*Similar Students, Different Results: Why Do Some Schools Do Better?*

# ELEMENTARY SCHOOL CURRICULUM PROGRAM AND API: A MORE DETAILED EXAMINATION

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## BACKGROUND

In October of 2005, EdSource and its partners from Stanford University, U.C. Berkeley, and American Institutes for Research issued the Initial Report of Findings for its study: *Similar Students, Different Results: Why Do Some Schools Do Better?* (Go to http://www.edsource.org for the full Initial Report of Findings and to see the surveys.)

This research project surveyed 80% of the K–5 classroom teachers (over 5,500) and every principal at 257 elementary schools in California serving large percentages of low-income, minority, and English Learner students. Specifically, 98% percent of the schools in our sample qualified for Title I funding.

Statewide, California's elementary school population in 2004–05 included 32% English Learners, 50% Hispanics, 8% African Americans, 29% whites, 8% Asians, and 57% low-income students (based on participation in the free and reduced price meal program). The schools in our sample fell between the 25$^{th}$ to 35$^{th}$ percentile band of the state's Schools Characteristics Index, and thus, in general, had higher proportions of EL, Hispanic, and low-income students. The total student population served by the schools participating in our sample included 42% English Learners, 66% Hispanics, 8% African Americans, 15% whites, 6% Asian, and 78% low-income students. These percentages varied from school to school.

The goal was to identify which specific school practices are most strongly associated with higher levels of student achievement, as measured by the school's Academic Performance Index (API). In California, elementary school API scores and rankings are based upon student test scores on the year-end California Standards Tests (CSTs), which measure how well students in the school are mastering California's 2nd to 5th grade academic content standards primarily in English language arts (ELA) and math.

Our surveys of principals and teachers asked over 300 items each, covering seven broad domains of effective schooling practices. The domains were drawn from previous research in this field, but were updated with specific questions reflecting California's current standards-based policies and reforms. The survey instruments were reviewed externally by educators and researchers, then field-tested in eleven elementary schools before being administered as a full-scale survey.

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Extensive analysis of the survey findings used regression analysis to determine which school and district practices, as reported by teachers and principals, are more closely related (i.e., highly correlated) to higher school API scores. The practices found to be most strongly associated with high performance fell under the following four broad domains:

- Prioritizing Improving Student Achievement
- Implementing a Coherent, Standards-Based Curriculum and Instructional Program
- Using Assessment Data to Improve Student Achievement and Instruction
- Ensuring Availability of Instructional Resources

## FURTHER INVESTIGATION OF STANDARDS-BASED CURRICULUM

One of the strongest correlations identified in our Initial Finding was the positive relationship between a school's API score and having a coherent curriculum and instructional program based upon California's grade-by-grade academic standards. This particular curriculum and instruction domain was measured using 48 items on the teacher and the principal surveys.[1]

In the months since the study's Initial Findings were released, the research team has taken a closer look at the components that make up this very important effective school practice domain.

The "Core Instruction" section of the *Similar Students* teacher survey included three different questions about the school's math and English language arts curriculum programs: the amount of instructional time spent daily on each subject; the frequency with which each of a list of different curriculum programs was used by the teacher; and the types and frequency of student assessments given by the teacher. In addition, this section asked the teacher to voice agreement or disagreement with 15 statements related to the school's instructional programs in math and English language arts.

### STATE POLICY ROLE IN CURRICULUM CHOICE IN CALIFORNIA

According to California's constitution, "the State Board of Education shall adopt textbooks for use in grades one through eight throughout the state."

The State Board (SBE) currently approves curriculum program materials on a staggered schedule, every six years for reading/language arts/English language development; math; science; and history/social studies.

For each subject area, the SBE determines and announces the specific criteria it will use to evaluate curriculum program materials submitted for consideration by the different publishers. One criterion in recent years has been the extent and manner in which the proposed curriculum texts and supporting materials align with California's grade-by-grade academic content standards. Curriculum program materials from different publishers may also differ in the extent to which specific content areas are covered, the number and type of classroom diagnostic tests they provide, the manner in which they address the needs of English Learners, the amount and kind of direction and training they provide for teachers, and more.

After determining which curriculum packages it will adopt for a specific subject area, California's SBE provides school districts with a menu of approved or state adopted texts and instructional materials in that subject for each grade level. Guided by this list, local school boards and district superintendents then use their own criteria to determine which of the approved materials might best meet their needs. The state expects districts to choose from the list of state-adopted materials and provides categorical funds for that purpose. Districts can request a waiver from the state if they can make a case that non-adopted materials might better serve the academic needs of their students. District choices around subject area curriculum programs are important and complex, and generally take into consideration many local factors.

[1] A detailed account of the items from the principal and teacher surveys that were combined to create composite variables under the domain *Implementing a Coherent, Standards-Based Curriculum and Instructional Program* is available upon request.

## FINDINGS: ELA CURRICULUM CHOICE AND INTENSITY OF USE BY SCHOOLS

In 2002, California's State Board of Education (SBE) adopted only two English language arts curriculum packages, one published by Open Court and one by Houghton Mifflin. A preliminary ELA adoption a few years before had included some additional choices, which we believed might still be in use in some schools.

In our survey, K–5 classroom teachers were asked: "How frequently do you use the following language arts curriculum programs in your classroom?" They could choose all that apply from the following list (in alphabetical order): Harcourt Brace Spelling, Houghton Mifflin, McGraw Hill/Macmillan's Reading, Open Court, Phonics SRA, Scholastic Phonics, Scott Foresman, Write Source Language Program, and Other.

Teachers were asked to indicate how often, on the following range of frequencies, they used each program: daily, once or twice a week, once or twice a month, a few times a year, or never.[2] Responses to each of these items were averaged across all K-5 classroom teacher respondents within a school to obtain indicators of curriculum usage intensity at that school.

When the data were analyzed, strikingly clear patterns emerged. With regard to use of English language arts curriculum programs, the schools in the study sample tended to fall into two main groups: they were either high intensity users of Open Court or high intensity users of Houghton Mifflin,[3] two main English language arts curriculum packages currently approved by the State Board of Education. Although a number of schools used some additional supplemental programs, Figure 1 shows that 94% of the schools could be classified unambiguously as relying predominantly on Open Court (27.2%) or on Houghton Mifflin (66.8%).

**Figure 1 – Cross Tabulation of Schools by High Intensity Language Arts Curriculum Usage**

| | Houghton Mifflin High Intensity Usage = No | Houghton Mifflin High Intensity Usage = Yes | Total |
|---|---|---|---|
| Open Court High Intensity Usage = No | 16<br>6.0% | 177<br>66.8% | 193<br>72.8% |
| Open Court High Intensity Usage = Yes | 72<br>27.2% | 0<br>0% | 72<br>27.2% |
| Total | 88<br>33.2% | 177<br>66.8% | 265<br>100.0% |

With regard to Open Court, 27.2% of the total school sample in the study (72 schools) could be classified as high-intensity users of this curriculum. In fact, in 21.5% of the total school sample every teacher in the school reported using it daily. With regard to Houghton Mifflin, 66.8% of the total sample of schools could be classified as high intensity users of this program; however, in only 34.3% of the total school sample did every teacher report daily use of the Houghton Mifflin language arts program.

Frequency of use within schools varied greatly between the two categories of high-intensity users. In 79.2% of the high-intensity Open Court schools, all teachers reported using the program daily; whereas, in only 51.4% of the high-intensity Houghton Mifflin schools did all teachers report daily use. In other

[2] The survey items related to the frequency of language arts and math curricula usages are reproduced in Appendix 1.

[3] On a one-to-five scale, with 1 = Never and 5 = Daily, high-intensity Open Court usage was indicated by an average teacher response of 4.5 or higher. High-intensity Houghton Mifflin usage was indicated by an average teacher response of 3.9 or higher. These thresholds were determined by inspecting the distributions over schools of the average teacher responses. Appendices 2A and 2B contain the descriptive statistics of the within-school average language arts and math curriculum usage frequency broken out by the high intensity usage categories specified in Figures 1 and 2. Complete distributions of the school-average teacher usage intensities are available upon request.

words, schools reporting high intensity usage of Open Court tended to have a higher average frequency of use than was the case for Houghton Mifflin.

## FINDINGS: THE RELATIONSHIP BETWEEN ELA CURRICULUM USE AND API

The initial analysis found that schools using the Open Court language arts curriculum had higher APIs, on average, than schools using alternative curricula. The raw, unadjusted difference between high-intensity Open Court versus high-intensity Houghton Mifflin schools was about 17 points on the API scale, which represents an "effect size" of just over one-third of a standard deviation. To put this in other terms, comparing a randomly chosen high-intensity Open Court school with a randomly chosen high-intensity Houghton Mifflin school, there would be about three chances in five that the Open Court school had the higher API of the two. Moreover, this relationship persisted after holding constant various demographic characteristics (parental education, percent of students eligible for free/reduced lunch, minority composition of student body, student mobility, etc.).

The research team has undertaken some further analyses to examine practices associated with high-intensity Open Court usage, which might help to explain why Open Court appears more effective. Since not all high-intensity Open Court schools had higher APIs, we sought to determine if other practices associated with high-intensity Open Court use might contribute to the higher APIs of some high-intensity Open Court schools.

To investigate this possibility, additional regression models were run that included interactions between the high-intensity Open Court curriculum usage indicator and the other educational practice variables within the seven broad survey domains.[4] The main results of this exercise suggest that—compared to schools that <u>are not</u> intensive users of the Open Court language arts curriculum— high-intensity Open Court schools where teachers and principals also report stronger agreement and more frequent use of the following practices tend to have higher API scores:[5]

### *Teachers across the school agree there is alignment and consistency in curriculum and instruction*

- Teachers examine the scope or sequence of curriculum topics.
- Teachers review a grade-level pacing calendar.
- There is consistency in curriculum and instruction at the same grade level.
- There is alignment in curriculum and instruction across different grade levels.

### *Both principal and district use assessment data to monitor and evaluate teacher practice*

- Principals report using the CAT-6/CST, curriculum program assessments, district developed assessments and other commercial assessments data to identify teachers who need instructional improvement.
- Principals report the District uses the CAT-6/CST, curriculum program assessments, district developed assessments, and other commercial assessment data to identify teachers who need instructional improvement.
- Principals report using assessment data to determine what professional development teachers need to improve in a particular area.

The association of these practices with higher API scores suggests a school climate with a strong academic focus and effective leadership. Teachers across all grades in these schools report frequently engaging in multiple practices to ensure the curriculum is coherent between grades and consistent within grade levels; principals in these schools report that they and the district use student assessment data from

[4] The results of Open Court and Scott Foresman regressions are listed in columns two and three, respectively, of Appendix 3

[5] Detailed definitions of the items that make up these sub-domain variables (practice areas) can be found in Appendix 4.

a variety of tests to evaluate teacher practices, identify teachers who need instructional improvement, and determine the professional development teachers need in order to improve.

In addition, these same regressions also identified another statistically significant association: the interaction of high-intensity Open-Court use with teachers' overall agreement that they "have influence over hiring decisions" of other teachers and of the school principal. This intriguing finding seems to suggest that high intense use of Open Court can go hand-in-hand with a school culture that promotes teacher involvement. One possible explanation of this finding is that this perception reflects a strong culture of cohesiveness in these schools generally, including around curriculum and assessment practices.

## FINDINGS: MATH CURRICULUM CHOICE AND INTENSITY OF USE BY SCHOOLS

A question with identical wording was asked about the math curriculum program used by the teacher in the classroom, with nine state-approved options available and the same range of usage frequency options. Again, the average five-point scale response across all of the teachers at a school served as an indicator of usage intensity of a given curriculum at each school. The math curriculum program choices (listed in alphabetical order) were: Harcourt Brace, Houghton Mifflin, McDougal Little, McGraw Hill, Prentice Hall, Progress in Math, Saxon Math, Scott Foresman, Success with MathCoach, and Other.

The manner in which mathematics curriculum packages were adopted in the schools we studied, and their reported usage intensity, stands in strong contrast to the patterns of choice and intensity of usage we found for English language arts curriculum packages. In our sample, more different math curriculum programs appear to be used within schools and between schools, and smaller percentages of teachers report using any one program daily.

Among the most often used math packages by schools in our study sample were Scott Foresman and Harcourt Brace.

By the above definitions, 18.9% of the schools in our sample were high intensity users of the Scott Foresman curriculum, with 46.0% of those schools having all of their teachers reporting daily use of the program.[6] Although more of our sample schools used Harcourt Brace's math program (36.2%) intensively, a smaller proportion of those schools (33.3%) had all of their teachers reporting daily use of that program.

**Figure 2 – Cross Tabulation of Schools by High Intensity Math Curriculum Usage**

| | Harcourt Brace High Intensity Usage = No | Harcourt Brace High Intensity Usage = Yes | Total |
|---|---|---|---|
| Scott Foresman High Intensity Usage = No | 119<br>44.9% | 96<br>36.2% | 215<br>81.1% |
| Scott Foresman High Intensity Usage = Yes | 50<br>18.9% | 0.0<br>0.0% | 50<br>18.9% |
| Total | 169<br>63.8% | 96<br>36.2% | 265<br>100.0% |

## FINDINGS: THE RELATIONSHIP BETWEEN MATH CURRICULUM AND API

We could not as clearly establish an association between the use of a specific math program and school API.

[6] On a one-to-five scale, with 1 = Never and 5 = Daily, high-intensity Scott Foresman usage was indicated by an average teacher response of 3.8 or higher. High-intensity Harcourt Brace usage was indicated by an average teacher response of 3.9 or higher. These thresholds were determined by inspecting the distributions over schools of the average teacher responses. Complete distributions of the school-average teacher usage intensities are available upon request.

## CAVEATS

Results of the preceding analysis suggest that high intensity use of Open Court, coupled with certain school and district practices, is associated with higher school API scores for the 257 elementary schools in our sample. However, a word of caution is necessary when interpreting these results. The result of this analysis implies an *association* between certain combinations of school practice and API; however, in no way does this prove that these practices *cause* API to increase.

Schools that are high-intensity Open Court users may differ in various other ways from schools that rely more heavily on other language arts packages, possibly including differences on variables not examined in the present study. Thus, it is not possible to draw any strong causal inference from the simple observation that high-intensity Open Court users have higher APIs.

In order to develop better evidence for a possible causal influence of Open Court on the API, we used statistical models designed to adjust for some other differences between high-intensity Open Court schools and those that largely rely on other ELA programs. Although our analysis controlled for many demographic factors, such adjustments are never perfect. An ideal study would employ random assignment of schools to curricula, but no such investigation could realistically be undertaken on a sample as large as the set of schools in our study. In sum, using the nonexperimental data available, it was simply not possible to establish causal connections between specific curricula or school practices and API scores. We cannot prove or disprove any claim about whether a given school's API would go up or down or stay the same if that school adopted one curriculum program/schooling practice combination over another.

It is also important to note that estimates of the more general "Open Court effect" (i.e., using the average intensity use of Open Court over all teachers as opposed to the high-intensity usage indicator) stemming from the original Initial Findings analysis fluctuated somewhat, depending on what other variables were included in the model. In order to obtain a more parsimonious model, one that contained only those schooling practice variables that accounted for most of the explained variation in API, a stepwise procedure was used. While a more parsimonious model that was able to explain virtually the same amount of variation in API as the more comprehensive model was obtained, in this model the Open Court/API relationship became statistically indistinguishable from 0.[7] Clearly, the interpretation of these analyses would be more straightforward if the estimate of the Open Court effect was the same regardless of what other variables were included in the model. The fact that we find a statistically significant Open Court effect with some combinations of variables and not with others clouds the interpretation. In sum, the initial analysis could not find a significant positive relationship between the general use of Open Court and API that was robust to various model specifications (i.e., different combinations of schooling practice variables), which prompted this extended analysis.

## CONCLUSION

In the *Similar Students, Different Results* large-scale survey of elementary schools in California serving students in the 25th to 35th percentile bandwidth of the state's School Characteristics Index, the school practices that most differentiated the highest- from lowest-performing schools were the following:

- Prioritizing Student Achievement
- Implementing a Coherent, Standards-Based Curriculum and Instructional Program
- Using Assessment Data to Improve Student Achievement and Instruction
- Ensuring Availability of Basic Instructional Resources

Our survey yielded responses from 257 principals and over 5,500 K–5 classroom teachers (typically 80% or higher from each school). Because we had asked questions about which specific curriculum programs the teachers were using for math and for English language arts, we were able to get a solid sense of how many different programs were in use by teachers at each school and how often they used each program. We were interested in whether any relationship could be detected between school Academic Performance Index (API) and schools' reported choice and intensity of use of any specific curriculum.

[7] The full results of these regressions are included in Appendix 5.

For math, a wider variety of curriculum programs appear to be used within schools and between schools, and fewer schools report daily use of any particular text. We could not find a clear association between use of a specific math program and school API.

The research team is aware that the choice, use, and success with students of any given curriculum program in a district and school is a complex dynamic influenced by many different factors. We are also aware that our findings regarding the positive correlation between high-intense Open Court use and school API may be provocative. This is why when the association first appeared so strongly in our early correlation analysis, we chose to take some extra time to thoughtfully and more fully analyze the finding.

We are not curriculum specialists and therefore did not study the ways in which the various components and attributes of the Open Court ELA curriculum materials differ from the Houghton Mifflin curriculum materials, and so we cannot comment on how specifically the curriculum program differences might contribute to a more coherent schoolwide curriculum or to a more positive school API.

However, the results of this extended analysis suggest that for elementary schools with student demographics similar to those in our sample, the choice and intense use of Open Court as the schoolwide English language arts curriculum program—when combined with implementation of a schoolwide coherent, standards-based instructional program and the frequent use of student assessment data to improve instruction—appears to be associated with higher school scores on California's Academic Performance Index.

Within our sample, comparing a randomly chosen high-intensity Open Court school with a randomly chosen high-intensity Houghton Mifflin school, there would be about three chances in five that the Open Court school had the higher API of the two. Moreover, this relationship persisted after holding constant various demographic characteristics (parental education, percent of students eligible for free/reduced lunch, minority composition of student body, student mobility, etc.).

With all the caveats cited above kept in mind, these results provide something to consider in decision making about school instructional and curriculum practices and textbook adoption policies.

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This report, *Elementary School Curriculum Program and API: A More Detailed Examination,* and two supporting documents are on the web (address below):

- *Curriculum Program: Technical Appendices*
- *California's Curriculum Adoption Process: Appendix*

These materials are part of a larger study, ***Similar Students, Different Results: Why Do Some Schools Do Better?*** The study's *Initial Report of Findings* and all related materials are on the web at:
**http://www.edsource.org/pub_abs_simstu05.cfm**

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# *Similar Students, Different Results: Why Do Some Schools Do Better?*

## ***APPENDIX 1:*** *Curricula Questions from Teacher Survey*

**12. How frequently do you use the following Language Arts curriculum programs in your classroom?**

| | Daily | Once or Twice a Week | Once or Twice a Month | A Few Times a Year | Never |
|---|---|---|---|---|---|
| a. Harcourt Brace Spelling | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. Houghton Mifflin | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. McGraw Hill/MacMillan's Reading | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. Open Court | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. Phonics SRA | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. Scholastic Phonics | ☐ | ☐ | ☐ | ☐ | ☐ |
| g. Scott Foresman | ☐ | ☐ | ☐ | ☐ | ☐ |
| h. Write Source Language Program | ☐ | ☐ | ☐ | ☐ | ☐ |
| i. Other *(please specify)*: | ☐ | ☐ | ☐ | ☐ | ☐ |

**13. How frequently do you use the following Math curriculum programs in your classroom?**

| | Daily | Once or Twice a Week | Once or Twice a Month | A Few Times a Year | Never |
|---|---|---|---|---|---|
| a. Harcourt Brace | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. Houghton Mifflin | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. McDougal Little | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. McGraw Hill | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. Prentice Hall | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. Progress in Math | ☐ | ☐ | ☐ | ☐ | ☐ |
| g. Saxon Math | ☐ | ☐ | ☐ | ☐ | ☐ |
| h. Scott Foresman | ☐ | ☐ | ☐ | ☐ | ☐ |
| i. Success with MathCoach | ☐ | ☐ | ☐ | ☐ | ☐ |
| j. Other *(please specify)*: | ☐ | ☐ | ☐ | ☐ | ☐ |

***APPENDIX 2A:*** *Descriptive Statistics of Reported Language Arts Curriculum Usage Frequency by High Intensity Usage Category*

| Language Arts Program | Number of Schools | Average Response (Scale of 1 to 5) | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| High Intensity Open Court Usage = 1 & High Intensity Houghton Mifflin Usage = 0 | | | | | |
| Harcourt Brace Spelling | 72 | 1.13 | 0.27 | 1.00 | 2.33 |
| Houghton Mifflin | 72 | 1.30 | 0.43 | 1.00 | 3.00 |
| McGraw Hill/MacMillan's Reading | 72 | 1.21 | 0.38 | 1.00 | 3.25 |
| Open Court | 72 | 4.96 | 0.09 | 4.59 | 5.00 |
| Phonics SRA | 72 | 1.82 | 0.54 | 1.00 | 3.00 |
| Scholastic Phonics | 72 | 1.21 | 0.33 | 1.00 | 2.80 |
| Scott Foresman | 72 | 1.26 | 0.41 | 1.00 | 2.60 |
| Write Source Language Program | 72 | 1.26 | 0.45 | 1.00 | 3.54 |
| Other | 72 | 2.75 | 1.18 | 1.00 | 5.00 |
| High Intensity Open Court Usage = 0 & High Intensity Houghton Mifflin Usage = 1 | | | | | |
| Harcourt Brace Spelling | 177 | 1.25 | 0.37 | 1.00 | 3.38 |
| Houghton Mifflin | 177 | 4.86 | 0.23 | 4.00 | 5.00 |
| McGraw Hill/MacMillan's Reading | 177 | 1.24 | 0.36 | 1.00 | 3.14 |
| Open Court | 177 | 1.11 | 0.27 | 1.00 | 2.88 |
| Phonics SRA | 177 | 1.34 | 0.47 | 1.00 | 4.31 |
| Scholastic Phonics | 177 | 1.33 | 0.40 | 1.00 | 2.83 |
| Scott Foresman | 177 | 1.22 | 0.39 | 1.00 | 3.00 |
| Write Source Language Program | 177 | 1.32 | 0.46 | 1.00 | 3.13 |
| Other | 173 | 3.26 | 1.16 | 1.00 | 5.00 |
| High Intensity Open Court Usage = 0 & High Intensity Houghton Mifflin Usage = 0 | | | | | |
| Harcourt Brace Spelling | 16 | 1.18 | 0.21 | 1.00 | 1.71 |
| Houghton Mifflin | 16 | 3.01 | 0.66 | 1.72 | 3.87 |
| McGraw Hill/MacMillan's Reading | 16 | 1.66 | 0.78 | 1.00 | 3.67 |
| Open Court | 16 | 2.36 | 1.22 | 1.00 | 4.11 |
| Phonics SRA | 16 | 1.56 | 0.85 | 1.00 | 4.22 |
| Scholastic Phonics | 16 | 1.45 | 0.61 | 1.00 | 3.00 |
| Scott Foresman | 16 | 1.22 | 0.30 | 1.00 | 2.00 |
| Write Source Language Program | 16 | 1.26 | 0.48 | 1.00 | 3.00 |
| Other | 16 | 3.67 | 1.06 | 1.00 | 5.00 |

***APPENDIX 2B:*** *Descriptive Statistics of Reported Math Curriculum Usage Frequency by High Intensity Usage Category*

| Math Program | Number of Schools | Average Response (Scale of 1 to 5) | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| High Intensity Scott Foresman Usage = 1 & High Intensity Harcourt Brace Usage = 0 | | | | | |
| Harcourt Brace | 50 | 1.08 | 0.17 | 1.00 | 1.88 |
| Houghton Mifflin | 50 | 1.24 | 0.40 | 1.00 | 2.69 |
| McDougal Little | 50 | 1.01 | 0.04 | 1.00 | 1.23 |
| McGraw Hill | 50 | 1.08 | 0.14 | 1.00 | 1.47 |
| Prentice Hall | 50 | 1.03 | 0.06 | 1.00 | 1.25 |
| Progress in Math | 50 | 1.02 | 0.11 | 1.00 | 1.75 |
| Saxon Math | 50 | 1.16 | 0.34 | 1.00 | 2.30 |
| Scott Foresman | 50 | 4.85 | 0.26 | 3.87 | 5.00 |
| Success with MathCoach | 50 | 1.12 | 0.23 | 1.00 | 2.00 |
| Other | 49 | 2.66 | 0.95 | 1.00 | 5.00 |
| High Intensity Scott Foresman Usage = 0 & High Intensity Harcourt Brace Usage = 1 | | | | | |
| Harcourt Brace | 96 | 4.77 | 0.25 | 4.05 | 5.00 |
| Houghton Mifflin | 96 | 1.31 | 0.38 | 1.00 | 2.82 |
| McDougal Little | 96 | 1.01 | 0.04 | 1.00 | 1.21 |
| McGraw Hill | 96 | 1.12 | 0.20 | 1.00 | 2.25 |
| Prentice Hall | 96 | 1.03 | 0.11 | 1.00 | 1.75 |
| Progress in Math | 96 | 1.01 | 0.06 | 1.00 | 1.47 |
| Saxon Math | 96 | 1.06 | 0.27 | 1.00 | 3.40 |
| Scott Foresman | 96 | 1.09 | 0.15 | 1.00 | 1.75 |
| Success with MathCoach | 96 | 1.04 | 0.14 | 1.00 | 2.00 |
| Other | 94 | 2.57 | 1.14 | 1.00 | 4.67 |
| High Intensity Scott Foresman Usage = 0 & High Intensity Harcourt Brace Usage = 0 | | | | | |
| Harcourt Brace | 119 | 1.20 | 0.51 | 1.00 | 3.94 |
| Houghton Mifflin | 119 | 2.87 | 1.83 | 1.00 | 5.00 |
| McDougal Little | 119 | 1.03 | 0.14 | 1.00 | 2.33 |
| McGraw Hill | 119 | 1.47 | 1.12 | 1.00 | 5.00 |
| Prentice Hall | 119 | 1.03 | 0.12 | 1.00 | 2.00 |
| Progress in Math | 119 | 1.08 | 0.36 | 1.00 | 3.75 |
| Saxon Math | 119 | 2.32 | 1.82 | 1.00 | 5.00 |
| Scott Foresman | 119 | 1.17 | 0.42 | 1.00 | 3.80 |
| Success with MathCoach | 119 | 1.03 | 0.09 | 1.00 | 1.60 |
| Other | 117 | 2.84 | 1.28 | 1.00 | 5.00 |

***APPENDIX 3:*** *Regressions of 2005 Growth API on Domain I Composite Variables with Curriculum Interactions*

| | Composite Variables with High Intensity Open Court/ Scott Foresman Indicators | Composite Variables with High Intensity Open Court Indicator Interactions | Composite Variables with High Intensity Scott Foresman Indicator Interactions |
|---|---|---|---|
| Teachers report alignment and consistency in curriculum and instruction | 6.77<br>(1.82)* | 1.97<br>(0.54) | 4.88<br>(1.29) |
| Principal and district have clear and shared expectations that guide coherence around the curriculum | 7.20<br>(2.53)** | 7.69<br>(2.55)** | 5.34<br>(1.71)* |
| District addresses instructional needs of EL students | -0.37<br>(0.05) | 6.33<br>(0.75) | 1.53<br>(0.18) |
| District, principals, and teachers utilize state standards to guide curriculum and instruction | 4.13<br>(1.23) | 5.95<br>(1.64) | 5.95<br>(1.57) |
| Math and language arts are integrated with other subjects. | 6.43<br>(2.05)** | 6.32<br>(1.73)* | 5.95<br>(1.74)* |
| Open Court high-intensity usage (OCH) | 9.11<br>(1.23) | 62.40<br>(1.61) | |
| Scott Foresman high-intensity usage (SFH) | 13.62<br>(1.97)** | | 57.62<br>(1.43) |
| Teachers report alignment and consistency in curriculum and instruction/OCH interaction | | 17.61<br>(2.16)** | |
| Use of Open Court language arts curriculum program/ OCH interaction | | | |
| The school and district places a priority on consistency of curriculum/OCH interaction | | -0.77<br>(0.11) | |
| Use of Scott Foresman math curriculum program/ OCH interaction | | | |
| District addresses instructional needs of English learner students/OCH interaction | | -20.73<br>(1.46) | |
| District, principals, and teachers utilize state standards to guide curriculum and instruction/OCH interaction | | -5.02<br>(0.66) | |
| Math and language arts are integrated with other subjects/OCH interaction | | -1.72<br>(0.22) | |
| Teachers report alignment and consistency in curriculum and instruction/SFH interaction | | | 13.74<br>(1.52) |
| Principal and district have clear and shared expectations that guide coherence around the curriculum/SFH interaction | | | 11.75<br>(1.73)* |
| District addresses instructional needs of EL students/SFH interaction | | | -16.47<br>(1.08) |
| District, principals, and teachers utilize state standards to guide curriculum and instruction/SFH interaction | | | -4.02<br>(0.64) |
| Math and language arts are integrated with other subjects/SFH interaction | | | -3.62<br>(0.46) |
| * significant at 10%; ** significant at 5%; *** significant at 1%. Robust t statistics in parentheses. Open Court and Scott Foresman high-intensity usage indicators are defined as follows: 0=No and 1=Yes. | | | |

| ***Appendix 3 (continued)*** *– Regressions of 2005 Growth API on Domain 1 Composite Variables with Curriculum Interactions* | | | |
|---|---|---|---|
| | **Composite Variables with High Intensity Open Court/ Scott Foresman Indicators** | **Composite Variables with High Intensity Open Court Indicator Interactions** | **Composite Variables with High Intensity Scott Foresman Indicator Interactions** |
| Parent education level: percent high school graduate or some college | -32.39<br>(1.17) | -28.34<br>(1.03) | -39.41<br>(1.44) |
| Parent education level: percent college graduate or graduate school | 54.87<br>(1.04) | 40.83<br>(0.75) | 48.21<br>(0.90) |
| School enrollment | -0.00<br>(0.12) | 0.00<br>(0.03) | 0.00<br>(0.07) |
| Percent African American | -0.09<br>(0.29) | -0.11<br>(0.36) | 0.04<br>(0.12) |
| Percent Asian | 0.52<br>(1.19) | 0.46<br>(0.99) | 0.51<br>(1.12) |
| Percent Hispanic | -0.13<br>(0.50) | -0.16<br>(0.63) | -0.14<br>(0.54) |
| Percent eligible for free/reduced meals | -0.46<br>(1.53) | -0.43<br>(1.48) | -0.51<br>(1.73)* |
| Percent English learners | -0.51<br>(2.16)** | -0.62<br>(2.75)*** | -0.43<br>(1.78)* |
| Student mobility | 2.69<br>(3.55)*** | 2.90<br>(3.81)*** | 2.46<br>(3.32)*** |
| Percent enrolled in migrant education programs | -0.34<br>(1.33) | -0.36<br>(1.45) | -0.26<br>(1.00) |
| Constant | 527.27<br>(7.23)*** | 494.29<br>(6.69)*** | 547.98<br>(7.72)*** |
| Observations | 248 | 248 | 248 |
| Adjusted R-squared | 0.2428 | 0.2424 | 0.2510 |
| * significant at 10%; ** significant at 5%; *** significant at 1%. Robust t statistics in parentheses. Reference groups are defined as follows: for parent education level - less than high school; for minority percent of enrollment - percent of students that are white or American Indian, Filipino, Pacific Islanders (note: latter three categories make up less than 4% of students in school sample). | | | |

## ***Appendix 4:*** *Significant Composite Variables in Curriculum Open Court/Practice Interaction Analysis*

| **Composite Variable –** ***Teachers report alignment and consistency in curriculum and instruction.*** **Domain –** ***Implementing a Coherent, Standards-Based Curriculum and Instructional Program*** | |
|---|---|
| **Teacher Survey Item** | **Item Description** |
| 4c | Teachers examine the scope or sequence of curriculum topics |
| 4d | Teachers review a grade-level pacing calendar |
| 5c | There is consistency in curriculum and instruction at the same grade level |
| 5d | There is alignment in curriculum and instruction across different grade levels |

| **Composite Variable –** ***Teachers have influence over hiring decisions.*** **Domain –** ***District and school encourage teacher collaboration and build educator capacity*** | |
|---|---|
| **Teacher Survey Item** | **Item Description** |
| 7e | Influence of teachers at school in the hiring of new teachers |
| 7f | Influence of teachers at school in the hiring of new principals |

| **Composite Variable –** ***District and principals use assessment data to monitor and evaluate teacher performance.*** **Domain –** ***Using Assessment Data to Improve Student Achievement and Instruction*** | |
|---|---|
| **Principal Survey Item** | **Item Description** |
| 25ag | I use CAT-6/CST data to identify teachers who need instructional improvement |
| 25bc | District uses CAT-6/CST data to evaluate teachers' practices |
| 27cg | I use curriculum program assessment data to identify teachers who need instructional improvement |
| 28c | District uses curriculum program assessment data to evaluate teachers' practices |
| 29cg | I use district developed assessment data to identify teachers who need instructional improvement |
| 29dc | District uses district developed assessment data to evaluate teachers' practices |
| 30cg | I use other commercial assessment data to identify teachers who need instructional improvement |
| 30dc | District uses other commercial assessment data to evaluate teachers' practices |
| 32e | I use assessment data to determine what professional development teachers need to improve in a particular area |

***Appendix 5:*** *Regressions of 2005 Growth API on Domain 1 Composite Variables*

| | All Domain 1 Composite Variables | Set of Composite Variables That Account for Majority of Explained Variance |
|---|---|---|
| Math and language arts are protected from unnecessary interruptions | -2.59<br>(3.47) | |
| Math and language arts are integrated with other subjects | 4.60<br>(4.19) | 6.31<br>(2.03)** |
| Proportion of teachers using dominant language arts curriculum program | -1.83<br>(2.54) | |
| Proportion of teachers using dominant math curriculum program | 2.61<br>(2.20) | |
| Teachers report alignment and consistency in curriculum and instruction | 6.84<br>(3.44)** | 6.59<br>(1.77)* |
| Teachers are consistent in their use of curriculum planning and materials | -3.74<br>(4.00) | |
| District, principals, and teachers utilize state standards to guide curriculum and instruction | 5.16<br>(3.73) | 4.39<br>(1.30) |
| Teachers meet or exceed the amount of time recommended by the state frameworks for language arts | 2.76<br>(6.95) | |
| Teachers meet or exceed the amount of time recommended by the state frameworks for math | 2.10<br>(6.95) | |
| School-level intensity of Open Court use among teachers | 4.77<br>(2.08)** | 3.07<br>(1.61) |
| Use of Phonics SRA language arts curriculum program | 0.62<br>(5.47) | |
| Use of Scholastic Phonics language arts curriculum program | 0.02<br>(7.50) | |
| Use of Houghton Mifflin math curriculum program | 1.85<br>(1.99) | |
| Use of Saxon math curriculum program | -2.66<br>(2.83) | |
| School-Level Intensity of Scott Foresman use among teachers | 2.60<br>(1.91) | 3.41<br>(1.90)* |
| School uses a standards-based report card | 2.03<br>(3.06) | |
| District addresses instructional needs of English learner students | 5.19<br>(7.48) | -0.03<br>(0.00) |
| Principal and district have clear and shared expectations that guide coherence around the curriculum | 6.73<br>(3.17)** | 7.10<br>(2.51)** |
| District, principals, and teachers utilize state standards to guide curriculum and instruction | -0.57<br>(3.24) | |
| Principal acts as a knowledgeable source concerning standards and curriculum | 5.67<br>(5.17) | |
| In the last four years, school has implemented a new program for English learner students | -2.59<br>(5.94) | |

* significant at 10%; ** significant at 5%; *** significant at 1%. Robust t statistics in parentheses. Reference groups are defined as follows: for parent education level - less than high school; for minority percents - percent of students that are white or American Indian, Filipino, Pacific Islanders (the latter three categories make up less than 4% of students in school sample).

| ***Appendix 5 (continued)*** *– Regressions of 2005 Growth API on Domain 1 Composite Variables* | | |
|---|---|---|
| | **All Domain 1 Composite Variables** | **Set of Composite Variables That Account for Majority of Explained Variance** |
| Parent education level: percent high school graduate or some college | -33.63<br>(28.05) | -30.39<br>(1.10) |
| Parent education level: percent college graduate or graduate school | 38.35<br>(53.92) | 57.31<br>(1.08) |
| School enrollment | -0.01<br>(0.02) | -0.00<br>(0.13) |
| Percent African American | -0.29<br>(0.30) | -0.12<br>(0.38) |
| Percent Asian | 0.65<br>(0.44) | 0.48<br>(1.11) |
| Percent Hispanic | -0.11<br>(0.26) | -0.15<br>(0.58) |
| Percent eligible for free/reduced meals | -0.51<br>(0.31)* | -0.45<br>(1.51) |
| Percent English learners | -0.66<br>(0.26)** | -0.51<br>(2.15)** |
| Student mobility | 2.87<br>(0.80)*** | 2.63<br>(3.44)*** |
| Percent enrolled in migrant education programs | -0.39<br>(0.25) | -0.33<br>(1.30) |
| Constant | 459.00<br>(97.66)*** | 524.13<br>(7.17)*** |
| Observations | 243 | 248 |
| Adjusted R-squared | 0.2530 | 0.2485 |

* significant at 10%; ** significant at 5%; *** significant at 1%. Robust t statistics in parentheses. Reference groups are defined as follows: for parent education level - less than high school; for minority percent of enrollment - percent of students that are white or American Indian, Filipino, Pacific Islanders (note: latter three categories make up less than 4% of students in school sample).