SpringBoard®

Compendium of Research

Dear Colleague,

We are delighted that you are interested in SpringBoard®. The College Board developed this groundbreaking program not long ago to provide a systematic approach to instructional priorities in English and Mathematics for students in grades 6 through 12.

Teachers told us that they needed a way to structure course work to build learning from one year to the next. They wanted lessons that would increase rigor in the curriculum, prepare all students to succeed in AP® and college-level work, and challenge and engage all students so that they meet or exceed state standards. We have devised the content of the SpringBoard lessons to create a sequence from one grade to the next so that students will be prepared with the knowledge and skills they need to succeed in AP® and college. SpringBoard sets the goal of college readiness for all students.

Although SpringBoard is a fairly new program, it is built on years of research. SpringBoard is supported by comprehensive, longitudinal studies, as well as case studies, and both empirical and theoretical research. With this research, we can be certain that SpringBoard contributes to college readiness for the full range of students in U.S. schools. I know many of you agree. That is why SpringBoard is used by 24 of the nation's 100 largest school districts.

We are committed to helping students succeed in college. President Obama has set the bar high, as he should, saying, "America's entire education system must once more be the envy of the world." We are working toward that end.

Recently, the College Board's Commission on Access, Admissions and Success in Higher Education released *Coming to Our Senses: Education and the American Future*, an action agenda detailing what the United States must do to ensure that at least 55 percent of young Americans earn a college degree or higher by 2025. One of the commission's findings was the gap between high school graduation requirements and expectations of colleges and employers. By providing rigorous course work in middle and high school that is founded on solid research like SpringBoard, we will be able to increase student achievement and prepare all our students for success in college and their careers.

That is the mission of the College Board, and I know that it is your goal, too.

Sincerely,

Gaston Caperton
President,
The College Board

Contents

Can SpringBoard® Improve AP® Enrollment and Performance? Phase 1: Five-Year Trend Analysis

HAIFA MATOS-ELEFONTE, THE COLLEGE BOARD, AND **JUN LI**, FORDHAM UNIVERSITY

EXECUTIVE SUMMARY
This research examines the relationship of using SpringBoard® in high school and AP® enrollment and performance. These are preliminary results from an ongoing study expected to be completed by August 2010.

RESULTS:
▶ Over a four-year period, **the high schools that purchased SpringBoard for three to five years had substantially more students enrolled in AP courses and also had more students scoring higher than students in high schools that purchased SpringBoard for one to two years and the state overall.** (Table 3)

▶ Over the same four-year period, **high schools that purchased SpringBoard had a 109% and 52% gain in the number of black and Hispanic students, respectively, enrolled in AP courses.** Students from high schools not purchasing SpringBoard had a 37% gain each for black and Hispanic students enrolled in AP courses. (Table 2)

▶ Over the same four-year period, **high schools that purchased SpringBoard had a 34% and 30% gain in the number of black and Hispanic students, respectively, scoring a 3 on at least one AP Exam.** Students from high schools not purchasing SpringBoard had a 27% and 26% gain for black and Hispanic students, respectively, scoring a 3 on at least one AP Exam.

Introduction

In July 2009, the Research Services team of the College Board's Research and Development (R&D) department embarked upon phase 1 of a longitudinal evaluation investigating the impact of SpringBoard on the academic achievement of students. Specifically, researchers have been interested in examining Advanced Placement® (AP) and SAT® participation and performance trends of the graduating cohorts of students who have attended high schools[1] that have purchased[2] the SpringBoard curricula. The purpose of phase 1 of the longitudinal study is to describe the relationships between SAT and AP participation and performance among high schools and districts that have purchased SpringBoard in the state of Florida.[3] It is only upon fully understanding these relationships that researchers can move forward with more sophisticated analyses to gauge the impact of SpringBoard on educational outcomes. As such, it is important to note that the results shown in this report are in no way causal, they merely depict relationships that have emerged within the data. Research currently under way is examining using more rigorous controls to understand the impact of SpringBoard on students' educational outcomes.

This research summary focuses on the implementation of SpringBoard in Florida high schools and SpringBoard's relationship to AP expansion. The full research will include both SAT and AP trends, and the analyses will compare SpringBoard schools and districts to comparable schools and districts. R&D is currently working to develop appropriate methodologies for determining comparable schools/districts. In the meantime, comparisons to non-SpringBoard schools, and the overall state, when appropriate, are provided in this summary.

Please also note that this January 2010 analysis does not include the 2008-09 AP cohort, as these data were embargoed until the *6th AP Report to the Nation* was released in February 2010.

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1. Only high schools were included at this time, as Research and Development does not have the capability to link individual students to specific middle schools.

2. In lieu of SpringBoard implementation data, researchers flagged schools as SpringBoard schools if they have purchased SpringBoard over the last five years.

3. Researchers initially focused in on Florida due to requests from several Florida districts for data on their SpringBoard schools. Also, data collection has proven to be an arduous task that will require more time and effort in order to expand this study to the national level.

Results

In order to identify SpringBoard schools, researchers examined several sources, including the SpringBoard database for 2008-09 data and the SpringBoard contracts/price quotes for each school district in Florida for the years 2005-08. Upon reviewing these files, researchers were able to identify **106 SpringBoard high schools**[4] representing **12 school districts** in the state of Florida. Of these 106 SpringBoard schools, 5% of them have purchased SpringBoard for the past five years, 14% have purchased SpringBoard for four years, 22% for three years, 24% for two years, and 35% have purchased SpringBoard for only one year. Given that the majority of SpringBoard high schools have only purchased SpringBoard for two years or less, it is important to note that implementation effects may not present themselves in the data because it usually takes three or more years after the introduction of a program for implementation effects to present themselves in the data.

AP Trends: SpringBoard in Florida High Schools

Growth in Number of Students Enrolled in AP Courses, Number of Students Scoring 3 or Higher, Number of Exams, Number of Exams Scored 3 or Higher

Since 2005, there has been tremendous growth in students enrolled in AP courses. This growth was particularly salient within Florida public schools, where researchers examined AP growth in SpringBoard versus non-SpringBoard high schools by reviewing the percentage change from last year and from four years ago for both of these populations. **TABLE 1 (below) highlights one-year and four-year growth in AP participation and performance from 2005 to 2008.**

As can be seen by Table 1, **SpringBoard high schools have experienced more growth in AP participation and performance than non-SpringBoard high schools since 2006-07.** Similar trends emerge when looking at the growth since 2004-05, with the exception of the growth in the number of students scoring a 3 or higher on at least one AP Exam. Since 2004-05, non-SpringBoard high schools have seen slightly higher growth than their SpringBoard counterparts in AP performance.

TABLE 1: Florida SpringBoard High Schools vs. Florida Non-SpringBoard High Schools

	NUMBER OF STUDENTS TAKING AT LEAST ONE AP EXAM		NUMBER OF STUDENTS SCORING A 3 OR HIGHER ON AT LEAST ONE AP EXAM		NUMBER OF EXAMS		NUMBER OF EXAMS SCORED 3 OR HIGHER	
	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2004-05 to 2007-08	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2004-05 to 2007-08	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2004-05 to 2007-08	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2004-05 to 2007-08
Florida SpringBoard High Schools	16.3	45.2	11.3	23.5	24.2	68.0	15.3	36.1
Florida Non-SpringBoard High Schools	6.9	30.3	8.0	25.7	10.3	40.2	12.0	34.0

4. Additionally, there were 194 SpringBoard middle schools identified in Florida. These middle schools were not included in the analyses because researchers did not have student-level data from these schools.

Researchers were also interested in determining whether certain subgroups in SpringBoard versus non-SpringBoard high schools were experiencing more growth in AP participation and performance than others. **TABLE 2 (below) depicts the one-year and four-year change in AP participation and performance by ethnicity.**

When examining the growth in the number of students taking at least one AP Exam, the data below show that **all ethnic subgroups within SpringBoard schools have experienced greater growth since 2006-07 than their non-SpringBoard peers, with black students and students categorized as "other" showing the greatest growth (both showing 27.5% increase).** Similar results are found when examining the growth in test-takers since 2004-05, where all **ethnic subgroups (with the exception of American Indians) in SpringBoard schools have experienced greater increases in test-takers than those groups in non-SpringBoard schools.** Performance trends are also similar to those found when examining AP Exam participation. When examining the number of students scoring a 3 or higher on at least one AP Exam, most ethnic subgroups have experienced greater increases since both 2006-07 and 2004-05. However, since 2006-07 black and white students in non-SpringBoard have seen a greater increase in the number of students obtaining a score

of 3 or higher on an AP Exam. Also worth noting is that since 2004-05, white students and students categorized as "other" in non-SpringBoard high schools have experienced a greater increase in students obtaining a score of 3 or higher on an AP Exam than their counterparts in SpringBoard high schools. These trends are not alarming because researchers typically notice decreases in performance with drastic increases in participation.

Examining Growth in AP Participation and Performance by Implementation Years

As was noted in the introduction, some high schools in Florida have been purchasing SpringBoard since 2004-05, while others began purchasing the curricula in 2008-09. Researchers would expect to see differences in the growth in AP participation and performance among those schools that have purchased SpringBoard for three or more years versus those that have purchased SpringBoard for less than two years. **TABLE 3 (on page 5) depicts participation and performance trends by number of years purchasing SpringBoard.**

An analysis of SpringBoard implementation by examining number of years purchasing SpringBoard shows that when

	NUMBER OF STUDENTS TAKING AT LEAST ONE AP EXAM				NUMBER OF EXAMS SCORED 3 OR HIGHER ON AT LEAST 1 AP EXAM			
	SpringBoard	SpringBoard	Non-SpringBoard	Non-SpringBoard	SpringBoard	SpringBoard	Non-SpringBoard	Non-SpringBoard
	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2004-05 to 2007-08	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2004-05 to 2007-08	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2004-05 to 2007-08	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2004-05 to 2007-08
American Indian	20.0	45.9	12.8	55.9	50.0	50.0	12.9	42.9
Asian	12.9	46.6	3.0	22.1	8.5	32.8	5.8	22.4
Black	27.5	109.1	7.4	37.1	7.2	33.9	8.4	27.3
Hispanic	25.1	52.4	8.2	37.3	19.2	30.1	5.5	26.3
White	11.4	27.0	6.7	25.2	9.2	17.7	9.9	24.4
Other	27.5	75.2	13.2	60.9	24.2	31.0	16.8	58.9

TABLE 2: Florida SpringBoard High Schools vs. Florida non-SpringBoard High Schools by Ethnicity

TABLE 3: Florida SpringBoard High Schools by Number of Years Purchasing SpringBoard

	NUMBER OF STUDENTS TAKING AT LEAST ONE AP EXAM		NUMBER OF STUDENTS SCORING 3 OR HIGHER ON AT LEAST ONE AP EXAM	
	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2006-07 to 2007-08	% 1 Year Difference 2006-07 to 2007-08	% 4 Year Difference 2006-07 to 2007-08
SpringBoard 3, 4, 5 years	21.0	64.3	12.4	30.4
SpringBoard 1, 2 years	12.3	31.2	10.6	19.0
All Florida Public Schools	9.3	34.0	8.8	25.1

it comes to AP participation (number of students enrolled in at least one AP course), **SpringBoard schools that have purchased SpringBoard for three or more years show greater increases in participation (from 2006-07 and 2004-05) than those high schools that have purchased SpringBoard for less than three years.** Interestingly, SpringBoard high schools that have purchased the curricula for less than three years have seen greater increases since 2006-07 in test-takers than all Florida public schools (12.3% vs. 9.3%, respectively). However, since 2004-05, high schools purchasing SpringBoard for less than three years have experienced slightly lower increases in participation than all Florida public schools (31.2% vs. 34.0%). The same trends hold true when examining increases in the number of students scoring a 3 or higher on at least one AP Exam.

Discussion

The results displayed within this report show some positive trends among high schools that have implemented SpringBoard. In many of the analyses, the **high schools identified as having purchased SpringBoard have seen greater increases in AP participation and performance than non-SpringBoard high schools. These trends are also salient when examining the data by ethnic subgroups and number of years implementing SpringBoard.** It is important to reiterate, however, that these data are merely descriptive in nature and no causal inferences should be made based on these analyses. Researchers were not privy to more detailed implementation data (e.g., which students were exposed to SpringBoard, how teachers were using the curricula, how teachers were trained to use the curricula, etc.), therefore a degree of caution should be used when sharing these results with others, particularly constituencies external to the College Board.

A more detailed report with more sophisticated analyses to decipher the relationships between SpringBoard and educational outcomes will be released in August 2010.

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For so many of our kids down here in South Texas, the mentality is "I can't" even before they begin the learning process. Through SpringBoard, our students are realizing – independently – that they truly can. SpringBoard has helped students get to the point where they realize their own abilities and begin to value themselves as learners and individuals. Our students are empowering themselves. That, to me, is immeasurable. What more can a teacher ask for?

KELLY MEDINA
AP English Teacher
McAllen Independent
School District,
McAllen, TX

Engaging Strategies for All Students: The SpringBoard Example

Introduction

In order to meet the needs of all students and to discover the most effective educational models for students who learn in different ways, researchers have investigated a variety of educational models, some empirical and some theoretical. Added to these more formal approaches are the efforts of thousands of teachers at all educational levels who are engaged in the action research that informs the effective classroom. Dedicated teachers, day after day, try various approaches with a wide variety of students, implementing those techniques that are effective and abandoning the ones that don't work. They seek out new information from academic sources and their colleagues so that they can incorporate and evaluate those new ideas that seem promising.

A model of learning is needed to evaluate what works and to communicate these findings. As we identify particularly effective instructional approaches from all the sources above, cognitive learning theory can provide a framework of understanding that will organize and explain what good teachers already know: All students are active learners engaged in a dynamic interaction with the forces in their environment, and with the right guidance, they can be taught strategies and helpful approaches that will allow them to take control of their own learning and continue to build knowledge and skills with increasing effectiveness.

An instructional program that incorporates much of what research shows is effective for active and strategic learning is the SpringBoard program developed by the College Board for students in middle school and high school. In the following review, a case is made that **SpringBoard builds upon the research in cognitive learning theory as it embeds well-researched strategic approaches to learning in a rigorous curriculum in English language arts and mathematics. SpringBoard draws upon the learning sciences to provide a flexible instructional program that enables teachers to differentiate instruction and engage a diverse population of students with varying levels of knowledge and skills and a variety of preferred learning styles.**

First, a model of learning based on cognitive science is outlined with particular attention to the role of memory and language. The instructional framework of strategic learning that follows from this model provides the basis for the SpringBoard program's incorporation of rigorous content and training in strategic activities and skills. Finally, the research base for the SpringBoard program is reviewed and summarized, first for the program overall and then for each set of strategies incorporated in the instructional design: reading, writing, oral proficiency, collaboration, and problem solving.

Cognitive Models of Learning

Cognitive models of learning assume that individuals engage in a process of making meaning from the rich variety of stimuli they perceive as they encounter the world. All new information is perceived through the patterned schematic filter that, in educational terms, is referred to as a student's "prior knowledge." Cognitive learning is defined as the process of comparing, selecting, organizing, retaining, and reflecting on the new information as patterns of understanding are revised and adapted. According to the research, effective learners are characterized by the width and depth of the techniques available to them for use in this never-ending search for meaning and understanding. Because learners benefit from using strategies, researchers have attempted to identify what makes specific strategies effective for different learners across a wide variety of learning environments.

Studies have been conducted with elementary school through college students, as well as older adults. Strategic approaches to learning have been researched with high-, low- and general-ability students as well as groups of students who are learning a new language or have special needs (Rosenshine, Meister, & Chapman, 1996). Striking similarities have emerged across all the groups, with certain recurring findings that are consistent with the theoretical basis of cognitive learning theory. For the most part, strategies are effective and can be learned and utilized effectively by all students. Learners demonstrate significant differences in how they adopt, activate and progress toward successful and automatic use of strategies, and these effects may often be explained through understandable differences in prior knowledge, opportunities to learn, and preferred learning styles (Case & Taylor, 2005; Hattie, Biggs, & Purdie, 1996).

Memory

Critical to cognitive learning theory is an understanding of the architecture of the human memory. Cognitive psychologists have distinguished between three levels of memory that appear to have distinct functions during the process of learning (Atkinson & Shiffrin, 1968; Butterfield, Hacker, & Albertson, 1996; Kirschner, Sweller, & Clark, 2005; National Research Council, 2000). Short-term memory has a limited capacity that restricts the amount of information that can be held at any one time. Facts and data stored in short-term memory are retained for only a short period without rehearsal and repetition. Working memory, also limited in its capacity to hold information, is the framework within which most manipulation and processing of information takes place. However, if the information is not integrated with the knowledge structures that organize long-term memory, knowledge degrades quickly and is lost.

The optimal instructional plan is flexible enough to allow differentiation in response to a student's capacity to apply existing strategies. Good instruction reflects an understanding of the procedures necessary to optimize the most effective cognitive "load" for each student during active learning. The goal of instruction is to "give learners specific guidance about how to cognitively manipulate information in ways that are consistent with a learning goal, and store the result in long-term memory" (Kirschner et al., 2005). Many of the *strategic learning processes* that have been studied and have been found to be effective are designed to facilitate the "depth of processing" that makes these connections and restructures long-term memory to accommodate new understandings. Deeper processing of new information creates multiple associations with existing knowledge structures in long-term memory. **A richer network of *relevant associations* supports increased retention and retrieval of new knowledge and skills.**

While information is being processed in working memory, existing understandings stored in long-term memory are activated; new information is analyzed, compared, modified and connected to existing knowledge structures producing new understandings. If new information is not rapidly associated and incorporated into long-term memory, working memory reaches capacity and information processing begins to break down. This is the case when a learner is faced with a lot of unfamiliar information at one time and the learner has not had previous opportunities to develop helpful organizing structures — variously called schemata, frames or episodes — that facilitate incorporating the new information into long-term memory (Butterfield et al., 1996).

The engine that drives this process is the dissonance that occurs when we are confronted with new facts, procedures or concepts that don't slide easily into our existing knowledge framework. Our human response will be the urge to resolve the discrepancy and reconcile the new information. The most effective classrooms provide the challenges, opportunities, guidance, tools, strategies, climate and successful experiences that will support students and help build the motivation to persist in this effort.

Language

Cognitive models of learning are inseparable from issues of language and language proficiency. All new information and experiences are filtered through the available communication tools. Academic language abilities define the parameters that configure thought and memory; allow new information to be perceived and comprehended through listening or written text; and enable new understandings to be discussed, elaborated, expressed and summarized in oral and written forms. *Many of the learning strategies that have been identified are related to building proficiency in some aspect of the use of language —* reading, writing, speaking and listening — in order to ensure effective processing of content concepts and skills into long-term memory (Chamot & O'Malley, 1994; Cummins, 1984).

The relationship between language proficiency and content understanding becomes even more critical and complex as students grow in the grade levels. In addition to the basic skills necessary for reading and writing in the early years, more sophisticated techniques must be utilized as core disciplinary concepts become more difficult to master and as the particular functional demands of the language associated with separate subject areas become more differentiated. Students need to know the rules that govern different genres of text as well as the particular vocabulary, grammar, forms, traditions and styles of communication needed to excel in a subject area such as mathematics or science.

Critical junctures occur throughout the educational trajectory where certain language skills and abilities must be present. For example, if not adequately prepared, students will fall behind in the upper elementary years as educational texts transition from the predominantly narrative form that is used to teach reading, to the expository format that is used to communicate content concepts. In other words, a critical milestone occurs when students are no longer *learning to read* and are expected to be competent in *reading to learn* (Pritchard & Breneman, 2000).

Language (cont.)

This transition is often abrupt, unexpected and frustrating for both students and teachers, particularly for those content-area teachers who have not incorporated instructional strategies designed to build literacy as well as subject-matter understanding.

In this context, the special needs of students who are learning English as a second language become more a matter of degree than of qualitative differences. Educational theorists who have examined programs particularly designed for language learners have used the research from cognitive psychology to find that the strategic learning approach is consistently effective (Chamot, Dale, O'Malley, & Spanos, 1992; Garcia, 2003; Gersten, Baker, Haager, & Graves, 2005; Reed & Railsback, 2003; Wiley & Deno, 2005). Chamot & O'Malley (1994) suggest four basic propositions from the research with native language speakers that they believe support the development of cognitive academic language across content areas for students who are learning a second language:

- ▶ **Active learners are better learners.** When students synthesize and organize new information and relate it to prior understandings, they build cognitive linkages that improve comprehension and recall.

- ▶ **Strategies can be learned.** When students are exposed to positive learning experiences where strategies are applied effectively, they retain more understanding than students who have not had similar exposure.

- ▶ **Academic language learning is more effective with learning strategies.** English language learners will learn new language and concepts through the same principles that underlie acquisition of new skills and problem-solving techniques among native speakers of English.

- ▶ **Learning strategies transfer to new tasks.** Once the strategic expertise is acquired, students will be able to apply the skills to new tasks that are similar to the learning activities they have experienced.

Strategic Learning Framework

Much of the energy and attention that has accompanied the strategic learning research is the result of the findings that strategies can be learned and effectively applied by a wide range of learners. Although the research on the transfer of strategies to new tasks is just beginning, the results are encouraging for those who are responsible for designing instructional programs.

According to Chamot & O'Malley (1994), strategic instruction is envisioned as an ongoing process with five general phases that shift the responsibility of the application and utilization of strategies from the teacher to the student. **The role of the teacher and the instructional plan is critical in supporting the transition of responsibility to student control.** As new content and new skills and tasks are encountered, the teacher first *prepares* the students by *activating background knowledge*. In phase two, the teacher presents the appropriate strategies, explains their use, and models the application of the technique related to the new content information. During the *practice* phase, the amount of guidance provided by the teacher can be adjusted to match the students' experience with the strategy or individual differences in the capacity to process information in working memory. Students are encouraged to become self-aware during the *evaluation* phase as they reflect on the success of the learning and strategic applications. Finally, the *expansion* phase encourages the transfer and application of the new techniques and abilities to new situations and tasks.

Consistent with cognitive theory, this transfer of responsibility is dependent on the students developing the ability to monitor, control, and regulate their own learning as teachers fade or withdraw the instructional supports or scaffolds. This ability to direct learning is exercised in two ways: automatically — in long-term memory as new skills are absorbed; and deliberately — in working memory as choices are made about the existing knowledge to tap and the strategies to apply.

> *Implementing the SpringBoard curriculum has completely invigorated my teaching career! The activities are scaffolded in such a way that my students, regardless of ability, have become active learners. The variety of strategies presented allows me to differentiate instruction as I educate a very diverse student population.*

KAREN FLOWERS
STEM Coach — Mathematics
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Strategies and Content-Based Instruction

In characterizing the various strategic approaches, researchers distinguish between *cognitive*, *metacognitive* and *affective* strategies. Cognitive strategies facilitate learning by providing general guides for information processing. Students may benefit even though they may not be self-aware as they utilize the technique. As self-regulation increases and control and monitoring of learning become deliberate, the student builds the capacity to choose from different approaches. Strategies that build this awareness through the discussion and written documentation of the thinking behind the choices are considered metacognitive. Affective strategies are those that deal with the feelings and human interactions that accompany and support the learning experience. Strategies that build motivation, feelings of efficacy, and collaborative skill can all be considered affective in nature.

All strategies share the instructional goals of facilitating the understanding of subject-matter content, building knowledge and accomplishing conceptual change when needed. As such, they are most effective when embedded in an articulated instructional program where new strategies can be introduced over time following a sequence of increasing complexity, progressing in manageable steps with opportunities to repeat and elaborate on the skills being practiced (Wilson & Myers, 1999).

The instructional plan must provide for flexibility and differentiation in order to address the needs of all students. Most strategies work equally well for all students. However, flexibility is necessary in determining — for each student or groups of students — those approaches that have been mastered already and are under the control of the students' metacognitive processes and those that are still in need of practice and elaboration. In the optimal instructional situation, teachers can choose the best approach for students who learn in different ways, as well as decide to increase or reduce the amount of guidance and the level of scaffolding to apply to specific instructional tasks. The strategic approach for a group of expert learners may be characterized by a higher level of student control and minimal guidance, while the classroom of younger, struggling or novice learners may involve more direct instruction, explanation and modeling of strategic activities by the teacher (Kalyuga, Ayers, Chandler, & Sweller, 2003; van Gog, Ericsson, Rikers, & Paas, 2005). Different classroom environments in this instructional context — characterized by collaboration, discussion, active reading, writing, and various graphic or visual organizing activities — may appear very much the same to the outside observer regardless of the various learning levels within.

The SpringBoard Example

The College Board's 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 successfully engages all students in challenging learning experiences. **The program meets the criteria for strategic instruction outlined above:**

▶ **Rigorous content, aligned to standards, has been carefully articulated in a scope and sequence that builds knowledge and skills incrementally from 6th grade through 12th grade in both English language arts and mathematics.** The content is mapped to standards that will prepare students, upon completion of the six-year sequence, with the level of knowledge, skills and abilities necessary for success in Advanced Placement Program® courses and college.

▶ **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.** The strategies can be revisited and practiced throughout the entire articulated sequence across the grade levels, and the teacher version of the instructional materials signals which strategic approaches might be most appropriate for the task at hand, given the amount of student preparation and differences in learning styles.

▶ **The instructional materials are grounded in real-world situations and are designed to be engaging and interactive,** offering students the opportunity to master knowledge and skills in manageable steps, with tasks that require reading, writing, discussion, problem solving, collaboration, questioning and elaboration.

▶ **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. Computer-based diagnostic assessments are available and can be used as is or customized by the teacher. The diagnostic assessment reports offer explanations for each incorrect response.

The SpringBoard Example (cont.)

▶ **Teachers are trained in the use of the model instructional units and strategies** at professional development institutes and workshops that are designed to exemplify the strategic learning framework diagramed above. The program provides 24-hour access to materials, exemplary student work, and coaching and mentoring through a supporting online system.

> The operational heart of the SpringBoard program is the extensive collection of model instructional units and lessons combined with the ongoing professional development and support offered to teachers in the program.

SpringBoard teachers are introduced to the strategies during the professional development institutes and workshops. SpringBoard staff developers model instruction using a subset of the lessons and units contained in the SpringBoard materials. The units used in training are selected in order to provide teachers with exposure to the variety of strategies that are embedded throughout the seven levels of SpringBoard. The training is based on the same principles of strategic learning that make the instructional program powerful in the classroom. Prior knowledge is activated as the strategies are explained and then modeled for the participants. Teachers are given an opportunity to practice using the strategies as a component of the lessons being used as illustrations, while the staff developers coach and offer feedback. The process is repeated as the training continues and teachers are encouraged to continue to work with the training staff online between workshops. **By experiencing the power of the strategic approach firsthand, teachers are able to envision the transfer of the process into the classroom.**

The subject matter of each unit is academically quite rigorous and challenging, yet **students of all ability levels are able to engage with and then master the content successfully through the utilization of the various strategies** offered by the program. Each of the SpringBoard strategies has been chosen from the most effective classroom practices that have been time-tested by educators in instructional situations. Many of the strategic approaches have been researched through empirical and experimental studies as well.

SpringBoard Strategies

SpringBoard assists teachers and students in English language arts and mathematics by defining, explaining and incorporating more than 60 separate cognitive, metacognitive and affective strategies. For explanatory purposes, the strategies are organized into discrete groups, although there is considerable overlap in purpose and application:

▶ **Reading** strategies — 23 separate strategic approaches are offered in SpringBoard

▶ **Writing** strategies — 14 are offered

▶ **Oral proficiency** strategies — 8 are offered

▶ **Collaborative** strategies — 7 are offered

▶ **Problem-solving** strategies — 9 are offered

Reading, writing and collaborative strategies are suggested for the units in both English language arts and mathematics. Oral proficiency strategies are primarily included in the English language arts program and problem-solving strategies address the needs of mathematics. The strategies are listed in **TABLE 4**.

Reading Strategies Research

For decades, educational researchers have been attempting to discover and document the most effective methodologies for helping students become expert readers. In response to the advances in cognitive psychology, an ever-growing body of this research has been designed to test the effectiveness of specific cognitive strategies through experimental or quasi-experimental designs, or it has attempted to identify the strategic skills and abilities that characterize expert readers. Many of the reading strategies offered by the SpringBoard program have been examined in this research. For example, researchers Kim, Vaughn, Wanzek, and Wei (2004) found 21 studies since 1984 that looked at the effect of using various *graphic organizers* on the reading comprehension of students who were having difficulties with reading and found overall improvements.

Another popular area for study is the impact of teaching students to generate questions. Although experimental designs are rare in educational research, Rosenshine et al. (1996) were able to identify 26 studies that had both experimental and control groups and that looked at the effect on comprehension of having students generate questions from a text paragraph or passage. **Consistently, students showed significant gains as measured by both standardized and experimenter-developed assessments.**

Studies have examined the effect of the activation of prior knowledge (Duffelmeyer, 1994; McNamara, 2004; Paris & Oka, 1986; Pressley, Wood, Woloshyn, Martin, King, & Menke, 1992), of visualization (Clark, Deshler, Schumaker, Alley, & Warmer, 1984; Rakes, Rakes, & Smith, 1995; Willoughby, Wood, & Khan, 1994), of reading and thinking aloud (Beck & McKeowon, 2001; Magliano, Trabasso, & Graesser, 1999; Narvaez, van den Broek, & Ruiz, 1999), of summarizing and retelling (Carnine & Carnine, 2004; Jitendra, Hoppes, & Xin, 2000; Thiede & Anderson, 2003), and of chunking text material (Casteel, 1990). The research has looked at the immediate impact of the strategies as well as transfer of the skills to new situations across the content areas. Studies have also examined the effects for high- and low-ability students and found improvements at all levels.

Writing
Strategies Research

Reading and writing abilities often benefit from the same strategies. Writing becomes the visible evidence of comprehension, and some educational researchers have focused on the strategic approach in order to offer suggestions for improvements to writing skills. Gersten and Baker (2001) summarized the research on improving the writing skills of students experiencing difficulties in a meta-analysis. They identified 13 studies that looked at the impact of strategic interventions and that also used an experimental or quasi-experimental design. They found a moderately strong average-effect size across all of the studies indicating substantial benefits from the interventions. Consistently, students needed to be instructed in the steps that were critical in producing an effective written work. For example, in one of the studies examined in the meta-analysis, Englert, Raphael, Anderson, Anthony, and Stevens (1991) found that expository writing improved in high-achieving students, low-achieving students and students with learning disabilities after training in the writing process (prewriting planning, drafting, revising, editing and publishing). Graham and Harris (2005), in a series of studies over 20 years, found that if students were introduced to planning strategies as part of the writing process their knowledge about writing, their motivation to write, and the quality of their writing all improved. When students were asked to revisit their prior work and think about comprehensibility from the perspective of the audience for the piece, they were able to edit and revise more effectively (Beal, 1996).

Oral Proficiency
Strategies Research

Oral proficiency is important in classroom discourse as well as outside the classroom, but the importance goes beyond basic conversational skills. There is evidence that oral and written language processes develop together and, as a result, improvements in oral language may have an immediate benefit for writing. Oral strategies such as story retelling, think-pair-share and role-playing provide a direct bridge to improved writing skills (Brice, 2004). Margaret Cook (2000) examined the effect of role-play with elementary students of varying abilities: high, average and low. She found that children at all levels grew in social and cognitive skills as well as in technical vocabulary and writing ability. When adolescents were encouraged to elaborate on texts with role-play, student engagement and comprehension improved (Zigo, 2001).

Educators have long relied on oral reading in the hopes of building language fluency, and oral reading strategies may be categorized according to the level of independence required of the student. Carbo (1993) offered a continuum that ranged from shared reading — listening to the teacher read — to sustained silent reading, a completely independent activity. In this framework, choral reading becomes an intermediate strategy where a small group of students read together and learn from each other. McCauley & McCauley (1992) examined the choral reading strategy with second language learners and found improved comprehension of the text. In addition to the cognitive benefits, the researchers indicated that students were also assisted by the low-anxiety environment that choral reading created. Thus, choral reading became a cognitive and affective strategy.

> SpringBoard has been carefully and effectively written by practicing teachers. SpringBoard's vertical articulation from grade six forward promotes successful scaffolding from level to level, emphasizes optimum learning opportunities in a student–centered curriculum, and capitalizes on development of metacognitive skills. The teacher, of course, is the important catalyst; but rigor and emphasis on what students need to know and be able to do as they move toward postsecondary opportunities are fundamental components of the program.

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Collaborative
Strategies Research

Educational theorists differ in the amount and character of the social interaction that is considered necessary for an effective transformation of prior knowledge into correct understanding, but the recognition that learning is fundamentally an interactive social activity has become generally accepted. As such, the decision to structure a classroom to facilitate collaborative group work and enhance the interactions required for learning is initially a teacher responsibility. However, the decision to ask for help from peers, or to combine with others for study and discussion and thereby realize the cognitive and affective benefits of collaboration, can certainly become a metacognitive strategy that is under student control (Palincsar, 2003). Researchers have examined structured collaboration in different forms and found positive outcomes for students in academic performance and attitudes. Carroll and Leander (2001) looked at the impact of graphic organizers, questioning and cooperative learning and found improvements in comprehension and grades as well as a reduction in off-task behaviors.

One collaborative strategy that emerged from social psychological research is the Jigsaw approach, structured to make students dependent on each other for critical pieces of knowledge in an equal-status, interdependent environment. The approach has been well researched over the years, with changes being made to the process along the way. Jigsaw has been studied with students at every level, from elementary school through college, and has consistently been shown to have a positive impact on student learning as well as social skills (Holliday, 2002; Lee, Ng, & Jacobs, 1997; Perkins & Saris, 2001; Zales, 1998).

Problem-Solving
Strategies Research

In addition to the strategies in all of the above areas, SpringBoard offers teachers of mathematics particular assistance in the area of mathematical problem solving. Much of the research in this area makes reference to the seminal work of Polya (2004), whose book *How to Solve It* was published originally in 1945. Subsequent researchers and theorists have built upon the foundation proposed in his original work, but the four-step problem-solving process he proposed has remained recognizable throughout:

1. Read and understand the problem.

2. Develop a strategy for solving the problem (a heuristic).

3. Carry out the strategy or plan. Show your work. Justify your answer.

4. Look back and check to see that the solution seems reasonable.

Step one is dependent on mathematical literacy in reading and comprehension — a justification for incorporating techniques for building proficiency in all aspects of language. Most of the problem-solving strategies that are offered by the SpringBoard program fit into steps two and three above. Researchers have studied the effect of teaching the problem-solving strategies to students and found significant improvements in their mathematical achievement (Collins, Brown, & Holum, 1991; Eshel & Kohavi, 2003; Ives & Hoy, 2003; King, 1991; Kroesbergen & Van Luit, 2003; Ostad, 1998; Pape, Bell, & Yetkin, 2003; Pugalee, 2004).

In our district, SpringBoard has been the impetus for effective vertical collaboration, high standards for all students and accessible, relevant curriculum. Because SpringBoard stems from current research on best practices in the classroom, the professional development for teachers has been invaluable. Improved middle school instruction and assessment across the district have made a positive impact on students' academic achievement in high school: students are entering English classes confident and prepared. I have been a SpringBoard teacher for almost six years, and this dynamic program continues to guide and inspire me every day.

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TABLE 4: SpringBoard Strategies

NAME OF STRATEGY	ELA	MATH
Reading Strategies		
Activate Prior Knowledge	X	
Anticipation Guide	X	
Chunking the Text	X	X
Close Reading	X	
Dialectical Journal	X	
Graphic Organizer	X	X
Guided Reading	X	
Interactive Reading Guide	X	
KWL Chart[1]	X	X
Marking the Text	X	X
PACA[2]		X
Predicting	X	
Previewing	X	
Questioning the Text	X	X
Quickwrite	X	
RAFT[3]	X	
Read Aloud	X	X
Skimming/Scanning	X	
SOAPSTone[4]	X	
Summarize/Paraphrase/Retell	X	X
Think Aloud	X	X
TP-CASTT[5]	X	
Visualizing	X	X

NAME OF STRATEGY	ELA	MATH
Writing Strategies		
Dialectical Journal	X	X
Frame Poem	X	
Graphic Organizer	X	X
Manipulatives	X	X
Modeling	X	
Outlining	X	
Quickwrite	X	X
RAFT[3]	X	X
Revisiting Prior Work	X	
Self-Editing/Peer-Editing	X	X
Timed Writing	X	
Transformation of Text	X	
Visual/Auditory Prompt	X	
Writing Process	X	

NAME OF STRATEGY	ELA	MATH
Oral Literacy Strategies		
Choral Reading	X	
Debate	X	
Drama Games	X	
Oral Interpretation	X	
Oral Reading	X	
Presentation	X	
Rehearsal	X	
Role Playing	X	
Collaborative Strategies		
Debriefing		X
Fishbowl	X	
Group Presentation		X
Jigsaw	X	X
Literature Circles	X	
Performance	X	
Think-Pair-Share	X	X
Problem-Solving Strategies		
Act Out the Problem		X
Draw a Sketch		X
Guess and Check		X
Identify a Subtask		X
Look for a Pattern		X
Make a Table or an Organized List		X
Simplify the Problem		X
Work Backward		X
Write a Number Sentence		X

[1] KWL Chart = What I ... Know, Want to Know, Learned
[2] PACA = Predicting and Confirming Activity
[3] RAFT = Role, Audience, Format, Topic
[4] SOAPSTone = Subject, Occasion, Audience, Purpose, Speaker, Tone
[5] TP-CASTT = Title, Paraphrase, Connotation/Denotation, Attitude, Shift, Theme, Title

Summary and Discussion

Cognitive models of learning provide a useful framework for informing the design of an optimal instructional system. The framework incorporates decades of research on memory, information processing and the social organization of the educational process. When learning environments that have been designed to facilitate language proficiency, cognitive processing and the growth of metacognition are compared to more traditional or transmissive approaches, the advantages are clear — all students do better, and, in some instances, the benefits are dramatic (Anderson, 2002; Hamilton, McCaffrey, Stecher, Klein, Robyn, & Bugliari, 2003; Hmelo-Silver, 1998; Marzano, Pickering, & Pollock, 2001; Ruby, 2002; Schwartz & Martin, 2004; Stigler & Hiebert, 2004).

As a comprehensive instructional program in English language arts and mathematics, SpringBoard reflects powerful, research-based understandings about how people learn. The potential for serious engagement in the learning process by all students is enhanced by the strategic learning methodology incorporated throughout the program. All of the elements necessary for long-term skill and knowledge development in both students and teachers are envisioned as components of the system:

- ▶ Rigorous, flexible, research- and standards-based instructional materials

- ▶ A wealth of strategic approaches — cognitive, metacognitive and affective

- ▶ Ongoing support for teacher professional development

- ▶ A commitment to inclusion and differentiation for all levels of student abilities and learning styles

- ▶ A sensitivity to real-world connections and the affective and cultural needs of a wide variety of student populations

The foundational instructional element of the SpringBoard program is the recognition that in order for students to truly incorporate rigorous new information so that it may be used and transferred to new situations, the pedagogy must reflect strategic techniques that facilitate depth of processing and comprehension. Strategies work because they structure the cognitive manipulation of information in a way that changes the architecture of the memories in the human brain. They work because they can be learned and brought under the control of the learner so that future information is easier to absorb. If the environment of the classroom does not allow for this interchange between the flow of information and the need of the student to process, practice, reflect and integrate new ideas through language and experiences, learning stops. Exemplary learning programs such as SpringBoard are designed to provide the support that teachers need in order to empower all students to meet new educational challenges with skill, enthusiasm, motivation and confidence.

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Evaluation of SpringBoard English Textual Power™ and Mathematics with Meaning™ Pilot Program

Introduction

Building on the success of the Advanced Placement Program and the findings regarding academic intensity and the quality of one's high school curriculum in preparation for success in college (Adelman, 1999), the College Board developed a program in the content areas of English and mathematics designed to prepare students for challenging content as early as grade 6 and extending through high school. Conceived with the goal of creating high-quality professional development activities with associated instructional strategies embedded in instructional materials rich in content and cognitive demand, the resulting English Textual Power™ and Mathematics with Meaning™ instructional materials and professional development ultimately seek to improve student engagement and achievement in the classroom.

English Textual Power and Mathematics with Meaning were piloted in high schools in academic year 2001-02. In academic year 2002-03, English Textual Power and Mathematics with Meaning were piloted in both middle schools and high schools. These pilot programs continued in middle schools and high schools in academic year 2003-04. To inform the development process, the College Board contracted with researchers from the American Institutes for Research to conduct a formative evaluation of the program. The first 12-month evaluation phase examined the 2002-03 academic year and is referred to as Year 1. The second 12-month evaluation examined the 2003-04 academic year and is referred to as Year 2.

The successful implementation of any educational program or policy is dependent on an assumed set of linked components that will enable the main actors to effect change and desired outcomes (American Institutes for Research, 2003). The implementation and subsequent effect on student achievement is predicated on a set of assumed linkages (see TABLE 5).

As such, both of these yearlong evaluation studies examined the questions of classroom implementation of English Textual Power and Mathematics with Meaning and student achievement.

TABLE 5: Student Achievement Linkages
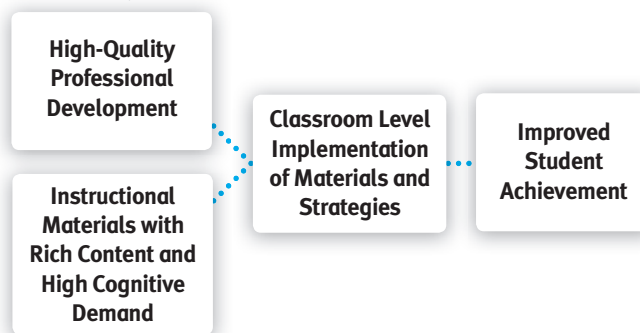
Year 1 Evaluation of English Textual Power and Mathematics with Meaning

To address the questions of implementation and achievement, the Year 1 evaluation relied on these sources of data:

▶ **Participant Teacher Survey:** Administered in three waves (Introductory, Reflections and Final) to a nationally representative sample (see TABLES 6–8)

▶ **District Administrator Interviews**

▶ **Site Visits:** Classroom observations in treatment and comparison classes, teacher interviews, principal interviews, and student focus groups (see TABLES 9 and 10)

▶ **Student Work Analyses:** Collection and analysis of student work from both treatment and comparison classes (see TABLE 11)

▶ **Student Achievement Analyses:** Using student-level achievement data for matched treatment and control classes from two districts

Participant Teacher Survey Results

TABLE 6: Sample and Response Rates, Introductory Survey

IN SCOPE SAMPLE	
English	108
Math	118
Total	**226**

RESPONDENTS BY SUBJECT		
English	83	77%
Math	92	78%
Total	**175**	**77%**

TABLE 7: Number of Relections Surveys Completed by Teachers

NUMBER OF SURVEYS	NUMBER OF TEACHERS
1	59
2	5
3	3
4	3
5	4
6	1

TABLE 8: Sample and Response Rates, Final Survey

IN SCOPE SAMPLE, FINAL SURVEY	
English	61
Math	63
Site Visit Teachers	2
Total	**126**

RESPONDENTS BY SUBJECT		
English	53	87%
Math	51	81%
Total	**104**	**83%**

Site Visit School Characteristics

TABLE 9: Regional and School Characteristics of Site Visit Schools

DISTRICT	REGION	LOCALE	MIDDLE SCHOOLS/ HIGH SCHOOLS	TEACHERS (MS/HS)	PROGRAM(S)
D	mid-Atlantic	urban	2 / 2	5 / 6	TP/MWM
C	mid-Atlantic	rural	1 / 0	9 / 0	TP/MWM
B	Western	urban	0 / 3	0 / 8	TP/MWM
F	Southern midsized	city	0 / 1	0 / 4	TP/MWM
E	Western	urban	0 / 2	0 / 6	TP
G	mid-Atlantic	rural	2 / 0	3 / 0	MWM

Types of Students Observed

	# of Class Observations	Mean Length of Class in Minutes	% of Observations with Honors Students	% of Observations with Remedial Students	Mean # of Students in Class	Mean # of Asian Students	Mean # of Black Students	Mean # of Hispanic Students	Mean # of White Students	Mean # of Female Students
ENGLISH										
English Textual Power	23	78	4%	0%	19	12	37	27	24	47
English Comparison	13	75	15%	0%	19	13	38	20	29	50
MATH										
Mathematics with Meaning	18	73	44%	22%	21	7	33	20	39	47
Math Comparison	12	79	33%	33%	20	9	20	27	44	53
TOTAL										
Total TP and MwM Classes	41	76	22%	10%	19	10	35	24	31	47
Total Comparison	25	77	24%	16%	20	11	29	24	36	52
Total	**66**	**76**	**23%**	**12%**	**20**	**10**	**33**	**24**	**33**	**49**

Student Work Analyses

DISTRICT	REGION	LOCALE	Math		ELA	
			STUDENT WORK	NUMBER OF TEACHERS	STUDENT WORK	NUMBER OF TEACHERS
D	mid-Atlantic	urban	27	3	47	4
C	mid-Atlantic	rural	53	4	27	3
B	Western	urban	49	4	10	1
F	Southern midsized	city	10	1	19	2
E	Western	urban	—	—	58	5
G	mid-Atlantic	rural	31	3	—	—

Implementation Findings
The Implementation Process

The teacher is the central implementor of English Textual Power and Mathematics with Meaning, but districts, schools, and the College Board play significant roles in the dissemination and support of the programs. Creating an environment for implementation begins as the College Board establishes a relationship with the district, school and teacher, and supports this relationship by producing unique instructional materials and high-quality professional development.

Drawing from the site visit data, findings regarding implementation at the school and district follow:

▶ **Teacher Buy-in.** Teacher motivation and enthusiasm are central to effective use of the instructional strategies and materials, given the degree of autonomy associated with implementation. The professional development acted as a catalyst for buy-in, receiving praise from teachers and administrators; however, participation in decision making regarding the use of the program influenced teacher investment and dedication to the use of the materials.

▶ **Curricular Consistency.** Levels of consistency within a school or district affect the capability of teachers to effectively use English Textual Power and Mathematics with Meaning. While many districts indicated that the program is a good "fit" with their goals and standards, other districts needed to examine how to incorporate the instructional material topics into their curricula.

▶ **Professional Community.** The existence of a trained teacher network or interconnected professional community is a key factor in maintaining implementation over time.

▶ **Instructional Leadership.** The leadership of either a principal or key teacher coordinator was found to be an effective method of instructional support.

▶ **Student Engagement.** The perception of student engagement, together with the belief that English Textual Power and Mathematics with Meaning add value to instruction, strongly influenced teachers to make changes to align instructional philosophy and practice with the programs.

Classroom Implementation

Interview and survey data indicate differences in teachers' patterns of use and perceptions of individual units; however, teachers generally perceived English Textual Power and Mathematics with Meaning to be of value in content and student engagement.

▶ **Usage Trends.** The majority of all teachers reported making minor modifications to the units prior to using them, with English Textual Power users more frequently reporting making modifications. Teachers reported using the instructional units with regular students, advanced students and classes of mixed ability, but few teachers reported using the materials with students of the lowest ability levels.

▶ **Usage Differences.** Differences between schools, between teachers, and between content disciplines emerged. Teachers of English Textual Power were more likely to treat the materials as a comprehensive instructional package. English Textual Power teachers commented on the need for more scaffolding, whereas teachers of Mathematics with Meaning felt some assignments were especially challenging because of the reading skills required. The importance of alignment with standards and curricula emerged.

▶ **Perception of Value.** Despite varying usage patterns and alignment concerns, significantly over 80 percent of both English Textual Power and Mathematics with Meaning teachers reported that they felt the instructional materials provide a good framework for what students should know and be able to do.

▶ **Perception of Engagement.** Despite some questions regarding level of challenge of the instructional materials, on the final survey 86 percent of the Mathematics with Meaning teachers and 80 percent of the English Textual Power users reported that they agreed or strongly agreed that their students were actively engaged with the instructional units. The interview data reveal that teachers attribute this engagement to the group work, the active nature of the units, and the hands-on activities.

Implementation Findings (cont.)
Student Work Analyses

Student work samples from both treatment classes and control classes were analyzed. English Textual Power teachers and Mathematics with Meaning teachers submitted student work samples based on the instructional materials and related assignments, and the respective control class teachers submitted assignments they considered typical. The assignments were coded based on the degree to which students exhibited different types of conceptual and technical skills using rubrics developed specifically for the evaluation of English Textual Power and Mathematics with Meaning.

▶ In all categories coded for the English work samples, there was little difference noted between the English Textual Power classes and the control classes. The researchers noted that the analysis was hindered by the fluid and creative nature of language and communication, and the diversity within the sample of collected work.

▶ The Mathematics with Meaning work samples scored much higher than the control group work samples in three of the four mathematics criteria, conceptual understanding, communication, and problem solving/reasoning.

Classroom Observations

The findings from the classroom observations dramatically sharpen the findings regarding classroom implementation and reveal manifest differences between English Textual Power and Mathematics with Meaning classes and control classes in several areas. For each separate activity in each classroom observation, researchers coded the observational data with a focus on materials used, activity organization, teaching strategies, and classroom outcomes.

English Textual Power and Mathematics with Meaning classes differ markedly from the comparison control classes in the following ways:

▶ The number of distinct instructional activities was generally greater in English Textual Power and Mathematics with Meaning classes.

▶ English Textual Power and Mathematics with Meaning classes generally spent more time in interactive classroom modes.

▶ English Textual Power and Mathematics with Meaning teachers spent more time guiding student work as opposed to lecturing.

▶ Student behavior was markedly better in English Textual Power and Mathematics with Meaning classes.

▶ Teachers spent more time on instruction versus classroom management or unrelated activities in English Textual Power and Mathematics with Meaning classes.

▶ Student engagement as measured by apparent time-on-task was markedly higher in English Textual Power and Mathematics with Meaning classes.

▶ Mathematics with Meaning teachers employed investigative learning strategies more frequently than their counterparts in control classes and used small student learning groups more frequently than the teachers in the control classes.

Achievement Findings

To examine the relationship of instructional materials and instructional strategies associated with English Textual Power and Mathematics with Meaning with student achievement, student achievement data at two points, spring 2002 and spring 2003, were analyzed for the same cohort of students. A "pretest/posttest with matched control group" research design was utilized to determine achievement differentials between English Textual Power classes and control classes, and Mathematics with Meaning classes and control classes. The control classes were matched on prior achievement, grade level, and courses. Student-level achievement data from two districts — District A and District B — were obtained. In addition, analyses were conducted separately by school level (middle school and high school) and subject (English and mathematics). There were seven separate analyses — two school districts by two school levels by two subjects, minus District B math in middle school where Mathematics with Meaning was not implemented. Hierarchical Linear Modeling (HLM) was used for the analyses.

The results of the analyses found both positive and significant effects on student achievement for 2002-03 (Year 1) of the evaluation of English Textual Power and Mathematics with Meaning at the following levels (see TABLE 12):

▶ District A, High School, English Textual Power, $p < .01$
▶ District A, High School, Mathematics with Meaning, $p < .05$

Follow-up analyses of state mean gains in comparison to District A gains in both English Textual Power and Mathematics with Meaning classes revealed that the results in the District A high school analyses were not only statistically significant but of an important magnitude. **These achievement findings provide evidence that English Textual Power and Mathematics with Meaning can effect positive change in student achievement levels.**

HLM Coefficient Estimates

TABLE 12: HLM Coefficient Estimates for District A High School

MATH	COEFFICIENT ESTIMATES	ENGLISH	COEFFICIENT ESTIMATES
2002 DSS math achievement score	0.60***	2002 DSS reading achievement score	0.65***
Gender (1 = female; 0 = male)	-17.17**	Gender (1 = female; 0 = male)	8.11
Race (1 = white; 0 = otherwise)	2.95	Race (1 = white; 0 = otherwise)	10.94
Free or reduced price lunch (1 = student has free or reduced price lunch; 0 = otherwise)	-19.07*	Free or reduced price lunch (1 = student has free or reduced price lunch; 0 = otherwise)	-25.18
LEP (1 = student is LEP; 0 = otherwise)	-1.62	LEP (1 = student is LEP; 0 = otherwise)	-9.11
Disability (0 = no disability or gifted; 1 = diagnosed with disability)	-7.31	Disability (0 = no disability or gifted; 1 = diagnosed with disability)	-8.51
Teacher Certification (1 = noncertified subject/talent expert; 0 = certified)	12.92	Teacher Certification (1 = noncertified subject/talent expert; 0 = certified)	-71.66
Mixed Grade[a] (1 = c9; 0 = c10)	-49.77***	Mixed Grade (there is only one group)	N.A.
Course (1 = Algebra I; 0 = Algebra IB)	24.63*	Course (there is only one course)	N.A.
Treatment Group (1 = treatment; 0 = control)[b]	15.18*	Treatment Group (1 = treatment; 0 = control)[c]	45.62**

Note: *$p < .05$; **$p < .01$; ***$p < .0001$

[a] The definition of mixed-grade variable is related to the concentration of different students in different grades in the class.

[b] When math gain scores (2003 scores – 2002 scores) were used, $p = 0.13$ for the treatment group coefficient estimate.

[c] When English gain scores (2003 scores – 2002 scores) were used, similar results were obtained for the treatment group coefficient estimate.

Year 2 Evaluation of English Textual Power and Mathematics with Meaning

The research activities in the Year 2 evaluation are methodologically similar to those undertaken in Year 1. Although smaller in scope, the Year 2 evaluation was deeply considerate of the Year 1 work, building from those findings but pushing beyond the short-term consideration of implementation to examine the staying power of English Textual Power and Mathematics with Meaning.

To address the questions of implementation and achievement in Year 2, the evaluation relied on these sources of data:

▶ **Site Visits:** Site visits to high schools and middle schools included interviews with teachers and administrators as well as observations of classes with teachers who were using English Textual Power and Mathematics with Meaning and comparison classes in English and mathematics, respectively **(see TABLE 13 on page 25)**.

▶ **Student Achievement:** Student achievement data from state assessments — the District A and District B that were analyzed in Year 1 — were analyzed for English Textual Power classes and matched control classes, and for Mathematics with Meaning and matched control classes.

Implementation Findings

From the interview data collected at school sites, several themes emerged relevant to the implementation and sustainability of English Textual Power and Mathematics with Meaning. The emerging themes follow:

▶ **Professional Development.** From the perspectives of teachers and administrators, the professional development associated with English Textual Power and Mathematics with Meaning is *reported as one of the most exciting and beneficial aspects of the program*. Teachers from both disciplines describe the experience as positive — specifically the useful activities, active learning and the opportunity for collective participation. A limited amount of criticism of the content was cited.

▶ **Pedagogy.** Teachers using English Textual Power and Mathematics with Meaning cite the hands-on approach and collaborative nature provided by the instructional activities that provide new ideas and creative methods for engaging students in nontraditional lessons and texts. Successful implementation requires a willingness to try new instructional techniques.

▶ **Content and Skills.** Most teachers using English Textual Power and Mathematics with Meaning agree that the content of the instructional materials are appropriate for their classes and place an emphasis on higher-order and critical thinking skills. However, concern regarding basic skills and state assessments can force teachers to relegate English Textual Power and Mathematics with Meaning instructional materials to a lower priority to allow for coverage of basic skills.

▶ **Materials.** English Textual Power and Mathematics with Meaning materials disproportionately were described as comprehensive. The availability of materials emerged as a consideration, as well as future funding to continue the professional development and implementation of the program.

School Capacity

Site visit data revealed the strong influence of school structures and conditions on the depth of implementation. The findings revealed several school capacity elements to be significant factors:

▶ **Teachers' Knowledge, Skills and Dispositions.** Teachers across the sites described English Textual Power and Mathematics with Meaning as grounded in good teaching practices. Teachers favorably described the comprehensive nature that balances skills with higher-order thinking and problem solving. The teachers' varied descriptions of "usefulness" appears tied to the type of student population with which they work.

▶ **Program Coherence.** A significant tension exists between a teacher's desire to use English Textual Power or Mathematics with Meaning and the perceived necessity to address one or more of the following: state standards, preparation of students for tests, and mandates for other instructional initiatives. Where adoption of English Textual Power or Mathematics with Meaning is voluntary, (i.e., teacher choice rather than district adoption), the tension is unavoidable. In schools and districts that endorse English Textual Power and Mathematics with Meaning initiatives (e.g., incorporating into pacing guides), this tension appears to be lessened greatly.

▶ **Professional Community.** The presence of a professional community facilitates coordinated instruction, and teachers find the opportunities for professional conversations stimulating, motivating and productive. The availability of the professional community to support sustained use of English Textual Power or Mathematics with Meaning is a function of program coherence and instructional priorities (i.e., teachers in the professional community recognize the initiatives as closely linked to their instructional objectives).

▶ **Technical Resources.** Access to resources is directly linked to sustainability. Few sites reported particular difficulty with gaining the resources to support the implementation of English Textual Power or Mathematics with Meaning. This may be a function of defining the initiatives as instructional initiatives that emphasize instructional strategies and professional development rather than a curricular program that requires the resources. Funding for future use remains a concern for some districts.

Classroom Observations

The findings from the classroom observations describe the implementation of English Textual Power and Mathematics with Meaning at the level at which the initiatives arguably have their greatest impact — in the classroom. To address the complexities of classroom dynamics, classroom-based factors including teacher-student interactions, types of teaching strategies and student engagement were examined through direct and detailed classroom observations.

Combining the Year 2 observations **(see TABLES 14 and 15)** with the classroom observations from Year 1 reveals manifest differences in several areas between English Textual Power classes and English control classes, and between Mathematics with Meaning classes and mathematics control classes. The differences follow:

MATERIALS USED:

- ▶ Teachers trained in Mathematics with Meaning used more manipulatives than did the mathematics comparison classes.

- ▶ Teachers trained in English Textual Power used more text-based material (e.g., fiction, drama and poetry) than did the English comparison classes.

CLASSROOM ORGANIZATION:

- ▶ English Textual Power and English comparison classes had very similar rates of organization in terms of whole-class, small group, and individual groupings.

- ▶ English Textual Power and English comparison classes had similar rates of student focus in terms of passive and interactive modes.

- ▶ Mathematics with Meaning classes exhibited higher rates of organizational strategies that are more interactive (e.g., group work, pair work and whole-class discussions) than did mathematics comparison classes.

- ▶ Mathematics with Meaning teachers spent more time leading and supporting student work than did the comparison classes, in which teachers spent more time presenting information.

- ▶ Both English Textual Power and Mathematics with Meaning classes included a greater number of distinct instructional activities than the respective comparison classes.

INSTRUCTIONAL STRATEGIES:

- ▶ English Textual Power classes used strategies related to Making Meaning from Texts and Creating and Presenting Texts at a higher rate than the comparison classes, which had higher rates of Practice and Drill strategies.

- ▶ Mathematics with Meaning classes used Problem Solving, Reasoning and Proof, Communication, Connections and Representation strategies at a higher rate than mathematics comparison classes. The Problem Solving and Communication strategies appearing most frequently were those related to learning, investigating and practicing mathematical concepts; discussing or writing mathematical explanations; and clearly discussing or writing about mathematics.

Site Visit School Characteristics

TABLE 13: Regional and School Characteristics of Site Visit Schools

DISTRICT	REGION	LOCALE	SCHOOL LEVEL	NUMBER OF SCHOOLS VISITED	NUMBER OF TEACHERS OBSERVED AND INTERVIEWED	MWM/TP TEACHERS INTERVIEWED ONLY	PROGRAM USED
A	South	rural	High	2	11	2	TP/MWM
B	West	urban	High	2	6	0	TP
F	South	midsized city	Middle	2	11	1	TP/MWM
I	Northeast	midsized city	Middle	2	6	0	MWM
J	Southwest	rural	High	1	3	1	TP
K	Midwest	midsized city	High	2	6	1	MWM

Year 2 Observations — English

	Number of Class Observations	Mean Length of Class in Minutes	Mean Length of Observations in Minutes	Percentage of Observations with Honor Students	Percentage of Observations with Remedial Students	Observations with Students in Classes
2003						
English Textual Power	24	73	62	7%	0%	19
English Comparison	12	66	64	13%	0%	19
2004						
English Textual Power	13	81	69	38%	8%	26
English Comparison	7	80	70	29%	43%	26
2003 AND 2004						
All English Textual Power Classes	37	76	65	16%	3%	21
All English Comparisons	19	71	66	21%	16%	22
All English Classes	56	74	65	18%	7%	21

Year 2 Observations — Mathematics

	Number of Class Observations	Mean Length of Class in Minutes	Mean Length of Observations in Minutes	Percentage of Observations with Honor Students	Percentage of Observations with Remedial Students	Observations with Students in Classes
2003						
Mathematics with Meaning	18	73	66	44%	22%	21
Mathematics Comparison	12	79	60	33%	33%	20
2004						
Mathematics with Meaning	15	78	64	27%	13%	22
Mathematics Comparison	8	79	64	25%	25%	22
2003 AND 2004						
All MWM Classes	33	76	65	36%	18%	21
All Mathematics Comparisons	20	79	62	30%	30%	21
All Mathematics Classes	53	77	64	34%	23%	21

Classroom Observations (cont.)

STUDENT ENGAGEMENT:

▶ Student behavior disturbances occurred less frequently in both English Textual Power and Mathematics with Meaning classes than in the respective comparison classes.

▶ Both English Textual Power and Mathematics with Meaning classes had higher rates of student on-task behavior than did the comparison classes.

▶ Mathematics with Meaning classes exhibited higher rates of student on-task participation in group and other student-centered activities than did the mathematics comparison classes.

> The classroom observation data complement the interview data. The findings suggest that students in classes using English Textual Power or Mathematics with Meaning are engaged by the work and that the skills in the instructional activities require more complex thought processes and strategies than are typically demanded. These differences appear more dramatic for Mathematics with Meaning, but both English Textual Power and Mathematics with Meaning have positive impacts in the classroom.

Achievement Findings

To examine the relationship of instructional materials and instructional strategies associated with English Textual Power and Mathematics with Meaning with student achievement, student achievement data at two points in time, spring 2003 and spring 2004, were analyzed for the same cohort of students. Student achievement was measured by state assessments. The same two districts — District A and District B — that were analyzed in the Year 1 evaluation were analyzed in Year 2. A "pretest/posttest with matched control group" research design was utilized to determine achievement differentials between English Textual Power classes and control classes, and between Mathematics with Meaning classes and control classes. The control classes were matched on prior achievement, grade level and courses.

Analyses were performed separately for the two school districts (Districts A and B). The analyses were conducted separately by subject (English and mathematics) and by school level (middle and high school). Data were not available for District B middle schools; therefore, six analyses were undertaken. Hierarchical Linear Modeling (HLM) was used for the analyses.

The results of the analyses found both positive and significant effects on student achievement for 2003-04 (Year 2) of the evaluation of English Textual Power and Mathematics with Meaning at the following levels (see TABLES 16 and 17):

▶ District A, High School, Mathematics, $p < .05$

▶ District A, Middle School, Mathematics, $p < .05$

▶ District A, Middle School, English, $p < .01$

As the analyses reveal, Mathematics with Meaning and English Textual Power were associated with higher achievement in District A at the middle school in both subjects and at the high school in mathematics only. Mathematics with Meaning and English Textual Power were not associated with higher achievement in District B at the high school.

Year 2 achievement findings reveal significant achievement gains at the middle school that were not found in the Year 1 achievement analyses. A possible explanation is that English Textual Power and Mathematics with Meaning were piloted in middle schools a year later than in high schools, and this suggests that there is a cumulative effect (i.e., more than one year) on teaching and learning associated with English Textual Power and Mathematics with Meaning.

Utilization of Findings

The findings associated with the evaluations of English Textual Power and Mathematics with Meaning in Years 1 and 2 of the pilot informed the development (i.e., additional instructional materials, enriched instructional strategies, and enhanced professional development) of their current forms in the SpringBoard program. While informing the development process, the findings apply to the implementation of the instructional materials, strategies, and professional development at these points in time (i.e., 2002-03, 2003-04). Additional research regarding these components in the larger multicomponent SpringBoard program should be undertaken to ascertain their contributions to implementation and achievement in SpringBoard classrooms.

HLM Coefficient Estimates – High School

TABLE 16: HLM Coefficient Estimates for District A High School

MATHEMATICS	COEFFICIENT ESTIMATES	ENGLISH	COEFFICIENT ESTIMATES
2003 DSS mathematics achievement score (prior achievement)	0.67***	2003 DSS reading achievement score (prior achievement)	0.92***
Gender (1 = female; 0 = male)	-16.41**	Gender (1 = female; 0 = male)	26.71
White (1 = white; 0 = otherwise)	1.71	White (1 = white; 0 = otherwise)	72.23
Hispanic (1 = Hispanic; 0 = otherwise)	-16.54	Hispanic (1 = Hispanic; 0 = otherwise)	83.94
Black (1 = black; 0 = otherwise)	-1.57	Black (1 = black; 0 = otherwise)	34.02
LEP (1 = never been considered for LEP; 0 = otherwise)	19.04	LEP (1 = never been considered for LEP; 0 = otherwise)	54.16
IEP (1 = no disability or gifted; 0 = diagnosed with disability)	-3.80	IEP (1 = no disability or gifted; 0 = diagnosed with disability)	59.09
Grade 10 (1 = grade 10; 0 = otherwise)	30.17**	Grade 10 (1 = grade 10; 0 = otherwise)	136.50**
Grade 11 (1 = grade 11; 0 = otherwise)	0.00	Grade 11 (1 = grade 11; 0 = otherwise)	0.00
Grade 12 (1 = grade 12; 0 = otherwise)	0.00	Course (there is only one course "Eng I")	N.A.
Course 1 (1 = Algebra I and class grade[a] C9; 0 = otherwise)	-33.97	Treatment Group (1 = treatment; 0 = control)[d]	-19.92
Course 2 (1 = Algebra I Hon and class grade C9; 0 = otherwise)	-13.97		
Course 3 (1 = Algebra IA and class grade C9; 0 = otherwise)	-64.56**		
Course 4 (1 = Algebra IA and class grade P9; 0 = otherwise)	-81.43***		
Course 5 (1 = Algebra IB and class grade C9; 0 = otherwise)	-46.33*		
Course 6 (1 = Algebra IB and class grade P9; 0 = otherwise)	-60.21**		
Course 7 (1 = Algebra IB and class grade C10; 0 = otherwise)	-50.01**		
Course 8 (1 = Algebra II and class grade C10; 0 = otherwise)	-17.70		
Course 9 (1 = Algebra II and class grade P10; 0 = otherwise)	-13.76		
Treatment Group (1 = treatment; 0 = control)[b]	17.02*[c]		

Note: *p <.05; **p < .01; ***p < .0001

[a] Class grade is related to the concentration of different students from different grades in a class.

[b] When mathematics gain scores (spring 2004 scores–spring 2003 scores) were used, similar results were obtained for the Treatment Group coefficient estimate.

[c] For those mathematics coefficient estimates that were significant, their interaction with the Treatment Group variable was tested but the interaction with the Treatment Group variable was found to be nonsignificant.

[d] When English gain scores (spring 2004 scores–spring 2003 scores) were used, similar results were obtained for the Treatment Group coefficient estimate.

HLM Coefficient Estimates – Middle School

TABLE 17: HLM Coefficient Estimates for District A Middle School

MATHEMATICS	COEFFICIENT ESTIMATES	ENGLISH	COEFFICIENT ESTIMATES
2003 DSS mathematics achievement score (prior achievement)	0.47***	2003 DSS reading achievement score (prior achievement)	0.69***
Gender (1 = female; 0 = male)	-4.33	Gender (1 = female; 0 = male)	-1.99
White (1 = white; 0 = otherwise)	-9.61	White (1 = white; 0 = otherwise)	-6.26
Hispanic (1 = Hispanic; 0 = otherwise)	-18.87	Hispanic (1 = Hispanic; 0 = otherwise)	-20.59
Black (1 = black; 0 = otherwise)	-45.31**	Black (1 = black; 0 = otherwise)	-34.58
LEP (1 = never been considered for LEP; 0 = otherwise)	13.32	LEP (1 = never been considered for LEP; 0 = otherwise)	16.47
IEP (1 = no disability or gifted; 0 = diagnosed with disability)	16.10	IEP (1 = no disability or gifted; 0 = diagnosed with disability)	30.28*
Grade 7 (1 = grade 7; 0 = otherwise)	46.80	Grade 7 (1 = grade 7; 0 = otherwise)	35.40***
Grade 8 (1 = grade 8; 0 = otherwise)	41.14**	Grade 8 (1 = grade 8; 0 = otherwise)	33.88**
Course 1 (1 = Algebra I Hon; 0 = otherwise)	73.79***	Course 1 (1 = M/J Lang Arts 1; 0 = otherwise)	0.00
Course 2 (1 = Algebra IA; 0 = otherwise)	44.07***	Course 2 (1 = M/J Lang Arts 2; 0 = otherwise)	0.00
Course 3 (1 = Algebra II Hon; 0 = otherwise)	117.69***	Course 3 (1 = M/J Lang Arts 3; 0 = otherwise)	16.34
Course 4 (1 = M/J Mathematics 1; 0 = otherwise)	0.00	Treatment Group[b] (1 = treatment; 0 = control)[c]	20.88**[d]
Course 5 (1 = M/J Mathematics 2, Adv; 0 = otherwise)	43.48		
Treatment Group[a] (1 = treatment; 0 = control)[a]	22.72*[b]		

Note: *$p <.05$; **$p < .01$; ***$p < .0001$

[a] When mathematics gain scores (spring 2004 scores–spring 2003 scores) were used, similar results were obtained for the Treatment Group coefficient estimate.

[b] For those mathematics coefficient estimates that were significant, their interaction with the Treatment Group variable was tested but the interaction with the Treatment Group variable was found to be nonsignificant.

[c] When English gain scores (spring 2004 scores–spring 2003 scores) were used, similar results were obtained for the Treatment Group coefficient estimate.

[d] For those English coefficient estimates that were significant, their interaction with the Treatment Group variable was tested, but the interaction with the Treatment Group variable was found to be nonsignificant.

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Executive Summary Report

Introduction

The following Executive Summary presents the findings from a comprehensive longitudinal evaluation of the College Board's SpringBoard program that was conducted by the Westat organization. The design includes three major components: A systemwide 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 results from the survey and student achievement research components.

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 12th 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, to have 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; 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 is 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 versus nonfavorable outcomes?

The first year of the evaluation was a planning year. This 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 systemwide 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.

Systemwide 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.

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 subsections. Both SpringBoard teachers and non-SpringBoard teachers completed Part I. In this section, teachers were asked to agree or disagree with 28 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 English Language Arts (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.
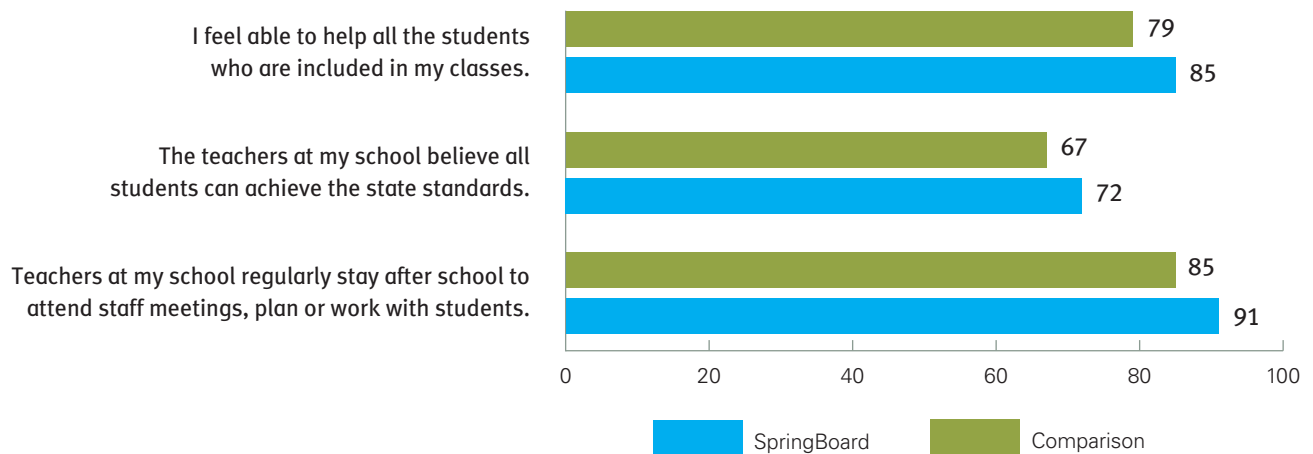
Over 90 percent of the respondents from both groups indicated that they agreed or strongly agreed that their fellow teachers ...

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

Over 80 percent 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.

FIGURE 1: Percentage of Teachers Who Agreed or Strongly Agreed with Statements About Students

I feel able to help all the students who are included in my classes.
- Comparison: 79
- SpringBoard: 85

The teachers at my school believe all students can achieve the state standards.
- Comparison: 67
- SpringBoard: 72

Teachers at my school regularly stay after school to attend staff meetings, plan or work with students.
- Comparison: 85
- SpringBoard: 91

Scale: 0 20 40 60 80 100

Legend: SpringBoard | Comparison

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 percent of both groups agreed that the teachers in their school set high standards for students, as **FIGURE 1** illustrates, **SpringBoard teachers were 5 percent 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 percent 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 percent 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 **FIGURE 2** on the next page.

FIGURE 2: Percentage of Teachers Who Agreed or Strongly Agreed with Statements About Professional Development
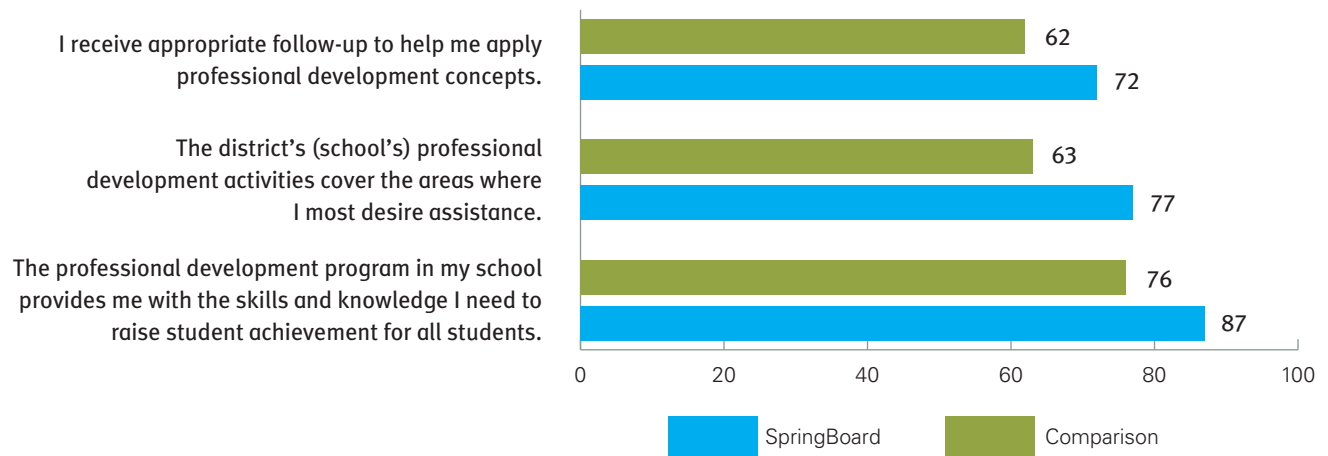
Survey Findings
SpringBoard Implementation

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 for a wide variety of students. Among teachers who worked with special populations, 80 percent 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 percent of all of the English language arts teachers saw SpringBoard as effective with English learners and special education students.

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

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

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

▶ Teachers were in agreement that SpringBoard teaching strategies are effective (87 percent) 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 percent considered it a minor to serious problem that SpringBoard ELA did not contain vocabulary, and 90 percent indicated it was a minor to serious problem that the curriculum did not address grammar. Seventy-four percent also considered it a problem that SpringBoard did not provide the ancillary materials (DVDs, novels, CDs) that the lessons required.

▶ About 50 percent of the responding SpringBoard mathematics teachers considered it at least a minor problem that SpringBoard did not contain the following: suggestions for "direct instruction" outside of the Model Instructional Units, 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 percent ELA compared to 4 percent math), while the mathematics program was primarily used as a supplement to the main text (37 percent ELA compared to 83 percent 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 percent used diagnostic, while 69 percent used embedded). Few teachers used the diagnostic assessments to determine grades (20 percent) but more than half used the embedded assessments summatively for grading (57 percent).

Program Alignment and District Support

▶ A majority indicated that SpringBoard was aligned with the district curriculum (78 percent), the state standards (83 percent), and the state testing program (68 percent). 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 percent) disagreed that their school had enough computers for a whole class to use the SpringBoard online component at one time, and an even larger majority (65 percent) disagreed that it was easy to arrange a time to use the school's computers.

SpringBoard has been the single most significant influence on my professional development as a teacher. It's helped me to structure a student-centered classroom in which my students internalize strategies for making meaning from texts and constructing meaning in texts. Through SpringBoard, I've supported my students in the development of critical thinking, reading, and writing skills that will help them succeed in college and beyond.

PAUL DE MARET
AP Teacher
Poudre School District
Fort Collins, CO

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 nine districts in six 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 more than 10 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 3 through 10. The FCAT standard deviation for each grade level varies, but averages about 300 points per grade level.

The Florida sample collectively covered grades 3 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 the SpringBoard program ranged from 2004-05 to 2006-07; for every school/district, at least two 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 and 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 SpringBoard and non-SpringBoard 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 SpringBoard and non-SpringBoard students within that performance group were compared in terms of their growth in achievement over a year or multiple years in the program.

Findings
Results for SpringBoard English Language Arts

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

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.

TABLE 18: The Impact of SpringBoard on Student Achievement in READING in Four Districts in Florida

VARIABLE	BOTTOM QUARTILE	SECOND QUARTILE	THIRD QUARTILE	TOP QUARTILE
Average scale score increase per year for this population	90.5**	44.7**	33.8**	27.6**
Impact of SpringBoard				
Additional scale score growth that is due to exposure to SpringBoard for one year. This may be multiplied by the number of years a student is in SpringBoard.	25.5**	31.5**	31.5**	37.3**
Standard error	1.0	0.8	0.8	1.0
Additional scale score growth in a school's first year of SpringBoard. This may be added to the one-year total above for the first year a school is in SpringBoard.	12.2**	4.8**	7.3**	13.5**
Standard error	1.6	1.3	1.3	1.7
Additional scale score growth for SpringBoard participants after leaving SpringBoard.	8.3	29.7**	34.4**	60.8**
Standard error	4.5	3.6	3.7	4.7

**$p < 0.01$

Findings (cont.)

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 from 2.5 months to more than a year of additional growth <u>per year</u>, that is attributable to SpringBoard. If a student participates for more than one year, the benefit is additive. In other words, a student who stays in SpringBoard 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 <u>six years of growth in three years</u>.** These statistics are based on comparing SpringBoard-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 SpringBoard; 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.

Fewer students were available for the math analyses in Florida. One district of the four Florida districts was not using SpringBoard math, and two of the others were using it either at the middle or high school level. SpringBoard math is most often used as a supplemental — not core — program. Only 4 percent of the SpringBoard teachers responding to the survey indicated that SpringBoard 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, with developmental-scale score units of 89.9 and 90.1. 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 .4 to 4.5 months of additional growth per year, that is attributable to SpringBoard. If a student participates for more than one year, the benefit is additive. In other words, a student who stays in SpringBoard 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 SpringBoard, 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.

TABLE 19: The Impact of SpringBoard on Student Achievement in MATH in Districts in Florida

VARIABLE	BOTTOM QUARTILE	SECOND QUARTILE	THIRD QUARTILE	TOP QUARTILE
Average scale score increase per year for this population	89.9**	90.1**	68.1**	38.7**
Impact of SpringBoard				
Additional scale score growth that is due to exposure to SpringBoard for one year. This may be multiplied by the number of years a student is in SpringBoard.	4.4**	5.1**	8.1**	19.4**
Standard error	1.3	0.5	0.5	0.7
Additional scale score growth in a school's first year of SpringBoard. This may be added to the one-year total above for the first year a school is in SpringBoard.	-9.0**	0.8	0.4	8.4**
Standard error	2.1	0.9	0.9	1.2
Additional scale score growth for SpringBoard participants after leaving SpringBoard	3.7	4.8	2.3	20.9**
Standard error	5.4	2.5	2.4	3.1

**$p < 0.01$

Summary and Discussion

In a rigorous longitudinal comparison study using more than one million observations from school districts in Florida, SpringBoard was shown to have a 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 SpringBoard programs. The effect of SpringBoard English Language Arts, according to the preliminary data, can be as much as two years of achievement for every year of SpringBoard.

Improved achievement was observed for students in SpringBoard 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 — SpringBoard Mathematics had fewer lessons and activities and is more often used as a supplemental, not core, curriculum. Alternatively, SpringBoard 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 SpringBoard is being implemented at that grade level in a school. It may be true that SpringBoard is being implemented selectively within the grade or school with lower-performing students who are not receiving SpringBoard or are receiving a reduced implementation model. More specific implementation information is being collected for the final report.

In a survey of SpringBoard and comparison teachers, participants in the SpringBoard 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. SpringBoard 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 also indicated that aspects of the SpringBoard 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 SpringBoard participants and formative research from the field, the SpringBoard program is currently revising the materials as well as the assessments in order to further improve the effectiveness of the program.

Jane Delgado is a research scientist at the College Board, where she builds organizational capacity for rigorous evaluation and research while garnering knowledge in large-scale data collection and survey development. She previously held the position of executive director of the Life Lab Science Program at the University of California at Santa Cruz. Dr. Delgado earned a B.A. in psychology from the University of California at Berkeley and a Ph.D. in social (organizational) psychology from the University of California at Santa Cruz.

Westat is an employee-owned corporation providing research services to agencies of the U.S. Government, as well as businesses, foundations, and state and local governments. In addition to its capabilities as a leading statistical survey research organization, Westat has developed skills and experience in custom research and program evaluation studies across a broad range of subject areas. Westat also has the technical expertise in survey and analytical methods, computer systems technology, biomedical science, and clinical trials to sustain a leadership position in all our research endeavors. Demonstrating technical and managerial excellence since 1963, Westat has emerged as one of the foremost contract research organizations in the United States.

SpringBoard inspired me to believe that a student-centered classroom infused with rigorous standards and dynamic teaching and learning strategies could transform my teaching! As a SpringBoard teacher, I taught students with learning disabilities, students who were intellectually gifted, students who were highly motivated, and students for whom apathy had become a way of life. SpringBoard provided a common framework I could use to ensure that all of my students were well-prepared.

JOELY NEGEDLY
Secondary Reading &
Language Arts Department
Volusia County Schools, FL

Working Toward AP English Language for ALL Students

DEMOGRAPHICS	
Students	**16,435**
Economically Disadvantaged	17.1%
Students with Disabilities	8.5%
English Language Learners	9.2%
On-Time Graduation Rate	88.6%
Extended Graduation Rate	93.6%
Enrollment by Ethnicity:	
White	55%
Black	2.5%
Hispanic	7.8%
Asian	25.6%
Other	8.7%

The Story

The Bellevue School District has a history of high academic performance. In recent years, district enrollments have reflected an increase in socioeconomic and racial diversity. Recognizing the need to support academic rigor for all students, district leaders aggressively moved forward with an academic achievement plan to increase enrollments in Advanced Placement (AP) courses among all student groups. In particular, the district established a goal to increase enrollments in AP English Language and Literature classes. Ultimately, the district is working toward making the AP English Language and Composition course the standard course for all students.

To achieve the goal, district curriculum leaders began to develop a vertically aligned curriculum in grades K–12 for all subjects. At the secondary level, educators envisioned an articulated pre-AP program designed to prepare all students for success in AP. Although the district's existing English Language Arts (ELA) pre-AP preparation included traditional literary analysis, ELA teachers were seeking greater emphasis in developing specific argumentation and critical reading skills.

When Bellevue's ELA teachers reviewed SpringBoard, they found that the program's design was what they had been looking for. Teachers were enthusiastic about SpringBoard's intentional, strategic approach to teaching ELA standards and they embraced its back-mapping design: beginning with the end in mind. The embedded strategies model and student-friendly activities appealed to English as a Second Language (ESL) and special education teachers who agreed that their students would benefit from SpringBoard and would allow all students to engage in deep conversations about challenging content.

During the first year of implementation, teachers were given the option of using the SpringBoard program in place of the existing curriculum. Over the course of the year, district leaders met with teachers to solicit feedback and discuss future program use. As a result of the positive teacher response, Bellevue teachers were nearly unanimous in their recommendation to use SpringBoard as the core ELA program for all middle schools.

THE RESULTS

Bellevue implemented SpringBoard during the 2003-04 school year. Over the four-year period following implementation, Bellevue's reading and writing results on the Grade 7 Washington Assessment of Student Learning exceeded 2002-03 pre-SpringBoard results.

Grade 7 Washington Assessment of Student Learning Reading and Writing Gains 2003–2007

Innovative Use of Technology Supports Bellevue's Implementation Plan

District support for SpringBoard is provided by Karlene Johnson, ELA Curriculum Developer 6–12, and Julie Manley, Technology Curriculum Coach and ELA classroom teacher. During the first year of implementation, teachers met with district staff to reflect on and revise the curriculum. To complete the plan, teachers worked in Vertical Teams to develop curriculum maps and add additional literature units, grammar instruction, and additional vocabulary instruction into the SpringBoard framework. The outcome: a consistent, articulated districtwide plan for delivering an intentional, sequenced curriculum for all students. Consistent implementation throughout the school district occurred once the curriculum plan was in place.

One of the highlights of Bellevue's SpringBoard implementation plan is the effective use of technology to support consistency of implementation. Teachers can access the entire district curriculum through Bellevue's online site, and they are able to share ideas and suggestions via the Web. ELA embedded assessments are an integral part of the curriculum plan, and teachers enter student results into the district's system that produces student and class reports. Using the data to identify program needs and priorities, teachers meet periodically to discuss the data and share student exemplars. In some self-contained, special education classrooms, teachers are using SpringBoard's online diagnostic assessments to monitor progress toward Individual Education Plan goals. To support special needs and ESL instruction, teachers incorporated modifications and accommodations into SpringBoard units that were posted on the curriculum website for easy access.

What Teachers and Administrators Are Reporting

▶ Students are writing more unique, sophisticated essays.

▶ High school teachers are delighted that incoming students have common skills and strategies necessary for success.

▶ Students have a "toolbox" of strategies to take with them into high school and college.

▶ Parents like to see strategies in the activities.

▶ Students love their own books and appreciate having the ability to write in their books.

▶ The district has been able to institute all honors language arts classes in grades 6 through 10.

NOTABLE RESULTS: HIGHLAND MIDDLE SCHOOL

Highland Middle School serves a diverse student body: 41 percent of students receive free or reduced price lunches, 16 percent of students receive special needs services, and 46 percent of students speak a first language other than English. The school community is committed to college success for all, and established the goal of preparing ALL students for the rigors of high school and to take at least one advanced-level course in preparation for college. The school's program is built around three core values: academics, character and community. The school involves parents and community members in a variety of innovative programs. SpringBoard has been an integral part of the school's plan for achieving their academic goals.

Highland Middle School Grade 7 Washington Assessment of Student Learning Reading and Writing Gains
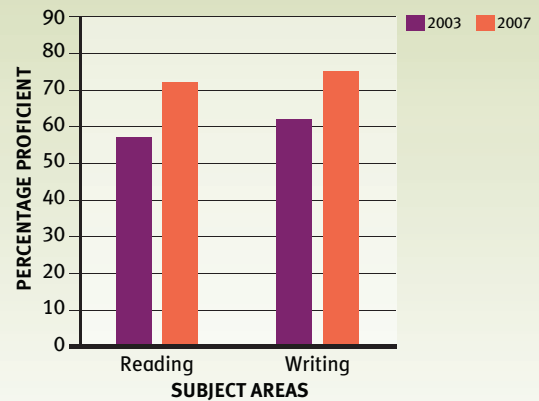
Longitudinal comparisons indicate substantial increases in the percentage of students scoring at or above proficient levels between 2003 and 2007. The school implemented SpringBoard during the 2003-04 school year.

ELL and Special Education Student Gains

DEMOGRAPHICS	
Participating in Free/ Reduced Price Lunch Program	**50%**
Enrollment by Ethnicity:	
White	36%
Black	29%
Hispanic	28%
Asian/Pacific Islander	4%
Multiracial	2%

THE RESULTS:
READING PROFICIENCY GAINS IN MIDDLE SCHOOLS

Substantial gains were achieved in the percentage of students proficient in reading on New Mexico's State Reading Test during the first year of SpringBoard implementation.

Two-Year Comparison of Percentage of Reading-Proficient Students: 2004–2005 and 2005–2006

Percentage of Students Proficient in Reading

Key
- 2005 – 2006
- 2004 – 2005

Data Source: School Accountability Report, New Mexico Public Education Department

The Story

In 2005, Hobbs Municipal Schools failed to meet NCLB adequate yearly progress criteria due to low proficiency scores for English Language Learners (ELL) and Students with Disabilities (SWD). Although the AP Program was a district priority and participation in AP courses was growing, AP enrollments did not reflect the district's demographics. Hobbs administrators were anxious to increase the rigor at the middle school level and to encourage more students to enroll in its advanced and AP courses. The district's positive experience with College Board programs prompted officials to consider SpringBoard as a means of raising academic achievement for all students. The decision to implement SpringBoard was based on the program's rigorous curriculum coupled with instructional strategies to support learning for all students. District leaders also saw a tremendous opportunity to articulate a common curriculum while providing classroom flexibility.

Early Success with ELL and Special Education Students Leads to SpringBoard Expansion

In 2005-06, Hobbs Municipal Schools began implementing SpringBoard at two middle schools. Initial results were impressive, particularly for ELL, SWD, and economically disadvantaged students. Encouraged by dramatic increases in the percentage of students meeting AYP criteria, Hobbs expanded the English Language Arts (ELA) program to grade nine during the 2007-08 school year and began using the ELA program as its core curriculum.

Three-Year Implementation Planning

Hobbs Municipal Schools developed an exemplary implementation plan that provided strong district-level support, created a common articulated curriculum, and offered multiple opportunities for SpringBoard teachers to participate in a professional learning community. During year one, teachers explored the SpringBoard program to become familiar with new teaching methods and practices.

In year two, the district hired a part-time SpringBoard coordinator, Suzie Doss. Under her guidance, teachers at both pilot schools participated in monthly meetings to share best practices, develop a common curriculum, and identify districtwide expectations for instruction.

In year three, the plan included expectations for using online assessments and monitoring student progress. According to Joe Loving, assistant superintendent, "Adequate classroom support is essential, and having a highly trained and well-respected SpringBoard coordinator has been invaluable."

Increased Enrollments in Rigorous Courses and Increased Achievement on Local Assessment

▶ Substantial increase in eighth-grade advanced course enrollments

▶ Increased diversity in advanced and AP courses

▶ Increases in the districts' Measurement of Progress (MAP) assessment

What Hobbs Teachers and Administrators Are Reporting

▶ Increased student engagement and success as a result of SpringBoard's unique learning strategies and contextual activities.

▶ Students are making the curriculum their own and taking responsibility for their learning.

▶ Consistent, on-target instruction across all classrooms.

▶ Enthusiasm for ongoing professional development to support the dynamic SpringBoard delivery model.

▶ Increase in teachers' confidence to move toward a student-centered classroom.

▶ Improvement in students' cooperation, social, oral presentation, and listening skills.

▶ Successful experiences using SpringBoard's online diagnostic assessments, which align with New Mexico's state standards.

THE RESULTS:
READING PROFICIENCY GAINS IN MIDDLE SCHOOLS

Dramatic learning gains were achieved among English Language Learners (ELL), Students with Disabilities (SWD) and economically disadvantaged subgroups in SpringBoard middle schools.

One-Year Reading Proficiency Gains Among AYP Subgroups: 2004–2005 to 2005–2006
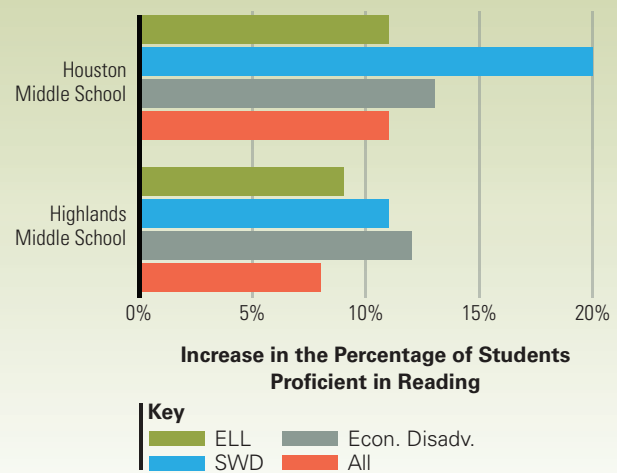
Increase in the Percentage of Students Proficient in Reading

Key
ELL   Econ. Disadv.
SWD   All

Data Source: School Accountability Report, New Mexico Public Education Department

ORANGE COUNTY PUBLIC SCHOOLS
Orlando, Florida

Accelerating Academic Achievement for ALL Students

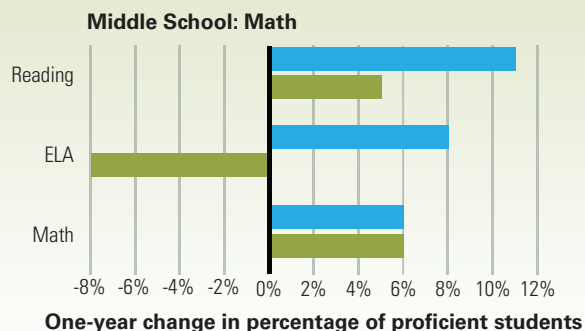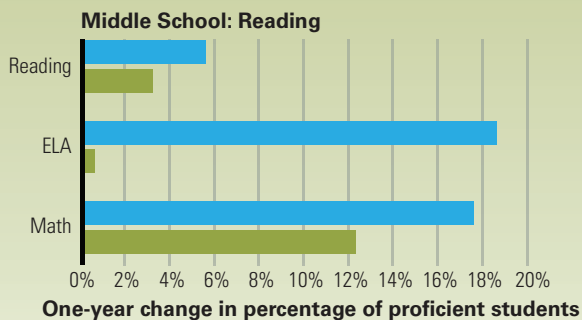| DEMOGRAPHICS	
Participating in Free/ Reduced Price Lunch Program	**50%**
Enrollment by Ethnicity:	
White	36%
Hispanic	29%
Black	28%
Asian/Pacific Islander	4%
Multiracial	2%

The Story

Several years ago, the Orange County Public School Board began an initiative to build the district's advanced studies program. The district's goals were to increase diversity in Advanced Placement Program courses and to raise student achievement on the state's FCAT measures overall. District leadership selected the SpringBoard program because of its alignment with rigorous standards and because its system of strategies is designed to move all students to higher levels of achievement.

THE RESULTS

Middle School

Greater gains in the percentage of students achieving proficiency in middle school reading and mathematics among students in SpringBoard schools than students in non-SpringBoard schools.

Middle School: Reading

One-year change in percentage of proficient students

Middle School: Math

One-year change in percentage of proficient students

High School

▶ Positive gains in grades 9 and 10 FCAT Reading scores among students in SpringBoard schools when compared with students in non-SpringBoard schools.

▶ Improvement in the percentage of students meeting state standards on grade 10 FCAT Writing at SpringBoard schools ranged from 4 percent to 14 percent and exceeded gains at non-SpringBoard schools.

High School: Reading

One-year change in percentage of proficient students
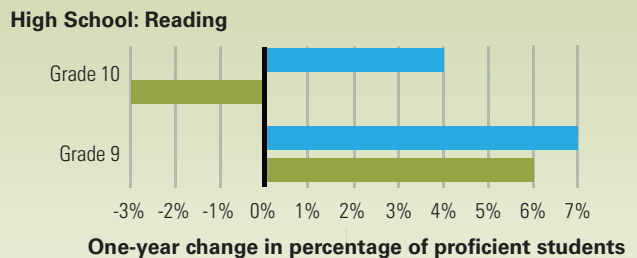
Key
■ With SpringBoard
■ Without SpringBoard

Data provided by Orange County School Board and Florida Department of Education School Accountability Reports

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From Pilot to Districtwide Implementation

Over the past three years, Orange County Public Schools has increased the number of schools implementing SpringBoard from two middle and two high schools to 20 middle and nine high schools. As additional schools were added, school leadership had the flexibility of selecting one or both subject areas based on individual school needs. By 2010, the district plans to have SpringBoard in all secondary schools at some level of implementation.
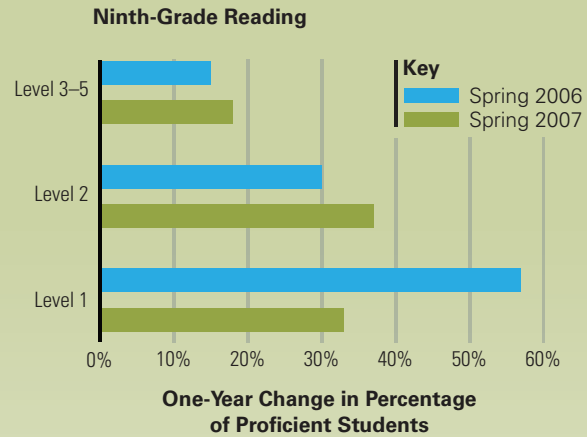
Increased AP Participation and More

▶ Increased numbers of students participating successfully in AP courses

▶ More middle school students enrolled in advanced classes

▶ Substantial gains in the number of students successfully completing Algebra 1

What Teachers Are Reporting

▶ Greater student engagement in classroom activities

▶ Improved student behavior, cooperation, class participation and listening skills — particularly in middle school

▶ Enthusiasm for using SpringBoard as a core program

▶ Increased comfort level of teachers to move toward the role of guide and facilitator

▶ Confidence to differentiate instruction using SpringBoard strategies

▶ Flexibility in incorporating other materials and resources to personalize instruction

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NOTABLE RESULTS: JONES HIGH SCHOOL

Ninth-Grade Reading

Key
- Spring 2006
- Spring 2007

One-Year Change in Percentage of Proficient Students

Jones High School, located in inner-city Orlando, is an example of SpringBoard's potential for increasing student achievement for all students.

▶ Ninth-grade reading scores improved dramatically after implementing the program.

▶ The percentage of students scoring at Level 1 (the lowest level of Florida FCAT Reading) decreased from 54 percent to 36 percent.

▶ The percentage of students scoring at Level 3 and higher on FCAT Reading increased from 15 percent to 25 percent.

Progress of Bottom Quartile Students

Key
- 2006
- 2007

One-Year Change in Percentage of Proficient Students
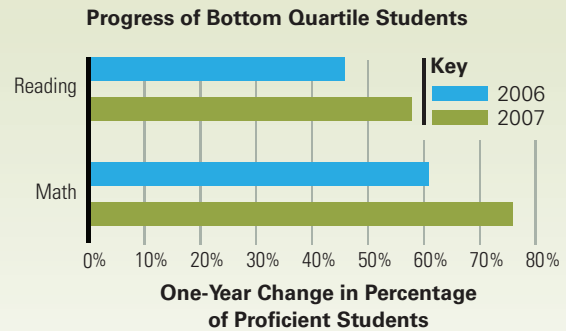
▶ Between 2006 and 2007, the percentage of 9th-grade and 10th-grade students in the bottom quartile making adequate yearly learning gains increased from 46 percent to 58 percent in reading and from 61 percent to 76 percent in mathematics.

Data provided by Orange County School Board and Florida Department of Education School Accountability Reports

# College-Preparatory Curriculum for Native American Students

| DEMOGRAPHICS	
Participating in Free/ Reduced Price Lunch Program	**61%**
Enrollment by Ethnicity:	
Native American	57%
White	42%
Other	1%

The Story

Located in the heart of beautiful Mission Valley between the Flathead River and the Rocky Mountains, Ronan School District is a small school system in Montana that serves a unique, rural student population. In 2003, Superintendent Andrew W. Holmlund was looking for a program that would prepare students for success in Advanced Placement (AP) and college-level work. In response, he made a strong commitment to implementing a rigorous curriculum for all students and to increase enrollment and success in AP classes. District leaders found that their existing curriculum had gaps, there was a need to raise the level of rigor in both middle school and high school, and academic vocabulary development was critical for their students' success. In addition, selecting a program based on proven practices and one that would support smooth transitions and vertical articulation were top priorities. According to Superintendent Holmlund, "SpringBoard does all of these things well and matches our needs and priorities." Through an APIP grant, the district implemented SpringBoard English Language Arts (ELA) and mathematics in the middle school and high school as the core curriculum during the 2004-05 school year.

THE RESULTS

Using the Montana Comprehensive Assessment System Criterion Referenced Test (MontCAS-CRT) as a measure, the district's grade 10 results have increased dramatically in both reading and mathematics. Between 2004 and 2008, the percentage of students scoring at the proficient and advanced levels in reading increased from 50 percent to 67 percent. In mathematics, the percentage of grade 10 students who scored at the proficient and advanced levels increased from 39 percent to 51 percent.
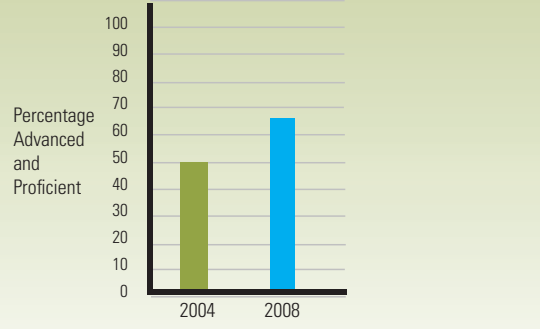
Percentage of Grade 10 Students Scoring at Advanced and Proficient Levels on the MontCAS-CRT in Reading: 2004–2008
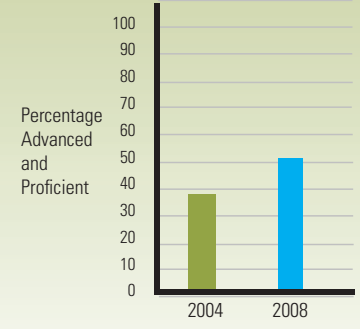
Percentage of Grade 10 Students Scoring at Advanced and Proficient Levels on the MontCAS-CRT in Mathematics: 2004–2008

Implementing SpringBoard in a Small, Rural District

Because of Ronan's rural Montana setting and the relatively small scale of the SpringBoard initiative, implementation posed unique challenges. The biggest issue was finding a way to support the SpringBoard Initial Institute and ongoing professional development. Working with the SpringBoard program, Ronan committed to having two teachers attend SpringBoard Train the Trainer institutes so that they could be nationally certified to lead local math and ELA professional development activities. Having local trainers provided Ronan flexibility in scheduling their professional development events and assured their teachers of ongoing support.

Additional Results

▶ Increased graduation rate among Native American students.

▶ Increase in the percentage of students who participate in postsecondary educational opportunities.

▶ Increase in Algebra 1 enrollment at the middle school.

▶ Increase in AP enrollment and courses. At Ronan High School, the number of AP courses increased from zero in 2003 to five in 2009. Students now choose from AP English Literature, Calculus, Biology, Chemistry, and Studio Art.

▶ Improved attendance in AP classes for both students AND teachers.

What Teachers and Administrators Are Reporting

▶ SpringBoard supports teachers to continually expand their teaching skills.

▶ Teacher quality has really increased.

▶ "I appreciate the rigor!"

▶ "I've become a better teacher."

▶ Former SpringBoard graduates come back and tell us that they are better prepared for college than their non-SpringBoard peers.

▶ Using the Embedded Assessments allows students to see their own growth and take pride in their accomplishments.

### NOTABLE RESULTS: SERVING A DIVERSE NATIVE AMERICAN STUDENT BODY

As the tribal headquarters for the Flathead Indian Reservation, Ronan School District serves the educational needs of many Native American students. In addition to the Flathead population, 28 additional tribes are represented among the districts' student body. After a close review of their data, district leaders became concerned that many Native American students were enrolling in low-level courses that did not prepare them for college, and the Native American graduation rate was substantially below that of non-Native American students. The superintendent recognized that his goals were critically important for promoting the success of the entire community.

In addition to preparing all students for postsecondary educational opportunities, learning to celebrate and respect the community's rich multicultural heritage became central to the school district's mission. SpringBoard's flexible instructional framework allowed teachers to integrate culturally relevant texts and resources into the curriculum to meet their students' needs and interests and at the same time raise the level of rigor.

Results for Ronan's Native American students have been impressive and the achievement gap between Native American and non-Native American students is closing. The percentage of Native American students scoring in the proficient and advanced levels increased from 48 percent in 2004 to 61 percent in 2008 on the grade 10 MontCAS-CRT in Reading. In mathematics, the percentage of Native American students scoring in the proficient and advanced levels increased from 35 percent to 53 percent.
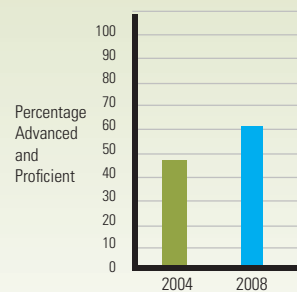
Percentage of Grade 10 Native American Students Scoring at Advanced and Proficient Levels on the MontCAS-CRT in Reading: 2004–2008
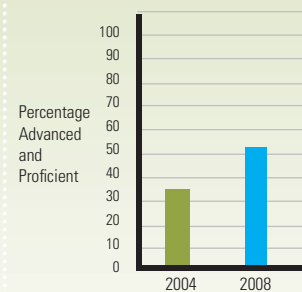
Percentage of Grade 10 Native American Students Scoring at Advanced and Proficient Levels on the MontCAS-CRT in Mathematics: 2004–2008

College Readiness for ELL and First-Generation College Students

DEMOGRAPHICS	
Students	**8,407**
Economically Disadvantaged	87%
English Language Learners	27%
Hispanic	97%

THE RESULTS:

As part of the GEAR UP Grant, Region One staff monitored cohort progress on the Reading/ELA Texas Assessment of Knowledge and Skills (TAKS) for both ELL and non-ELL students. At the end of the first year of implementation, gains among both the ELL and non-ELL cohort groups were impressive. When compared with the previous year's non-SpringBoard cohort, SpringBoard students posted substantially higher scores. In 2005, 20 percent of non-SpringBoard seventh-graders reached proficiency compared with 26.7 percent of SpringBoard cohort seventh-graders in 2006. In 2007, grade eight cohort students continued to show impressive gains. Among ELL students, 44.4 percent reached minimum standards and among non-ELL students, 90.3 percent reached minimum proficiency.

ELL and Non-ELL Cohort Proficiency Gains on the Reading/ELA Texas Assessment of Knowledge and Skills for Baseline Grade 7 Non-SpringBoard and SpringBoard Grades 7 and 8: 2005-2007

Key
- 2005 Non-SpringBoard Grade 7
- 2006 SpringBoard Grade 7
- 2007 SpringBoard Grade 8

The Story

Region One GEAR UP is funded through a federal grant and provides support to 21 Texas school districts ranging from Laredo to Port Isabel. The south Texas districts serve a large Hispanic population and many English Language Learners (ELL), as well as a high percentage of economically disadvantaged students. In addition, a majority of students are first-generation college-bound. In 2005, district leaders were searching for a program that would appeal to their student population, increase the richness of their language arts curriculum and prepare students for college.
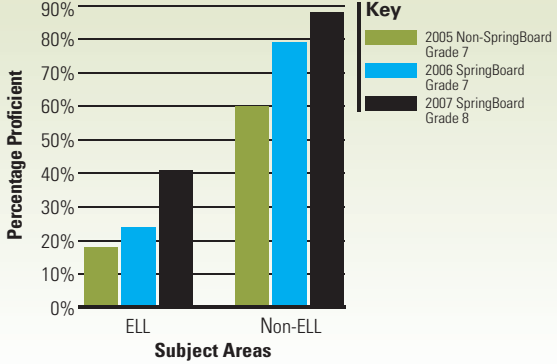
In 2006, 14 of 21 Region One districts piloted SpringBoard English Language Arts (ELA). Educators found that the wealth of strategies and the focus on current literature appealed to their multicultural population and fit their district's needs. Teachers particularly liked the embedded design of the strategies that made implementation easier and more effective. The following year, the number of SpringBoard districts increased from 14 to 17 of 21 districts.

The SpringBoard initiative was funded through the Ford Partnership for Advanced Studies (PAS) and the Region One GEAR UP Grant. Under the leadership of David Hernandez, senior education specialist for Region One, each district developed a SpringBoard implementation plan based on district needs. Region One required that, at a minimum, the district designate one cohort grade level for the program, with the goal being to promote sustainability over time.

Professional Development — A Key Ingredient to Successful Implementation

Ongoing professional development has been a hallmark of the Region One implementation plan. Through support of the Region One office, 174 ELA teachers from the 14 SpringBoard districts, curriculum administrators and GEAR UP staff participated in the SpringBoard Initial Institute. Following the Initial Institute, Region One coordinated several additional professional development opportunities that included midyear follow-ups designed to refocus and reenergize teachers, a video conference with a nationally certified SpringBoard trainer, and webinars so that teachers could share best practices, and have access to the tutorials for using SpringBoard Online. In addition, 135 teachers benefited from individual support for enhancing strategies for differentiating instruction. The Region One office also trained administrators on effective monitoring practices. The goal was to build a sense of community and support among Region One educators.

What Teachers and Administrators Are Reporting

- ▶ Serves as a model for my own lesson development
- ▶ Addresses different learner needs
- ▶ Accommodates all students, not just high performing
- ▶ Flexible and easy to use in planning instruction
- ▶ Offers a wealth of information and support for students
- ▶ Centralized theme brings learning together
- ▶ Provides tools and resources that build students' critical thinking skills in reading and writing
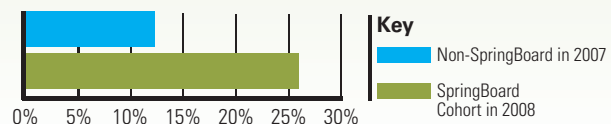- ▶ Love the embedded strategies — not a separate program

NOTABLE RESULTS: VETERAN'S MEMORIAL NINTH GRADE ACADEMY

Veterans' Memorial Ninth Grade Academy, located in San Benito, Texas, strives to prepare its students to become leaders in the 21st century. The school serves a high percentage of ELL students and first-generation college students and is committed to preparing all students for college and the world beyond the classroom. The school's mission is to provide a supportive learning environment that successfully transitions students from a smaller middle school setting to a larger high school setting. The academy's small learning environment and high teacher expectations prepare students both socially and academically for the rigors of high school.
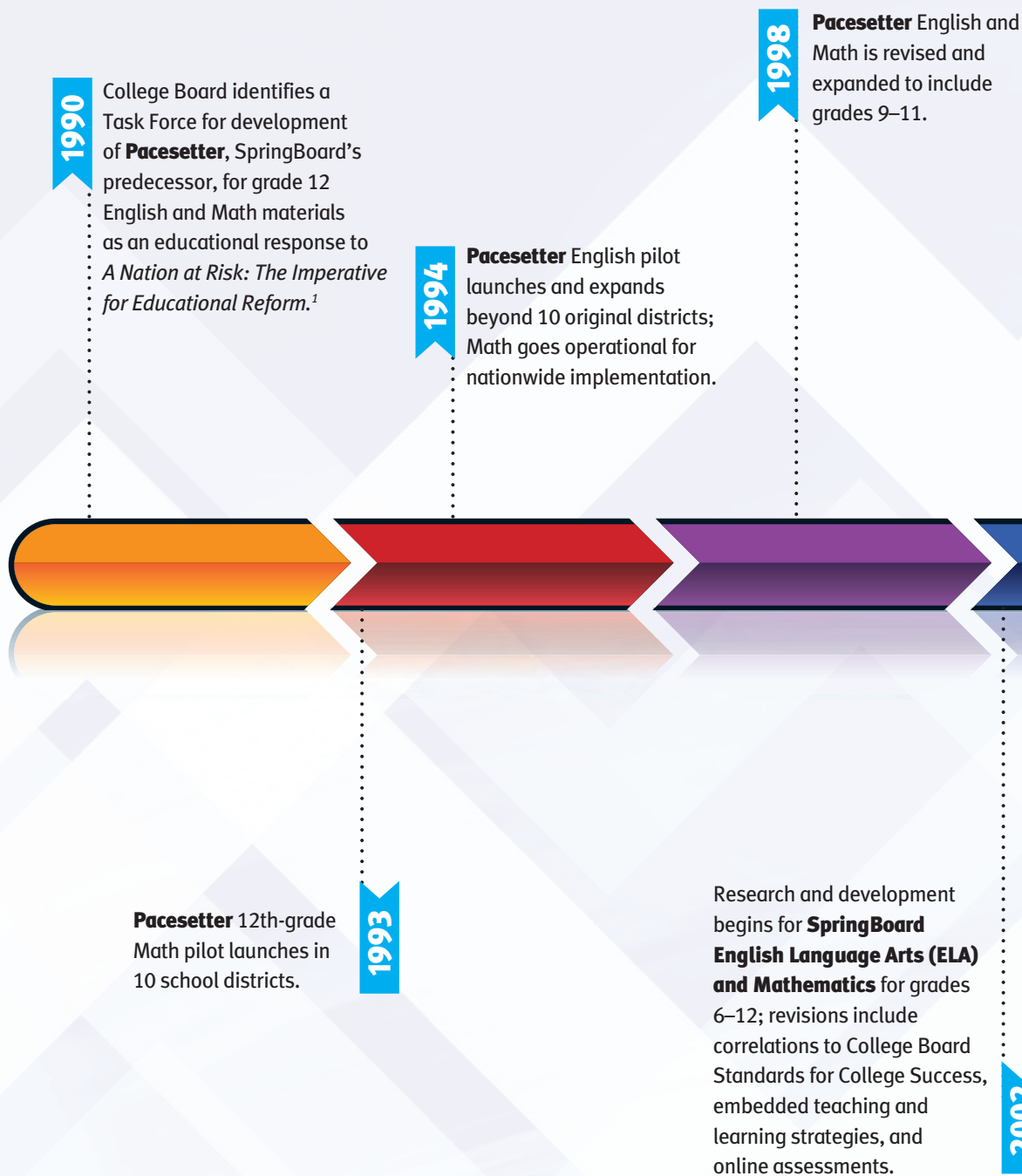
During the 2007-08 school year, the first GEAR UP cohort entered Veterans' Memorial Ninth Grade Academy. To maintain the students' academic momentum and to support transition to high school, Veterans' Memorial implemented SpringBoard. The results were impressive. Scores on the Reading/ELA Texas Assessment of Knowledge and Skills (TAKS) were substantially higher for the academy's SpringBoard GEAR UP cohort than for the previous year's non-SpringBoard class.

- ▶ Overall, 84 percent of the Academy's GEAR UP students reached proficiency in 2008, compared with 79 percent of GEAR UP students in 2007.
- ▶ 37 percent of academy SpringBoard GEAR UP ELL students reached proficiency in 2008, compared with 29 percent of non-GEAR UP students in 2007.
- ▶ The percentage of SpringBoard GEAR UP students who reached commended status in 2008 doubled (13 percent to 26 percent), in comparison with non-GEAR UP students in 2007.
- ▶ 19 out of 21 GEAR UP campuses posted an increase on the Reading/ELA state assessment for BOTH ELL and non-ELL students.
- ▶ 13 of 14 SpringBoard Region One GEAR UP districts posted an increase on the Reading/ELA state assessment for ELL and non-ELL students.

Percentage of Students Achieving Commended Status Doubles for SpringBoard Cohort: 2007 Versus 2008

Key
- Non-SpringBoard in 2007
- SpringBoard Cohort in 2008

0% 5% 10% 15% 20% 25% 30%

SpringBoard Research and Development Timeline

1990 College Board identifies a Task Force for development of **Pacesetter**, SpringBoard's predecessor, for grade 12 English and Math materials as an educational response to *A Nation at Risk: The Imperative for Educational Reform.*[1]

1994 **Pacesetter** English pilot launches and expands beyond 10 original districts; Math goes operational for nationwide implementation.

1998 **Pacesetter** English and Math is revised and expanded to include grades 9–11.

1993 **Pacesetter** 12th-grade Math pilot launches in 10 school districts.

2002 Research and development begins for **SpringBoard English Language Arts (ELA) and Mathematics** for grades 6–12; revisions include correlations to College Board Standards for College Success, embedded teaching and learning strategies, and online assessments.

1. The National Commission on Excellence and Education, April 1983.

2003 **SpringBoard ELA and Math** model instructional units for grades 6–12 launch.

2007–2009 Research and development of the 2010 copyright of **SpringBoard ELA and Math** begins; classroom teachers write and perform field testing.

2009 New **SpringBoard ELA and Math** launch as the College Board's official Pre-AP program that leads to college readiness for ALL students—comprehensive, core instructional materials that meet state standards and the revised College Board Standards for College Success.

2003–2007 The number of school districts implementing **SpringBoard ELA and Math** nationwide doubles each year.

2009–2010 **SpringBoard ELA and Math** entered in first statewide adoptions.