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Evaluation Report: Year 2

**Building a Strong Foundation:
Mathematics and Science
Partnership**

Sponsored by:

**The Rhode Island Department of
Education and the US Department
of Education**

October 2011

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Prepared by:
Research & Evaluation Division
The Education Alliance at Brown University

THE EDUCATION ALLIANCE at Brown University

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RESEARCH AND EVALUATION

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EXECUTIVE SUMMARY

The Education Alliance at Brown University has been invited to conduct the external evaluation of Rhode Island's Mathematics and Science Partnership program for the Rhode Island Department of Education (RIDE). The evaluation is a collaborative effort, closely working with RIDE and other partners to provide support for implementation and inform mid-course improvements and progress toward program outcomes. The nature of the Building a Strong Foundation (BSF) program is to respond to the needs of the district and therefore the structure of the program is not necessarily static. To account for this, The Alliance has designed a mixed-methods evaluation plan that provides objective qualitative and quantitative data on effects of program implementation.

The evaluation plan utilizes a cohort design including both quasi-experimental and descriptive methods to effectively recognize the unique components of the BSF program. The cohort design allows evaluators to examine how the BSF program builds capacity for standards-based instruction over the course of three years as each cohort engages with different program components. The Alliance evaluators examine not only how the program builds capacity within cohorts, but also compares the program elements and assesses the longitudinal impact of program participation across cohorts.

Rather than have specific evaluation questions, the evaluation seeks to describe how program implementation proceeds and to document adaptations, as well as measure program impacts on (1) the culture of academic standards, (2) teacher knowledge, and (3) student achievement. The quasi-experimental component of the evaluation includes three pre- and post-assessments of stakeholders' perspective on the culture of academic standards, teachers' perspective on the culture of academic standards, and teacher knowledge of the content and pedagogy within the academic standards. Additionally, evaluators capture aspects of program implementation through the use of multiple qualitative data methods.

In the Year 2 implementation of the BSF program, evaluators collected survey data from both stakeholders and teachers and conducted focus groups with multiple program groups. Data are presented in detail in the report; however, a synthesis of these various data collected from participant groups provides summary evaluation findings for Year 2 implementation. Broad program findings include:

- *Building a Strong Foundation has provided a coherent professional development program with a comprehensive K-12 design and focus on curriculum.* Teachers and leadership focus groups agreed that the program focused on the development of an aligned curriculum and implementation of the standards that was specific and of high quality. In particular, educators acknowledged that the study of the standards and collaborative planning that took place during professional development sessions led to school-based implementation of new instructional practices. Among the activities being carried out during the second year of the program are: implementation of classroom walkthroughs, revision of curriculum units, and development of common structures for planning and communication across districts.

- *Teachers at baseline generally show low to moderate levels of understanding of the content and progression of standards-based instruction.* Cohort II teachers across elementary, middle and high school grades showed low to moderate levels of proficiency in interpreting and understanding standards in mathematics and science. This suggests that the program is being provided to teachers who need content support. Early elementary teachers scored higher than middle and high school teachers on the mathematics rubric. In science, elementary and high school teachers attained higher scores on the rubric than did middle school teachers.

- *Significantly positive change is seen in stakeholders' and teachers' perceptions related to the culture of academic standards following two years of program implementation.* Data from Cohort I stakeholder surveys collected across three time periods (pre-, post-, and post-post-) show statistically significant change in participants attitudes, beliefs, and use of academic standards. Overall statistical significance was found on five of eight variables used to measure detect changes in stakeholders perceptions regarding the culture of academic standards. Variables showing evidence of significant change by stakeholders include: *Beliefs Regarding the Standards*, *Student Mastery of Standards*, *Teacher Mastery of Standards*, *Attitudes Regarding the Standards*, and *Classroom Use of the Standards*. Among Cohort I teachers, four of five variables showed significant change, including: *Personal Familiarity of Standards*, *Personal Understanding of the Standards*, *Classroom Use of the Standards*, and *Professional Development Use of the Standards*.

- *Initial change is detected in stakeholders' and teachers' perceptions related to the culture of academic standards following one year of program implementation.* Among Cohort II stakeholders, data collected from two time periods (pre- and post-) show statistically significant change in participants *Beliefs Regarding the Standards*, one of eight variables associated with the culture of academic standards. Likewise, data from Cohort II teachers' surveys also showed statistically significant change on *Beliefs Regarding the Standards*, one of five variables assessed through the teacher survey.

- *One-year mathematics and two-year science BSF implementation trends yield positive longitudinal findings across districts.* On the mathematics and science NECAP examination, eight out of nine BSF districts (Cohorts I and II) had higher percentages of students reaching proficiency in 2010-2011 than in 2008-2009. Additionally, the majority of BSF districts consistently demonstrated higher levels of students reaching proficiency on the mathematics and science NECAP than the RI state average.

Through data collection and analysis, evaluators suggest data-driven recommendations that the BSF program might consider as part of Year 3 program implementation. Evaluators will continue to work formatively with the BSF program to critically examine recommendations along with program milestones and data. The following are the evaluation recommendations for consideration: (1) Develop and disseminate plans for the use of Intermediary Service Providers; (2) Strengthen communication among all MSP partners, including district stakeholders, teachers, the Dana Center, and RIDE staff; and (3) Continue to collect and examine outcome –based data on the BSF programming.

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SECTION I: INTRODUCTION

OVERVIEW OF THE BUILDING A STRONG FOUNDATION PROGRAM

The Mathematics and Science Partnership (MSP) program provides formula grants to states under Title II, Part B of the No Child Left Behind Act of 2001. As outlined by the US Department of Education, the purpose of the program is to increase student achievement in mathematics and science by improving teachers' content knowledge and teaching skills.

Specifically, the MSP program seeks to:

- Focus on the education of mathematics and science teachers as a career-long process that continuously stimulates teachers' intellectual growth and upgrades teachers' knowledge and skills; and
- Develop more rigorous mathematics and science curricula that are aligned with challenging state and local academic content standards, and with the standards expected for postsecondary study in mathematics and science.

In Rhode Island, Building a Strong Foundation (BSF) is designed to work toward such goals through partnerships among districts, the Rhode Island Department of Education (RIDE), and the Charles A. Dana Center at the University of Texas at Austin. Two cohorts have been involved in the MSP work in Rhode Island. Within each cohort, districts focus on the content of either mathematics or science. In Cohort I, the districts of Woonsocket, Lincoln, and Cumberland are focusing on mathematics, while the district of Cranston participates in science. In Cohort II, the district of Warwick focuses on mathematics; Tiverton, Portsmouth, Bristol-Warren, and Little Compton focus on science. Cohort I districts are participating in BSF programming for three years, while Cohort II districts are implementing BSF programming for two years.

BSF seeks to increase instructional coherence at all levels of the educational system by aligning curriculum, instruction, and assessment to each other and to the state's Grade Levels Expectations (GLEs) and Grade Span Expectations (GSEs) and by providing teachers and teacher-leaders with the opportunity to partake in an in-depth study of the GLEs/GSEs. Note that for one Cohort II district[1], the Common Core is being used for the study of the standards. Across both cohorts and content areas, BSF seeks to increase teacher content knowledge and student achievement by:

- Providing targeted support for self-selected school districts to carry out the work of alignment within their system;
- Developing a network of Intermediary Service Providers (ISPs) to build capacity and infrastructure at all levels of the system to sustain the alignment work long-term; and
- Leveraging and aligning the resources necessary to support the work of alignment across all levels of the system.

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[1] The district of Warwick (Cohort II mathematics)

To achieve these outcomes for teachers, the main partner-provider, The Dana Center, works closely with the districts on an individual basis to tailor a project to their unique needs. The basic structure of the BSF program, however, is the same statewide. For Year 1, the initiative was divided into two strands – open session work or intensive district work – each with slightly different methods and commitment levels. Districts chose the strand in which they would like to participate and whether to focus on mathematics or science, both of which the districts identified in an application submitted to RIDE. In Year 2, the majority of open session districts became part of the intensive work; therefore the evaluation will have this focus.

Intensive district work entails a minimum of a three-year time commitment to working with a team from the Dana Center and/or the ISP team paired with that particular district. Initially, the districts beginning in Year 1 (Cohort I) will work solely with a Dana Center team in their chosen subject area while the Dana Center trains a cohort of ISPs. The districts beginning the work in Year 2 (Cohort II) will have a combination of Dana Center teams and a team of ISPs as facilitators.

Intensive district work is tailored to the needs of the specific district in either mathematics or science. The intensive district work has two elements to it: (1) a leaders-oriented strand and (2) a teachers-oriented strand. Each strand consists of six single- or multi-day sessions with tasks to be completed by each strand between the sessions. The leaders' strand focuses on the same topics and tasks presented in the open sessions (tools and strategies for improving science/math curriculum, instruction and assessment alignment), but at a deeper level due to the in-between-session work. The teacher element focuses on studying the state standards; developing, aligning, and refining the scope and sequence to support a viable and guaranteed curriculum; and creating aligned units of study (the latter primarily occurring in the second year of the project). Both elements are designed to meet the goals of improving curriculum alignment and teachers' skills.

EVALUATION OF THE BSF PROGRAM

The Education Alliance at Brown University has been invited to conduct the external evaluation of Rhode Island's Math and Science Partnership program for RIDE. The evaluation is a collaborative effort, closely working with RIDE and other partners to provide support for implementation and inform mid-course improvements and progress toward program outcomes. The nature of the BSF program is to respond to the needs of the district and therefore the structure of the program is not necessarily static. To account for this, The Alliance has designed a mixed-methods evaluation plan that provides objective qualitative and quantitative data on effects of program implementation. The following section details the evaluation methods and data collection implemented.

SECTION II: EVALUATION DESIGN & APPROACH

The evaluation plan utilizes a cohort design including both quasi-experimental and descriptive methods to effectively recognize the unique components of the BSF program. The cohort design allows evaluators to examine how the BSF program builds capacity for standards-based

instruction over the course of three years as each cohort engages with different program components. The Alliance evaluators not only examine how the program builds capacity within cohorts, but also compare the program elements and assess the longitudinal impact of program participation across cohorts.

Rather than answer specific evaluation questions, the evaluation seeks to describe how program implementation proceeds and to document adaptations, as well as measure program impacts on (1) the culture of academic standards, (2) teacher knowledge, and (3) student achievement. The quasi-experimental component of the evaluation includes three pre- and post-assessments of stakeholders' perspectives on the culture of academic standards, teachers' perspectives on the culture of academic standards, and teacher knowledge of the content and pedagogy within the academic standards. Additionally, evaluators capture aspects of program implementation through the use of multiple qualitative data methods. Chart 1 displays the evaluation methods and timeline.

Chart 1. Evaluation Methods and Timeline

Program Component	Method	Year 1	Year 2	Year 3
Culture of Academic Standards	Teacher Survey	√	√	√
	Stakeholder Survey	√	√	√
Teacher Knowledge	Instructional Alignment Charts		√	√
Student Achievement	NECAP	√	√	√
Program Milestones	Focus Groups	√	√	√
	Program Documents	√	√	√

EVALUATION METHODS

In Year 2 of the BSF program, evaluators continued to utilize reliable instruments and methods to explore the implementation successes and challenges within and between Cohorts I and II.

Culture of Academic Standards

In efforts to support the state in a standards-based initiative, the evaluation reflects this focus in understanding how the BSF program changes stakeholder's attitudes, beliefs, and use of academic standards. Stakeholders include those individuals participating in program events, such as district and school leadership, and curriculum leaders, as well as the Intermediary Service Providers (ISPs). Stakeholders complete a pre-survey prior to engaging in program efforts, as well as a post-survey at the end of each program year. The survey is flexible to allow for data collection from varying participant groups (e.g., teacher, principal, superintendent, etc.). The survey is designed to measure participants' changes in attitudes, beliefs, and perceived knowledge of academic standards, as well as the frequency at which standards impact various levels of the educational system.

Similar to the stakeholder survey, teachers complete a pre- and post-survey regarding their attitudes, beliefs, and use of the standards. In Year 1 this evaluation method was conducted as a retrospective post-survey; however, for Years 2 and 3, this survey has been adapted to be administered as a traditional pre- and post-survey. This quasi-experimental design allows evaluators to determine the specific changes that occur in the culture of academic standards among teachers.

The survey is tested annually for reliability. A copy of this survey can be found in Appendix A. Please note that to maintain consistency across years, survey language was not altered, although Cohort II mathematics utilized the Common Core Standards rather than the GLEs/GSEs. The survey was founded on a body of research assessing attitudes and beliefs on academic standards in the vocational arena, as well as in science, technology, and mathematics standards (Belcher & McCaslin, 1996; Benjamin, 2003; Harwood, Hansen, & Lotter, 2006; Johnson, 2004; Kaya, Yager, & Dogan, 2009). The teacher survey was shortened slightly for retrospective format in Year 1; however, the survey variables that were measured across years and cohorts included the same items.

For both the stakeholder and teacher surveys, evaluators examined the following variables: Beliefs Regarding the Standards, Student Mastery of Standards, Teacher Mastery of Standards, Personal Familiarity of Standards, Personal Understanding of Standards, Attitudes Regarding the Standards, Classroom Use of Standards, and PD Use of Standards. Each of these variables is a composite of individual survey items. Descriptive statistics were computed for the variables, and a one-way analysis of variance (ANOVA) was conducted. ANOVA is a standard technique for quantifying and partitioning sample variance in quantitative datasets. The one-way ANOVA procedure performs an analysis of variance to test whether or not the means of two or more samples are equal. Evaluators will examine ANOVA results to determine the significance of any changes in the means of variables across time points and participants.

Teacher Knowledge

The BSF program shift from a specific element of mathematics or science content to a broad, but in-depth, understanding of the academic content standards is reflected in the evaluation through an assessment of teacher knowledge. The Instructional Alignment Chart (IAC) was originally developed by the Dana Center in order to facilitate discussions around standards-based instructional planning. For the program evaluation, an IAC was created with pre-populated standards that matched the grade spans of each curriculum writing team. Content specialists in Mathematics and Science from RIDE then created an exemplar IAC as a benchmark. These content area specialists then developed scoring guides for the rubrics, which were vetted by The Education Alliance for validity purposes.

The IAC instrument was tailored to meet program needs to ensure measurement of teacher knowledge through pre- and post-assessments in Years 2 and 3. As noted in Chart 1, these data are to be collected in Year 2 as baseline measures and in Year 3 to measure the extent to which teachers have displayed growth in their knowledge of content and pedagogy within the academic standards.

Student Achievement

In Year 2, evaluators accessed the three most current years of NECAP data in mathematics and science: 2008-2009, 2009-2010, and 2010-2011. Because mathematics tests are administered in October of each year, scores reflect the students' prior year of instruction. It must be noted that only the Cohort I NECAP 2010-2011 results presented in this report may be attributed to BSF program impact; all other years will be considered baseline data. For Cohort II, the first year of impact will be evident when October 2011 test results are published in May 2012.

Because students take science examinations in the spring, these scores represent learning during the same instructional year. Therefore, for Cohort I, two years of NECAP scores may have been impacted by BSF implementation: 2009-2010 and 2010-2011. In Cohort II, one year of NECAP scores may have been influenced by BSF programming: 2010-2011.

With these data, the evaluation examined individual district-level changes in mathematics and science achievement, as well as how achievement trends differed among participating districts and by cohort. Additionally, Rhode Island state average proficiency levels in both content areas were examined in comparison to districts participating in BSF programming.

Program Milestones

Qualitative data is gathered on program milestones. Specifically, evaluators conduct focus groups with each participating group, each program year. These focus groups include teachers, education leaders, and Dana Center staff. In Year 2, the ISP cohort was under significant transition during the timing of data collection for focus groups; previously recruited ISPs were unable to work due to restrictions from the Rhode Island retirement system. Focus group protocols continued to concentrate on issues of implementation, including satisfaction with professional development activities, and the successes and challenges experienced during the second year of the program. In addition, questions were developed to examine participant perceptions regarding program sustainability.

These qualitative data from the focus groups provide insights into buy-in, satisfaction, and sustainability of the BSF program and highlight any mid-course program adaptations that have occurred or might be considered. Program documents (e.g., professional development materials, presentations, curriculum, etc.) are also collected to offer understanding of the implementation activities and milestones.

LIMITATIONS

Caveats to the evaluation data collected are important to note prior to expressing interpretations of the results. The evaluation design, while quasi-experimental, does not afford cause and effect interpretations. This suggests that findings presented here do not reflect the impacts of the BSF program in isolation; rather, the quasi-experimental design does allow for an understanding of how stakeholders and teachers change while participating in the BSF program. The design provides results that can be associated with BSF program participation.

Limitations exist with the sample of participants in evaluation focus groups from Year 1 to Year 2. Twenty-seven participants joined the program focus groups in Year 1, while only twelve individuals participated in Year 2. Because the number of participants was lower than expected, data from focus groups should be interpreted cautiously.

The survey methodology for this evaluation is a pre- post- post-post design, in which participants complete the instrument in the fall of their first year of participation (pre); in the spring of their first year of participation (post); and finally, in the spring of their second year of participation (post-post). Ideally within this design, the sample sizes of each pre, post, and post-post group would be similar, allowing for comparisons to be made across groups. In Cohort I, stakeholders had a reduced number of participants in the post-post group ($n = 24$). In addition, Cohort II stakeholders had a lower number of participants in the post-survey group ($n = 42$) when compared to the pre-survey group ($n = 70$). The differences in sample sizes should be taken into consideration when interpreting survey results for these groups.

Finally, though math teachers (all grade levels) and the elementary and middle school science teachers completed the Instructional Alignment Chart rubrics in the fall of 2010, high school science teachers did not. These teachers completed the IAC rubrics in September of 2011. Although this delay in administration could detract from the pre-post-assessment design, examination of the rubric scores for these teachers did not yield any discernable differences from the scores of the elementary or middle school science teachers.

SECTION III: BSF IMPLEMENTATION

To assess implementation of the Building a Strong Foundation (BSF) program, evaluators conducted focus groups with teachers from participating districts, a leadership group comprised of school administrators and teacher leaders, and representatives from the Dana Center. Separate focus groups were conducted with each of these stakeholder groups in May 2011. Rhode Island Department of Education staff recruited all participants to take part in the focus groups. In total, 12 participants joined in the focus group discussions. Each of the three sessions were documented in audio recordings and meeting notes. Evaluators developed a focus group protocol designed to collect data on various aspects of implementation, including: program satisfaction, feasibility of program implementation, the successes and challenges of implementation, and program sustainability. A summary of BSF implementation in Year 2 of the program is provided below.

PROGRAM SATISFACTION

BSF Mission

Participants from both the teacher and the leadership focus groups generally agreed that the mission of the BSF program was to facilitate professional learning in science and mathematics and increase collaboration across schools and districts to improve implementation of the standards. The work with the Dana Center was viewed as a critical resource for improving the

content knowledge of teachers across primary and secondary school levels and promoting vertical (cross-grade) articulation of curriculum. A secondary science educator described the opportunity to meet with his counterparts at different schools and work together on content during curriculum days as "invaluable." In addition, an administrator noted that cross-district collaboration had led to more efficient use of time both in planning and communicating with teachers about the Dana Center work.

Similarly, Dana Center representatives acknowledged the importance of educators having opportunities to develop and use common tools that would promote coherence across the state in implementing the standards. However, the Dana Center group also emphasized the long-term goal of having "a guaranteed and viable curriculum" in place to ensure equity and achievement for all learners. Instead of simply promoting teacher collaboration, the Dana Center group framed the use of common practices (i.e., study of the standards) as a means to an end, namely, increasing student achievement in mathematics and science.

Comparison of BSF to Existing Programs

When asked to comment on the BSF program, the leadership group noted that they were not aware of other programs in their district that had been able to deliver the scope and depth of content in the same way. One participant stated, "Since the Dana people came in from outside the state of Rhode Island, they raised things up a level." Another focus group member mentioned that the current BSF professional development was directed to specific goals and was not fragmented in the way he had experienced with other programs. The comprehensive K-12 design and a focus on curriculum and instructional content were highlighted by the leadership focus group as distinctly different from other professional development. In addition, the usefulness of on-site modeling and collaborative planning facilitated by the Dana Center were noted.

Participants in the teacher focus group characterized the mission of the program as "completely different" from business as usual because of the program's emphasis on collaboration: "We are the ones who are validating it with our colleagues and defending it with our colleagues, and trying to help our colleagues understand that no, this is a good thing, just stay with it." Dana Center staff echoed this perspective, adding that promoting a collaborative effort – including building teacher efficacy to "solve problems" – was a major strength of the BSF program.

PROGRAM IMPLEMENTATION

During the focus groups, participants were prompted to discuss particular aspects of BSF program implementation, including how teachers were recruited to participate, what the program looked like in their school and/or district, and the successes and challenges of implementation.

Recruitment and Logistics

Participants in the teacher focus group said that they were selected by their department chair to participate in the program. One teacher added that the department head sought to include representation from each grade level. Dana Center staff agreed that the districts played the

primary role in making decisions about teacher recruitment: "We give a few guidelines. We want them to be respected by people on their campuses, but we want representation from all campuses, courses, and grade levels."

The leadership focus group described developing a calendar with the district and the Dana Center as a way to follow up on meeting logistics and address concerns. A science teacher said that over the course of the first year's work they met about five times with the Dana Center. Following each of the sessions with Dana, they scheduled a curriculum meeting to disseminate information to their colleagues and gather feedback. One teacher mentioned that this process had "created a willingness [for teachers] to jump on board because everyone's informed as we go through it."

Program Activities

Teachers generally expressed satisfaction with the professional development activities during the sessions with the Dana Center. Team building and intensive study of the standards were among the activities mentioned by teachers as particularly useful. However, one teacher expressed surprise at the level of paper-based work that took place during the sessions. "We work a lot with interactive documents online, and I was surprised to see we were gluing the scope and sequence on paper." While other teachers in the group agreed, one teacher said she enjoyed using the hands-on materials for their visual appeal.

With respect to school-based implementation of the BSF program, the leadership group mentioned classroom walkthroughs as an activity they brought back from the professional development sessions to the building level. One person said that introducing classroom walkthroughs had led to extended discussions among teachers and administrators about assessing and improving instructional practice. A teacher leader added that while there was some initial resistance to instituting this practice, further conversation had taken place to clarify how walkthroughs would be carried out. The teacher noted that ongoing discussion of walkthroughs had helped define their purpose and refine methods for collecting data on classroom practice.

Participants in the Dana Center focus group were aware of the challenges that teachers noted, but observed that the conversations taking place among educators were remarkably different than prior to their work with the BSF program. One Dana Center staff member added, "It is easier to look at the successes of a district when you've been with them for a couple of years." The Dana staff member noted that Cohort I districts have moved past initial problems and advanced to the point of revising units in the curriculum. This revision process has expanded to include opportunities to share the work with colleagues, and in turn receive feedback and increase buy-in to the program.

Communication

A particular concern of the leadership focus group was communicating about program activities and getting assistance between visits from the Dana Center. While the group acknowledged the usefulness of mechanisms such as the Dana Center listserv, they commented that it did not provide a means for two-way interaction and that messages were sometimes sent out without

subject headings. This led to some frustration with communication, particularly when a meaningful exchange was needed to identify or reschedule meeting dates. Others commented that communication issues were not solely the responsibility of the Dana Center and needed to be addressed at the school and district level. One person commented, "I think a lot of that has to do with the district and having them not drop the ball." Participants in the leadership focus group also expressed an interest in additional communication after each session to remind everyone of what was discussed and next steps in the process. A summary email was suggested as an example of something that would be particularly helpful to recap what was learned and disseminate this information to other educators.

In contrast, the Dana Center focus group described having direct access to the districts in which they work. They referenced the system of listservs managed by the Dana Center: "We have listservs for just content and grade levels, but also those that encompass the leadership side." The Dana Center team also mentioned receiving direct emails from teachers, principals, and district administrators. In addition, they noted that they communicate with RIDE through an ISP network, and that RIDE hosted discussion groups. One Dana Center participant added that materials are also available on their web site, "where anybody can access any of the documents that are posted." When asked about the frequency of communication, the Dana Center team stated that it usually occurred "once during a four to six week period." They added that the content of the documents they brought back from site visits usually determined the amount of contact: "It depends on whether or not we have an issue with any of the documents that we bring back with us, as we review the work. If we have questions, then we will contact them." In addition, they noted distributing schedule and activity reminders prior to site visits and sending out follow-up questions afterward.

SUCCESSES AND CHALLENGES

Program Successes

Teacher focus group members pointed out three examples of success attained through implementation of the BSF program. These examples included: (1) the introduction of walkthroughs to faculty, (2) building a cohesive team for ongoing curriculum work, and (3) a growing confidence in putting a research-based curriculum in place. One teacher described how two faculty trained in the walkthrough protocol were able to schedule several observations at his school. He added that teachers were amenable to having colleagues conduct the walkthroughs because they felt the process by which they were scheduled and conducted was transparent and non-threatening. The level of continued involvement by the faculty was described as a success, evidenced by the fact that most of the committee members from the first year of the program agreed to continue the work during the second year. Finally, participants mentioned that they felt particularly confident about the curricula being developed and cited that it was both research-based and developmentally appropriate for students.

Participants in the leadership focus group also described positive outcomes achieved through the BSF program. Leadership team members commented that the ongoing communication with RIDE to coordinate program activities helped build a stronger relationship. In addition, the group mentioned that the program opened up dialogue and communication between teachers and

administrators about curriculum in their schools. A teacher leader in the group said that his colleagues were interested in hearing from administrators about "what they value," and added that through this process it felt like they were becoming "a unit." Participants also mentioned that teachers were using the curriculum ladder introduced in the BSF sessions as a resource to stay on track regarding GLEs in their classes. Finally, participants extolled the Dana Center staff for their professionalism, knowledge of the GSEs, lesson planning, and support to teachers in responding to their questions and concerns.

The Dana Center team also commented on the development of a collective sense of purpose and identity among the cohort groups as a success for the program. They mentioned the Cohort 2 leadership as a prime example of separate districts coming together through this work. This included developing common structures for planning and communication that could be used across the schools within the cohort to support teachers in implementing the program. As one participant described, "Although initially they [district teams] were almost silos, at the end there was recognition and attempt to do things together." A similar observation was made about Cohort 1, where all three districts continue to meet together. As a member of the Dana Center team remarked, "Those three districts will never see themselves as individual districts anymore, they will continue to see themselves as one."

Challenges Identified

Participants in the teacher focus group noted that faculty at their schools have raised concerns about the new curriculum and whether they will have time for review to prepare their students for state tests. Teachers noted that a few of their colleagues continue to simply review material and are "holding on to some of those old models of teaching." In response, an elementary school teacher commented that BSF is a new approach to curriculum where there is "that thread pulling through" from grade level to grade level so there should be no need for review. "That is a very revolutionary concept for many teachers," she added.

Consistently, participants in the focus group stressed the need to work closely with teachers on implementing new approaches, and emphasized that change must occur gradually. As one teacher remarked, "I find it incredibly exciting, but I'm also concerned. How will we be trained? If we're not, people will continue to pull out [curriculum] pieces and they won't be successful." Another challenge articulated by the teacher focus group was the introduction of other programs such as the adoption of a new reading series, and Response to Intervention (RTI), while the work with BSF continues. Participants reiterated that although there are challenges they are still trying to emphasize the positives in the BSF program with their colleagues.

A major concern among the leadership focus group was expressed as, "Where do we go from here?" They said that while the process of curriculum writing and template development was positive, they would like more guidance on next steps for the program to ensure the curriculum is well implemented and teachers have the resources needed. They mentioned specific requests to address these challenges such as the Dana Center providing guidance to the schools and districts on how to facilitate curriculum development and the use of lesson templates. In addition, the group identified teacher buy-in as an issue, particularly with teachers who may want to stick with the familiar lessons they have used before instead of switching to teach to the Common Core.

The Dana Center group identified overcrowding at the work sessions as a challenge. One person noted that a group of student teachers had begun to attend the high school sessions; another mentioned that in Warwick there were attendees from the community college. Although they said that the Dana Center welcomes visitors to the sessions, one staff member commented on the drawbacks of this practice: "You want to establish a community of learners. When you have people drop in like that it's good because they are seeing the work, but it's bad because it's taking away from the momentum that's going on."

The Dana Center team also commented on working with local agencies such as the East Bay Collaborative, and remarked that they "are trying to understand how to leverage and utilize the relationship between our work and their service center." Another issue that the Dana Center noted in work with the East Bay is the fact that there are multiple districts and the sequence of courses in science is not always the same. The challenge they had to address was to make sure that the agenda for developing curriculum would not be driven by the interests of just one district and that all of the districts would be represented. The Dana team assisted in facilitating this process and as one person noted, "The teachers really do consider themselves colleagues now, working together as a team."

PROGRAM SUSTAINABILITY

Teachers offered a few ideas on how to sustain the momentum of the BSF program. One participant suggested that more in-depth sessions, such as a seminar on problem solving, would help strengthen the program at the district level. Members of the group also agreed that there was a need to expand the use of technology and web-based resources. One teacher indicated a desire for a web forum where teachers within districts could share with other teachers about what was working or needed to be adjusted in the classroom. She observed that teachers who work in isolation often do not improve, but if there were a forum for discussion about what is or is not working, "there can be dialogue, collaborative problem solving and encouragement." Another person recommended making use of a learning management system "that will tap into not only our own people with Common Core lessons and exemplars, but the world community as a whole." One participant noted that YouTube could be a potentially beneficial resource, but added that it was blocked on the school computers.

The leadership focus group participants were generally optimistic about positive outcomes from the program, including the instructional support that teachers received and time provided for collaboration. Participants agreed that there was a need to convince stakeholders to continue with the program and indicated that this was something where the Dana Center could help districts to encourage teachers and bolster buy-in. One member of the leadership team noted that elementary teachers were experiencing the greatest anxiety around the additional demands in the area of science, and recommended providing additional professional development to further support the work developed through the BSF program.

The Dana Center team commented on specific next steps for sustainability in the short term, such as working with the districts and Collaboratives to develop a plan for ongoing support. One person commented that in the East Bay they are trying to determine how the East Bay Collaborative can best support the four districts with the science work. They noted that the East

Bay districts wanted to do additional work during the summer and were trying to find the money to reconvene teachers to work on lesson planning. Likewise, schools working with the Northern Collaborative would like more time to get their teachers together to build on BSF work. Finally, the Dana Center team suggested that building an Intermediate Service Provider (ISP) network to work with schools would be a key factor for building capacity and sustainability of the program.

Summary

To summarize the focus group findings regarding BSF implementation in Year 2, both teacher and leadership groups indicated awareness and understanding of the program's mission. Educators were satisfied with the professional development meetings and the knowledge and activities learned during these sessions were being transferred to their instructional practice. Among the positive outcomes:

- Implementation of classroom walkthroughs
- New models for teacher professionalism and structures for collaboration
- Development and refinement of new curriculum

While Year 2 implementation can be characterized as deepening the work begun in the first year of the program, the focus groups also articulated some challenges to be addressed:

- Strengthen educators understanding of the long-term outcomes for student achievement
- Address concerns about curriculum implementation and state assessments
- Clarify processes for communication between school sites and service providers

Across the teacher, leadership, and Dana Center focus group data, there were specific examples where key aspects of implementation were expressed. Chart 2 provides examples of these implementation themes across role groups.

Chart 2. Commonality of Themes Across the Focus Groups

Theme	*Role Group*	*Exemplar Quote*
Mission & Comparison to Other Programs	**Teachers**	"Being able to have the research right there with us as we're writing, and having it data driven and research based is really what is going to help us a district pull it all together and be able to start in pre-K or K and build those solid foundations." "I would say it's completely different from the perspective that it's coming from us as teachers, that we're the ones who are driving it. We are the ones who are validating it with our colleagues and defending it with our colleagues and trying to help our colleagues understand that no, this is a good thing, just stay with it."

Theme	*Role Group*	*Exemplar Quote*
	Leadership	"Helping to broaden and strengthen collaborative relationships between districts, enhance the content knowledge probably foremost and first for teachers to implement a curriculum… [and] as far as the district goes, the main focus for us… is to try to get a seamless curriculum, K-12." "We have had professional development come through the district, but… it wasn't probably as comprehensive as K-12… [Also, with the Dana Center] we actually had the people come on site, so they came in to our buildings… They modeled what should be done, and then we had the visits in the classrooms, and they did the observation, the debrief, they talked to our teachers about norms… And those things have stuck."
	Dana Center	"The mission is to make sure that we have systems in place to promote equity and access for all learners in the state of RI around math and science learning. That we have opportunities to develop, use and implement common tools and practices across the state to promote coherence around how we study the standards to ensure all kids have the opportunity to learn the curriculum." "One of the main strengths is to promote collaborative effort… Whatever we can do together is better than what one of us does by ourselves. To help build teacher efficacy."
	Teachers	"Some of the activities are focused around team building, understanding standards, understanding prior and post acknowledgement." "Every time we meet we have a curriculum meeting afterward so we can disseminate immediately and get immediate feedback, creating a willingness to jump on board because everyone's informed as we go through it."
	Leadership	"We're all islands and we don't share enough, and this has opened up some doors for that and started some conversations which probably wouldn't happen without it… It can bring a team-building aspect to a building, if it's done right. And district-wide, I think the same thing."
Program Implementation	**Dana Center**	"When groups of teachers get together, what they talk about and how they talk about it is remarkably different than prior to the Dana Center having opportunities to convene these groups… People are talking about standards now, when they collaborate. Even informally, they start the conversation around standards."
Communication	**Teachers**	N/A

Theme	Role Group	Exemplar Quote
	Leadership	"I've found that if you really want to communicate, there has to be an expectation that a reply or something is going to come back… [That]'s not a norm… Once the leadership meeting was over, until months later, there was nothing… We don't get agendas or anything… We never got reminders."
	Dana Center	"We have listservs for just content and grade levels, but also those that encompass the leadership side… We also have our web site, where anybody can access any of the documents that are posted."
Successes/ Challenges	**Teachers**	"This way of looking at curriculum, looking at the future… Knowing that it's research based and what needs to be taught at the appropriate developmental level. It's gotten people who were digging in their heels to come around." "How will we be trained? If we're not, people will continue to pull out [curriculum] pieces and they won't be successful."
	Leadership	"From a teacher perspective hearing the words from administration and what they value. They were listening to us and that doesn't always happen. I keep mentioning communication and opening up dialog and everyone becomes a unit. But it is focused on curriculum." "We have seen the scope and sequence and the angst is, where do we go from here? … We are held to NECAP, need more direction and support from Dana on being more creative with other schools and teachers… You don't know what you don't know, if you haven't implemented it yet… If I'm not getting it, buying into it, my staff won't buy into it."
	Dana Center	"Although initially they [district teams] were almost silos, at the end there was recognition and attempt to do things together." "You want to establish a community of leaders. When you have people drop in [on work sessions] like that it's good because they are seeing the work, but it's bad because it's taking away from the momentum that's going on."
Sustainability	**Teachers**	"I would like to see some sort of web-based place where within the

Theme	Role Group	Exemplar Quote
		district we can share with each other what's working, what's not working. Or if we had some sort of webcast once a month where if you want to join in you can… examine… and give feedback… A vehicle to talk to each other and to administration [about] what is and what isn't working."
	Leadership	"I think it's going to take leadership thinking very differently about how they support their buildings and how they support their teachers… not only financial, but just in general, respecting all the work that's going on and letting teachers know how important it is. And when you're able to support and do whatever you can, do it."
	Dana Center	"They're taking what they have and instead of looking for some other things to do, they're channeling their money into this project, into making this project stronger or adding things to this project at their level."

SECTION IV: BSF YEAR 2 IMPACTS

As described in the evaluation methods section, a survey was developed to examine the impacts of BSF program participation on stakeholders and teachers. The survey collected data on participants' perceptions around the culture of academic standards.

For both the stakeholder and teacher surveys, evaluators assessed "big picture" variables that are associated with the culture of academic standards. Each of these variables is comprised of a set of individual survey items. The following sections of the report detail survey findings for the individual items and the overall statistical significance for the variables, as well as the differences among respondent groups over time. Eight "big picture" variables were measured in the stakeholder survey, including: Beliefs Regarding the Standards, Student Mastery of Standards, Teacher Mastery of Standards, Personal Familiarity of Standards, Personal Understanding of Standards, Attitudes Regarding the Standards, Classroom Use of Standards, and PD Use of Standards.

To reduce the time for teachers to complete the survey on the retrospective Year 1 instrument, the original teacher survey included only five of the eight variables: Beliefs Regarding the Standards, Personal Familiarity of Standards, Personal Understanding of Standards, Classroom Use of Standards, and PD Use of Standards. Evaluators continued utilizing these five variables in Year 2 for the purpose of consistency.

Four of the variables proved to be highly reliable (Beliefs Regarding the Standards, Personal Understanding of Standards, Classroom Use of Standards, and PD Use of Standards). The remaining four variables were moderately reliable (Student Mastery of Standards, Teacher Mastery of Standards, Personal Familiarity of Standards, and Attitudes Regarding the Standards).[2] Generating variables from multiple survey items allows for a stronger assessment of changes than individual survey items, thereby increasing the ability for evaluators to detect reliable effects.

STAKEHOLDER IMPACTS

Sample Characteristics

Eighty-seven stakeholders from Cohort I participated in the evaluation pre-survey. In the second year of the evaluation, 24 participants completed the post-post-survey. In Cohort II, 70 stakeholders completed the pre-survey, while the post-survey had 42 participants. The instrument will be administered as a post-post-survey to these stakeholders in spring of 2012. Tables 1a and 1b display the sample characteristics of stakeholders.

Table 1a. Stakeholder Sample Characteristics: Cohort I

Cohort I Characteristics (n = 87)		Percent~
Roles[†]	Superintendent	2%
	Assistant Superintendent	10%
	Curriculum Director	14%
	Department Chair	1%
	Content Chair	3%
	ISP	3%
Gender	Female	70%
Race/ Ethnicity	White	94%
Education/Degree	Masters Degree	25%
	Masters Degree with 30 or more credit hours	57%
	Doctorate Degree	18%
Certification	Secondary Mathematics	17%
	Secondary Science	8%
	Combination of Certifications[¶]	53%
Teaching Experience	5 to 9 years	10%
	10 to 15 years	23%
	16 to 25 years	32%
	Over 25 years	35%

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[2] Reliability was measured using Cronbach's Alpha with 'highly reliable' classifying those variables that received an Alpha of .80 or above and moderately reliable variables receiving an Alpha of .60 and above.

Table 1b. Stakeholder Sample Characteristics: Cohort II

Cohort II Characteristics (n = 70)		Percent˜
Roles[†]	Superintendent	2%
	Assistant Superintendent	3%
	Curriculum Director	3%
	Principal	46%
	Teacher	41%
Gender	Female	60%
Race/ Ethnicity	White	99%
Education/Degree	Bachelors Degree	9%
	Masters Degree	25%
	Masters Degree with 30 or more credit hours	56%
	Doctorate Degree	10%
Certification	Elementary Certifications	64%
	Secondary Mathematics	10%
	Secondary Science	12%
	Combination of Certifications[¶]	14%
Teaching Experience	4 years or less	5%
	5 to 9 years	8%
	10 to 15 years	23%
	16 to 25 years	35%
	Over 25 years	30%

[†]*Note. Several participants reported combinations of Department Chair, Content Coach, and Curriculum Director.*
˜*Percentages may not sum up to 100 since key characteristics are mentioned only.*
[¶]*Combination of Certifications are certifications classified as other, such as Foreign Language, Health, and Social Studies.*

Culture of Academic Standards

Statistically significant changes were found when examining the Beliefs Regarding the Standards variable for both Cohorts[3], due in part to large changes in some of the individual items. For example, Table 2 shows that the percentage of respondents who agreed or strongly agreed increased for one statement: *the Standards improve the instructional strategies in core content areas* increased from pre (8%) to post-post (83%) in Cohort I. The percentage of respondents who agreed or strongly agreed decreased across two different statements: *the Standards are too specific (*93% pre to 17% post-post), and *the Standards are too general* (73% pre to 32% post-post). For other items relating to stakeholders' beliefs on standards, however, the percentages of respondents who agreed or strongly agreed remained relatively stable from pre- to post-post-survey for Cohort I. In Cohort II, the percentage of respondents who reported agreement increased on almost all of the items relating to the beliefs about Standards from pre- to post-survey.

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[3] The Beliefs Regarding the Standards variable significantly decreased in Cohort I and increased in Cohort II.

Table 2. Stakeholder Beliefs of the Standards

The Standards…	Percent of Stakeholders who Agree or Strongly Agree				
	Cohort I			Cohort II	
	Pre *n = 87*	Post *n = 70*	Post-Post *n = 24*	Pre *n = 70*	Post *n = 42*
are too specific.	93	12	17	29	33
are too general.	73	26	32	38	19
improve student achievement.	93	93	88	68	90
provide a benchmark for comparing students' skill levels.	90	91	92	75	91
improve instruction in core content areas.	8	85	83	74	90
improve instructional strategies implemented in the classroom.	62	72	58	62	91
align the content taught across districts and the state.	86	93	83	74	93
can be used to develop in class assessments.	100	96	88	89	98
have a positive effect on student learning.	91	93	88	71	83
provide a basis for measuring student learning.	94	96	83	82	95
enhance the educational system in the state.	93	93	88	74	86
increase the competitiveness of Rhode Island students nationally.	74	82	78	57	75
require additional preparation time to integrate into instruction.	78	75	83	77	83
require improvement in students' competencies to integrate them in instruction effectively.	77	82	91	90	76
improve differentiated instruction in the classroom.	44	53	36	38	62

Note. Results should be interpreted with caution due to differences in sample sizes.

On the Student Mastery of Standards variable, a significant increase was observed in Cohort I. The most notable item-level change from pre- to post-post-survey occurred in the following statement: *students who successfully master the Standards are different than students who do not meet the standards in terms of knowledge*, which increased from 13% pre- to 91% post-post-survey. With two other statements, the percentage of respondents who reported agreement remained almost unchanged from pre- to post-post-survey: *students who successfully master the Standards have smoother transitions between grades than those who did not* (89% pre to 96% post-post) and *students who successfully master the Standards have a higher level of knowledge in core content areas* (88% pre to 92% post-post). In Cohort II, the percent of stakeholders who reported agreement with beliefs on student mastery of standards increased by 11 percentage points across three of the five items, pre- to post-survey. The percent of stakeholders reporting

agreement that *students who successfully master the Standards have exceptional teachers* and *have academically involved parents/ guardians* decreased by nine and five percentage points, respectively (See Table 3).

Table 3. Stakeholder Beliefs on Student Mastery of Standards

| | Percent of Stakeholders who Agree or Strongly Agree | | | | |
| | Cohort I | | | Cohort II | |
Students who successfully master the Standards…	Pre *n = 87*	Post *n = 70*	Post-Post *n = 24*	Pre *n = 70*	Post *n = 42*
have smoother transitions between grades than those who did not.	89	97	96	84	95
have a higher level of knowledge in core content areas.	88	96	92	80	91
are different than students who do not meet the standards in terms of knowledge.	13	88	91	77	88
have exceptional teachers.	42	53	57	46	37
have academically involved parents/guardians.	50	39	61	52	47

Note. Results should be interpreted with caution due to differences in sample sizes.

Stakeholders in Cohort I showed significant increases on the variable of Teacher Mastery of Standards. Table 4 illustrates that for these Cohort I participants, a major change from pre- to post-post-survey occurred for the following item: *teachers who implement the Standards are more experienced teachers than those who do not*, which increased from pre (14%) to post-post (41%). The percentage of respondents who agreed or strongly agreed also increased for another item: *teachers who implement the Standards have deeper content knowledge than those who do not* (57% pre to 71% post-post). For the remaining items relating to teachers who implement the Standards, though, the percentage of respondents who agreed or strongly agreed remained relatively stable from pre- to post-post-survey for Cohort I. In Cohort II, the percentage of respondents who reported agreement remained fairly stable across all of the statements relating to teachers who implement the Standards from pre- to post-survey—no significant change was noted on this variable.

Table 4. Stakeholder Beliefs on Teacher Mastery of Standards

	Percent of Stakeholders who Agree or Strongly Agree				
	Cohort I			**Cohort II**	
Teachers who implement the Standards…	Pre *n = 87*	Post *n = 70*	Post-Post *n = 24*	Pre *n = 70*	Post *n = 42*
are more effective teachers than those who do not.	84	88	92	80	83
have deeper content knowledge than those who do not.	57	69	71	67	63
integrate new resources into their classroom (i.e., technology, textbooks, laboratories, etc.).	65	69	71	78	75
are more experienced teachers than those who do not.	14	13	41	20	13
are less experienced teachers than those who do not.	7	10	9	11	8
spend additional time planning their instructional strategies.	89	84	91	89	88

Note. Results should be interpreted with caution due to differences in sample sizes.

While no statistically significant changes were noted on the Personal Familiarity of Standards variable in either cohort, the percentage of respondents who agreed or strongly agreed did decrease for one statement in Cohort I: *I am familiar with the Standards for which students in my school/district are **not** proficient*, which decreased from 90% pre- to 71% post-post-survey. With the remaining statements relating to familiarity with the Standards, however, the percentage of stakeholders who agreed or strongly agreed remained relatively stable from pre- to post-post survey for this cohort. In Cohort II, the percent of respondents who report familiarity with the Standards increased across two different items: *I am familiar with the Standards for science (*64% pre to 86% post), and *I am familiar with the Standards for the grade levels in my school (or district)* (84% pre to 95% post). The percent of respondents reporting agreement that *I am familiar with the Standards* remained relatively stable for the three remaining items from pre- to post-survey (See Table 5).

Table 5. Stakeholder Familiarity of Standards

I am familiar with the Standards…	Percent of Stakeholders who Agree or Strongly Agree				
	Cohort I			**Cohort II**	
	Pre *n = 87*	Post *n = 70*	Post-Post *n = 24*	Pre *n = 70*	Post *n = 42*
for mathematics.	97	100	96	94	93
for science.	81	88	88	64	86
for the grade levels in my school (or district).	94	96	92	84	95
for which students in my school/district are **not** proficient.	90	93	71	73	82
for which the students in my school/district are proficient.	90	93	83	76	80

Note. Results should be interpreted with caution due to differences in sample sizes.

No significant changes were observed on the Personal Understanding of Standards variable. Table 6 displays one notable item-level change from pre- to post-post-survey, in Cohort I, for the following item: *I have a strong understanding of the Standards for science*, which increased from pre (53%) to post-post (67%). For the remaining items relating to having a strong understanding of the Standards, though, the percentage of respondents who agreed or strongly agreed remained relatively stable from pre- to post-post survey in Cohort I. In Cohort II, the percent of stakeholders reporting agreement that *I have a strong understanding of the Standards for science* and *I have a strong understanding of the Standards for mathematics* increased and decreased by 13 percentage points, respectively. For the rest of the statements, the percent of respondents reporting agreement that *I have a strong understanding of the Standards* remained almost unchanged from pre- to post-survey.

Table 6. Stakeholder Understanding of Standards

I have a strong understanding of the Standards…	Percent of Stakeholders who Agree or Strongly Agree				
	Cohort I			**Cohort II**	
	Pre *n = 87*	Post *n = 70*	Post-Post *n = 24*	Pre *n = 70*	Post *n = 42*
for mathematics.	74	84	75	84	71
for science.	53	67	67	47	60
for the grade levels in my school (or district).	76	85	75	78	80
for which students in my school/district are **not** proficient.	75	81	68	69	65
for which the students in my school/district are proficient.	74	84	77	74	68

Note. Results should be interpreted with caution due to differences in sample sizes.

Stakeholders in Cohort I demonstrated a significantly significant increase on the Attitudes Regarding the Standards variable. One example of a substantial item-level change is seen from pre- to post-post-survey in the percent of stakeholders, in Cohort I, reporting agreement that *I am confident in my content knowledge, but **not** in my understanding of the Standards*, which decreased by 53 percentage points. For the remaining items relating to the stakeholders attitudes toward the standards, the percentage of respondents who agreed or strongly agreed increased from pre- to post-post survey in Cohort I. In Cohort II, the percent of respondents who report agreement with statements on the stakeholder attitudes toward the standards increase by at least 14 percentage points across three of the seven items, pre- to post-survey. With the rest of the statements relating to stakeholder attitudes toward the standards, though, the percent of respondents agreeing remained stable from pre- to post-survey, and no overall significant change was noted on this variable in Cohort II (See Table 7).

Table 7. Stakeholder Attitudes Toward the Standards

	Percent of Stakeholders who Agree or Strongly Agree				
	Cohort I			Cohort II	
	Pre n = 87	Post n = 70	Post-Post n = 24	Pre n = 70	Post n = 42
I am as familiar with the Standards as other educators in my school/district.	73	84	100	66	85
Teachers at my school/district have adequate understanding of the Standards.	47	74	92	56	70
Most teachers at my school/district are addressing the Standards in their classrooms.	64	87	100	64	88
I am confident that my training thus far prepares me to address the Standards in my role.	82	97	92	86	88
I am confident in my content knowledge, but **not** in my understanding of the Standards.	86	12	33	27	25
Additional professional development in *core content areas* will help me to fully understand the Standards.	32	67	88	80	72
Additional professional development on *instructional strategies* will help me fully understand the Standards.	28	66	88	81	80

Note. Results should be interpreted with caution due to differences in sample sizes.

Stakeholders in Cohort I showed a significant increase on the variable of Classroom Use of Standards. Table 8 displays increases from the pre- to post-post-survey across all seven items assessed. In Cohort II, the percentage of respondents who believe that the Standards are frequently addressed in classrooms at their school/district increased from pre- to post-post survey across three different statements: a belief that the Standards are addressed frequently in classrooms *to plan a lesson (*26% pre to 53% post); a belief that the Standards are often addressed in classrooms *to develop a learning assessment* (33% pre to 43% post); and a belief often that the Standards are frequently addressed in classrooms *to develop a unit of instruction*

(31% pre to 50% post). For the remaining statements, the percentage of respondents who believe that the Standards are frequently addressed in classrooms at their school/district remained almost unchanged from pre- to post-survey, thereby resulting in no overall significance on the Classroom Use of Standards variable for Cohort II.

Table 8. Stakeholder Beliefs of the Classroom Use of Standards

	Frequency of Stakeholders[†]				
	Cohort I			**Cohort II**	
How frequently do you believe the Standards are addressed in classrooms at your school/district to…	Pre *n = 87*	Post *n = 70*	Post-Post *n = 24*	Pre *n = 70*	Post *n = 42*
plan a lesson.	27	43	58	26	53
develop a learning assessment.	35	44	46	33	43
develop a unit of instruction.	31	48	63	31	50
integrate inquiry-based instruction.	17	38	38	27	28
differentiate instruction.	11	13	29	24	23
address student learning needs.	15	29	46	28	30
prepare for NECAP.	49	67	71	54	65

Note. [†] The frequency of teachers is the percentage of respondents who marked a four or a five on a 6-point item scale, that is, from 0 ("Not at All") to 5 ("Very Often"). Results should be interpreted with caution due to differences in sample sizes.

No significant differences were found on the Professional Development Use of Standards variable for either cohort. In Cohort I, there was a notable change from pre- to post-post survey in the percentage of stakeholders who believe that they frequently address the Standards in school/district professional development to *compare/share student work*, which decreased from pre (43%) to post-post (29%). For the remaining items, though, the percentage of stakeholders who believe often that they address the Standards in school/district professional development remained relatively stable from pre- to post-post survey. In Cohort II, the percentage of respondents who believe that they frequently address the Standards in school/district professional increased from pre- to post-post survey across three items: address the Standards in school/district professional development to *gain instructional strategies* (19% pre to 31% post), address the Standards in school/district professional development to *compare/share student work* (26% pre to 41% post), and address the Standards in school/district professional development to *assess student improvement* (33% pre to 46% post). The percent of respondents reporting how frequently they address the Standards in school/district professional development for the four remaining statements remained exactly the same from pre- to post-survey (See Table 9).

Table 9. Stakeholder Beliefs of the PD Use of Standards

	Frequency of Stakeholders[†]				
	Cohort I			**Cohort II**	
How frequently do you address the Standards in school/district professional development…	Pre *n = 87*	Post *n = 70*	Post-Post *n = 24*	Pre *n = 70*	Post *n = 42*
gain depth in a content area.	39	38	38	26	26
gain instructional strategies.	33	38	25	19	31
compare/share student work.	43	41	29	26	41
assess student improvement.	43	48	50	33	46
plan extracurricular activities.	13	19	17	13	13
co-plan or share lessons.	22	35	26	26	26
develop/review school and district improvement plan.	52	62	54	30	46

Note. [†] The frequency of teachers is the percentage of respondents who marked a four or a five on a 6-point item scale, that is, from 0 ("Not at All") to 5 ("Very Often"). Results should be interpreted with caution due to differences in sample sizes.

TEACHER IMPACTS

Sample Characteristics

One hundred and four teachers from Cohort I participated in the evaluation pre-survey. In the second year of the evaluation, 94 participants completed the post-post-survey. In Cohort II, 96 teachers completed the pre-survey, while the post-survey had 89 participants. The instrument will be administered as a post-post-survey to these Cohort II teachers in the spring of 2012. Tables 10a and 10b display the sample characteristics of teachers.

Table 10a. Teacher Sample Characteristics: Cohort I

Cohort I Characteristics (n = 104)		Percent~
Gender	Female	77%
Race/ Ethnicity	White	91%
Education/Degree	Bachelors Level	39%
	Masters Level	35%
	Masters Level with 30 or more credit hours	26%
Certification*	Secondary Mathematics	27%
	Secondary Science	13%
	Special Education	12%
Teaching Experience	4 years or less	5%
	5 to 9 years	31%
	10 to 15 years	29%
	16 to 25 years	25%
	Over 25 years	10%

Table 10b. Teacher Sample Characteristics: Cohort II

Cohort II Characteristics (n = 96)		Percent~
Gender	Female	82%
Race/ Ethnicity	White	100%
Education/Degree	Bachelors Level	40%
	Masters Level	28%
	Masters Level with 30 or more credit hours	30%
	Doctorate Level	2%
Certification*	Secondary Mathematics	29%
	Secondary Science	19%
	Special Education	4%
Teaching Experience	4 years or less	6%
	5 to 9 years	20%
	10 to 15 years	31%
	16 to 25 years	31%
	Over 25 years	13%

Note. ~ Percentages may not sum up to 100 since key characteristics are mentioned only.
* A majority of the respondents had a Combination of Certifications, that is, certifications classified as other, such as English as a Second Language (ESL), Literacy, and Social Studies.

Culture of Academic Standards

A statistically significant increase was found when assessing the pre- to post-post- teacher perceptions on the Beliefs Regarding the Standards variable in Cohort I. Table 11 details several noteworthy item-level changes in the percent of teachers reporting agreement that *The RI Standards provide a basis for measuring student learning*, *The Standards align the content taught across districts and the state*, and *The RI Standards enhance the educational system in the state*, which increased by 10, 19, and 19 percentage points, respectively. With two other items, the percentage of respondents who reported agreement decreased from pre- to post-post-survey: that is, *The Standards are too specific* (23% pre to 8% post-post) and *The Standards improve differentiated instruction in the classroom* (38% pre to 25% post-post). In Cohort II, the percent of teachers who report agreement with beliefs on standards increased by 11 percentage points, at least, across six of the 15 items, from pre- to post-survey. The percent of teachers reporting agreement that *The Standards are too specific* decreased by 12 percentage points from pre- to post-survey. On the remaining statements relating to teacher beliefs on standards, the percent of respondents in agreement remained reasonably stable from pre- to post-survey.

Table 11. Teacher Beliefs of the Standards

The Standards…	Percent of Teachers who Agree or Strongly Agree				
	Cohort I			Cohort II	
	Pre n = 104	Post n = 104	Post-Post n = 94	Pre n = 96	Post n = 89
are too specific.	23	8	8	29	17
are too general.	46	38	51	29	25
improve student achievement.	67	84	76	69	78
provide a benchmark for comparing students' skill levels.	74	86	81	70	74
improve instruction in core content areas.	75	87	83	71	80
improve instructional strategies implemented in the classroom.	56	72	59	55	73
align the content taught across districts and the state.	65	93	84	71	90
can be used to develop in class assessments.	85	97	90	85	96
have a positive effect on student learning.	70	88	78	72	79
provide a basis for measuring student learning.	75	90	85	83	87
enhance the educational system in the state.	56	87	75	71	83
increase the competitiveness of Rhode Island students nationally.	59	76	59	46	73
require additional preparation time to integrate into instruction.	83	78	80	80	83
require improvement in students' competencies to integrate them in instruction effectively.	77	81	72	76	83
improve differentiated instruction in the classroom.	38	50	25	25	39

Teachers in Cohort I showed significant increases on the variable of Personal Familiarity of Standards variable. In Cohort I, noteworthy increases were seen in the percentage of teachers who were familiar with the Standards, from pre- to post-post survey, across all five items. In Cohort II, there was an increase in the percentage of teachers who were familiar with the Standards, from pre- to post-survey was seen for one item: that is, the percent of teachers reporting agreement that *I am familiar with the* Standards *for the grade levels in my school (or district)* increased by 11 percentage points. For the rest of the items, however, the percent of respondents reporting agreement that *I am familiar with the Standards* remained almost unchanged from pre- to post-survey (See Table 12). No significant change was noted for Cohort II teachers on this variable.

Table 12. Teacher Familiarity of Standards

| I am familiar with the Standards… | **Cohort I** | | | **Cohort II** | |
	Pre *n = 104*	Post *n = 104*	Post-Post *n = 94*	Pre *n = 96*	Post *n = 89*
for mathematics.	74	86	90	83	90
for science.	40	37	69	56	63
for the grade levels in my school (or district).	63	89	92	75	86
for which students in my school/district are **not** proficient.	54	74	77	66	59
for which the students in my school/district are proficient.	58	75	77	68	61

Percent of Teachers who Agree or Strongly Agree

Teachers in Cohort I also demonstrated a significant increase on the Personal Understanding of Standards variable. Table 13 shows clear item-level increases in the percentage of teachers who have a strong understanding of the Standards from pre- to post-post survey, across all five statements in Cohort I. In Cohort II, there was a decrease from pre- to post-survey for the following item: *I have a strong understanding of the* Standards *for which the students in my school/district are proficient*, which decreased from pre (60%) to post (49%). For the other items relating to having a strong understanding of the Standards, though, the percentage of respondents who agreed or strongly agreed remained relatively stable from pre- to post-post survey.

Table 13. Teacher Understanding of Standards

| I have a strong understanding of the Standards… | **Cohort I** | | | **Cohort II** | |
	Pre *n = 104*	Post *n = 104*	Post-Post *n = 94*	Pre *n = 96*	Post *n = 89*
for mathematics.	63	84	84	72	70
for science.	41	41	61	50	55
for the grade levels in my school (or district).	62	85	82	65	69
for which students in my school/district are **not** proficient.	53	70	69	58	49
for which the students in my school/district are proficient.	57	70	68	60	49

Percent of Teachers who Agree or Strongly Agree

Teachers in Cohort I showed a statistically significant increase from pre- to post-post-assessment on the Classroom Use of Standards variable. Indeed, for all seven statements, there were

prominent item-level increases from pre- to post-post survey in the percentage of teachers who believe often that the Standards are addressed in the classrooms at their school/district. In Cohort II, for all of the items, the percent of respondents who believe often that the Standards are addressed in the classrooms at their school/district remained almost unchanged from pre- to post-survey (See Table 14). No significant change was noted for Cohort II teachers on this variable, pre- to post-assessment.

Table 14. Teacher Beliefs of the Classroom Use of Standards

	Frequency of Teachers[†]				
	Cohort I			**Cohort II**	
How frequently do you believe the Standards are addressed in the classrooms at your school/district to…	Pre *n = 104*	Post *n = 104*	Post-Post *n = 94*	Pre *n = 96*	Post *n = 89*
plan a lesson.	29	70	79	40	44
develop a learning assessment.	33	67	76	52	43
develop a unit of instruction.	33	71	83	50	48
integrate inquiry-based instruction.	23	59	55	38	35
differentiate instruction.	19	45	39	32	32
address student learning needs.	24	51	52	34	34
prepare for NECAP.	47	73	80	63	58

Note. [†] The frequency of teachers is the percentage of respondents who marked a four or a five on a 6-point item scale, that is, from 0 ("Not at All") to 5 ("Very Often").

Finally, Cohort I teachers demonstrated a significant increase in pre- to post-post-assessment on the variable Professional Development Use of Standards. Table 15 illustrates noteworthy item-level increases from pre- to post-post survey, in Cohort I, with regards to the percentage of respondents who believe that they frequently address the Standards in school/district professional development for six of the seven items. In Cohort II, there was an increase from pre- to post-survey for one item: respondents who believe that they frequently address the Standards in school/district professional development to *develop/review school and district improvement plan*, which increased from pre (23%) to post (36%). With the remaining items, the percent of respondents who believe that they often address the Standards in school/district professional development remained fairly stable from pre- to post-survey.

Table 15. Teacher Beliefs of the PD Use of Standards

How frequently do you address the Standards in school/district professional development…	Cohort I			Cohort II	
	Pre *n = 104*	Post *n = 104*	Post-Post *n = 94*	Pre *n = 96*	Post *n = 89*
gain depth in a content area.	26	56	60	28	31
gain instructional strategies.	18	52	46	30	35
compare/share student work.	15	40	44	22	28
assess student improvement.	17	48	51	33	34
plan extracurricular activities.	9	29	12	13	15
co-plan or share lessons.	23	54	46	24	27
develop/review school and district improvement plan.	25	50	44	23	36

Note. [†] The frequency of teachers is the percentage of respondents who marked a four or a five on a 6-point item scale, that is, from 0 ("Not at All") to 5 ("Very Often").

SECTION V: GROUP LEVEL ANALYSES

The survey data allowed evaluators to examine group-level participation and responses from multiple school districts and across both mathematics and science content areas. To support understanding of program implementation and scope, investigating group association can provide data for future program planning.

PARTICIPANT GROUPS

Both BSF program stakeholders and teachers responded to surveys measuring the culture of academic standards. Because these data were collected through differing methodologies (pre-post- post-post-survey for stakeholders and retrospective teacher pre-post-survey in Cohort I) and netted different sample sizes across cohorts, average stakeholder and teachers responses cannot be directly compared. An exploratory investigation, however, was conducted to find converging results. Tables 16 and 17 provide this exploratory analysis, where mean responses for each group are presented on the common variable measures across groups.

In general, increases in variables were demonstrated across both stakeholders and teachers in Cohort I. Exceptions included a statistically significant decrease in the Beliefs of Standards variable for stakeholders and a slight dip in the Personal Familiarity of Standards variable for stakeholders from pre- to post-post-survey. For teachers, all variables improved over time, including statistically significant increases pre- to post-post-assessment for four of the five measured variables.

Table 16. Cohort I Stakeholder and Teacher Means

	Cohort I Stakeholders			Cohort I Teachers		
	Pre	Post	Post-Post	(Retrospective) Pre	Post	Post-Post
Beliefs of Standards (scale 1 - 4)	3.04	2.85	**2.77**	2.67	2.87	2.69
Personal Familiarity (scale 1 - 4)	3.09	3.17	3.06	2.62	3.08	**3.04**
Personal Understanding (scale 1 - 4)	2.82	2.97	2.97	2.54	3.00	**2.89**
Classroom Use (scale 0 – 5)	2.82	3.28	**3.49**	2.89	3.87	**3.82**
PD Use (scale 0 -5)	2.75	3.11	3.08	2.38	3.25	**3.15**

Note. Time 1 and Time 2 data were updated from the Year 1 Evaluation Report. Blue font represents a statistically significant decrease from pre- to post-post-survey on the variable. Green font represents a statistically significant increase from pre- to post-post-survey on the variable.

In Cohort II consistent improvements were noted across time points for both stakeholder and teacher participant groups. Stakeholders showed increases on every variable from pre- to post-survey. Increases were also evident in three out of five variables for Cohort II teachers. The change in one variable, Belief of Standards, was statistically significant for both stakeholders and teachers (See Table 17). Further changes may be noted in the spring of 2012 when the post-post-survey will be administered to all Cohort II participants. These findings will be presented in the Year 3 Report.

Table 17. Cohort II Stakeholder and Teacher Means

	Cohort II Stakeholders		Cohort II Teachers	
	Pre	Post	Pre	Post
Beliefs of Standards (scale 1 - 4)	2.65	**2.80**	2.60	**2.76**
Personal Familiarity (scale 1 - 4)	2.94	3.02	2.79	2.83
Personal Understanding (scale 1 - 4)	2.77	2.81	2.67	2.66
Classroom Use (scale 0 – 5)	2.94	3.26	3.29	3.17
PD Use (scale 0 -5)	2.55	2.90	2.47	2.66

Note. Green font represents a statistically significant increase from pre- to post-post-survey on the variable.

DISTRICT & CONTENT GROUPS

The district group analysis explored survey response per district to uncover useful BSF program findings that differed across participating districts. In Cohort II, the stakeholder sample included participants from the following districts: Bristol Warren ($n = 9$); Little Compton ($n = 1$); Portsmouth ($n = 5$); Tiverton ($n = 6$); and Warwick ($n = 48$). The teacher sample included participants from the following districts: Bristol Warren ($n = 12$); Little Compton ($n = 4$); Portsmouth ($n = 10$); Tiverton ($n = 13$); and Warwick ($n = 53$). One stakeholder and four teachers did not report their district and were not included in the district level analysis. The district group analysis is confounded to some extent with the content focus of each district. For example, Warwick was the only district of the five that focused on mathematics; therefore, examples where the Warwick teachers differed from other district teachers might be a reflection of content rather than the district context. This is further confounded by the large difference in sample sizes when comparing Warwick to the other districts. Additionally, district-level findings for Little Compton will not be addressed because of the low sample sizes on both the stakeholder and teacher survey ($n < 5$). To systematically examine differences in the perceived culture of academic standards the following sections detail the three highest rated variables disaggregated by district and participant groups.

District Differences

Table 18 shows the three highest rated variables for each district in Cohort II, as reported by stakeholders. In general, stakeholders from the district of Portsmouth reported the highest scores on the variables, while Warwick stakeholders reported the lowest scores. The variables of Classroom Use of Standards and Personal Familiarity of Standards were the highest rated by stakeholders. None of the districts featured the Beliefs Regarding the Standards variable in the top three, and PD Use of Standards only appeared one time in the highest rated among districts.

Table 18. Highest Rated Variables by District

District (Cohort II)	Variables
Bristol Warren	▪ Personal Familiarity of Standards ▪ Classroom Use of Standards ▪ Personal Understanding of Standards
Portsmouth	▪ Classroom Use of Standards ▪ PD Use of Standards ▪ Personal Familiarity of Standards
Tiverton	▪ Classroom Use of Standards ▪ Personal Familiarity of Standards ▪ Personal Understanding of Standards
Warwick	▪ Personal Familiarity of Standards ▪ Classroom Use of Standards ▪ Personal Understanding of Standards

Table 19 displays the three highest rated variables for each district in Cohort II, as reported by teachers. As with the stakeholders, teachers from Portsmouth reported the highest scores on the variables, while Tiverton teachers reported the lowest scores. Additionally, teachers identified both Classroom Use of Standards and Personal Familiarity of Standards as the highest rated

variables, as did stakeholders. All variables were identified at least once among the districts' three highest rated.

Table 19. Highest Rated Variables by District

District (Cohort II)	Variables
Bristol Warren	▪ Classroom Use of Standards ▪ Beliefs Regarding the Standards ▪ Personal Familiarity of Standards
Portsmouth	▪ Classroom Use of Standards ▪ Personal Familiarity of Standards ▪ PD Use of Standards
Tiverton	▪ Classroom Use of Standards ▪ Personal Familiarity of Standards ▪ Personal Understanding of Standards
Warwick	▪ Classroom Use of Standards ▪ Personal Familiarity of Standards ▪ Personal Understanding of Standards

Content Differences

The teacher survey provided opportunities to examine where the content area focus – mathematics or science – produced varying teacher impacts. For example, teachers participating in the science component of the BSF program reported greater balance between the standards being too specific or too general as compared with the mathematics district[4]. Not surprisingly, science participants reported less familiarity and understanding with the mathematics standards, while the mathematics district reported less familiarity and understanding of science standards[5]. Teachers from both content areas reported that the Standards are often addressed in the classroom to plan lessons[6].

SECTION VI: TEACHER CONTENT KNOWLEDGE

The BSF program shift from a specific element of mathematics or science content to a broad, but in-depth understanding of the academic content standards is reflected in the evaluation through an assessment of teacher knowledge. The Instructional Alignment Chart (IAC), an instrument developed to promote teachers' exploration of the sequence of student learning--including prior and pedagogical content knowledge--was used as secondary data by evaluators.

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[4] This statement represents a comparison of the Beliefs Regarding the Standards variable for mathematics and science districts.

[5] As previously described, Cohort II mathematics focused on the Common Core Standards, while Cohort II science focused on the RI GLEs/GSEs.

[6] This statement compares the item average for science (3.54) with the item average for mathematics (3.39). The frequency of teachers is the percentage of respondents who marked a four or a five on a 6-point item scale, that is, from 0 ("Not at All") to 5 ("Very Often").

THE INSTRUCTIONAL ALIGNMENT CHART

The IAC was originally created by the Dana Center with the intention of facilitating discussions around standards-based instructional planning. For the program evaluation, the IAC was based upon the standards for the specific content areas and grade spans. Content specialists in Mathematics and Science from RIDE then created an exemplar IAC as a benchmark for each area. The content area specialists then developed scoring guides for the rubrics which assigned points for the following areas within the IAC: Changes I, Changes II, Important Findings, and Implications for Instruction. Finally, the rubrics were vetted by The Education Alliance for validity purposes. This IAC process provides evidence-based teacher pedagogical and content knowledge data, and are used to assess teacher growth as part of the BSF program. .

In the spring of 2011, Cohort II teachers individually completed the rubrics as a pre-assessment of how well teachers understand and are able to express the expected changes, important findings, and instructional implications within the content standards they teach. Because the IAC was developed in Year 2of the BSF program, assessing Cohort II provides the opportunity to examine a pre- and post-test. The Cohort II teachers will be given the same assessment in the spring 2012 as a post-assessment, upon completion of their program participation. To assess growth in teachers' knowledge, completed IACs for each time point are coded by evaluators, based on the scoring guide. A summary of the mathematics and science pre-assessment IAC scores is provided below to provide a baseline. Appendix B details the complete rubrics, disaggregated by component, content, and grade levels.

Mathematics IAC Scores

Table 20 below displays a summary of mathematic IAC scores for the pre-assessment, administered in spring of 2011. In general, early elementary school teachers received the highest scores, with total scores ranging from 0 to 13 points, with an average of 7 points. The total score is the sum of points each participant earned across the four components: Changes I, Changes II, Important Findings, and Implications for Instruction.

Table 20. Summary of Mathematics IAC Scores

	Average Total Score[†]/ Possible Total Score	Range of Total Scores
Grades K, 1, 2 *(n = 12)*	7/20	0 - 13
Grades 3, 4, 5 *(n = 13)*	3/17	0 - 8
Grades 6, 7, 8 *(n = 17)*	1 /22	0 - 4
Grades 8, Geometry, Fourth Course *(n = 13)*	4/17	0 - 11

[†]*Note.* Average Total Scores are rounded to the nearest whole number.

Science IAC Scores

Table 21, below, displays a summary of science IAC scores for the pre-assessment, administered in spring of 2011[7]. In general, early elementary and high school teachers received the highest scores, with an average total score of three points. The range in total scores was 0 to 7 points for elementary school teachers and 0 to 9 points for high school teachers. As with the mathematics IAC rubrics, the total score represents the sum of points each participant earned across the four components: Changes I, Changes II, Important Findings, and Implications for Instruction.

Table 21. Summary of Science IAC Scores

	Average Total Score[†]/ Possible Total Score	Range of Total Scores
Grades K-2, 3-4 & 5-6 *(n =20)*	3/12	0 - 7
Grades 5-6, 7-8 & 9-11 *(n =13)*	2/12	0 - 9
Grades 7-8, 9-11 & Extension *(n =11)*	3/12	0 - 9

[†]*Note*. Average Total Scores are rounded to the nearest whole number.

SECTION VII: STUDENT ACHIEVEMENT DATA

The state of Rhode Island administers the New England Common Assessment Program (NECAP) student achievement test in October for math and May for science. Using NECAP proficiency scores, district-level changes in mathematics and science achievement were examined to further explore the impact that BSF program may have had on participating districts. The evaluation team also examined how achievement trends differ among participating districts and by cohort. Additionally, Rhode Island state average proficiency levels in both content areas were examined in comparison to districts participating in BSF programming.

As previously discussed, districts did not participate in both content areas[8]. For this reason, greater change would be expected for the content area in which the district participated; however, given the overlap of mathematics and science, both content tests are examined for improvements.

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[7] High School Teachers (Grades 7-8, 9-11 & Extension) completed the pre-assessment in September 2011.
[8] In Cohort I the districts of Woonsocket, Lincoln, and Cumberland participated in mathematics; the district of Cranston participated in science. In Cohort II, the district of Warwick participated in mathematics; Tiverton, Portsmouth, Bristol-Warren, and Little Compton participated in science.

OVERVIEW OF NEW ENGLAND COMMON ASSESSMENT PROGRAM DATA

Items on the NECAP test are developed specifically for those states participating in the NECAP and are directly linked to the NECAP Grade Level Expectations/Grade Span Expectations. These GLEs/GSEs are the basis for the reporting categories developed for each content area and are used to help guide the development of test items. Student performance on NECAP examinations is classified into one of four achievement levels, which describe students' level of proficiency[9]:

- **Proficient with Distinction** – Students performing at this level demonstrate the knowledge and skills as described in the content standards for this grade span.
- **Proficient** – Students performing at this level demonstrate the knowledge and skills as described in the content standards for this grade span with only minor gaps.
- **Partially Proficient** – Students performing at this level demonstrate gaps in knowledge and skills as described in the content standards for this grade span.
- **Substantially below Proficient** – Students performing at this level demonstrate extensive and significant gaps in knowledge and skills as described in the content standards for this grade span.

MATHEMATICS PROFICIENCY

Longitudinal Achievement

In Rhode Island, Mathematics NECAP examinations are administered in October of each school year in grades 3-8 and grade 11. It is important to note that these examinations test student achievement based on the *prior year's* GLEs/GSEs. Therefore, only the Cohort I NECAP 2010-2011 results presented in this report may have been impacted by BSF programming; all other years will be considered baseline data. For Cohort II, the first year of impact will be evident when October 2011 test results are published in May 2012.

Table 22 displays the percent of students in each of the Cohort I and Cohort II districts whose mathematics scores were classified as *Proficient with Distinction* or *Proficient* in 2008-2009, 2009-2010, and 2010-2011. The column at the far right of Table 22 presents the differences between years 2009 and 2011 in the percent of students reaching proficiency in each district. With one exception, all BSF districts had higher percentages of students reaching proficiency in 2010-2011 than in 2008-2009. Statewide, an increase in the percent of students proficient or above on the Mathematics NECAP examination was also evidenced.

[9]Descriptions of student proficiency and achievement levels were retrieved from the *Rhode Island Department of Elementary and Secondary Education website:* http://www.ride.ri.gov/assessment/results.aspx.

Table 22. Cohorts I and II Mathematics NECAP Data

	% Proficient and Above (n of students tested)			Change Scores
	2008-2009	**2009-2010**	**2010-2011**	
Cohort I Districts				
Cranston *(Science)*	55 (5,513)	56 (5,543)	55 (5,604)	0
Cumberland *(Math)*	59 (2,584)	63 (2,601)	64 (2,570)	+5
Lincoln *(Math)*	67 (1,792)	68 (1,830)	69 (1,757)	+2
Woonsocket *(Math)*	36 (3,017)	38 (3,027)	40 (3,058)	+4
Cohort II Districts				
Warwick *(Math)*	57 (5,628)	58 (5,485)	58 (5,365)	+1
Portsmouth *(Science)*	73 (1,484)	75 (1,450)	77 (1,433)	+4
Tiverton *(Science)*	67 (1,036)	67 (1,022)	68 (1,033)	+1
Bristol-Warren *(Science)*	66 (1,721)	65 (1,799)	67 (1,810)	+1
Little Compton *(Science)*	72 (217)	77 (204)	80 (219)	+8
Rhode Island State	**53 (74,567)**	**54 (74,131)**	**55 (73,834)**	**+2**

Note: Data gathered by evaluators from eRIDE database through online external access.

Cohort and State-level Comparisons

Figure 1 (below) displays the three-year trend of BSF districts, as well as the RI state average. Trends for Cohort I districts are presented in red; Cohort II districts are presented in blue; and RI state is presented in green. In general, BSF districts had higher levels of students reaching proficiency on the mathematics NECAP than the RI state average. Additionally, Cohort II districts out-performed many of the Cohort I districts.

Figure 1. Mathematics NECAP Data Percent Proficient and Above by Year
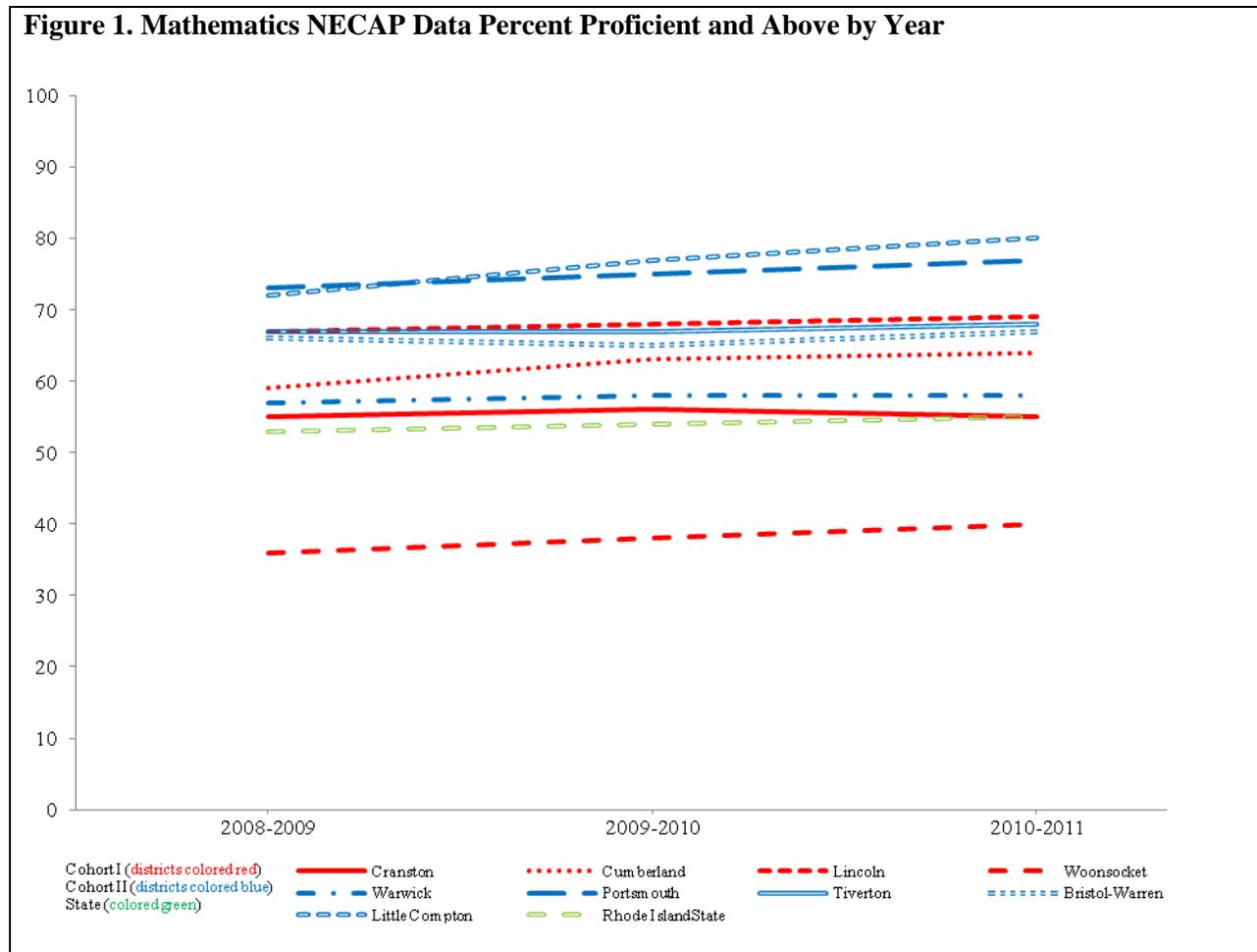
SCIENCE PROFICIENCY

Longitudinal Achievement

In Rhode Island, New England Common Assessment Program (NECAP) science assessments are administered during May of each school year in grades 4, 8, and 11. Test results then become available the following fall. Because students take these science examinations in the spring, the scores represent learning during the same instructional year. Therefore, for Cohort I, two years of NECAP scores may have been impacted by BSF implementation: 2009-2010 and 2010-2011.

In Cohort II, one year of NECAP scores may have been influenced by BSF programming: 2010-2011.

Table 23 displays the percent of students in each of the Cohort I and Cohort II districts whose science scores were classified as *Proficient with Distinction* or *Proficient* in 2008-2009, 2009-2010, and 2010-2011. The column at the far right of Table 23 presents the differences between years in the percent of students in each school who scored at or above proficiency. With one exception, all BSF districts had higher percentages of students reaching proficiency in 2010-2011 than in 2008-2009. There was also an average 7-point increase in the percent of students proficient or above on the Science NECAP, statewide.

Table 23. Cohorts I and II Science NECAP Data

	% Proficient and Above (n of students tested)			
	2008-2009	**2009-2010**	**2010-2011**	**Change Scores**
Cohort I Districts				
Cranston *(Science)*	26 (2,402)	32 (2,440)	34 (2,490)	+8
Cumberland *(Math)*	30 (1,133)	31 (1,062)	39 (1,129)	+9
Lincoln *(Math)*	36 (721)	37 (759)	44 (803)	+8
Woonsocket *(Math)*	14 (1,158)	15 (1,181)	14 (1,252)	0
Cohort II Districts				
Warwick *(Math)*	25 (2,394)	25 (2,348)	26 (2,352)	+1
Portsmouth *(Science)*	44 (653)	51 (658)	52 (650)	+8
Tiverton *(Science)*	26 (453)	39 (420)	38 (425)	+12
Bristol-Warren *(Science)*	29 (713)	32 (763)	36 (761)	+7
Little Compton *(Science)*	48 (77)	57 (67)	49 (63)	+1
Rhode Island State	**25 (31,187)**	**29 (31,484)**	**32 (31,741)**	**+7**

Note: Data gathered by evaluators from eRIDE database through online external access.

Cohort and State-level Comparisons

Figure 2 (below) displays the three-year science trends of BSF districts, as well as the RI state average. Trends for Cohort I districts are presented in red; Cohort II districts are presented in blue; and RI state is presented in green. With the exception of two districts, BSF districts consistently demonstrated higher levels of students reaching proficiency on the science NECAP than the RI state average. Additionally, many Cohort II districts out-performed Cohort I districts.

Figure 2. Science NECAP Data Percent Proficient and Above by Year
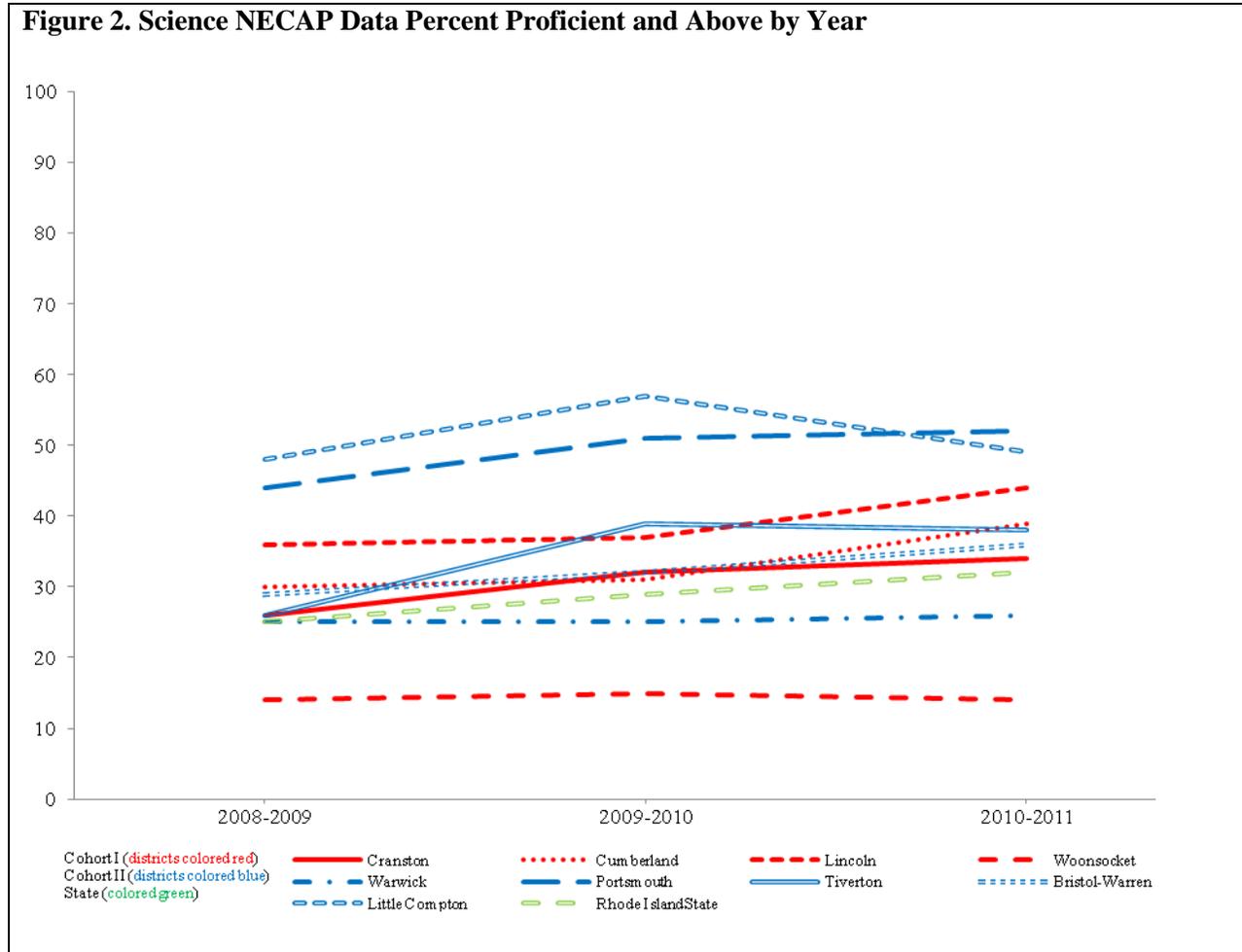
SECTION VIII: SUMMARY EVALUATION FINDINGS & RECOMMENDATIONS

SUMMARY OF EVALUATION FINDINGS

During the Year 2 implementation of the BSF program, evaluators collected survey data from both stakeholders and teachers, conducted focus groups with multiple program groups, and assessed using instructional alignment chart rubrics. Data are presented in the previous report sections; however, syntheses of these various data provide summary evaluation findings for Year 2 implementation. Broad program findings include:

- *Building a Strong Foundation has provided a coherent professional development program with a comprehensive K-12 design and focus on curriculum.* Teachers and leadership focus groups agreed that the program focused on the development of an aligned curriculum and implementation of the standards that was specific and of high quality. In particular, educators acknowledged that the study of the standards and collaborative planning that took place during professional development sessions led to school-based implementation of new instructional practices. Among the activities being carried out during the second year of the program are: implementation of classroom walkthroughs, revision of curriculum units, and development of common structures for planning and communication across districts.

- *Teachers at baseline generally show low to moderate levels of understanding of the content and progression of standards-based instruction.* Cohort II teachers across elementary, middle and high school grades showed low to moderate levels of proficiency in interpreting and understanding standards in mathematics and science. This suggests that the program is being provided to teachers who need content support. Early elementary teachers scored higher than middle and high school teachers on the mathematics rubric. In science, elementary and high school teachers attained higher scores on the rubric than did middle school teachers.

- *Significantly positive change is seen in stakeholders' and teachers' perceptions related to the culture of academic standards following two years of program implementation.* Data from Cohort I stakeholder surveys collected across three time periods (pre-, post-, and post-post-) show statistically significant change in participants attitudes, beliefs, and use of academic standards. Overall statistical significance was found on five of eight variables used to measure detect changes in stakeholders perceptions regarding the culture of academic standards. Variables showing evidence of significant change by stakeholders include: *Beliefs Regarding the Standards*, *Student Mastery of Standards*, *Teacher Mastery of Standards*, *Attitudes Regarding the Standards*, and *Classroom Use of the Standards*. Among Cohort I teachers, four of five variables showed significant change, including: *Personal Familiarity of Standards*, *Personal Understanding of the Standards*, *Classroom Use of the Standards*, and *Professional Development Use of the Standards*.

- *Initial change is detected in stakeholders' and teachers' perceptions related to the culture of academic standards following one year of program implementation.* Among Cohort II stakeholders, data collected from two time periods (pre- and post-) show statistically significant change in participants *Beliefs Regarding the Standards*, one of eight variables associated with the culture of academic standards. Likewise, data from Cohort II teachers' surveys also showed statistically significant change on *Beliefs Regarding the Standards*, one of five variables assessed through the teacher survey.

- *One-year mathematics and two-year science BSF implementation trends yield positive longitudinal findings across districts.* On the mathematics and science NECAP examination, eight out of nine BSF districts (Cohorts I and II) had higher percentages of students reaching proficiency in 2010-2011 than in 2008-2009. Additionally, the majority of BSF districts consistently demonstrated higher levels of students reaching proficiency on the mathematics and science NECAP than the RI state average.

EVALUATION RECOMMENDATIONS

Through analysis of data collected during Year 2 of the Building a Strong Foundation program, evaluators suggest the following recommendations for consideration entering the final year of this award. Evaluators will continue to work with the BSF staff to critically examine data collected on professional development and student achievement, and will provide a summative report on the outcomes attained through the program.

The following are the Year 3 evaluation recommendations for consideration:

- *Develop and disseminate plans for use of Intermediary Service Providers.* The services of the ISPs have been identified as a key component for sustaining the foundational work on curriculum and instructional alignment by the Dana Center. Further clarification is needed as to how these services will be made available to schools and districts, and the ongoing support RIDE will provide for recruiting and certifying ISPs.

- *Strengthen communication among all MSP partners*, *including district stakeholders, teachers, the Dana Center, and RIDE staff.* Collaboratively develop a communication plan for the ongoing services (e.g., agendas and follow-up for professional development meetings with the Dana Center). Additionally, partners should establish a venue for discussing available documentation at the district and state levels.

- *Continue to collect and examine outcome –based data on the BSF programming.* This includes post-post-survey responses from both teacher and stakeholders in Cohort II, as well as NECAP results from participating Cohort II districts. Continue to monitor Cohort I districts for evidence of program sustainability.

REFERENCES

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APPENDIX A: COPY OF SURVEY INSTRUMENT

The following survey is part of the evaluation of Rhode Island's Math Science Partnership conducted by The Education Alliance at Brown University. The evaluation includes an exploration into how partnerships are leveraged for standards-based education and student success. The survey takes approximately 15 minutes to complete. The data collected will remain confidential, where participants' responses will be aggregated to protect identity in reporting used for program improvement. Thank you for your time.

For each of the following series of statements, please circle the response that best describes your perspective.

1.) The Rhode Island GLEs/GSEs…	Strongly Disagree	Disagree	Agree	Strongly Agree
a. are too specific.	1	2	3	4
b. are too general.	1	2	3	4
c. improve student achievement.	1	2	3	4
d. provide a benchmark for comparing students' skill levels.	1	2	3	4
e. do **not** improve instruction in core content areas.	1	2	3	4
f. improve instructional strategies implemented in the classroom.	1	2	3	4
g. align the content taught across districts and the state.	1	2	3	4
h. can be used to develop in class assessments.	1	2	3	4
i. have a positive effect on student learning.	1	2	3	4
j. provide a basis for measuring student learning.	1	2	3	4
k. enhance the educational system in the state.	1	2	3	4
l. increase the competitiveness of Rhode Island students nationally.	1	2	3	4
m. require additional preparation time to integrate into instruction.	1	2	3	4
n. require improvement in students' competencies to integrate them in instruction effectively.	1	2	3	4
o. improve differentiated instruction in the classroom.	1	2	3	4

2.) Students who successfully master the GLEs/GSEs…	Strongly Disagree	Disagree	Agree	Strongly Agree
a. have smoother transitions between grades than those who did not.	1	2	3	4
b. have a high level of knowledge in core content areas.	1	2	3	4
c. are not any different than students who do not meet the standards in terms of knowledge.	1	2	3	4
d. have exceptional teachers.	1	2	3	4
e. have academically involved parents/guardians.	1	2	3	4

3.) Teachers who implement the GLEs/GSEs…	Strongly Disagree	Disagree	Agree	Strongly Agree
a. are more effective teachers than those who do not.	1	2	3	4
b. have deeper content knowledge than those who do not.	1	2	3	4
c. integrate new resources into their classroom (i.e., technology, textbooks, laboratories, etc.).	1	2	3	4
d. are more experienced teachers than those who do not.	1	2	3	4
e. are less experienced teachers than those who do not.	1	2	3	4
f. spend additional time planning their instructional strategies.	1	2	3	4

4.) I am familiar with the GLEs/GSEs…	Strongly Disagree	Disagree	Agree	Strongly Agree
a. for mathematics.	1	2	3	4
b. for science.	1	2	3	4
c. for the grade levels in my school (or district).	1	2	3	4
d. for which students in my school/district are **not** proficient.	1	2	3	4
e. for which students in my school/district are proficient.	1	2	3	4

5.) I have a strong understanding of the GLEs/GSEs…	Strongly Disagree	Disagree	Agree	Strongly Agree
a. for mathematics.	1	2	3	4
b. for science.	1	2	3	4
c. for the grade levels in my school (or district).	1	2	3	4
d. for which students in my school/district are **not** proficient.	1	2	3	4
e. for which students in my school/district are proficient.	1	2	3	4

6.) Please indicate your level of agreement with the following statements…	Strongly Disagree	Disagree	Agree	Strongly Agree
a. I am as familiar with the GLEs/GSEs as other educators in my school/district.	1	2	3	4
b. Teachers at my school/district have adequate understanding of the GLEs/GSEs.	1	2	3	4
c. Most teachers at my school/district are addressing the GLEs/GSEs in their classrooms.	1	2	3	4
d. I am confident that my training thus far prepares me to address the GLEs/GSEs in my role.	1	2	3	4
e. I am confident in my content knowledge, but **not** in my understanding of the GLEs/GSEs.	1	2	3	4
f. Additional professional development in *core content areas* will help me to fully understand the GLEs/GSEs.	1	2	3	4
g. Additional professional development on *instructional strategies* will help me fully understand the GLEs/GSEs.	1	2	3	4

7.) How frequently do you believe the GLEs/GSEs are addressed in the classrooms at your school/district to…	Not at All					Very Often
a. plan a lesson.	0	1	2	3	4	5
b. develop a learning assessment.	0	1	2	3	4	5
c. develop a unit of instruction.	0	1	2	3	4	5
d. integrate inquiry-based instruction.	0	1	2	3	4	5
e. differentiate instruction.	0	1	2	3	4	5
f. address student learning needs.	0	1	2	3	4	5
g. prepare for NECAP.	0	1	2	3	4	5

8.) How frequently do you address the GLEs/GSEs in school/district professional development to…	Not at All					Very Often
a. gain depth in a content area.	0	1	2	3	4	5
b. gain instructional strategies.	0	1	2	3	4	5
c. compare/share student work.	0	1	2	3	4	5
d. assess student improvement.	0	1	2	3	4	5
e. plan extracurricular activities.	0	1	2	3	4	5
f. co-plan or share lessons.	0	1	2	3	4	5
g. develop/review school and district improvement plan.	0	1	2	3	4	5

9.) Demographic information…	
a. Which district are you from?	_____
b. What is your role within the district?	☐ Teacher ☐ Principal ☐ Assistant Principal ☐ Superintendent ☐ Assistant Superintendent ☐ Curriculum Director Other: _____
c. Gender:	☐ Female ☐ Male
d. Ethnic Background:	☐ African-American ☐ American Indian/Alaskan Indian ☐ Hispanic ☐ Asian or Pacific Islander ☐ Caucasian Other: _____
e. What is the highest level of degree you have attained?	☐ Bachelors ☐ Masters ☐ Master plus 30 credit hours or more ☐ Doctorate
f. I am certified to teach the following field(s):	☐ Early Childhood ☐ Elementary

	☐ Secondary Mathematics
	☐ Secondary Science
	Other: _____
g. Years of teaching experience:	☐ 0-4
	☐ 5-9
	☐ 10-15
	☐ 16-25
	☐ Over 25

APPENDIX B: INSTRUCTIONAL ALIGNMENT CHART RUBRICS

Mathematics IAC Rubrics

Grades K, 1, 2		
Section	**Total Possible Points**	**Average Rating**
Changes I	5	2.3
Changes II	3	1.2
Important Findings… (each response is worth two points: one for correct identification of instructional level, one for description)	8	2.2
Implications for Instruction…	4	1.3
Total Score[10]	**20**	**7**

n = 12

Grades 3, 4, 5		
Section	**Total Possible Points**	**Average Rating**
Changes I	3	0.7
Changes II	2	0.9
Important Findings… (each response is worth two points: one for correct identification of instructional level, one for description)	8	1.1
Implications for Instruction…	4	0.2
Total Score	**17**	**2.9**

n= 13

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[10] The total score is the sum of points each participant earned across the four components: Changes I, Changes II, Important Findings, and Implications for Instruction.

Grades 6, 7, 8		
Section	**Total Possible Points**	**Average Rating**
Changes I	3	0.5
Changes II	2	0.2
Important Findings… (each response is worth two points: one for correct identification of instructional level, one for description)	14	0
Implications for Instruction…	3	0.2
Total Score	**22**	**0.9**

n = 17

Grades 8, Geometry, Fourth Course		
Section	**Total Possible Points**	**Average Rating**
Changes I	2	0.5
Changes II	1	0.4
Important Findings… (each response is worth two points: one for correct identification of instructional level, one for description)	10	2.9
Implications for Instruction…	4	0.5
Total Score	**17**	**4.4**

n= 13

Science IAC Rubrics

Grades K-2, 3-4 & 5-6		
Section	**Total Possible Points**	**Average Rating**
Changes I	1	0.8
Changes II	2	1.1
Important Findings… (each response is worth two points: one for correct identification of instructional level, one for description)	6	1.3
Implications for Instruction…	3	0.3
Total Score	**12**	**3.4**

n = 20

Grades 5-6, 7-8 & 9-11		
Section	**Total Possible Points**	**Average Rating**
Changes I	1	0.5
Changes II	2	0.5
Important Findings… (each response is worth two points: one for correct identification of instructional level, one for description)	6	1.1
Implications for Instruction…	3	0.1
Total Score	**12**	**2.2**

n= 13

Grades 7-8, 9-11 & Extension[11]		
Section	**Total Possible Points**	**Average Rating**
Changes I	2	0.5
Changes II	1	0.2
Important Findings… (each response is worth two points: one for correct identification of instructional level, one for description)	6	1.6
Implications for Instruction…	3	0.3
Total Score	**12**	**2.6**

n= 11

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[11] High School Teachers (Grades 7-8, 9-11 & Extension) completed the pre-assessment in September 2011, rather than in the fall of 2010.