SPRINGBOARD LONGITUDINAL EVALUATION

INTERIM REPORT 2008

EXECUTIVE SUMMARY
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Introduction

The following Executive Summary presents the interim findings from a comprehensive three-year longitudinal evaluation of the College Board’s SpringBoard (SB) program that is currently being conducted by the Westat organization. In this interim phase of the research, the design includes three major components: A system-wide teacher survey comparing SpringBoard and non-SpringBoard teachers and designed to assess implementation patterns; case studies of selected SpringBoard districts and schools; and a preliminary analysis of student achievement related to SpringBoard participation in selected districts. This report presents the promising mid-course results from the survey and student achievement research components.

In the final year of this study the design will focus on the student achievement outcomes with another year of student data being collected. An Implementation Survey is being conducted in the districts selected for the student achievement analysis. The Implementation Survey is directed to department chairs and content leads at the school level. A final report of the longitudinal evaluation study is expected in the Spring of 2009.

Characteristics of the SpringBoard Program

The recently developed SpringBoard program takes advantage of years of research in cognitive science to support the design of an instructional program in mathematics and English language arts that engages all students in challenging learning experiences. The SpringBoard instructional system combines rigorous course work with assessment and professional development. Each course centers on classroom-tested Model Instructional Units that prepare students for AP® and college-level work.

Instructional Materials for Teachers and Students: Rigorous content, aligned to standards, has been carefully articulated in a scope and sequence that builds knowledge and skills incrementally from sixth grade through twelfth grade in both English language arts and mathematics. The content is mapped to the College Board Standards for College Success and state standards, with the goal to prepare students, upon completion of the six year sequence, with the level of knowledge, skills and abilities necessary for success in college and Advanced Placement courses. Embedded in each lesson, and at the discretion of the teacher, are numerous opportunities to introduce, model and then practice and evaluate the application of research-based strategies in reading, writing, oral proficiency, collaboration and problem-solving.

Assessments: Standardized formative assessments with scoring rubrics are embedded in each lesson and, in addition, teachers have numerous opportunities to review student work, monitor student talk, and observe cognitive organization in action. Online diagnostic assessments composed of high-quality test items, written specifically for SpringBoard by the College Board’s Test Development Group, can be found sequenced within the online table of contents for each level and course. The diagnostic assessment reports offer explanations for each incorrect response.
Professional Development: The professional development resources include administrators' workshops and toolkits, required summer institutes for first-year teachers, advanced training, and an online Professional learning community. Premium training services are also available.

SpringBoard® Online: Includes instructional resources, customizable online assessments, and correlations to state standards and most textbook programs. It's also the home of the program's online Professional learning community.

Overview of the Evaluation

The SpringBoard longitudinal evaluation is designed to determine the efficacy of the program. The evaluation questions being addressed are:

1. Are teachers in SpringBoard classrooms more likely than teachers in non-SpringBoard classrooms to exhibit high expectations for all students? Do the SpringBoard teachers feel better prepared to assist their students?

2. Do students in SpringBoard classrooms demonstrate higher rates of achievement than what could be expected were they not in SpringBoard classrooms? Do students in SpringBoard classrooms demonstrate higher rates of achievement than comparable students in non-SpringBoard classrooms?

3. What student, teacher, classroom, school, and/or district characteristics and program implementation patterns are most likely to be associated with favorable vs. non-favorable outcomes?

The first year of the evaluation was a planning year. This interim report covers the evaluation activities conducted during the second year of the evaluation from September 2006 through January 2008. The following sections describe the methodology and results from the three major research activities during this period: A system-wide teacher survey, case study site visits in seven SpringBoard districts, and student achievement analyses using annual test score data from a subset of SpringBoard districts. The report covers the teacher survey, the student achievement analyses and the findings associated with them, in the sections to follow.

System-wide Teacher Survey

Sample Population

The survey sample had two components: teachers who participated in SpringBoard, and teachers from comparable schools that did not participate in SpringBoard. Both sets of teachers were selected in two steps: first by selecting samples of schools, and next by selecting teachers within those schools. The sampling frame for the SpringBoard sample consisted of a list of 6,333 teachers in 479 schools who participated in the SpringBoard training program in 2005 and/or 2006. From this list, 100 middle schools and 106 high schools were selected through stratified sampling, using enrollment size, poverty level, and urbanicity to define the strata. A
total of 948 SpringBoard teachers were selected, roughly evenly split between middle schools and high schools, and between English and mathematics. The comparison school frame consisted of all schools that had not participated in SpringBoard but were in districts with SpringBoard schools. This resulted in a frame with 584 high schools and 1,076 middle schools. A total of 846 comparison teachers were selected, roughly evenly split between middle schools and high schools, and between English and mathematics.

Of the final eligible sample of 780 SpringBoard teachers, 357 responded, resulting in a response rate of 38 percent. Among the comparison teachers, the original sample of 846 was reduced to 736 eligible teachers; 241 responded, resulting in a response rate of 28 percent. The overall response rate across both groups combined was 33 percent.

**Survey Instrument**

The teacher questionnaire had two major sections and several sub-sections. Both SpringBoard teachers and non-SpringBoard teachers completed Part I. In this section, teachers were asked to agree or disagree with twenty-eight attitude and opinion statements concerning conditions in their school. Both groups also answered demographic and experience questions. Only SpringBoard teachers received Part II which consisted of four sections: general questions and statements about the implementation of SpringBoard, specific ELA related questions, specific mathematics-related questions, and questions about materials, training and support.

**Survey Findings – SpringBoard Teachers Compared to Non-SpringBoard Teachers**

SpringBoard teachers were very similar to non-SpringBoard teachers in their responses to questions about their school and their colleagues. Over 90% of the respondents from both groups indicated that they agreed or strongly agreed that their fellow teachers…

- Set high standards for themselves
- Have subject matter knowledge
- Use strategies for high student achievement

Over 80% of the teachers agreed or strongly agreed with the following positive statements about their schools:

- My school is a good place to work
- I would recommend this school to parents seeking a place for their child
- A climate of mutual respect exists among the staff at my school
- I have confidence in my principal as the instructional leader of the school
- My school’s administrators provide me with support when I need it

There were differences between the SpringBoard and comparison teachers, however, when they were asked to indicate their agreement with statements about students. Although more than 90% of both groups agreed that the teachers in their school set high standards for students, as Figure 1 illustrates, **SpringBoard teachers were 5% or more likely than non-SpringBoard teachers** to agree or strongly agree with the following statements:

- Teachers at my school regularly stay after school to attend staff meetings, plan, or work with students
- The teachers at my school believe all students can achieve the state standards
- I feel able to help all the students who are included in my classes
The two groups also differed when they were asked about instructional resources and professional development. Comparison teachers were more likely than SpringBoard teachers to indicate that they had the resources they needed to meet the needs of their students, including in particular the appropriate assessments and the required computer capabilities. In the area of professional development, over 90% of the teachers in both groups agreed or strongly agreed that they were provided with opportunities to participate in professional development. The **SpringBoard teachers, however, were about 10% more likely to agree** that…

- The professional development program in my school provides me with the skills and knowledge I need to raise student achievement for all students
- The district’s (school’s) professional development activities cover the areas where I most desire assistance
- I receive appropriate follow-up to help me apply professional development concepts

The percentages are presented in the following figure:
**Survey Findings – SpringBoard Implementation**

Across the many survey items in Part II, the section offered only to SpringBoard teachers, several consistent findings emerged.

**Program Effectiveness and Quality**

- Teachers largely considered SpringBoard to be very or somewhat effective across a wide variety of students. Among teachers who worked with special populations, 80% or more saw SpringBoard as effective with high achieving students, average students, students from low-income families, inner-city students, and suburban students. More than 70% of all of the ELA teachers saw SpringBoard as effective with English learners and Special Education students.

- Teachers felt that the SB materials are age appropriate (84%), are flexible (85%), are culturally appropriate (82%) and involve higher order thinking skills (92%) .

- More than half of the ELA teachers saw improvement in students’ reading comprehension (63%) and writing skills (56%) that they attributed to SpringBoard.

- Teachers widely agreed (95%) that the SpringBoard training offered by the College Board was sufficient to enable them to use the Model Instructional Units and strategies effectively, although only 58% agreed that the training for the online component was sufficient.

- Teachers were in agreement that SB teaching strategies are effective (87%) and that SpringBoard had changed the mix of strategies they used. Some indicated they also used the strategies in content areas other than English and mathematics.
Needs improvement

- Among the ELA teachers, 86% considered it a minor to serious problem that SB ELA did not contain vocabulary, and 90% indicated it was a minor to serious problem that the curriculum did not address grammar. 74% also considered it a problem that SB did not provide the ancillary materials (DVDs, novels, CDs) that the lessons required.
- About 50% of the responding SB mathematics teachers considered it at least a minor problem that SB did not contain: suggestions for “direct instruction” outside of the MIUs, reference to monitored practice, self-reflection for students involving specific mathematical content, and separate embedded assessments that assess transfer of learning to new contexts.

Patterns of Use

- The English/language arts program was most often used as the core instructional program (50% ELA compared to 4% math), while the mathematics program was primarily used as a supplement to the main text (37% ELA compared to 83% math).
- Teachers tended to use SpringBoard assessments on an occasional basis. The teachers were more likely to use the embedded assessments than the diagnostic assessments. Both the diagnostic and embedded assessments were used most often as feedback to students (46% used diagnostic, 69% used embedded.) Few teachers used the diagnostic assessments to determine grades (20%) but more than half used the embedded assessments summatively for grading (57%).

Program Alignment and District Support

- A majority indicated that SB was aligned with the district curriculum (78%), the state standards (83%), and the state testing program (68%). In areas where the alignment was less clear, this became a factor in selectively purchasing one content area or another.
- About half of the teachers were provided time to meet to discuss SpringBoard, although about two-fifths had access to an instructional coach.
- More than half of the teachers (53%) disagreed that their school had enough computers for a whole class to use the SB online component at one time and an even larger majority (65%) disagreed that it was easy to arrange a time to use the school’s computers.

Preliminary Analyses of the Student Achievement Impact of SpringBoard

Sample Population

A subset of 13 districts was selected from the total population of SpringBoard participants based on the available information about implementation and in order to provide a regional cross section of the SpringBoard community. Westat requested student achievement data from the selected districts with mixed success. Some of the selected districts were not able to provide student-level data because of privacy restrictions or limitations in their programming resources.
Eventually 9 districts in 6 states did provide data, covering 580 schools and 441,419 students in reading, and 571 schools and 427,134 students in mathematics.

The analyses discussed in this summary are from the largest state sample available. Four districts in the State of Florida submitted student-level achievement data from the state assessment, FCAT, and from both participating and comparison students. The reading data from Florida included **419,709 students and 1,370,654 test scores over seven years**. The Reading test scores represented 134,426 SpringBoard observations and 1,236,228 non-SpringBoard comparison observations, and the mathematics test scores represented 113,944 SpringBoard observations and 1,240,298 non-SpringBoard observations.

The FCAT data provided several advantages from an analytical perspective. As with the other states, Florida students have unique identification numbers that allow them to be followed across multiple years. The statewide annual testing system has been quite stable for over ten years. Also, unlike two of the districts in the study, the Florida test provides a developmental scale score that can be used across grade levels in order to assess gain in achievement. The Florida districts are large, providing a large amount of data to analyze. Because there were multiple districts in a single state, the impact of SpringBoard could be examined across a wider variety of school and student characteristics, making the results more robust. The FCAT developmental scale score ranges from 0 to 3000 and covers grades three through ten. The FCAT standard deviation for each grade level varies, but averages about 300 points at a grade level.

The Florida sample collectively covered grades three through 12 and the years from 2001 through 2007, though the specific data that were available varied across districts and students. The year that schools started participating in SpringBoard program ranged from 2004-05 to 2006-07; for every school/district, at least 2 years of data were available before SpringBoard participation began.

**Methodology**

The data were analyzed using a repeated measures multi-level modeling approach in which the growth in students’ test scores for any given year is predicted based on their gender, race, free/reduced price lunch participation, participation in SpringBoard, plus a variable to measure trends over time, and two variables measuring school characteristics (percentage eligible for free/reduced price lunch, and percentage who are minorities). The demographic and school level variables act as covariates in controlling for differences between the SB and non-SB students. The major variable of interest becomes participation in SpringBoard and its ability to explain differences in student achievement after some other differences in the groups have been accounted for.

A variety of statistical models have been tested, and the various types of models have been generally consistent in their results. Some analyses were run across all students within each district/state. Alternatively, to test whether SpringBoard may affect some students differently than others, students were separated into four groups or quartiles based on their initial performance in the data set – their earliest test scores – and then the SB and non-SB students within that performance group were compared in terms of their growth in achievement over a year or multiple years in the program.
Interim Findings

Results for SpringBoard English Language Arts
Following are the results of the analysis as measured by the FCAT Reading Developmental Scale Scores.

Table 1: The Impact of SpringBoard on Student Achievement in Reading in Four Districts in Florida

<table>
<thead>
<tr>
<th>Variable</th>
<th>Bottom quartile</th>
<th>Second quartile</th>
<th>Third quartile</th>
<th>Top quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average scale score increase per year for this population</td>
<td>90.5**</td>
<td>44.7**</td>
<td>33.8**</td>
<td>27.6**</td>
</tr>
<tr>
<td><strong>Impact of SB</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional scale score growth that is due to exposure to SB,</td>
<td>25.5**</td>
<td>31.5**</td>
<td>31.5**</td>
<td>37.3**</td>
</tr>
<tr>
<td>for one year. This may be multiplied by the number of years a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>student is in SB.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard error</td>
<td>1.0</td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>Additional scale score growth in a school's first year of SB</td>
<td>12.2**</td>
<td>4.8**</td>
<td>7.3**</td>
<td>13.5**</td>
</tr>
<tr>
<td>This may be added to the one year total above for the first</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>year a school is in SB.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard error</td>
<td>1.6</td>
<td>1.3</td>
<td>1.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Additional scale score growth for SB participants after leaving</td>
<td>8.3</td>
<td>29.7**</td>
<td>34.4**</td>
<td>60.8**</td>
</tr>
<tr>
<td>SB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard error</td>
<td>4.5</td>
<td>3.6</td>
<td>3.7</td>
<td>4.7</td>
</tr>
</tbody>
</table>

*p< 0.05; ** p<0.01

According to the analysis, the average growth in this population (not counting SpringBoard-related changes) is different for students at different levels of performance. Low performers in the bottom quartile on average grow the most in a year, or 90.5 developmental scale score units. Students in the top quartile grow less, about 27.6 scale score units. Some of the differences in growth rates can be attributed to regression to the mean. There might also be a ceiling effect in which the highest-scoring students had less room for growth.

The table also shows the additional benefit that a student gets from participation in SpringBoard. Students at all levels benefit significantly, with the estimated effect being from 25.5 to 37.3 scale score units or ranging from 2.5 months to more than a year of additional growth per year that is attributable to SB. If a student participates for more than one year, the benefit is additive. In other words, a student who stays in SB for three years can be expected to grow about the same extra amount each year, which could add up to an additional three years of achievement – or a total of six years of growth in three years. These statistics are
based on comparing SB-related growth with the average growth rates, which vary depending on the achievement category. Students who leave the program also continue to benefit from their exposure to SB; besides the extra growth they achieved while participating in SpringBoard, they (for three of the four quartiles) continued to grow more rapidly after leaving SpringBoard.

**Results for SpringBoard Mathematics**

Following are the results of the analysis as measured by the FCAT Mathematics Developmental Scale Scores.

**Table 2: The Impact of SpringBoard on Student Achievement in Math in Districts in Florida**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Bottom quartile</th>
<th>Second quartile</th>
<th>Third quartile</th>
<th>Top quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average scale score increase per year for this population</td>
<td>89.9**</td>
<td>90.1**</td>
<td>68.1**</td>
<td>38.7**</td>
</tr>
<tr>
<td><strong>Impact of SB</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional scale score growth that is due to exposure to SB, for one year. This may be multiplied by the number of years a student is in SB.</td>
<td>4.4**</td>
<td>5.1**</td>
<td>8.1**</td>
<td>19.4**</td>
</tr>
<tr>
<td>Standard error</td>
<td>1.3</td>
<td>0.5</td>
<td>0.5</td>
<td>0.7</td>
</tr>
<tr>
<td>Additional scale score growth in a school’s first year of SB. This may be added to the one year total above for the first year a school is in SB.</td>
<td>-9.0**</td>
<td>0.8</td>
<td>0.4</td>
<td>8.4**</td>
</tr>
<tr>
<td>Standard error</td>
<td>2.1</td>
<td>0.9</td>
<td>0.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Additional scale score growth for SB participants after leaving SB</td>
<td>3.7</td>
<td>4.8</td>
<td>2.3</td>
<td>20.9**</td>
</tr>
<tr>
<td>Standard error</td>
<td>5.4</td>
<td>2.5</td>
<td>2.4</td>
<td>3.1</td>
</tr>
</tbody>
</table>

* p< 0.05; ** p<0.01

Fewer students were available for the math analyses in Florida. One district of the four Florida districts was not using SB math and two of the others were using it either at the middle or high school level. SB math is most often used as a supplemental – not core – program. Only 4% of the SB teachers responding to the survey indicated that SB mathematics was the core curriculum.

Again, the average scale score increase in this population is different for students at different levels of performance. Low performers in the two bottom quartiles on average grow the most in a year, 89.9 and 90.1 developmental scale score units. Students in the top quartile grow less, about 38.7 scale score units.

The table also shows the additional benefit that a student gets from participation in SpringBoard mathematics. **Students at all levels benefit significantly, with the estimated effect being from 4.4 to 19.4 scale score units or from between .4 to 4.5 months of additional growth per**
year that is attributable to SB. If a student participates for more than one year, the benefit is additive. In other words, a student who stays in SB for three years can be expected to grow about the same extra amount each year. Students who leave the program also continue to benefit from their exposure to SB, not only retaining the SpringBoard growth they showed while participating, but in the case of students who are already high performers, continuing to grow more rapidly after leaving SpringBoard.

Summary and Discussion

In a rigorous longitudinal comparison study using over a million observations from school districts in Florida, SpringBoard was shown to have significant benefit in increasing student achievement, particularly in reading. The achievement improvements increase for every year that a student stays in SpringBoard and some benefit persists even if a student is no longer in the SB programs. The effect of SB ELA, according to the preliminary data, can be as much as two years of achievement for every year of SB.

Improved achievement was observed for students in SB mathematics as well, but at a lower effect size. Two potential explanations for the difference may be found in the different structure of the two programs and the differing patterns of use – SB mathematics had fewer lessons and activities and is more often used as a supplemental, not core, curriculum. Alternatively, SB mathematics may have been less effective, or may have involved fewer changes from what teachers were already doing prior to participating in SpringBoard.

Also, in interpreting these results it is important to note that the data do not include student level indications of exposure to SpringBoard beyond the documentation that SB is being implemented at that grade level in a school. It may be true that SB is being implemented selectively within the grade or school with lower performing students receiving no SB or a reduced implementation model. More specific implementation information is being collected for the final report.

In a survey of SB and comparison teachers, participants in the SB program were very similar to the comparison group, but they were more likely to say that the professional development they received would help them raise student achievement. SB teachers were also largely positive about the program itself and the quality and effectiveness of its components: the rigorous lessons and units and professional development experiences. Teachers indicated as well, that aspects of the SB program needed improvement: they called for the inclusion of vocabulary and grammar in ELA and the expansion of mathematics to make the program more comprehensive. In response to the suggestions from SB participants and formative research from the field, the SB program is currently revising the materials as well as the assessments in order to further improve the effectiveness of the program.

The results contained in the preliminary analyses summarized above are considered interim to the study and a final report should become available in the summer of 2009. Included in the final analyses will be enhanced information about the level of implementation in SpringBoard schools and the differences in achievement that are related to implementation, as well as information about the impact of SB on other achievement indicators such as Advanced Placement participation and performance.