions, clarify ideas, make connections, summarize important concepts, and ask and answer questions.

Developing strategic readers takes time. Comprehension instruction in Open Court begins in kindergarten using read alouds so as children are developing phonemic awareness and learning about the alphabetic principle, they are also learning about text, making sense of text, and constructing meaning. This emphasis on comprehension continues through the sixth grade. It focuses on students developing a repertoire of critical reading strategies (summarizing, predicting, monitoring and clarifying, visualizing, asking questions, monitoring and adjusting reading speed, and making connections) that allow the reader to monitor understanding, make sense of text, repair their comprehension when something does not make sense, determine what is important as they read, synthesize information, draw inferences and ask questions about the text. These tools help students solve problems as they are reading, develop meaning, and become purposeful independent readers.

Comprehension instruction in Open Court is further supported by instruction, practice, and application of important reading skills such as compare and contrast, cause and effect, main idea and supporting detail, story structure, and sequencing events. These skills along with the use of graphic organizers help students focus on and organize information in the text and see the interrelationship of ideas and concepts. In addition, skills such as making inferences and drawing conclusions that help the reader understand the text beyond the actual words of the author are taught.

Vocabulary knowledge is critical since it is directly connected to successful comprehension (Beck, McKeown, and Omanson, 1987; Stahl, 1999). While much vocabulary is acquired indirectly through conversation and reading, direct vocabulary instruction appears to be an

important component of learning to read. Like comprehension, students must be actively engaged in learning about words and their meanings. Simply teaching students definitions of words is not sufficient and does not provide the tools for understanding unfamiliar words as they are encountered in text. Vocabulary instruction must focus not only on developing the meaning of key words but also clarifying the meaning of a new word using such skills as context, apposition, and structural elements. Students must begin to take responsibility for using these skills and defining the vocabulary word in their own words, using the word in a meaningful sentence, identifying any synonyms or antonyms, and/or connecting related words derived from the base or root of the target vocabulary word.

In Open Court, students have the opportunity to develop their vocabulary through both explicit instruction and indirect learning as they clarify words while reading. Before reading, students develop definitions and refine skills. During reading they use their skills to clarify the meaning of unfamiliar words as they are encountered in text. After reading they use theme related vocabulary in their inquiry, share interesting words through their writing, and extend their knowledge of language as they work with synonyms, antonyms, homonyms, roots, affixes, and inflectional endings. Vocabulary instruction begins at the kindergarten level with direct instruction of words, opportunities for daily oral language, and reading aloud from big book selections to introduce interesting new words, encourage the clarification of words, and build vocabulary. Direct instruction of vocabulary as well as opportunities for building vocabulary indirectly through reading and writing continue throughout all the levels of Open Court.

Faced with poor reading scores from the 1994 administration of the *National Assessment of Educational Progress* (NAEP), California began a reading initiative in 1995 that involved the allocation of funds for the adoption of research-based reading materials in 1996 and 1999. Resources for staff development for new and practicing teachers, development of new teacher credentials, and a statewide assessment program [the *Standardized Testing and Reporting* (STAR) program] were also added. Because Open Court instruction was and continues to be based on scientifically reliable research and met the expectations of the California English/Language Arts Framework and state standards, Open Court materials have been adopted by increasing numbers of California schools.

Over the past three years, the student performance on the *Stanford Achievement Test – 9th Edition* (a component of the STAR program) for districts and schools that adopted Open Court materials beginning with the 1998-99 school year has been compared to schools in California using other state adopted materials in an attempt to determine how effective Open Court schools have been. The present report incorporates the findings of previous reports and adds analysis of student performance for the 2000-01 school year.

Summary of Previous Results

The May, 2000, report (covering data from the 1998-1999 school year) described the identification of 293 schools in California that had one or more years of implementation for the Open Court reading program, and the construction of a comparison group of 293 schools randomly selected from Non-Open Court schools. The comparison group was constructed using a cluster analysis methodology that guaranteed the comparison schools would be demographically similar to the Open Court schools.

The results presented in the May, 2000, report were that Open Court schools achieved one year gain scores (from Spring 1998 to Spring 1999) on the *Stanford 9* roughly 75 % greater than the Non-Open Court comparison schools. For grade 2, the Open Court schools average percent of students above the 50th percentile increased 10.1 points, compared to 5.8 points for the comparison schools and 5.1 points for all schools in California. For grade 3, the Open Court schools average percent of students above the 50th percentile increased 5.1 points, compared to 2.9 points for the comparison schools and 3.8 points for all schools.

The May, 2000, report also presented disaggregated results that showed that Open Court schools that were part of a Packard Humanities Institute Reading Lions project outgained Non-Reading Lions schools by modest margins. [The Reading Lions project was a grant from the Packard Humanities Institute that supported “coaches” in schools using Open Court materials, in addition to the substantial and substantive training provided by SRA/McGraw-Hill to all schools adopting Open Court. After the second year in the project, many districts did not maintain a significant number of coaches.] In addition, the report showed that Open Court schools using the program 2 or more years outgained schools in their first year of use by modest margins. Finally, the May, 2000, report developed four categories of schools based on percentages of Limited English Proficient (LEP) and Low Socio-Economic Status (SES) students and presented Open Court vs Non-Open Court comparisons for each of the four categories. These results showed the largest differences between Open Court and Non-Open Court schools occurred in schools with high concentrations of both LEP and low SES students, with Open Court schools scoring higher than Non-Open Court comparison schools.

The January, 2001, update (covering school year 1999-2000) described a modest expansion in the size of the cohorts of schools contributing to the study, and presented results that essentially confirmed that Open Court schools outgained Non-Open Court schools when the analysis was extended to a larger number of schools and to a second year of gain scores. The January, 2001, report also confirmed that the largest differences between Open Court and Non-Open Court gain scores occurred in schools serving high concentrations of Limited English Proficient and Low SES students. However, the January, 2001, report also showed that the Open Court schools gains were equal to the Non-Open Court comparison schools gains when only one year gain scores (from Spring 1999 to Spring 2000) were analyzed.

Methodology for the Current Study

The starting point for the current study (covering the 2000-2001 school year) was the cohort of 293 Open Court schools used for the May, 2000, report. As was noted in that report, the demographic information available from the Spring 1999 administration of the STAR program suffered from incomplete data. [STAR is a statewide student assessment program in California conducted by the California Department of Education. The demographic data for this study relies on the accuracy of the demographic data submitted by individual districts to the STAR program.] In particular, 81 of the 293 Open Court schools did not have either LEP or SES data that permitted categorization into one of the four categories developed for the study. Efforts were undertaken to improve the quality of the demographic data collected by the STAR program Spring 2000. To check on the quality of the cluster analyses conducted for the May, 2000, report, cluster analyses were repeated using Spring 2000 demographic data. These analyses showed only 10 of the 293 schools had incomplete LEP or SES data, and the improved demographic data somewhat refined the definition of the four categories. The four categories became Low LEP/High SES, Moderate LEP/Low SES, Moderate LEP/Moderate SES, and High LEP/Low SES.

To check on the stability of the categorization of schools, cluster analyses were again conducted on the Cohort 1999 Open Court schools, this time using Spring 2001 demographic data. All 293 schools in the Cohort 1999 data set had Spring 2001 demographic data, and the cluster analysis based on percentages of LEP and Low SES students repeated the pattern found for Spring 2000 demographic data. Thus no changes were necessary in the categories of schools used for the current study. However, assignments of schools to each of the four categories were redone, and 18 schools in the comparison set of schools were removed from the comparison set since they began using Open Court materials during the 2000-2001 school year (for the January, 2001, update, one school was removed from the comparison set for this reason). Thus, for Cohort 1999 the analysis involved the original 293 Open Court schools and 274 comparison group schools. Parallel cluster analyses, reassignments to categories of schools, and removal of new Open Court schools from the comparison group were done for the Cohort 2000 schools, resulting in a final set of 333 Open Court schools and 311 Non-Open Court comparison schools.

During the 2000-2001 school year, many Los Angeles Unified School District (LAUSD) schools began using Open Court materials. Data from 371 LAUSD schools were added to the data set, with gain scores primarily for grade 2 (the LAUSD implementation of Open Court materials focused on grades K-2 during the 2000-2001 school year – implementation for the higher grades is scheduled for the 2001-2002 school year). An additional 14 schools from Palm Springs were also added, and four schools from the Cohort 2000 Open Court list were deleted due to low numbers of students (less than 10 per grade – to protect privacy of individual student data, scores for schools with less than 10 students per grade are not made public by the STAR program). Thus the final list of Open Court schools for Cohort 2001 involved 714 schools, collectively enrolling more than 375,000 students.

Cluster analyses on the Cohort 2001 Open Court data set confirmed the four categories of schools found for the January, 2001, report. These categories were

- Low Limited English Proficient, High Socio-Economic Status,
- Moderate Limited English Proficient, Low Socio-Economic Status,
- Moderate Limited English Proficient, Moderate Socio-Economic Status, and
- High Limited English Proficient, Low Socio-Economic Status.

With the addition of LAUSD schools, the percentage of High LEP / Low SES schools increased considerably. Schools were reassigned based on new cluster centers, and the comparison set of schools was updated to reflect 714 schools having the same number of schools for each LEP / SES category as was found for the Open Court list. Thus, the final Cohort 2001 lists of schools involved 714 Open Court schools divided into four LEP / SES categories, and 714 Non-Open Court schools randomly chosen to reflect the same demographic characteristics as the Open Court set of schools.

With schools identified for the Open Court and Non-Open Court sets for Cohort 1999, Cohort 2000, and Cohort 2001, data sets were constructed to include

- 3-year, 2-year, and 1-year *Stanford 9* gain scores for Cohort 1999,
- 2-year and 1-year *Stanford 9* gain scores for Cohort 2000, and
- 1-year *Stanford 9* gain scores for Cohort 2001.

In addition, scores from the English/Language Arts *California Standards Tests* portion of the STAR program were available for the first time, and the “Percent Proficient” indicator from this test was added to the analysis data set for each of the cohorts. A complete list of variables and data sources for each variable developed for this study may be found in Appendix A. A description of the cluster analysis work completed to define the categorization of schools may be found in Appendix B.

The data analyses conducted on the data sets for the three cohorts of schools for this report were parallel to the analyses conducted for the January, 2001 report. The analyses included descriptive statistics on the 3-year, 2-year, and 1-year gain scores from the *Stanford Achievement Test*, as well as the Percent Proficient scores from the *California Standards Tests*. In addition, selected Analyses of Variance were conducted to guide the interpretation of score differences. In particular ANOVA’s were run to look for statistical significance of differences between Open Court and Non-Open Court schools across categories of schools, and to look for statistical

significance within the set of Open Court schools between Reading Lions and Non-Reading Lions schools for the number of years schools had been using Open Court materials.

With databases involving roughly 300 schools, differences between gain scores of roughly 1.5 points might be considered to be statistically significant. For analyses involving 700 schools, differences in gain scores of less than one point would be statistically significant. However, as described in the May 2000 report, strictly speaking school data such as achievement test gain scores do not satisfy one of the underlying assumptions for statistical significance procedures, that of random assignment of students to schools. Therefore, based on extensive personal experience with the analysis of school test data, the author will continue to use the conservative guideline that gain score differences should reach 5 points to be called “meaningful” and 10 points to be called “very meaningful.” These guidelines insure that test score differences cited as meaningful or very meaningful did not occur by chance alone.

Current Year Results

The results will be presented in four sections. The first section will involve results from Cohort 1999, including 3-year, 2-year, and 1-year gains based on *Stanford 9* scores for both primary comparisons and disaggregations. The second section will involve results from Cohort 2000, including 2-year and 1-year gains for both primary comparisons and disaggregations. The third section will involve results from Cohort 2001, including 1-year gains. The final section will provide a summary of results for the new *California Standards Tests* scores.

Section 1: Cohort 1999

The results for the 3-year gains [from Spring 98 to Spring 01] for Cohort 1999 are presented in Table 1. For grade 2, the test score gains for the Open Court schools were roughly 7 percentage points larger than the gains for all California schools and for the stratified random comparison group schools. This difference is large enough to be called a meaningful difference. For grade 3, the Open Court schools outgained all California schools by 3 points and the stratified random comparison schools by more than 5 percentage points. The latter result is large enough to be called meaningful. [The numbers in parentheses in the row and column descriptions for all tables reflect the numbers of schools potentially contributing to the gain scores.]

Table 1
Cohort 1999: 3-Year Gain Scores

Table 1.0

	Grade 1	Grade 2	Grade 3
All California Schools (5025)	N/A	12.5	9.3
Open Court Schools (293)	11.3	19.2	12.7
Comparison Schools (274)	N/A	12.3	7.3

Table 1.1

School Category	Grade 2		Grade 3	
	OC	Non-OC	OC	Non-OC
Low LEP/High SES (110)	15.0	14.0	11.6	7.2
Moderate LEP/Low SES (49)	23.3	9.6	13.0	7.4
Moderate LEP/Moderate SES (70)	19.1	12.5	13.6	7.9
High LEP/Low SES (64)	23.8	9.0	13.3	5.6

Table 1.2

Open Court Schools	Grade 2			Grade 3		
	3 years (106)	≥ 4 years (187)	All (293)	3 years	≥ 4 years	All
Reading Lions (179)	20.3	18.0	19.2	12.5	13.5	13.0
Non-Reading Lions (114)	20.0	19.3	19.4	9.0	12.7	12.1
All (293)	20.3	18.6	19.2	12.0	13.1	12.7

For the four categories of schools (Table 1.1), for grade 2 the Open Court schools showed the largest 3-year gains for schools serving concentrations of Low SES students. The gain score differences, as contrasted to gain scores for Non-Open Court schools serving Low SES students, were large enough to be very meaningful. For grade 3, the pattern of gain scores was more uniform for the varying categories of schools, but the differences between Open Court and Non-Open Court comparison schools were uniformly large enough to be called meaningful.

For grade 2 the May 2000 report found higher gains from Spring 1998 to Spring 1999 for schools with longer tenure with Open Court, and modest but higher gain scores for Reading Lions schools. These result were not confirmed by the 3-year gain score analysis presented in Table 1. The 3-year gain analysis presented here shows no meaningful differences for gain scores for schools using Open Court materials for 3 years vs schools with 4 or more years tenure, or for Reading Lions vs Non-Reading Lions schools.

Turning to the 2-year gain scores [from Spring 1999 to Spring 2001] presented in Table 2, overall the gain score differences between Open Court schools and all California schools and between Open Court schools and the stratified random comparison group schools were in the 2 to 3 point range in favor or Open Court schools, a positive result for Open Court but not large enough to be called meaningful.

Table 2

Cohort 1999: 2-Year Gain Scores

Table 2.0

	Grade 1	Grade 2	Grade 3
All California Schools (5025)	N/A	7.4	5.4
Open Court Schools (293)	5.5	9.2	7.7
Comparison Schools (274)	N/A	5.7	4.8

Table 2.1

School Category	Grade 2		Grade 3	
	OC	Non-OC	OC	Non-OC
Low LEP/High SES (110)	7.0	7.6	8.2	4.6
Moderate LEP/Low SES (49)	9.5	3.7	6.0	2.1
Moderate LEP/Moderate SES (70)	9.1	5.0	6.8	5.7
High LEP/Low SES (64)	12.9	3.2	9.3	6.1

Table 2.2

Open Court Schools	Grade 2			Grade 3		
	3 years (106)	≥ 4 years (187)	All (293)	3 years	≥ 4 years	All
Reading Lions (179)	12.2	4.5	8.4	8.9	5.8	7.2
Non-Reading Lions (114)	6.7	10.9	10.4	8.1	8.8	8.7
All (293)	11.5	7.8	9.2	8.8	7.1	7.7

For the 2-year gain scores in Table 2.1, meaningful differences were found for grade 2 for Open Court schools vs Non-Open Court schools serving concentrations of Low SES students. For the disaggregation of gain scores for Open Court schools by number of years using Open Court materials, for grade 2 the result that Reading Lions schools using Open Court 4 or more years had smaller gains than Non-Reading Lions schools using Open Court 4 or more years (4.5 points vs 10.9 points) is evident. For grade 3 gain scores, all of the differences are not large enough to be meaningful differences.

Finally, Cohort 1999 results for 1-year gain scores are presented in Table 3. The overall gain score differences are again modestly in favor of Open Court schools, but the differences are not large enough to be called meaningful.

Table 3

Cohort 1999: 1-Year Gain Scores

Table 3.0

	Grade 1	Grade 2	Grade 3
All California Schools (5025)	N/A	1.9	1.8
Open Court Schools (293)	2.3	3.0	3.2
Comparison Schools (274)	N/A	1.4	-0.2

Table 3.1

School Category	Grade 2		Grade 3	
	OC	Non-OC	OC	Non-OC
Low LEP/High SES (110)	1.2	3.0	3.8	0.4
Moderate LEP/Low SES (49)	2.6	1.5	3.2	-2.0
Moderate LEP/Moderate SES (70)	2.5	-1.3	1.9	0.0
High LEP/Low SES (64)	6.9	3.0	3.8	-0.8

Table 3.2

Open Court Schools	Grade 2			Grade 3		
	3 years (106)	≥ 4 years (187)	All (293)	3 years	≥ 4 years	All
Reading Lions (179)	1.5	2.7	2.1	4.7	1.5	3.1
Non-Reading Lions (114)	1.4	4.8	4.4	2.6	3.9	3.7
All (293)	1.5	3.8	3.0	4.4	2.5	3.2

For disaggregation by school type, with one exception (grade 2 gain scores for Low LEP / High SES schools) the differences all are in favor of Open Court schools. For the breakdowns by Reading Lions vs Non-Reading Lions and by length of tenure with Open Court materials, all differences are too small to be called meaningful.

Section 2: Cohort 2000

The 2-year gain results for the 333 Open Court schools and the 311 stratified random Non-Open Court schools in Cohort 2000 are presented in Table 4. These results are very similar to the results presented in Table 2, which is not surprising in that Cohort 2000 only added about 40 schools to the almost 300 schools in Cohort 1999. The pattern of gain scores for the additional 40 schools was not sufficiently different from the pattern of gain scores in Cohort 1999 to generate meaningful deviations from the Cohort 1999 results. [The reader is reminded that the results for Cohort 1999 showed modest test score differences in favor of Open Court schools.]

Table 4
Cohort 2000: 2-Year Gain Scores

Table 4.0

	Grade 1	Grade 2	Grade 3
All California Schools (5025)	N/A	7.4	5.4
Open Court Schools (333)	5.5	9.5	7.2
Comparison Schools (311)	N/A	5.8	4.5

Table 4.1

School Category	Grade 2		Grade 3	
	OC	Non-OC	OC	Non-OC
Low LEP/High SES (115)	7.2	7.7	8.1	4.5
Moderate LEP/Low SES (63)	10.6	3.8	6.4	-0.5
Moderate LEP/Moderate SES (84)	9.3	5.2	5.5	6.8
High LEP/Low SES (71)	12.4	3.9	8.4	4.5

Table 4.2

Open Court Schools	Grade 2				Grade 3			
	2 years (39)	3 years (107)	≥ 4 years (187)	All (333)	2 years	3 years	≥ 4 years	All
Reading Lions (180)	N/A	12.2	4.5	8.4	N/A	8.9	5.8	7.2
Non-Reading Lions (153)	12.2	6.7	10.9	10.8	1.8	8.1	8.8	7.2
All (333)	12.2	11.5	7.8	9.5	1.8	8.8	7.1	7.2

The 1-year gain score results for Cohort 2000 are presented in Table 5. Again, since Cohort 2000 is in large part made up of schools in Cohort 1999, the results parallel the results from Cohort 1999 in large degree, showing modest test score differences in favor of Open Court schools.

Table 5
Cohort 2000: 1-Year Gain Scores

Table 5.0

	Grade 1	Grade 2	Grade 3
All California Schools (5025)	N/A	1.9	1.8
Open Court Schools (333)	2.3	3.3	3.1
Comparison Schools (311)	N/A	1.4	0.0

Table 5.1

School Category	Grade 2		Grade 3	
	OC	Non-OC	OC	Non-OC
Low LEP/High SES (115)	0.9	2.9	3.8	0.6
Moderate LEP/Low SES (63)	3.8	0.6	3.1	-3.0
Moderate LEP/Moderate SES (84)	3.3	-0.7	1.8	0.8
High LEP/Low SES (71)	6.6	3.1	3.5	-0.8

Table 5.2

Open Court Schools	Grade 2				Grade 3			
	2 years (39)	3 years (107)	≥ 4 years (187)	All (333)	2 years	3 years	≥ 4 years	All
Reading Lions (180)	N/A	1.5	2.7	2.1	N/A	4.7	1.5	3.0
Non-Reading Lions (153)	5.6	1.4	4.8	4.7	2.0	2.6	3.9	3.3
All (333)	5.6	1.5	3.8	3.3	1.9	4.4	2.5	3.1

Section 3: Cohort 2001

The results for Cohort 2001 are presented in Table 6. These results are noteworthy, especially for grade 2, in that they are based on more than 700 schools, compared to the roughly 300 schools included in Cohorts 1999 and 2000. The grade 2 results show that Open Court schools gained more than 5 points, while the randomly selected demographically similar comparison schools gained only slightly more than 1 point. This result shows that Open Court schools outgained comparison schools by a factor of four. Given the number of schools contributing to the result, it is safe to say such a difference is indeed meaningful. For grade 3, Open Court schools show a gain of 3 points, compared to the comparison group gain of 1 point. For this grade, with about 300 schools contributing to the result, the result is positive for Open Court but not as impressive as the grade 2 difference in gain scores.

Table 6

Cohort 2000: 1-Year Gain Scores

Table 6.0

	Grade 1	Grade 2	Grade 3
All California Schools (5025)	N/A	1.9	1.8
Open Court Schools (714)	2.3	5.2	3.1
Comparison Schools (714)	N/A	1.2	1.0

Table 6.1

School Category	Grade 2		Grade 3	
	OC	Non-OC	OC	Non-OC
Low LEP/High SES (133)	1.4	2.9	3.5	0.4
Moderate LEP/Low SES (190)	5.5	1.4	3.0	1.1
Moderate LEP/Moderate SES (150)	3.9	-1.0	2.4	0.6
High LEP/Low SES (241)	7.8	1.5	3.2	1.5

Table 6.2

	Grade 2					Grade 3				
	1 yr (387)	2 yrs (39)	3 yrs (105)	4 yrs (183)	All (714)	1 yr	2 yrs	3 yrs	4 yrs	All
Reading Lions (182)	N/A	N/A	1.5	2.7	2.2	N/A	N/A	4.7	1.5	3.0
Non-Reading Lions (532)	6.8	5.6	1.4	4.8	6.2	2.7	2.0	2.6	3.9	3.2
All (714)	6.8	5.6	1.5	3.8	5.2	2.4	1.9	4.4	2.5	3.1

For disaggregations by type of school (Table 6.1), again the differences between Open Court and Non-Open Court schools are most pronounced for schools serving concentrations of Low SES students. For schools serving moderate concentrations of LEP students, for grade 2 Open Court schools outgained Non-Open Court schools by a factor of four. For schools serving high concentrations of LEP students and high concentrations of Low SES students, the gain score differences were more than a factor of five. For grade 3, the gain score differences were positive in favor of Open Court schools, but modest in comparison to grade 2.

In Table 6.2, the large number of LAUSD schools show up as Non-Reading Lions schools using Open Court materials just 1 year. The grade 2 average gain score of 6.8 points is impressive and meaningful. The grade 3 gain score of almost 3 points is positive, but again modest in comparison to the grade 2 gain score.

Section 4: California Standards Tests Scores

For the first time, scores from the English/Language Arts (E/LA) area of the *California Standards Tests (CST)* component of the STAR program are available for analysis. For grades 2-3, this test consists of 35 items custom developed to measure the California E/LA content standards, together with 40 items from the *Stanford 9* chosen to specifically measure California

E/LA content standards. The California content standards are curricular targets considerably more rigorous than the basic skills that are the curricular targets measured by the entire *Stanford 9*. Thus, analyses of the *CST* scores for schools provide an indication whether or not the instruction is impacting acquisition of the more rigorous California content standards.

While analysis of *CST* results was conducted for all three cohorts, only results from Cohort 2001 will be reported here. Also, only *CST* scores from the Spring 2001 administration of the STAR program are available. A more meaningful analysis of gain scores will have to await a second set of scores from the administration of the STAR program Spring 2002. The *CST* scores are reported in terms of performance levels – scores may be in the Far Below Basic, Below Basic, Basic, Proficient, and Advanced ranges. For this study, we chose the indicator “Percent Proficient” for analysis. This indicator is similar to the “Percent Above 50th Percentile” indicator used for the *Stanford 9* analysis, but since the material being measured is more rigorous, the raw percentages will be lower for the *CST* scores.

The results for Cohort 2001 are presented in Table 7. In general, the percentages of students achieving Proficient scores are higher for all California schools than either for Open Court or Non-Open Court comparison schools. This is due the circumstance that the distributions of scores are not symmetric, and consequently a relatively few number of schools with high percentages of students reaching the Proficient level have a substantial influence on the average *CST* scores for all schools. This phenomena is less influential for the Open Court and Non-Open Court comparison school groups, due to the higher concentration of schools in the Low SES category. For the California E/LA standards scores, Open Court schools show a modestly higher average *CST* score for grade 2, and a meaningfully higher *CST* score for grade 3. [Note: the five point guideline for differences applies to *CST* scores as well as norm-referenced *Stanford 9* scores.]

Table 7

Cohort 2001: CST Scores

Table 7.0

	Grade 2	Grade 3
All California Schools (5025)	23.1	23.1
Open Court Schools (714)	20.4	23.8
Comparison Schools (714)	17.8	16.5

Table 7.1

School Category	Grade 2		Grade 3	
	OC	Non-OC	OC	Non-OC
Low LEP/High SES (133)	33.5	33.7	33.6	32.9
Moderate LEP/Low SES (190)	16.9	13.8	15.8	12.3
Moderate LEP/Moderate SES (150)	24.7	21.9	23.9	20.6
High LEP/Low SES (241)	13.4	10.0	13.7	8.6

The analysis of *CST* scores by type of school in Table 7.1 is revealing. Here, the differences between Open Court and Non-Open Court schools are again largest for the schools serving

concentrations of Low-SES students. For grade 2, the differences are roughly 3 points; for grade 3, the difference approaches a meaningful 5 points. These results suggest that the Open Court program is having a positive effect in the acquisition of the more rigorous California E/LA content standards, in addition to the strong positive effect in the acquisition of basic skills as documented in the *Stanford 9* gain scores reported earlier in this report.

While the *CST* results reported here are positive, they are only suggestive. Strong indications of effects for the more rigorous California content standards will have to await analysis of E/LA gain scores in future years.

A Note Regarding Grade 1 Results

Tables 1 through 6 all have some grade 1 results reported for Open Court schools. Since grade 1 is not part of the STAR program, all grade 1 results reported here come from Open Court Reading Lions schools, involving just under 200 schools overall. The results in Tables 1 through 6 reveal positive grade 1 gains for Open Court schools, but the amount of the gains are consistently less than the gains at grade 2 or grade 3.

Not included in the grade 1 results reported here are grade 1 gains from LAUSD. Media reports (Los Angeles Times, October 10, 2001) indicated that LAUSD recorded grade 1 gains of 21 points [from 35 percent of students above the 50th percentile on *Stanford 9* to 56 percent above the 50th percentile] from Spring 1999 to Spring 2001. The media reports cited LAUSD personnel who gave substantial credit to the Open Court materials for these gains. Open Court materials were used by approximately 80 percent of elementary schools in LAUSD during the 2000-2001 school year. In the near future, it may be possible to obtain grade 1 *Stanford 9* scores from Spring 2000 and Spring 2001 from LAUSD, and incorporate them into the analyses for this report.

Conclusion

Overall, the results of the Open Court gain score study this year confirm and solidify the results found in previous years. The 3-year gain scores for Cohort 1999 schools show that Open Court schools outgain Non-Open Court comparison schools by a factor of 50 to 75 %, a very impressive result. These results are depicted in Figure 1.

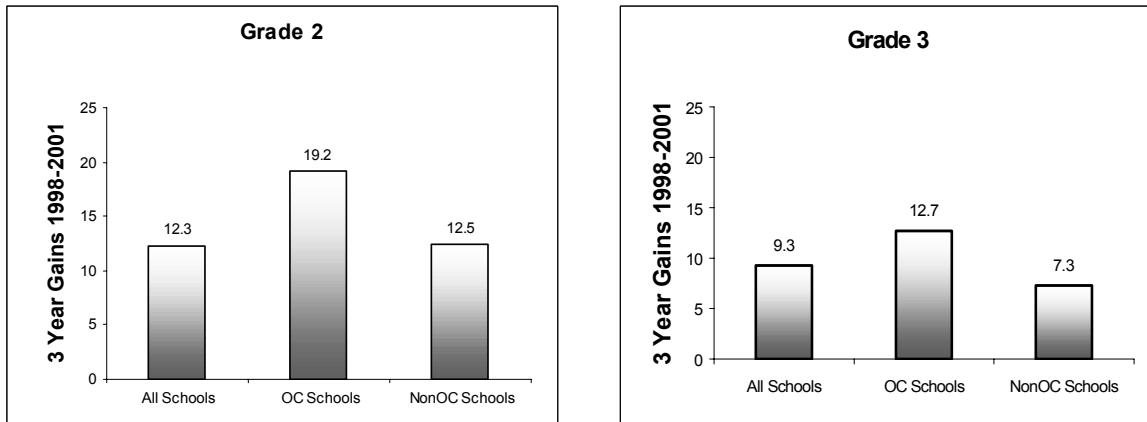


Figure 1

The results for schools serving Low SES schools are even more impressive, with Open Court schools increasing more than 23 points over the three year period, contrasted to gains of 9 points for Non-Open Court comparison schools. These results are highlighted in Figure 2.

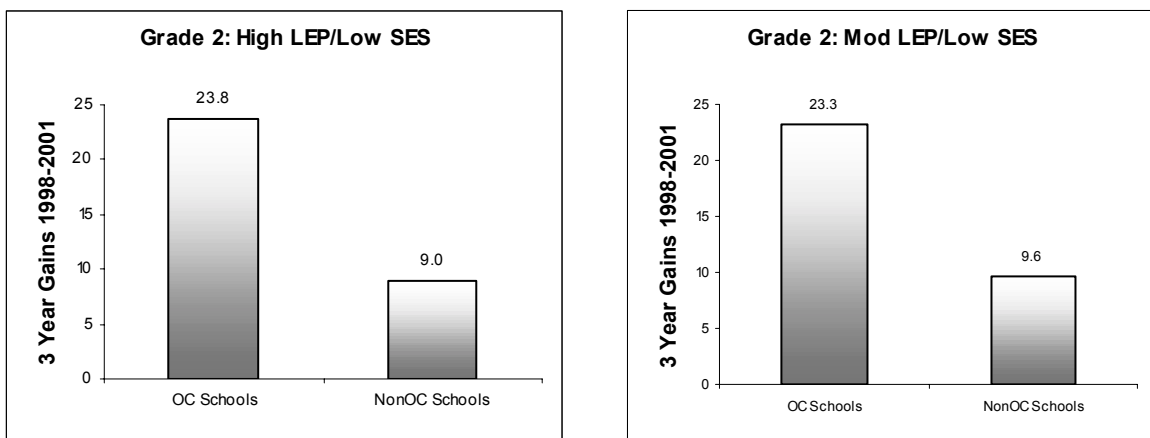


Figure 2

Another way to display results for High LEP, Low SES schools is over time. Figure 3 shows the results for High LEP, Low SES schools in Cohort 1999 over the 3 years of gain scores documented by this study. For each year, gain scores for Open Court schools are charted against gain scores for Non-Open Court comparison schools. The figure clearly shows that gain scores for Open Court schools increase at a faster pace than gain scores for Non-Open Court comparison schools, culminating in the very meaningful difference of 23 point gains for Open Court schools vs 9 point gains for Non-Open Court schools for the grade 2 results.

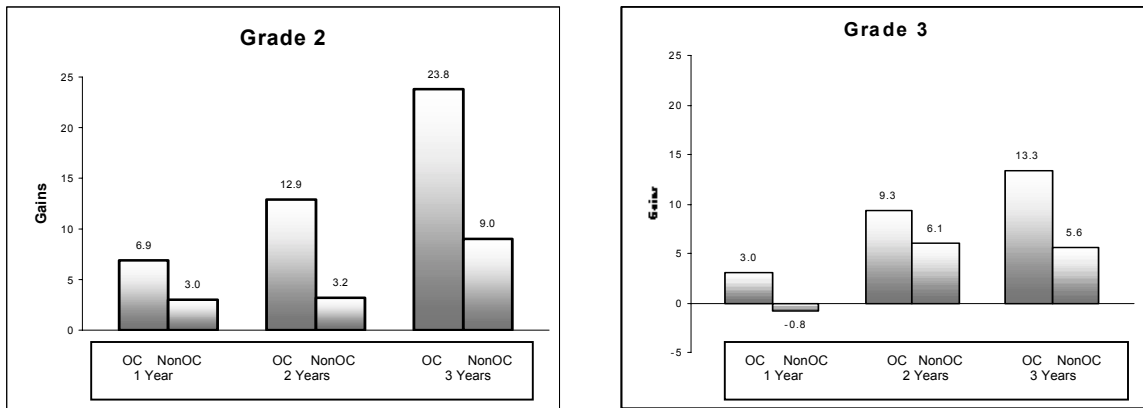


Figure 3

For Cohort 2001, the primary result is that based on a very large number of schools (over 700), Open Court schools show gain scores **several times** higher than Non-Open Court comparison schools. This result, especially given the number of schools contributing to the analysis at grade 2, is clearly meaningful. These results are highlighted in Figure 4.

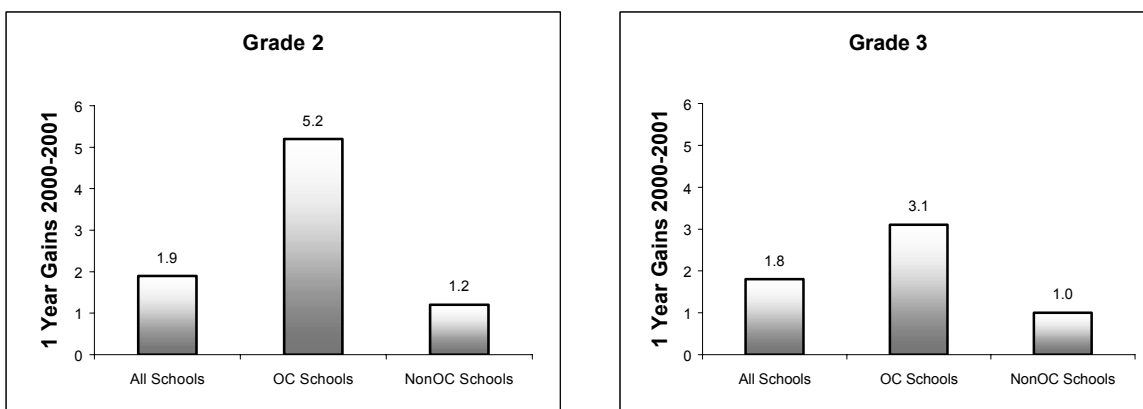


Figure 4

The results of this study provide clear and convincing evidence that students attending schools using Open Court materials acquire basic reading skills at a faster rate than students attending demographically similar schools not using Open Court materials.

Looking forward to next year, a number of enhancements will be available for this report series. The major enhancements will be

- A fourth year of *Stanford 9* gain score data will be available from the STAR program.
- The LAUSD use of Open Court reading materials will extend to grade 3, which will provide substantially more information for analysis at grade 3.
- Schools from two large urban districts (Oakland and Compton) and possibly other districts may be added to the study as these districts implement use of Open Court materials.
- It will be possible to take a first look at *California Standards Tests* gain scores, to provide analysis for test scores that measure more than basic reading skills.
- It may be possible to extend the analysis to gain scores for grades 4, 5, and 6, to ascertain whether or not the impressive gain scores attributable to Open Court materials in the early grades extend to results at the intermediate grade levels.

About the Author

This study was conducted for SRA/McGraw-Hill by Douglas J. McRae, an educational measurement specialist from Monterey, CA. Dr. McRae has a Ph.D. in Psychometrics and more than 30 years experience developing test instruments, designing large scale school testing programs, and analyzing educational test data. He has served as publisher for several achievement tests widely used across the United States, and he has served as a Senior Advisor for the STAR program in California. The author would like to thank Dr. Marsha Roit, Director of Professional Development for SRA/McGraw-Hill, for the material that appears in the Introduction section of this report.

References

- Adams, M. (1990) *Learning to Read: Thinking and Learning About Print*. Cambridge, MA: MIT Press.
- Adams, M. and Bruck, M. (1995) Resolving the “Great Debate.” *American Educator*, 19:7, 10-20.
- Anderson, V. and Roit, M. (1993) Planning and implementing collaborative strategy instruction for delayed readers in grades 6-10. *Elementary School Journal*, 94, 121-137.
- Beck, I., McKeown, M., and Omanson, R. (1987) The effects and uses of diverse vocabulary instructional techniques. In *The Nature of Vocabulary Acquisition*. Hillsdale, NJ: Erlbaum.
- Bereiter, C. and Bird, M. (1985) Use of thinking aloud in identification and teaching of reading comprehension strategies. *Cognition and Instruction*, 2, 131-156.
- Bond, G. and Dykstra, R. (1967) The Cooperative Research Program in first grade reading instruction. *Reading Research Quarterly*, 2, 5-142.
- Burns, S., Griffin, P., and Snow, C. (Eds) (1999) *Starting Out Right: A Guide to Promoting Children’s Reading Success*. Washington, DC: National Academy Press.
- Carnine, D., Silbert, J., and Kameenui, E. (1997) *Direct Instruction reading* (3rd Edition), Upper Saddle River, NJ: Prentice Hall.
- Foorman, B., Francis, D., Novy, D., and Liberman, D. (1991) How letter-sound instruction mediates progress in first-grade reading and spelling. *Journal of Educational Psychology*, 83:4, 456-469.
- Moats, L. (1997) *Spelling: Development, Disability, and Instruction*. Timonium, MD: York Press, Inc.
- National Reading Panel: Teaching Children to Read*. (2000) Washington, DC: NIH Publication # 00-4754.
- Palinscar, A. and Brown, A. (1984) Reciprocal teaching of comprehension – fostering and monitoring activities. *Cognition and Instruction*, 1, 117-175.
- Pressley, M. et al. (1992) Beyond direct instruction: Transactional instruction of reading comprehension strategies. *Elementary School Journal*, 92, 511-554.
- Putting Reading First: The Research Building Blocks for Teaching Children to Read* (2001) Washington, DC: National Institute for Literacy.

Shefelbine, J. (1995) Learning and using phonics in beginning reading. Scholastic Literacy Research Paper.

Snow, C., Burns, S., and Griffin, P. (Eds) (1998) *Preventing Reading Difficulties in Young Children*. Washington, DC: National Academy Press.

Stahl, S. (1999) Why innovations come and go: The case for whole language. *Educational Researcher*, 28:8, 13-22.

Stonovich, K.E. (1986) Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21, 360-407.

Statistical Programs for the Social Sciences. (1999) SPSS, Inc.: Chicago, IL.

Appendix A

Variable Definitions and Data Sources		
Variable Label	Definition	Data Source
CO	County Code	STAR 2001 database – downloaded from web
DIST	District Code	STAR 2001 database – downloaded from web
DISTRICT NAME	District Name	CDE 2001 California Public School Directory
SCH	School Code	STAR 2001 database – downloaded from web
SCHOOL NAME	School Name	CDE 2001 California Public School Directory
SENR	School Enrollment	STAR 2001 database – downloaded from web
PTEST	Percent of Total School Enrollment Tested	STAR 2001 database – downloaded from web
PLEP	Percent LEP Students	STAR 2001 database – downloaded from web
PSES	Percent Low SES Students	STAR 2001 database – downloaded from web
PMOB	Percent Mobile Students	STAR Research Data from CDE
P	Packard Reading Lions Schools	Information supplied by SRA/Open Court
YRSOC	Number of years in the Open Court Program	Information supplied by SRA/Open Court
OC1	OC Schools Grade 1	Information supplied by SRA/Open Court
OC2	OC Schools Grade 2	Information supplied by SRA/Open Court
OC3	OC Schools Grade 3	Information supplied by SRA/Open Court
CLUS99	1999 Cluster Assignment for Schools	Cluster Analysis of Spring 1999 STAR Demographic Data
CLUS00	2000 Cluster Assignment for Schools	Cluster Analysis of Spring 2000 STAR Demographic Data
CLUS01	2001 Cluster Assignment for Schools	Cluster Analysis of Spring 2001 STAR Demographic Data
GR1TT	Total Tested at Grade 1 Level	Reading Lions Data from EDS “Master List Summary”
GR1GN1	1 Year Gain Scores for Grade 1 Students	Reading Lions Data from EDS “Master List Summary”
GR1GN2	1 Year Gain Score for Grade 2 Students	STAR database – downloaded from the web
GR1GN3	1 Year Gain Score for Grade 3 Students	STAR database – downloaded from the web
GR2TT	Total Tested at Grade 2 Level	STAR 2001 database – downloaded from web
GR2GN1	2 Year Gain Scores for Grade 1 Students	Reading Lions Data from EDS “Master List Summary”
GR2GN2	2 Year Gain Score for Grade 2 Students	STAR database – downloaded from the web
GR2GN3	2 Year Gain Score for Grade 3 Students	STAR database – downloaded from the web
GR2PROF	Grade 2 Percent Above Proficiency Cut Point	STAR 2001 database – downloaded from web
GR3TT	Total Tested at Grade 3 Level	STAR 2001 database – downloaded from web
GR3GN1	3 Year Gain Score for Grade 1 Students	Reading Lions Data from EDS “Master List Summary”
GR3GN2	3 Year Gain Score for Grade 2 Students	STAR database – downloaded from the web
GR3GN3	3 Year Gain Score for Grade 3 Students	STAR database – downloaded from the web
GR3PROF	Grade 3 Percent Above Proficiency Cut Point	STAR 2001 database – downloaded from web

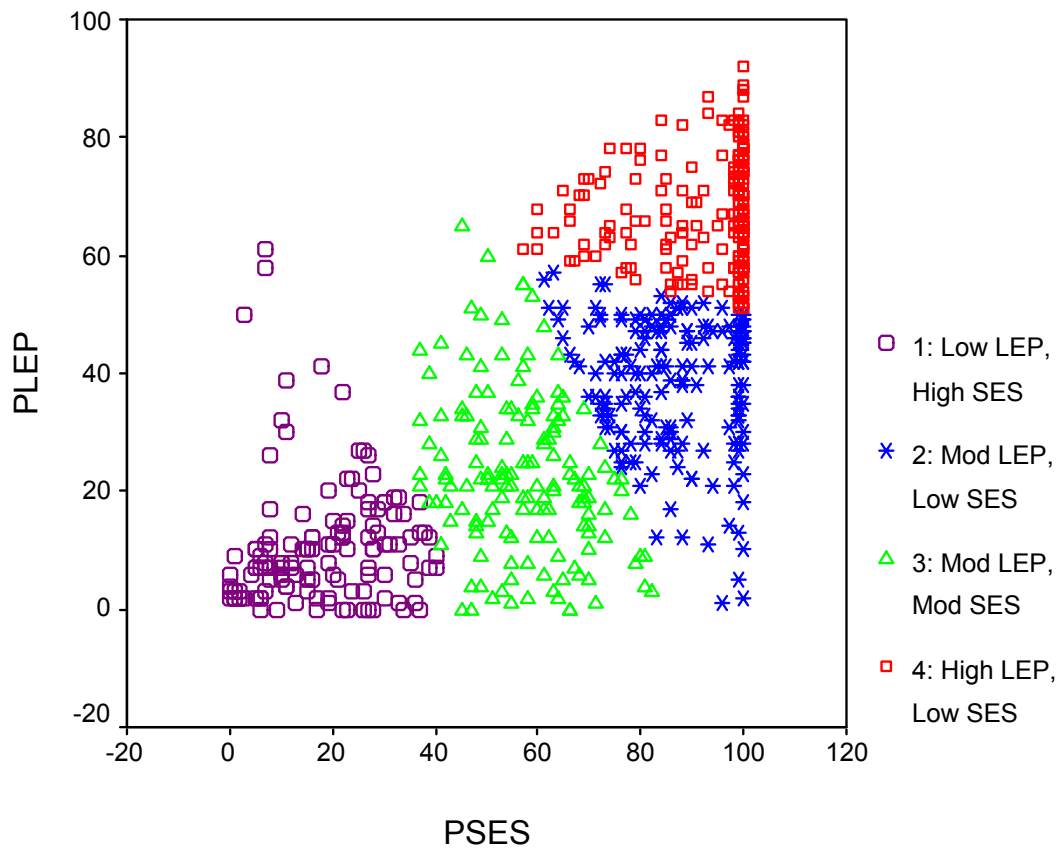
Appendix B

Cluster Analysis Methodology to Construct Comparison Groups of Schools

There is interest not only in overall results for various educational programs, but also in how programs perform for diverse types of schools. Schools are frequently described in terms of the type of community they serve (urban, rural, suburban), and in terms of socioeconomic status or language proficiency of the students they serve. California schools serve a particularly diverse population of students, and individual schools may serve a broad mix from that population or may serve concentrated subgroups.

To conduct this series of studies for SRA/McGraw-Hill, the demographic characteristics of schools using Open Court reading materials each year have been analyzed to develop a natural categorization of schools. Initially, the analysis included variables such as school size, mobility, district size, and percent of students tested as well as percent Low Socio-Economic Status and percent Limited English Proficient. However, the percent Low SES and percent LEP variables captured most of the meaningful variation, and analysis the past two years has focused on these two demographic variables.

To develop a natural categorization for Open Court schools, the K-means Cluster Analysis procedure found in *Statistical Programs for the Social Sciences* (SPSS) was utilized. A four cluster solution was found to be best based on Spring 2000 demographic data from the STAR program. When the demographic data from the Spring 2001 STAR program were analyzed for the expanded set of 714 Open Court schools, an identical cluster structure was found. This cluster structure is best described via a plot that identifies the four types of schools.



Once the types of schools were identified, each individual Open Court school was assigned to the closest cluster centroid, using Euclidean distance.

To construct a demographically similar comparison group of Non-Open Court schools, all schools in California (except for those identified as Open Court schools) with gain scores for at least 10 students at grade 2 or grade 3 were identified and assigned to the closest final cluster centroid from the Open Court analysis. Then the number of schools by cluster for the Open Court schools was noted, and the same number of Non-Open Court schools were randomly selected from the total pool of available Non-Open Court schools. For example, with 133 Low LEP / High SES schools in the Open Court set, 133 Low LEP / High SES schools were identified from the Non-Open Court pool. To verify that the Non-Open Court comparison group of schools had the same demographic characteristics as the Open Court schools, plots were generated to confirm that a similar cluster structure was achieved.