



The SMILE Program

Science and Math Investigative Learning Experiences

University of Rhode Island

Evaluation

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Executive Summary

The University of Rhode Island SMILE (Science and Math Investigative Learning Experiences) Program is an after-school science and math academic enrichment program designed for minority, underrepresented, and low-income students in grades 4 to 12. SMILE serves as a pipeline, encouraging students to develop the skills and self-confidence they need to pursue a college education. SMILE serves students working at grade level or higher, although some SMILE students may face barriers that have prevented them from reaching their potential, such as socioeconomic and linguistic barriers.

Founded in 1994 with 20 students in one middle school, URI SMILE now serves approximately 250 students at 13 schools in four Rhode Island communities: Central Falls, South Kingstown, West Warwick, and Woonsocket.

With only 1.5 full-time administrative positions and 24 teacher/advisors, SMILE provides elementary, middle school, and high school students with year-round programming focused on hands-on math and science activities, mentoring, and college and career awareness. At the high school level, SMILE students maintain a schedule that includes four years of college preparatory science and mathematics classes.

Designed to be portable and replicable, SMILE provides teachers with a stipend, funding for supplies and transportation, professional development workshops, and a standardized, but flexible curriculum. Per pupil expenditure ranges between \$800 and \$1,000.

URI SMILE emphasizes high school retention and graduation, and provides students with the confidence, awareness, and motivation to pursue post-secondary education. In addition, SMILE contributes to addressing the national shortage of individuals pursuing careers in the sciences by seeking to increase the number of minority and educationally disadvantaged students prepared to pursue higher education and enter careers in science, math, engineering, and the health professions.

This evaluation was conducted to document the impact of The SMILE Program on participating students, ensure continued external funding of the program, and generate recommendations for improvement. The evaluators worked with a committee of SMILE staff, URI faculty, and representatives from the participating schools to design the evaluation. Detailed input was sought in various formats from students (both current students and graduates), teachers, parents, and principals involved with the program. In addition, the evaluation team reviewed student records and observed program activities.

The major findings of this evaluation are:

1. SMILE provides high quality and well received programs. URI SMILE has had a very positive impact on participating students in a wide variety of areas: improved social connections, improved academic and school-related performance, increased confidence and motivation, and a greater level of aspiration and expectation regarding college. All constituencies rated the various components and features of SMILE very highly. In particular, they noted the hands-on and experiential curriculum, the off-site events, connections with URI, the supportive and informal yet rigorous environment, and the opportunity to meet and make friends with other students interested in math and science. True to its own literature, SMILE has made it “cool to be smart.”

The SMILE Program affects students’ college preparedness not only through rigorous after school club activities and mentoring, but also by reinforcing academic performance. SMILE students must maintain a C average or better. High School students are required to take four years of college preparatory science and mathematics classes and complete at least three college applications. Together with information about college and careers, SMILE fosters the early development of student interest in and enthusiasm for science and math, encouraging them to remain in school, graduate, and go on to college.

2. SMILE establishes a community of learning. An important aspect of SMILE’s approach and a major contributor to its success is the degree to which the program facilitates the development of relationships between students, teachers, parents, college student mentors, URI faculty, and SMILE staff. The effect of these social connections on SMILE students cannot be underestimated. SMILE provides students with an academically challenging and socially supportive community of learning where they can picture themselves and their futures in new and exciting ways, improve their self-confidence, and prepare themselves academically for college.

SMILE builds both school-based and program-wide communities of learning, and thus reinforces the fun and excitement of learning about science and math. The SMILE model focuses on increasing the diversity of students, by gender, race, or socioeconomic status, with access to this type of learning community. In addition, SMILE provides a safe and comfortable environment where students can focus on academics and avoid dangerous behaviors (e.g., drugs).

3. SMILE successfully generates positive outcomes. More than four-fifths of SMILE high school students (82%) maintained an academic average of C for the current academic year, and more than half (57%) maintained an average of B or better. Among SMILE's high school graduates, 93% have attended college, including Amherst College, Carnegie Mellon, Smith College, Brown University, University of Rhode Island, Rhode Island College, Community College of Rhode Island, Rensselaer Polytechnic Institute, University of Maryland Eastern Shores, and the University of Washington, compared to approximately 40% of high school graduates from the four participating SMILE communities.

Since its founding, a total of 790 students have participated in URI SMILE. All SMILE graduates interviewed for this evaluation attend or have graduated from college, and all cite SMILE as having a positive impact on their college aspirations and potential, both by reinforcing and enhancing their interest in science and math and making them aware of college and career opportunities in these fields.

The positive impact of The SMILE Program on the participating students derives from the full range of components and features of the program. The climate of academic rigor and high expectations, the engaging and hands-on approach, and the requirement that students maintain their grades as a condition of eligibility all play a role in generating positive outcomes, as do the variety of the after-school activities, challenge weekends, and campus and workplace field trips. In fact, when we asked students, teachers, and parents which aspects of the program contributed most to student success, the most common answer was “all of them.”

4. SMILE benefits the University. The relationship between SMILE and the University of Rhode Island has additional benefits to the college community. SMILE offers a URI spring course, Elementary Outdoor Science Adventure (EOSA), to students from different majors who earn experiential learning credits for designing and teaching an environmental education curriculum. These URI students serve as teachers and mentors to the elementary students during the EOSA. Some professors engaged in The SMILE Program have leveraged their relationship with the program to obtain funding by positioning SMILE as an outreach component of their research. The SMILE Program is well aligned with the University's outreach and diversity goals to engage in community service and establish a diverse learning community on campus. These tangible benefits to the University will continue to motivate the University's commitment of resources to SMILE.

Recommendations:

The URI SMILE Program staff asked the evaluator to solicit recommendations for improvement from all constituents. Most recommendations reflected a strong interest in program expansion, including: extending SMILE Club hours, establishing more SMILE Clubs within each school, and expanding SMILE to more schools; increasing professional development opportunities for teachers; expanding the college awareness component by adding an on-site guidance counselor; and creating a full-time SMILE coordinator position. It is important to note that addressing these recommendations would require additional funding. A few recommendations for improvement could be accomplished without additional funding. These include: increasing communication between SMILE teachers and The URI SMILE Program staff; increasing the promotion and visibility of SMILE within each school; and diversifying the SMILE curriculum with input from SMILE teachers.

Contents

Introduction and Background	1
Evaluation Purpose and Methodology	4
SMILE Logic Model	6
Assessment of Program Components and Features	8
Assessment of Program Outcomes	25
Conclusions and Recommendations	38
Acknowledgments	42

Introduction and Background

The University of Rhode Island SMILE Program (Science and Math Investigative Learning Experiences) is based on the 17-year-old Oregon State University (OSU) SMILE program and was founded at URI in 1994 after the program's director, Carol Englander, spent a sabbatical year at OSU. URI SMILE still maintains ties to OSU through sharing curriculum and administrative practices.

However, URI SMILE has evolved into an independent organization with components distinctly different from the program it was inspired by, and with a curriculum adapted to local interests and resources. URI SMILE is funded by private foundations, local corporations, and community organizations, as well as by state and federal agencies.

SMILE's twenty four teachers support approximately 250 elementary, middle, and high school students in thirteen Rhode Island schools in Central Falls, South Kingstown, West Warwick, and Woonsocket. These districts were selected because their students have had limited access to opportunities for experiential science and math education, and their science and math teachers expressed strong interest in the program.

A total of 790 students at all grade levels have participated in URI SMILE. On the basis of survey responses, many SMILE students stay in the program for two to nine years. On average, returning SMILE middle and high school students have been in the program for 3.3 and 4.1 years, respectively. About 50% of middle school students who responded to the survey were in their first

year of SMILE.

It is important to note that not all school districts had a high school SMILE program until 2002. Attrition from the SMILE high school program has been affected by a number of factors, including student relocation to other school districts, early enrollment in college, or the need for students to pursue paid employment after school hours. In spite of these factors, a total of 40 SMILE students have graduated from SMILE as high school seniors, and 93% of SMILE high school seniors have gone on to college.

SMILE staff and club advisors have made a concerted effort to reach out to traditionally under-served and economically disadvantaged populations. The gender and ethnicity breakdown of SMILE students over the program's history has been:

SMILE students gender and ethnicity		
Male 39%		
	Caucasian	40.5%
Female 61%	African American	11.5%
	Hispanic American	17.6%
	Asian American	8.8%
	Native American	9.5%
	Other minority	12.1%

The URI SMILE Program model includes a number of key components and features, including:

- **A weekly after-school SMILE Club** that meets for between one-and-a-half and two hours, where students engage in hands-on projects and experiments in science and math and gain knowledge beyond standard school work in a relaxed and supportive atmosphere.
- **College and career-oriented field trips** to workplaces that employ science and math in their work, as well as periodic field trips to college campuses for college awareness and academic enrichment.
- **Annual off-site events, including:** a three-day, two-night **Elementary Outdoor Science Adventure** camp at URI's Alton Jones Campus for elementary school students at which they receive instruction from URI students and engage in hands-on, project-based environmental activities; an **Engineering Challenge Weekend** at the URI Kingston campus for middle and high school students at which they work in teams with URI students and faculty mentors on a challenging, hands-on engineering problem, and a one-day **Environmental Challenge Program** at the U.S. EPA Atlantic Ecology Division Lab in Narragansett for high school students, which includes instruction,

demonstration, and hands-on activities.

- **An annual Family Science Night** and potluck dinner for each SMILE district where SMILE students present interactive activities which they have prepared for their parents and families.
- **College information and awareness activities for middle and high school students** provided by SMILE teachers and college student mentors about the importance of attending college and strategies for pursuing a college education. Students have to apply to three colleges and complete paperwork for financial aid during their senior year in high school in addition to maintaining a schedule that includes college preparatory science and mathematics classes. The URI Undergraduate Admissions Office and URI Talent Development Office provide information on college admissions, scholarship availability, and the application process.
- **Up to five summer research training internships** at EPA Atlantic Ecology Division are offered to SMILE high school juniors and seniors.
- **Three professional development workshops** are held for teachers each year, related to coordination of after-school clubs and preparation for student field trips and special events. Areas of emerging scientific interest are presented to teachers by URI faculty

experts and through field trips. These provide them with a broader knowledge of science and math to share with their students.

SMILE is unique among out-of-school-time programs, which have traditionally focused on recreation or remediation. SMILE has developed a unique blend of academic rigor, informal and exploratory learning, and a playful atmosphere. The focus on science and mathematics, the emphasis on college and careers as early as 4th grade, the creative and cost effective use of administrative staff and club teacher/advisors, and the multifaceted collaboration with URI and other community partners make SMILE an exciting and unique model.

Evaluation Purpose and Methodology

After more than a decade of successful operations, over 90% of students who entered SMILE in its early years have now graduated from high school and entered college. A number of SMILE students have graduated from college and have begun professional careers. All eleven graduates interviewed for this evaluation attend or have graduated from college, and all cite SMILE as having had a positive impact on their college aspirations and in achieving their potential. Ten out of eleven interviewees initially considered or chose a science or math-related major. Of those ten, three eventually changed their majors to other fields. Of the remaining seven, six have either begun careers in science or math-related fields or plan to do so. In their comments, these graduates made it clear that SMILE had influenced their paths, both by reinforcing and enhancing their interest in science and math and by making them aware of college and career opportunities.

While SMILE staff and participating teachers have expressed their intuitive sense that the program has been successful for many students, no external evaluation of The URI SMILE Program had been undertaken since its founding in 1994. Program staff and participating teachers believed the time was right to conduct an external evaluation and document benchmarks for the continued development of The SMILE Program.

Evaluation consultant Alan Brickman worked with SMILE staff, participating teachers, and other URI faculty representatives to develop the overall data-gathering approach, identify the individuals and groups from whom to solicit opinion and perspective for the evaluation, and

design the data-gathering instruments. Alan Brickman and colleague Marge Stockford collected the data and prepared this evaluation report.

In the course of the evaluation, students, parents, and teachers were asked to provide program assessments and recommendations via written surveys and focus groups. Principals and graduates also provided input via telephone interviews. All respondents were asked to comment on the quality and effectiveness of each of The SMILE Program components and to assess SMILE Program outcomes in the following areas: social connections, attitudinal and affective impact, academic performance and school behavior, and college access and career development. Additional data was gathered to determine if there were gender and longevity differences.

The following specific data-gathering activities were conducted for the evaluation:

- Surveys (156) of students now participating in SMILE (75 elementary school, 45 middle school, and 36 high school).
- Surveys (75) of parents of students now participating in SMILE (29 elementary school, 36 middle school, 10 high school).
- Surveys (18) of teachers who lead after-school SMILE club (8 elementary school, 6 middle school, 4 high school).
- Telephone interviews (7) with school principals who host SMILE Clubs (3

elementary school, 2 middle school, 2 high school).

- Telephone interviews (11) with graduates of SMILE from the two longest-standing SMILE districts.
- Focus groups (4) with students now participating in SMILE (1 elementary school, 1 middle school, 2 high school).
- Focus groups (2) with teachers who lead after-school SMILE Clubs (including elementary, middle, and high school teachers).
- Focus group (1) with parents of SMILE students from one participating district.
- Site visit to Engineering Challenge Weekend 2005 at URI's Kingston Campus.
- Site visit to the Environmental Outdoor Science Adventure at URI's Alton Jones Campus.
- Review of 2004-05 grade reports for students in SMILE Clubs.

SMILE Logic Model

On the following page, we have presented the logic model for the SMILE Program, with inputs (resources used to implement the program), activities (program offerings), outputs (level and type of participation), and outcomes (impact and results of the programs). The purpose of the logic model is to present the conceptual underpinnings of the program, the “logic” by which resources are applied to program activities designed to achieve particular results within the student population. The logic model also provides a rationale for the specific data gathering we conducted and the aspects of implementation and program outcomes that we explored.

Logic Model for the URI SMILE Program

Inputs	Activities	Outputs	Outcomes
<ul style="list-style-type: none"> • Foundation, local corporations federal and state agencies funding support for project staff, teacher stipends, instructional materials, special events, meeting expenses, consultants • 1.5 FTE SMILE staff (located at URI) • 2 teachers/club advisors per participating school. Receive a stipend • URI and other postsecondary faculty and staff volunteers • URI student volunteer mentors • URI-provided office space and administrative support • URI and other colleges facilities and campuses (both for programs for student and professional development for teachers) • Workplace personnel and facilities to support career-related field trips • After-school-club and special challenge events curriculum 	<ul style="list-style-type: none"> • Weekly after-school math and science club • Workplace field trips • College campus field trips • Elementary Outdoor Science Adventure • Engineering Challenge Weekend for middle and high school students • Environmental Challenge Program for high school students • Family Science Nights in each participating district • College information and awareness activities (by teachers, and by college mentors, and URI admissions on campuses) • Professional development workshops for SMILE teachers 	<p><u>For 20 students per participating school:</u></p> <ul style="list-style-type: none"> • Participating in weekly after-school math and science club meetings • Participation in at workplace and campus field trips • Participation in the special weekend and/or day-long challenge events • Relationship with URI student mentors and URI faculty members • Participation in Family Science Night • Receiving college information and awareness <p><u>For 2 teachers per participating school:</u></p> <ul style="list-style-type: none"> • Participation in three professional development workshops <p><u>For parents of the participating students:</u></p> <ul style="list-style-type: none"> • Opportunity to attend Family Science Night 	<p><u>Short-term outcomes</u></p> <ul style="list-style-type: none"> • Increased social connections with other students • Increased student sense of support from teachers • Increased student interest in math and science • Increased student motivation to do well in school • Increased confidence/self-esteem • Increased aspiration and expectation of college for the participating students • Increased awareness of college options and access strategies • Increased awareness of the educational requirements of math and science careers • Improved academic performance for the participating students • Improved student attendance • Improved frequency of completing homework • Improved student behavior in school <p><u>Longer term outcomes</u></p> <ul style="list-style-type: none"> • College enrollment and completion • Careers in math and/or science fields

Assessment of Program Components and Features

All SMILE program constituents (students, parents, and teachers) were asked to reflect on the quality and effectiveness of each of the program components and to provide feedback on what works well and what needs improvement. The components evaluated were:

- Weekly after-school SMILE Club meetings, including hands-on activities
- College and career field trips
- Annual off-site events, including Elementary Outdoor Science Adventure, Engineering Challenge Weekend, and Environmental Challenge Program
- Parent involvement via Family Science Nights
- College information and awareness activities, including college information provided by teachers, by college student mentors, and during college visits

Two constituencies, parents and teachers, were asked additional questions about particular features of The SMILE Program. Parents were asked to rate the experience of the students in The SMILE Program in terms of safety and intellectual rigor. Teachers were asked to rate the institutional support for SMILE in terms of their principals' support, school district support, and the school district's relationship with URI SMILE staff. Finally, additional data was gathered on SMILE components by gender and longevity of students in the program.

In their survey responses, all constituents except elementary school students rated the SMILE components on a 5-point scale: 1=no value, 2=some value, 3=fair, 4=good, and 5=outstanding. Elementary school student ratings were based on a 3-point scale in the survey, and their responses have been transformed to a 5-point scale for comparison purposes. Respondents could also indicate "not applicable/never attended" for any of the components, and in many cases, respondents left a question blank. If the number of non-responders to a particular question seemed statistically meaningful, we have so indicated.

Survey responses are analyzed by key program components across constituencies, followed by a series of graphs rating program components and features by constituency.

Assessment of Program Components and Features Across Constituencies

Weekly After-School SMILE Club Meetings

All constituents gave the weekly after-school SMILE Club meetings high ratings. As Chart A reflects, the lowest rating for the club meetings on a scale of 1 to 5 was a 4.14, better than “good.” In addition, the primary focus of these weekly sessions, hands-on math and science activities, were even more highly rated, with ratings ranging from a low of 4.31 to a high of 4.78. The SMILE Club meetings are the heart of The SMILE Program, where the students’ rapport with teachers is established and much of the hands-on learning takes place. Student surveys rated the SMILE Clubs and these associated components (i.e., hands-on learning and teacher support) highly, underscoring the importance of the clubs to the functioning and mission of The SMILE Program.

The narrative comments from all groups of constituencies support these ratings. Representative comments include: an elementary

school student liked the hands-on activities (experiments and projects) because

“they help you learn.” A middle school student added: “I really like doing hands-on activities instead of just reading about them.” High school students appreciated that the activities allow you “to take what you learn in class into a hands-on basis.”

Students also commented positively on the learning environment of the weekly after-school SMILE Club meetings, particularly in comparison to their regular science and math classes. Several students noted that SMILE Club meetings offered a more relaxed and intimate atmosphere where students felt they got more respect, more freedom to set their own pace, and “learned things in a fun way.”

Parents, particularly those of elementary and middle school students, also expressed their

Chart A: Ratings of After-School SMILE Club Meetings		
<i>Average rating (on a 5-point scale)</i>		
Constituencies	After-School Math/Science Club	Hands-on Activities
Elementary School Students	4.77	n/a
Middle School Students	4.49	4.60
High School Students	4.14	4.31
Parents	4.39	4.54
Teachers	4.50	4.78

support for the weekly meetings and hands-on activities. Parents appreciated the cooperative learning and the teamwork skills their children were learning and the information they were receiving about how science and math could be applied in their daily lives.

Teachers also agreed that the weekly SMILE Club meetings were very successful. They emphasized that clubs offer the students a place to learn and get excited about science and math. In addition, they noted the benefit of providing an after-school “home-base” for students who aren’t involved in other activities – “a place for them to belong.” Providing a sense of belonging within the SMILE Club contributed to parents’ perception of SMILE as a safe and comfortable environment for their children.

Graduates also demonstrated enthusiasm for the weekly after-school SMILE Club meetings and the hands-on nature of the activities. They emphasized the value of two distinct aspects of the SMILE Club experience, echoing current students’ comments:

- SMILE offers a different learning experience than the regular classroom, both in terms of the setting (more intimate, less judgmental) and the content (students can pursue topics that interest them, they can go into depth, and they can think “outside the box”).
- SMILE is social. It’s a place where you can make friends and have fun.

Principals enthusiastically supported the weekly after-school SMILE Club meetings, particularly because they provide an alternative to the classroom atmosphere that is more fun, project-based, hands-on, challenging, and centered around small group learning activities.

Suggested Improvements:

When students were asked how to improve the weekly SMILE Club meetings, the elementary and middle school students commonly recommended some form of expansion. They suggested more SMILE Club meetings each week, longer SMILE Club sessions to allow for more hands-on activities during the meetings, and expanding The SMILE Program to younger grades and to other schools. Instead of more sessions, high school students, particularly those who had been in the program a number of years, emphasized increasing the variety of activities and making them more challenging.

Parents of elementary and middle school students strongly supported their children’s suggestions. They suggested more SMILE Club meetings, more activities during club meetings, and expanding the program to other schools and grades. Parents of elementary, middle, and high school students supported the students’ suggestion that club activities should be more varied. Suggestions included bringing in more guest speakers such as college students and/or SMILE graduates. In addition, parents expressed interest in being more involved in and learning more about SMILE. Suggestions included having their children bring home more materials from SMILE, so that they could more fully understand SMILE activities and be better able to support their child

in his/her work. One parent also suggested adding an annual parent-child project into the program curriculum.

Teachers expressed an interest in expanding the content of club meetings as well; a few expressed an interest in a more structured curriculum. The challenge for SMILE staff will be to continue to find effective ways of combining direction and guidance for teachers regarding curriculum while allowing teachers to bring their own ideas and creativity to their SMILE activities.

Graduates also echoed the concern expressed by older students and parents; more varied and more challenging hands-on activities are needed.

Principals recommended no qualitative improvements except possible expansion of the program to serve more students. While there are financial and institutional barriers to such expansion, the principals' support for an expanded program indicates their enthusiasm for SMILE.

College and Career Field Trips

Both college and career-oriented field trips were rated well by all constituent groups, as shown in Chart B. (Elementary school students were not asked to specifically rate field trips although they did comment on them in the narrative section of their surveys.) High school students rated field trips to workplaces close to “good” (3.97) and middle school students rated them better than “good” (4.37), while parents and teachers thought they approached “outstanding” (4.50 for parents, 4.76 for teachers).

Field trips to colleges garnered even higher ratings from all constituents. (Teachers' ratings in the chart are the same as for field trips to workplaces because the survey asked them to rate field trips as a whole.) Ratings ranged from better than “good” by high school students (4.37) to closer to “outstanding” by parents (4.57).

The narrative survey responses and the focus group comments verify these ratings. In the student surveys, field trips were the most commonly mentioned successful activity across all three student levels (including elementary school

Chart B: Ratings of College and Career Field Trips		
<i>Average rating (on a 5-point scale)</i>		
Constituencies	Field Trips Workplaces	Field trips Colleges
Middle School Students	4.37	4.39
High School Students	3.97	4.37
Parents	4.50	4.57
Teachers	4.76	4.76

students). This perception was echoed in the student focus groups. One elementary school student remembered a career field trip as one of the best things about SMILE, recalling

“a trip to Heberts Candy Mansion ... [where] they taught us how to make the chocolate bunnies, showed us the molds, we actually made chocolate.” A high school student noted the value of a college field trip –going to “URI [gave me] experience of what college is really like.”

Most students felt that the weekly after-school club meetings supported the field trips effectively, particularly those to workplaces. As one middle school student said,

“In SMILE, you learn things that stick and the field trips reinforce [it]; [they] make you see it in a new way.”

Parents and teachers with children/students at the elementary and middle school levels also emphasized the success of the field trips. As one teacher noted,

field trips “give [the students’] academics a rationale, applying the knowledge they have, seeing hands-on applications.”

High school parents and teachers commented less on the importance of field trips but prioritized their key purpose – career awareness and college awareness and preparation.

Graduates confirmed the importance of field trips, including them as one of the aspects of SMILE they liked best. They appreciated the field trips to workplaces because they saw how science was applied in different professional settings, met people in various careers, and learned how things work in the “real world.” Also, the college field

trips gave them the opportunity to see what college was like. A few students, mostly at the high school level, felt that the weekly after-school SMILE Club meetings had become repetitive, but stayed in the program because the field trips were fun, interesting, and informative. Perhaps for these older students, college and careers are more immediate and pressing concerns.

Principals made little comment about the field trips other than noting that they were a key aspect of SMILE.

Suggested Improvements:

Students expressed interest in expanding and enhancing the highly successful field trip component of the SMILE Program. All levels of students wanted more field trips (they didn’t differentiate between workplace or college trips in this recommendation), while the middle and high school students suggested making the field trips more fun and more relevant to their own lives and diversifying the field trip destinations, even going out-of-state. (Note: Some clubs have traveled to Mystic Seaport and the Boston Museum of Science, and such trips are very well received.)

Parents of students at all three educational levels supported their children’s desire for more field trips. Teachers had only a few suggestions for changes in the field trip component of SMILE: one suggested more career-oriented field trips and another noted that funding concerns limited the number they could do each year.

Annual Off-Site Events

Annual off-site events are a third component of SMILE that all constituents rate highly, as shown in Chart C. The Elementary Outdoor Science Adventure (EOSA) is held annually at the URI Alton Jones Campus for elementary students who gave it almost an “outstanding” rating (4.90). Middle and high school students who had participated in EOSA were also asked to rate it based on their memories of the event. Although less than half responded, of those who did, middle school students considered EOSA better than “good” (4.44) while high school students found it between “fair” and “good” (3.57).

Narragansett EPA, for high school students only, also earned a better than “good” evaluation (4.10).

Teachers and parents also enthusiastically supported these events. Elementary school parents were most enthusiastic about their children’s comments about EOSA, rating it between “good” and “outstanding” (4.57). Middle and high school students’ parents also considered the ECW very effective (4.44). Teachers saw the most value in all these events, rating all three close to “outstanding” (from 4.70 for ECW to 5.00 for EOSA). It is worth noting that only high school teachers rated the ECP.

Chart C: Ratings of Annual Off-Site Events			
<i>Average rating (on a 5-point scale)</i>			
Constituencies	Elementary Outdoor Science Adventure	Engineering Weekend	Environmental Challenge Problem
Elementary School Students	4.90	n/a	n/a
Middle School Students	4.44	4.49	n/a
High School Students	3.57	4.30	4.10
Parents	4.57	4.44	n/a
Teachers	5.00	4.70	4.80

Middle and high school students were very satisfied with their more recent annual off-site events. Both middle and high school students participate in the Engineering Challenge Weekend (ECW) at URI, which garnered above “good” ratings from both groups (4.49 by middle school students and 4.30 by high school students). The Environmental Challenge Program (ECP) at the

Constituents’ narrative comments illuminate these ratings. For elementary school students, field trips were the only program component mentioned more often than EOSA as the most successful thing about SMILE. These students commented that they liked EOSA because “you learn about nature,” and they “taught you how to keep the environment clean.” Middle school and

high school students also prioritized ECW in their comments; it made the top four items mentioned by both groups as successful aspects of SMILE (along with field trips, hands-on activities and the program's social aspects). As one high school student said,

“I like SMILE Challenge Weekend because we do a project and we work with many people. It's a fun atmosphere, but everyone who came was ready to work.”

Parents of elementary and middle school students also frequently mentioned EOSA and ECW, respectively, as successful parts of SMILE.

Elementary school teachers were very enthusiastic about the annual EOSA and its impact on their students. They said it gave their students “life experience outside the classroom” and allowed them to “apply what they've learned” in the SMILE Club meetings. High school teachers focused on the positive role ECW and ECP have in educating their students about college.

Graduates were also enthusiastic about the off-site events in which they had participated during their time in SMILE. Some remember their first EOSA weekend warmly, and others mentioned the success of the ECWs.

Principals did not comment specifically on the annual off-site events.

Suggested Improvements:

Students had few suggestions for improving these annual off-site events. Several elementary school students and a number of high school students suggested lengthening the time devoted to their respective events. The high school students believed they needed more time both to complete

their projects and to enjoy the experience of being away with classmates on a college campus.

Parents made few comments for improvements in the SMILE off-site events. One middle school parent suggested holding two ECWs each year.

Elementary school teachers had the most ideas about improving the SMILE off-site events. Typically, their comments focused on needing more resources and information in advance to prepare their students for the weekend events or wanting to hold EOSA-like events more frequently. The middle and high school teachers had no specific comments on improving the annual events.

Parent Involvement via Family Science Night

All constituents rated the Family Science Night highly, as is shown in Chart D. Among students, enthusiasm was strongest in the earlier grades, with elementary school students rating it close to “outstanding” (4.75). Although ratings decreased for middle school students (4.00) and high school students (3.94), both groups considered it fundamentally “good.” This may reflect the tendency of students, as they grow older, to seek more independence from their parents and therefore not to bring the same enthusiasm for parent involvement activities as their elementary school counterparts. Parents rated it better than “good” (4.31) and teachers were even more positive (4.50).

Chart D: Ratings of Family Science Night	
Constituencies	Family Science Night
Elementary School Students	4.75
Middle School Student	4.00
High School Students	3.94
Parents	4.31
Teachers	4.50

Elementary and middle school teachers viewed Family Science Night as a success. One elementary school teacher noted that “parent night [is used] to explain the program,” and another emphasized that a positive part of SMILE is that it’s “open to parents – gives families a chance to have these [educational] experiences.”

Graduates didn’t discuss Family Science Night in any detail in their interviews. Principals, on the other hand, emphasized the importance of parent involvement in SMILE through Family Science Night.

One [principal] said that “*building partnerships between students, schools, families, and the community*” was one of SMILE’s biggest successes.

Suggested Improvements:

In their narrative remarks, students of all levels made no suggestions for improvement to Family Science Night. Elementary and middle school teachers felt that more parent involvement activities and/or events could be added to Family Science Night. A few parents of elementary and middle school students suggested increasing communication with parents and having more opportunities for parents to participate in SMILE, including more family events or a joint parent-child project. Some principals recommended expanding Family Science Night to include a wider cross-section of the community to give further recognition to SMILE students and to further enhance the visibility of the program.

College Information and Awareness Activities

There are a number of different ways SMILE middle and high school students and parents receive college-related information: from college student mentors, from SMILE teachers, and on college visits. These activities received the lowest, although still generally positive, ratings of all SMILE components. (Note: Elementary school students weren't asked to rate this component as it is not yet developed as a part of The SMILE Program at their level, and mainly includes contact with college students during the EOSA.) While none of the ratings fell below "fair," all constituencies except teachers rated most college awareness components less than "good." Specific average ratings for these components are presented in Chart E.

Middle school students rated all three types of college awareness activities (by college student mentors, by teachers, and on campus) below "good" (3.80 to 3.87). However, less than half of all middle school students responded to the question about the teacher and college campus counseling. High school students placed these three

counseling components even lower on the ratings scale (3.62 to 3.67).

Parents were slightly more satisfied with the college awareness activities offered based on their children's comments, rating the college student mentors their children met with as better than "good" (4.13). However, parents rated other student counseling activities as less than "good" (3.84 for college awareness activities on campus visits and 3.92 for counseling by teachers). Parent counseling, the information and awareness parents received about how to help their children with college preparation, was rated slightly lower (3.48). (Note: Less than half of parent respondents rated the parent counseling at all.)

Teachers, on the contrary, were very enthusiastic about the college awareness SMILE offers to its students. Their ratings ranged from better than "good" for college student mentors (4.36) and close to "outstanding" for the advising opportunities students received (4.67). (Note: Teachers were asked to rate the other college awareness program components in one grouped category called Advising.) This may reflect the fact that teachers are more aware than the students and their parents of the necessary components of

Chart E: Ratings of College Information and Awareness Activities				
Constituencies	By College Student Mentors	By Teachers	<i>Average rating on 5-point scale</i>	
			On College Visits	Information for parents
Middle School Students	3.87	3.82	3.80	n/a
High School Students	3.67	3.66	3.62	n/a
Parents	4.13	3.92	3.84	3.48
Teachers	4.36	4.67	4.67	4.67

college preparation. It is important to note that less than half of all SMILE teachers rated any of the advising components at all, perhaps because, at least at the elementary level, this is not yet built into the program. A number of graduates emphasized that receiving information about college and careers had been an important SMILE component.

Suggested Improvements:

In spite of their slightly lower ratings for the college information and awareness components of SMILE, students were mostly silent on recommendations for improvement of this component in their narrative comments. One high school student suggested SMILE “could help you pick out a college, prepare you even more [about] specific requirements.”

Parents had more ideas: Two middle school parents suggested inviting college students mentors and/or SMILE graduates to their weekly club meetings to discuss college preparation and career awareness. High school parents suggested even more help for college than counseling, asking for more and larger college scholarships.

High school teachers’ comments in particular echoed their relatively high ratings of college information and awareness activities. A few teachers went so far as to say that one of SMILE’s best aspects was its help for students with college awareness and planning. No teachers offered specific suggestions on improving the college counseling components of SMILE.

Only one principal mentioned the college and career awareness component of SMILE as important, and none had suggestions for improving

the counseling efforts. This may reflect a lack of understanding on the part of principals of the need for early intervention as part of an effective college access strategy.

Additional Parent Assessment of SMILE Features

Parents were asked to rate several features of the SMILE learning environment for their children. As is shown in Chart F, parents overwhelmingly indicated that SMILE offers a safe and comfortable place for their children (4.79) and indicated a slightly lower, but still very high sense that SMILE is intellectually challenging (4.58).

Parents noted that the program offered a safe and comfortable place where students could focus on academics and avoid dangerous behaviors (e.g., drugs) and learn that “being smart is cool.” Several parents also commented that SMILE challenged their children to increase their science and math knowledge and encouraged them to problem solve and work in teams. One parent noted that one of the best things about SMILE is that it is a “serious academic program.”

Chart F: Parent Ratings of SMILE Features		
	<i>Average rating (on a 5-point scale)</i>	
Constituencies	Safe and Comfortable	Intellectually Challenging
Parents	4.79	4.58

Additional Teacher Assessment of the Institutional Support for SMILE

Teachers were asked three questions about the support they receive from their school’s administration, their school districts, and the relationship between their school district and URI SMILE staff. As shown in Chart G, the teachers’ ratings (ranging from 4.18 for school district support to 4.27 for the school district’s relationship with URI) indicate that their sense that support across the board was better than “good.” In their narrative comments, teachers were very positive about the passion, commitment, seriousness, and creativity of the SMILE staff and other participating URI faculty and students.

Chart G: Teacher Ratings of Institutional Support for SMILE			
<i>Average rating (on a 5-point scale)</i>			
Constituencies	Principal Support	School Support	School Relationship w/URI
Teacher	4.24	4.18	4.27

Suggested Improvements:

Teachers expressed an interest in increasing communication between SMILE teachers and with URI SMILE staff. Principals also expressed an interest in increased communications about SMILE, although their focus was primarily on spreading the word about its availability and success.

Teachers also expressed their desire for more professional development opportunities than currently provided in the three annual workshops. They suggested more training on developing and implementing hands-on activities, more workshops targeted specifically at elementary school SMILE teachers, more technology-focused workshops, and incorporating joint planning and trouble-shooting time into the teacher workshops.

Any expansion of professional development would require both increased funding and coordination with the participating school districts regarding releasing teachers, covering classes with substitutes, and other aspects of supporting teacher professional development.

Teachers also expressed a concern about the SMILE director’s dual role as SMILE teacher and overall SMILE coordinator from the vantage point of her workload and capacity to manage the full range of responsibilities of coordinator. They suggested making the SMILE director position full time, which would also require additional funding.

Gender and Longevity Differences in Assessing SMILE Components

In examining the survey data on SMILE program components through the lenses of the students’ gender and longevity in the program, additional patterns of interest arise. Chart H compares the ratings of all program components by the variables of gender and longevity. (Note: For the purpose of this analysis, we have created two categories of longevity: first year in the program and more than one year. Any further breakdown would yield sample sizes too small for

Chart H: Ratings of SMILE Components by Gender and Longevity

Program Components	Female Students (n=91)	Male Students (n=61)	1st Year in SMILE (n=94)	More than 1 Year in SMILE (n=60)
After-School Science/Math Club	4.55	4.48	4.66	4.32
Hands-on Activities	4.46	4.50	4.65	4.31
Field Trips – Workplaces	4.16	4.26	4.40	4.05
Field Trips – Colleges	4.39	4.41	4.55	4.27
Elementary Outdoor Science Adventure	4.84	4.70	4.74	4.86
Engineering Challenge Weekend	4.37	4.41	4.41	4.38
Environmental Challenge	4.00	4.80	4.17	4.07
Family Science Night	4.45	4.40	4.66	4.15
College Info, College Student Mentors	3.77	3.83	3.81	3.71
College Info, Teachers	3.59	3.83	3.94	3.52
College Info, Campus Visits	3.63	3.71	3.78	3.57

meaningful analysis. Because some respondents did not indicate either their gender or years in the program, the total number of responses by gender and by longevity is not equal.

In terms of the impact of gender, the male students seemed to appreciate both the Environmental Challenge Problem and the information they received about college from SMILE teachers more than their female counterparts. For all other components, there were no significant gender differences.

In terms of the impact of longevity in the SMILE program, students in their first year valued most program components more than students involved in the program for more than one year. Only the annual events EOSA, ECW, and ECP were rated similarly by both groups of participants.

Suggested Improvements

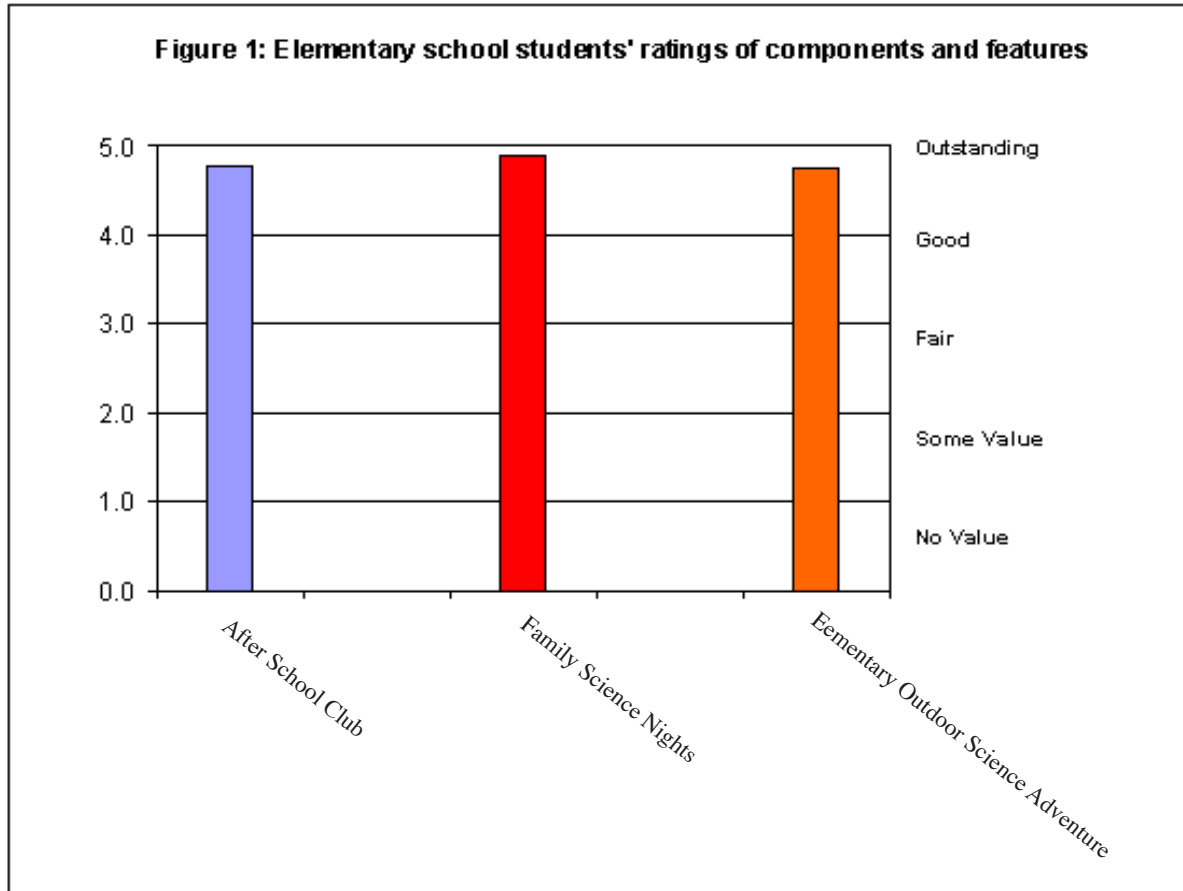
Consideration should be given to identifying strategies for sustaining a high level of student engagement and satisfaction with the basic program components over a multi-year period. Regular solicitation of student input could aid in the development of new projects and activities, balanced with continued differentiation of programming based on students' developmental needs.

Graphical Summary of Components Evaluation

On the following pages the evaluation of program components and features is shown in graphical form by categories.

Assessment of Program Components and Features by Constituency

Ratings of program components and features by Elementary School SMILE students

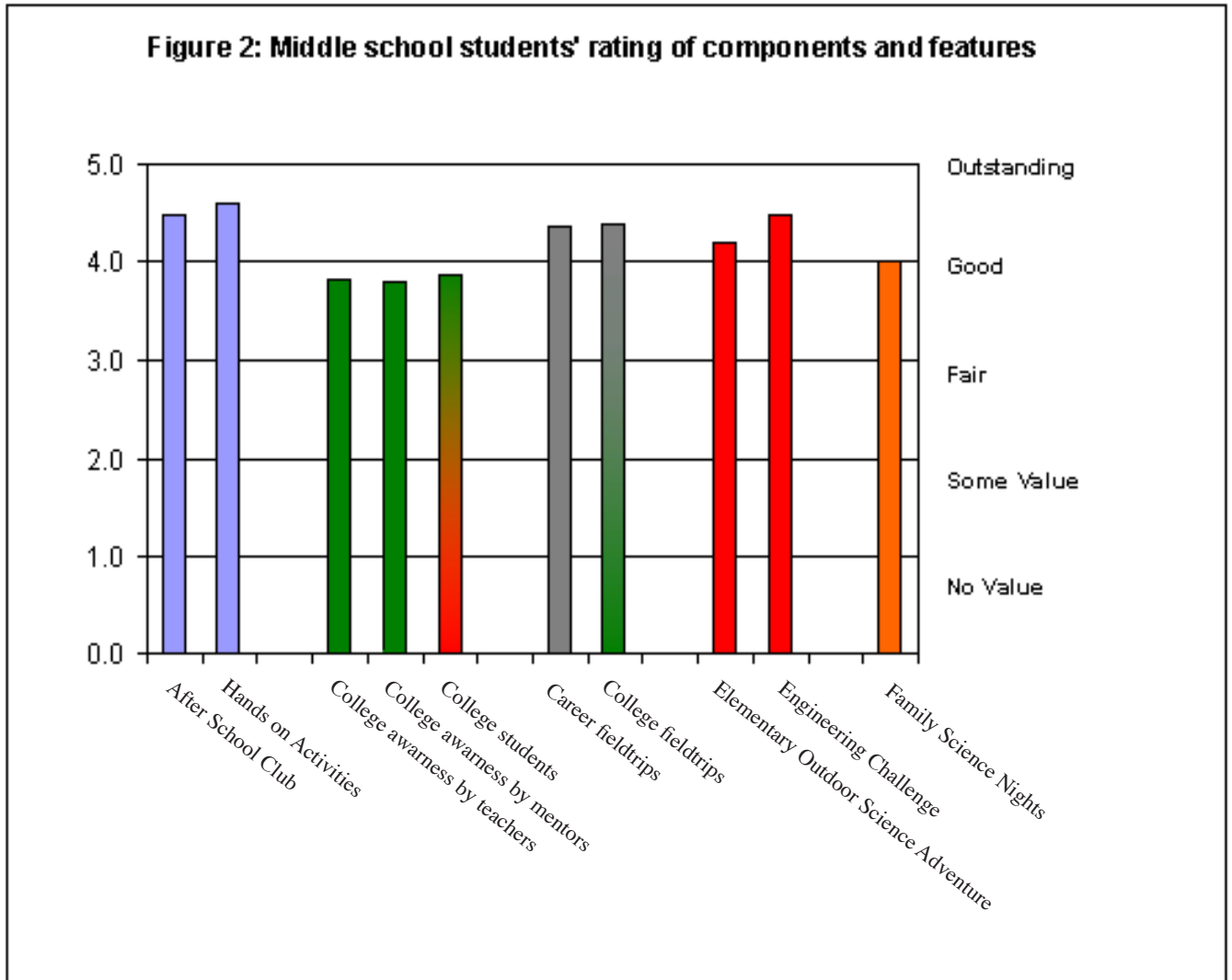


■ After School Club ■ Annual Events ■ Parents Involvement

Note: Color gradation indicates that a feature may contribute to two components

Assessment of Program Components and Features by Constituency

Ratings of program components and features by Middle School SMILE students

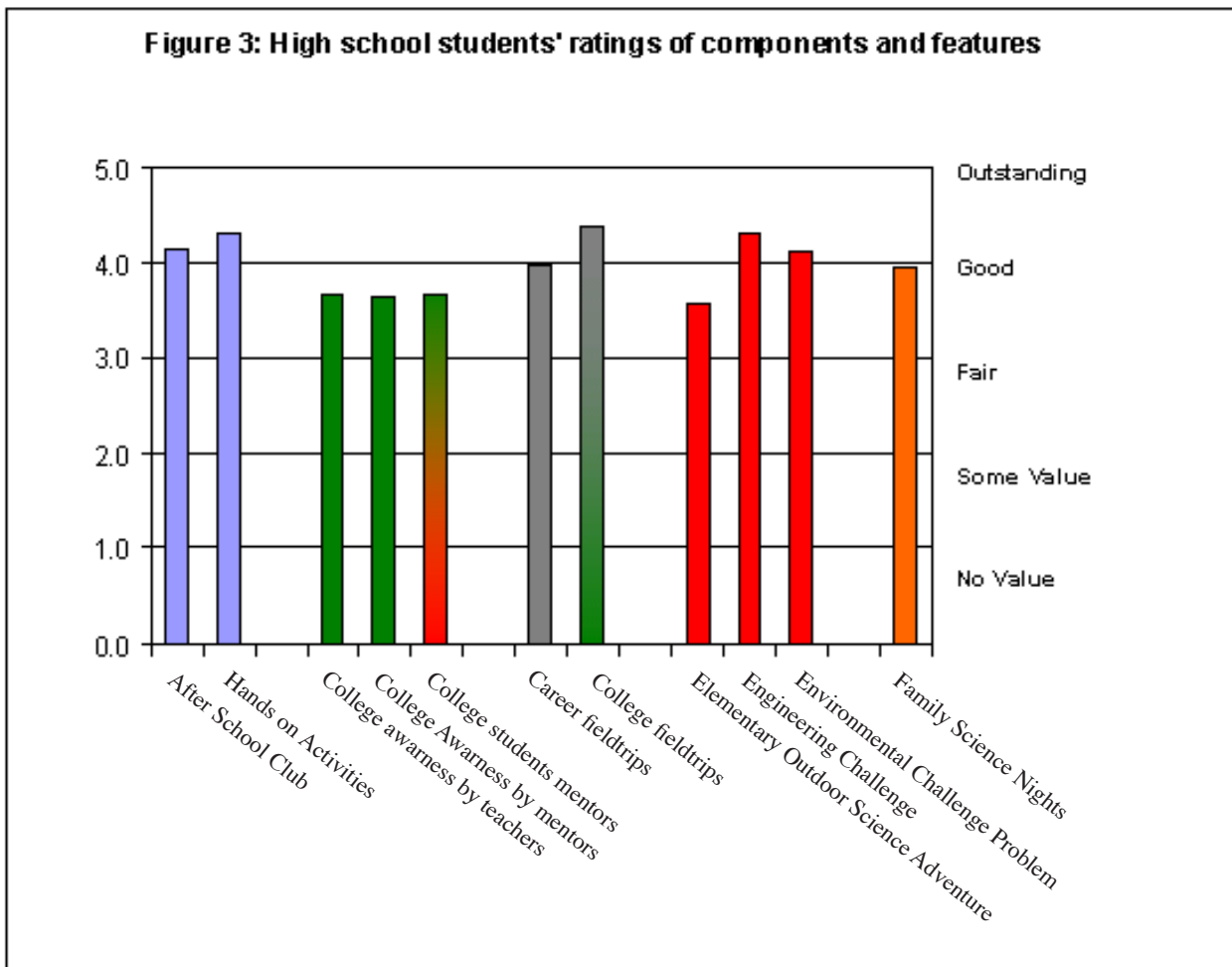


■ After School Club
 ■ College Awareness
 ■ Field trips
 ■ Annual Events
 ■ Parent Involvement

Note: Color gradation indicates that a feature may contribute to two components

Assessment of Program Components and Features by Constituency

Ratings of program components and features by High School SMILE students

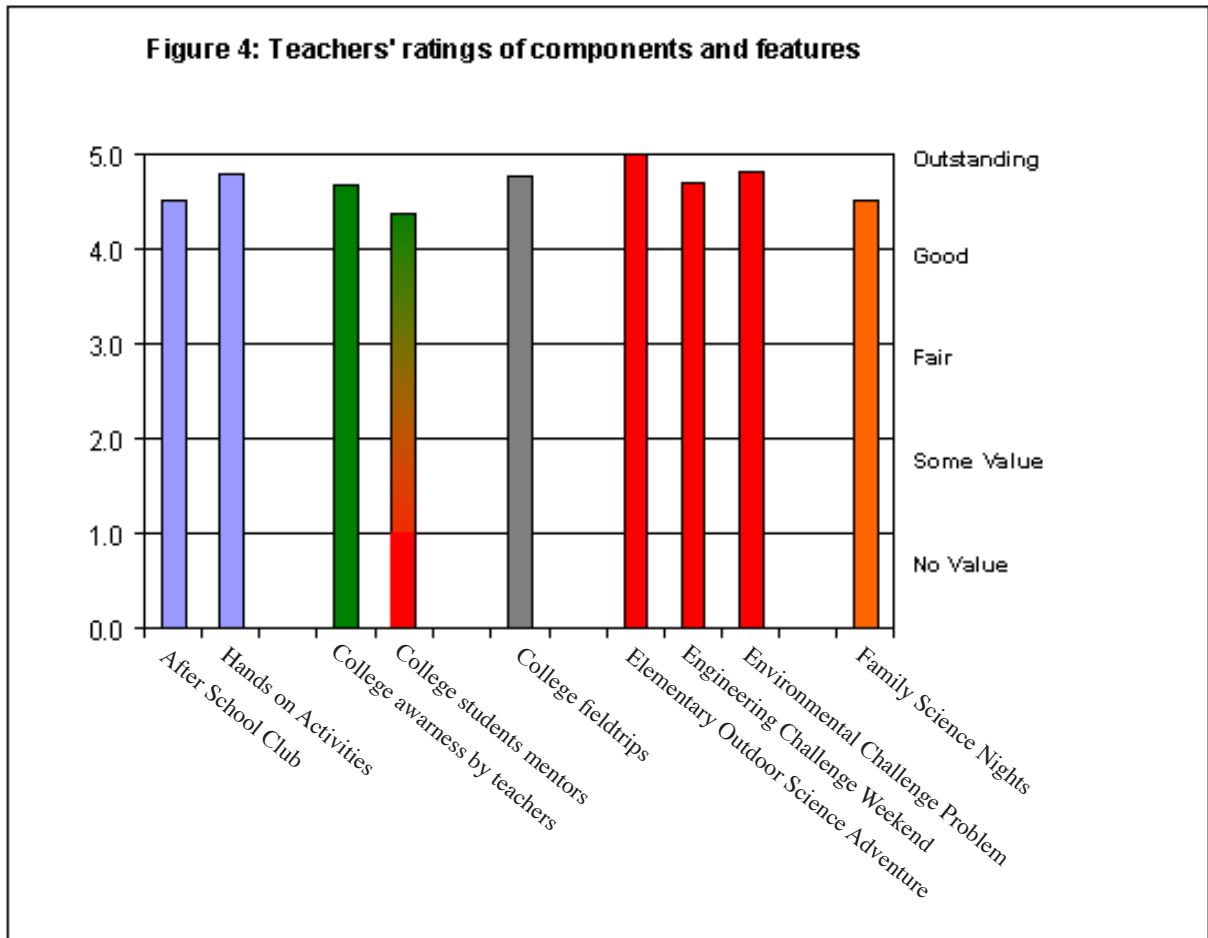


■ After School Club
 ■ College Awareness
 ■ Field trips
 ■ Annual Events
 ■ Parent Involvement

Note: Color gradation indicates that a feature may contribute to two components

Assessment of Program Components and Features by Constituency

Ratings of program components and features by SMILE Teachers

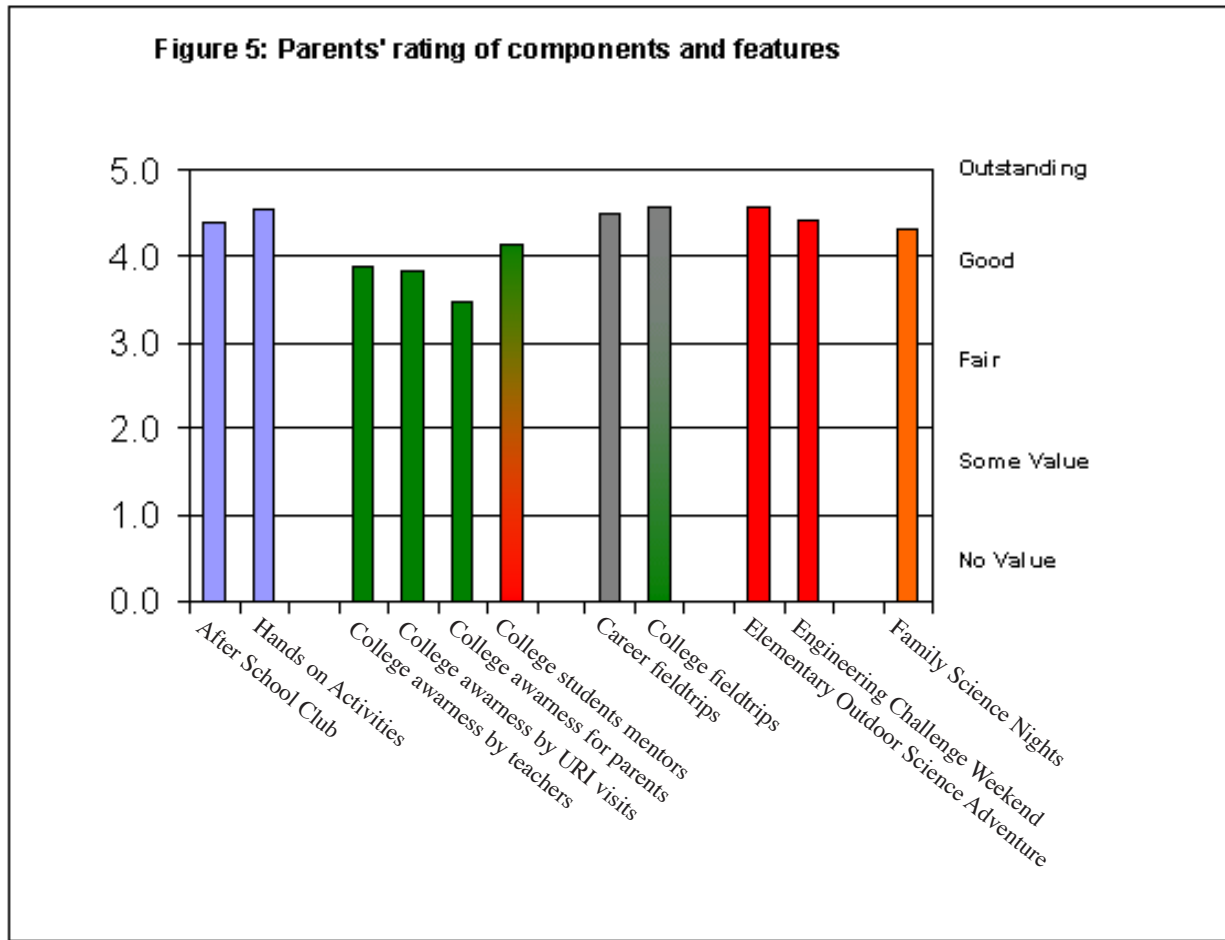


■ After School Club
 ■ College Awareness
 ■ Field trips
 ■ Annual Events
 ■ Parent Involvement

Note: Color gradation indicates that a feature may contribute to two components

Assessment of Program Components and Features by Constituency

Ratings of program components and features by SMILE Parents



■ After School Club
 ■ College Awareness
 ■ Field trips
 ■ Annual Events
 ■ Parent Involvement

Note: Color gradation indicates that a feature may contribute to two components

Assessment of Program Outcomes

All SMILE program constituents (students, parents, and teachers), as well as graduates and principals, were asked to reflect on the impact The SMILE Program has had on its student participants in terms of program outcomes:

- social connections
- attitudinal and affective impact
- academic performance and school behavior
- and college access and career development

Additional data was gathered on SMILE outcomes based on longevity and gender differences of students.

In their survey responses, all constituents except elementary school students rated the SMILE components on a 5-point scale: 1=not at all/absolutely not, to 5=yes/absolutely/to a great degree. Elementary school student ratings were based on a 3-point scale in the survey, and their responses have been extrapolated to a 5-point scale for comparison purposes. In addition, note that student responses are based on their own experiences while parent and teacher responses are based on their observations of their children/students who participate in SMILE.

Assessment of Program Outcomes Across Constituencies

Impact on Social Connections

THE SMILE PROGRAM HAS HAD A MAJOR IMPACT ON THE SOCIAL CONNECTIONS OF ITS PARTICIPANTS.

As seen in Chart I on the following page, students rated the opportunity to make friends in SMILE quite highly (from 4.03 to 4.36 on a 5-point scale) and rated the chance to get support from teachers even higher (from 4.31 to 4.82). To a slightly lesser, but still high degree, students believed SMILE gave them the opportunity to meet others with an interest in math and science (ratings from 3.83 to 4.18). In each case, the high school students were less enthusiastic about the impact of these opportunities than their younger counterparts, but still gave them higher than average ratings, a trend mirrored across all program outcomes. The students’ comments support these findings. All levels of students frequently mentioned that they liked SMILE because they got to be with their friends, they made new friends, and they received an increased level of support

from their teachers. “[SMILE teachers] help you a lot in school; they pull you aside if you need help in math,” noted one elementary school student. A student at the high school level commented: “Teachers are very understanding of our goals and aspirations.”

Although teachers and parents weren’t asked to rate these same social outcomes for the students, their comments reflect student perspectives on this issue. Teachers sensed the tremendous social impact SMILE has on participating students. Teachers, particularly at the middle and high school levels, noted that SMILE provided an important venue for students to connect with each other and with teachers. One middle school teacher said:

“Meeting with the students each week builds [the] relationship among students and teachers.” A high school teacher wrote that SMILE “provides students with a ‘place to go’ where they feel like they belong and are doing something special.”

Chart I: Ratings of Impact on Social Connections

Constituencies	Average rating (on a 5-point scale)		
	Making Friends	Meeting Others Interested in Math/Science	Increased Support from Teachers
Elementary School	4.32	4.15	4.82
Middle School	4.36	4.18	4.60
High School	4.03	3.83	4.31

This is consistent with the data on student assessment of SMILE components, where all student groups identified contact with teachers as one of the most highly valued aspects of the program.

The importance of these social connections can not be understated as intervention and support by teachers are part of a proven set of strategies that help keep traditionally underrepresented students on track for college.

Interestingly, parents viewed the social connections that SMILE develops as less important than other outcomes, although several mentioned the value of their children making new friends and building relationships with their teachers.

Graduates confirmed the students' prioritization of SMILE's influence on building social connections. They considered the social aspect – making friends and building a support system with other SMILE students and teachers – one of the three best things about SMILE. Graduates commented that the quality and impact of their SMILE experience was the direct result of a committed and creative SMILE teacher.

Principals had a lesser sense of the social impact of SMILE, but they agreed it had positive social aspects, including bringing students together who normally wouldn't get this type of educational opportunity and, bringing students from different schools together.

Attitudinal and Affective Outcomes

ALL CONSTITUENTS AGREED THAT THE SMILE PROGRAM HAS A POSITIVE IMPACT ON THE PARTICIPANTS' ATTITUDES TOWARD SCHOOL, TOWARD THEIR OWN ABILITIES, AND TOWARD THEIR LIKELIHOOD OF PURSUING HIGHER EDUCATION.

As shown in Chart J, elementary and middle school students were particularly positive, giving a "good" or better rating to their increased interest in math and science (4.40 for elementary school students, 4.22 for middle school), increased motivation in school (4.18 elementary, 4.11 middle), and increased confidence (4.42 elementary, 4.11 middle). They gave a rating closer to "outstanding" for their increased likelihood of attending college because of SMILE (4.78 elementary, 4.62 middle). High school students rated these categories slightly lower, with increased motivation, interest in science and math, and improved confidence falling a bit below "good" (from 3.56 to 3.95). However, they evaluated the SMILE impact on their likelihood of attending college at a solid "good" (4.00).

Parents and teachers, in most cases, were just as positive about these attitudinal and affective changes in the students. Parents saw the likelihood that their children would attend college as SMILE's biggest attitudinal impact (4.53) and their children's increased motivation as still strong (4.23) with the others outcomes falling in between. Teachers were a little less enthusiastic about their students' increased motivation, rating it just less than "good" (3.93), but their assessment of the other attitudinal impacts ranged from "good" to

Chart J: Ratings of Attitudinal and Affective Outcomes

Constituencies	Average rating (on a 5-point scale)			
	Interest in Math/Science	Motivation in School	Confidence	Likelihood of college
Elementary School Students	4.40	4.18	4.42	4.78
Middle School Students	4.22	4.11	4.11	4.62
High School Students	3.94	3.56	3.69	4.00
Parents	4.50	4.23	4.38	4.53
Teachers	4.33	3.93	4.53	4.47

close to “outstanding” with the highest being increased confidence (4.53).

Comments from middle and high school students verified these findings. Middle school students particularly emphasized their increased interest in science and math and motivation to do their schoolwork while high school students talked most about their increased belief they would attend college.

One middle school student said: *“[SMILE] has helped me get closer to becoming an engineer when I grow up.”* A high school student stated: *“[SMILE] builds your self-esteem and self-confidence; when you come back from Challenge Weekend you feel smarter.”* Another high school student commented: *“[SMILE] motivated me to go to college – makes me think about what I want to do.”*

Parents with students at all grade levels observed and commented on these attitudinal changes in their children. All parents remarked on their children’s increased interest in math and science. At the same time, elementary school parents emphasized the better attitude their

children had about school in general while parents of older students noted their children’s increased awareness of and motivation toward college and careers.

Teachers echoed these beliefs about changes in SMILE students’ attitudes, focusing at all levels on increased self-esteem and confidence. They also mentioned an increased excitement about math and science and about school in general.

Graduates supported the sense that SMILE helped build student confidence, particularly related to the pursuit of college and careers. They felt more comfortable talking to professionals they visited on field trips to workplaces. They believed there were more career and college doors open to them, and they were able to imagine their own future careers. On the other hand, they said SMILE did not really impact their motivation to do well in school. The majority said they had that motivation before they came to SMILE. Interestingly, however, most added that they had observed other students becoming more motivated toward schoolwork after joining SMILE.

Principals viewed the main outcome of

SMILE as increasing students' confidence and motivation toward school. They also said they believed SMILE would increase the likelihood of the participants' college attendance, but stopped short of asserting it unequivocally without longitudinal college enrollment data to back it up.

Impact on Academic Performance and School Behavior

SMILE'S IMPACT ON THE STUDENTS' ACADEMIC PERFORMANCE AND SCHOOL BEHAVIOR APPEARS TO BE MORE INDIRECT AS REFLECTED BY THEIR INCREASED MOTIVATION TO MAINTAIN GOOD GRADES, INCREASED EXPOSURE TO AND ENTHUSIASM FOR MATH AND SCIENCE, INCREASED ASPIRATIONS FOR COLLEGE, AND NEW APPRECIATION OF THE CONNECTION BETWEEN ACADEMIC AND REAL WORLD APPLICATIONS.

As shown in Chart K, all constituents believed that SMILE had a lesser impact on academic performance and school behavior. This may be due, in part, to the fact that students entering SMILE have a good base level of academic performance. High school students in particular did not feel that SMILE had a significant impact on their school performance, rating SMILE's impact from less than "fair" for behavior (2.80) to just above "fair" for academic performance (3.33). Middle school students followed a similar pattern with ratings from just above "fair" for attendance improvement (3.20) to just below "good" for improvement in doing homework (3.96). Only the elementary school students rated the impact of SMILE on any aspect

of performance and behavior above "good": an improvement in doing their homework (4.40) and an improvement in overall academic performance (4.13).

With regard to school behavior, students entering SMILE have a certain base level of motivation and positive behaviors in school. Students' sense of the lesser degree of impact in these areas again reflects a relatively high "starting point." However, overall, students saw SMILE's impact on improving their attendance or behavior as less important than other SMILE outcomes.

Parents were only slightly more optimistic about school performance and behavioral changes than their children, with their ratings ranging from less than "good" for improved attendance (3.70) to just above "good" for improved academic performance (4.18).

Teachers, too, saw an improvement in school performance and behavior as a lesser influence of SMILE. Their ratings all fell below "good," with improvement in doing homework the lowest (3.55) to an improvement in behavior the highest (3.94).

Students' comments both confirm and challenge these findings. Students made few comments about SMILE's impact on their academic performance, behavior, or attendance in response to survey questions about outcomes. However, one high school student said: "I think everything we do in SMILE is too easy for sophomores and up, which does not improve my academic performance."

Conversely, in the focus groups, several students mentioned that SMILE's requirement that students maintain a certain grade level did have a positive impact on their school performance.

Chart K: Ratings of Student Performance Outcomes

Constituencies	Average rating (on a 5-point scale)			
	Academic Performance	Attendance	Homework	Behavior
Elementary School Students	4.13	3.92	4.40	3.80
Middle School Students	3.89	3.20	3.96	3.73
High School Students	3.33	3.06	3.03	2.80
Parents	4.18	3.70	3.67	3.61
Teachers	3.64	3.64	3.55	3.94

An elementary student said:

“When I was not in SMILE, my first report card was really bad; with SMILE, my grades improved a lot.” His focus group colleagues all agreed. In addition, a middle school student stated that SMILE *“shows you that if you miss class a lot, you fall behind, and you don’t want to fall behind,”* while a high school student noted, *“if you weren’t here, there are other things you could do; [SMILE] keeps you out of trouble.”*

Because students are developing study skills and “habits of mind” in the elementary and early middle grades, SMILE can have a very strong impact in those areas. High school students gave lower rating than their counterparts to all the examined areas of school performance and behavior, and were the only constituency whose rating of the impact of the program on behavior fell below 3.

Parents also mentioned the impact SMILE had on their children’s performance in school including improved grades, attendance, behavior,

and willingness to do homework. In general, however, these comments were secondary to parents’ emphasis on the social connections and improved attitudes their children had developed because of SMILE.

Like parents, teachers also mentioned improvements in their students’ efforts on schoolwork, behavior, and attendance. However, these comments surfaced at a much lower rate than comments about the other two outcome categories.

The main impact graduates felt SMILE had on their school performance was reinforcing their science and math skills, particularly during their middle school and high school years. (Very few of the graduates had begun SMILE during elementary school.) Similar to their comments about motivation, they believed SMILE did little to improve their attendance in school because almost all had excellent attendance records before entering SMILE, which they maintained until graduation.

Principals were not willing to state unequivocally that they saw an improvement in academic performance or attendance among SMILE students without concrete data to prove

it, although most said they believed and hoped SMILE had that effect.

Forty four grade reports for 2004-05 showed that more than four-fifths of SMILE high school students (82%) have maintained a C or better total academic average for the current academic year. Further, more than half of these students (57%) have maintained a B or better average.

In addition, most students have maintained or improved their grades in science and math, as well as in other subjects, over the course of the 2004-05 academic year. In fact, these SMILE students have improved even more in English (90% maintaining or improving their grades) than in math (73%) and science (68%) although the trend is strong in all subjects. In one of the student focus groups in Woonsocket, the students attributed their improved English scores to the SMILE “Auntie Math” activity, which includes having to read and comprehend a long problem statement.

Impact on College Access and Career Development

THE COLLEGE AND CAREER HISTORIES OF SMILE GRADUATES SUGGEST THAT SMILE HAD A POSITIVE IMPACT ON THEM IN TERMS OF HIGHER EDUCATION AND CAREER DEVELOPMENT.

Among SMILE’s high school club graduates, 93% have attended college, including Amherst College, Carnegie Mellon, Smith College, Brown University, University of Rhode Island, Rhode Island College, Community College of Rhode

Island, Rensselaer Polytechnic Institute, University of Maryland Eastern Shores, and the University of Washington, compared to approximately 40% of the high school graduates from the four participating SMILE communities. All SMILE graduates interviewed for the evaluation attend or have graduated from college, and all cite SMILE as having a positive impact on their college aspirations and achieving their potential. Ten out of eleven interviewed initially considered or chose a science or math-related major. Of those ten, three eventually changed their majors to other fields. Of the remaining seven, six have either begun careers in science or math-related fields or plan to do so. In their comments, these graduates made it clear that SMILE had influenced their higher education paths, both by reinforcing and enhancing their interest in science and math and making them aware of college and career opportunities in these fields.

Gender and Longevity Differences in Students’ Assessment of Impact

In examining the survey data on SMILE outcomes through the lenses of gender and longevity, additional patterns of interest arise. Chart L below outlines the ratings of all program outcomes by gender and longevity. (Again note that total responses are not equal between the two categories because several survey respondents did not indicate their gender or their number of years in the program.)

In terms of the impact of gender, female students rated the social connections they achieved, particularly in making friends and meeting peers

Chart L: Ratings of Outcomes by Gender and Longevity Categories

Outcomes	Female Students (n=91)	Male Students (n=61)	1 year in SMILE (n=94)	More than 1 Year in SMILE (n=60)
Making friends	4.33	4.00	4.19	4.12
Meeting others interested in math and science	4.19	3.77	4.02	3.97
Increased support from teachers	4.62	4.64	4.78	4.37
Interest in science/math	4.10	4.30	4.34	3.92
Motivation in school	3.84	4.13	4.06	3.65
Confidence	4.10	4.16	4.30	3.85
Likelihood of college	4.60	4.62	4.80	4.37
Academic performance	3.76	3.85	3.97	3.52
Attendance	3.43	3.35	3.54	3.28
Homework	3.81	4.03	4.20	3.47
Behavior	3.33	3.57	3.66	3.12

interested in math and science, higher than the male students. On the other hand, the boys saw SMILE as having a bigger impact on both their motivation in school and their school performance in terms of behavior and completing homework. Female and male students both gave very high ratings to their sense of support from teachers, their improved confidence, and their increased aspiration and expectation of college.

In terms of the role of longevity on SMILE outcomes, first-year students were far more enthusiastic about the impact that SMILE was having on them in both attitudes and school performance and behavior. Even in terms of social connections, first-year students appreciated the support they built with their teachers more than their longer-term counterparts. This may be

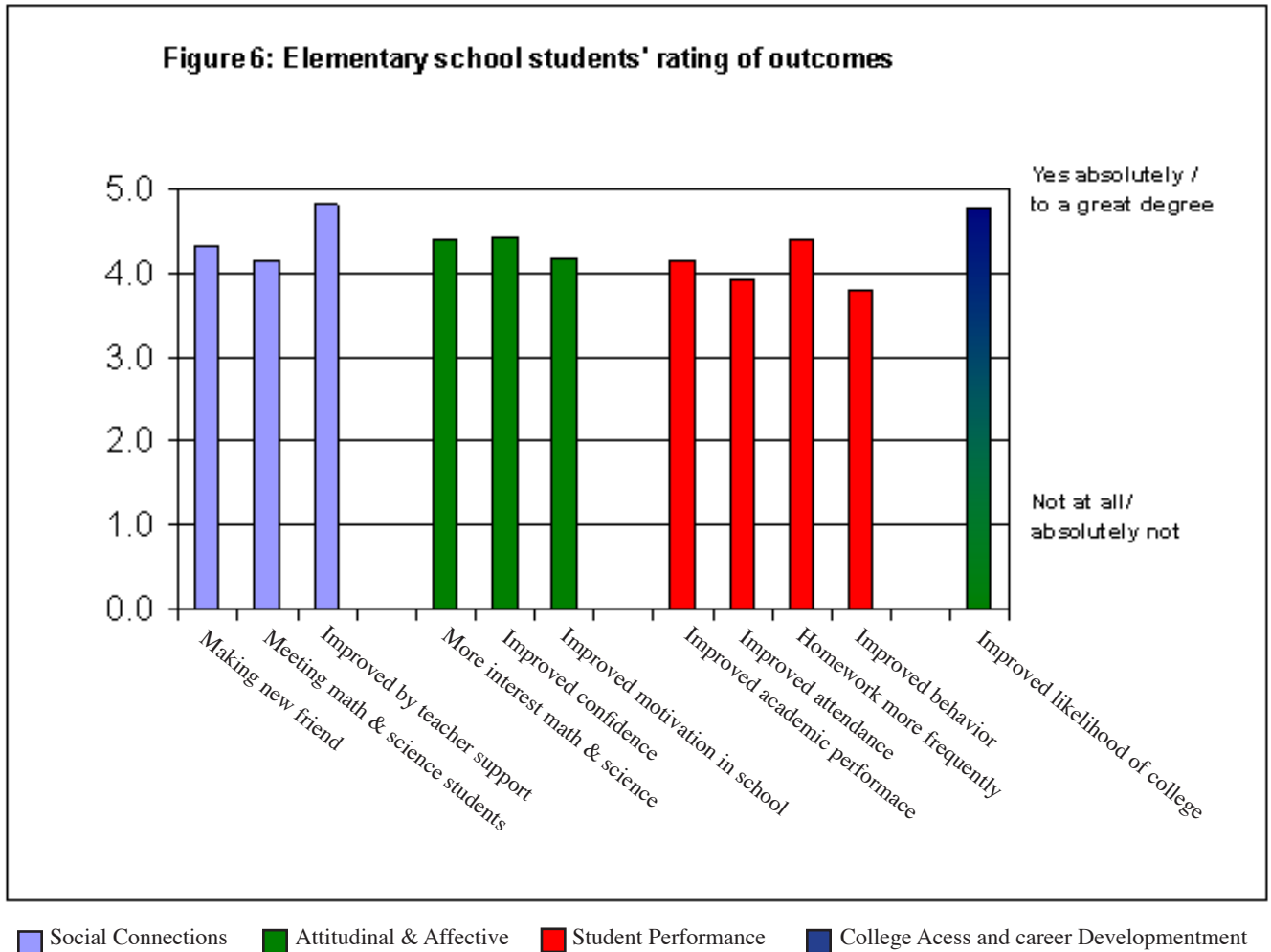
because long-term SMILE participants may take some of these outcomes for granted, and the progress they’ve made in these areas strikes them as less “new” or remarkable.

Graphical Summary of Outcomes Data

On the following pages the outcome evaluation data is shown as graphs by constituency group and outcome category.

Assessment of Program Outcomes by Constituency

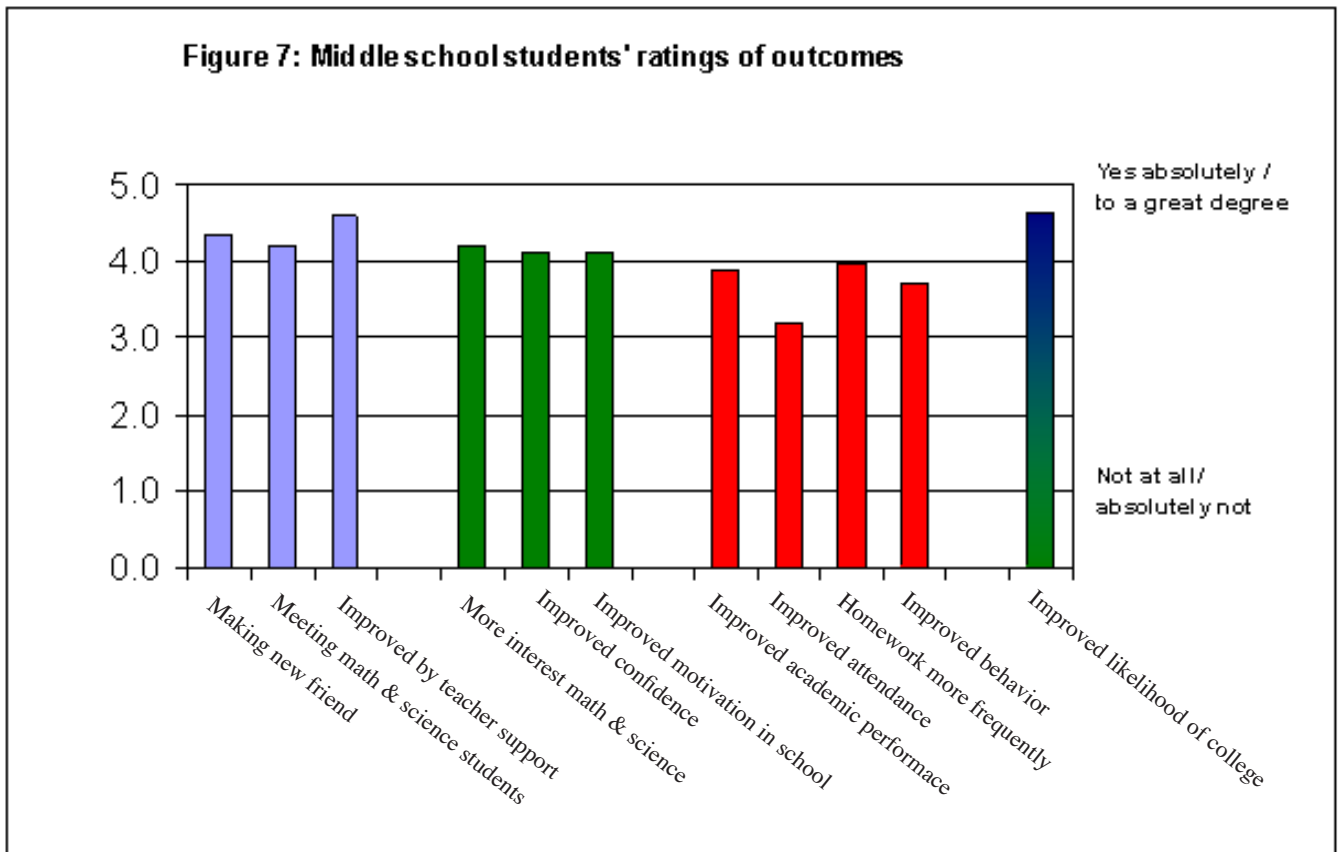
Ratings of program outcomes by SMILE Elementary School students



Note: Color gradation indicates that a feature may contribute to two components

Assessment of Program Outcomes by Constituency

Ratings of program outcomes by SMILE Middle School students

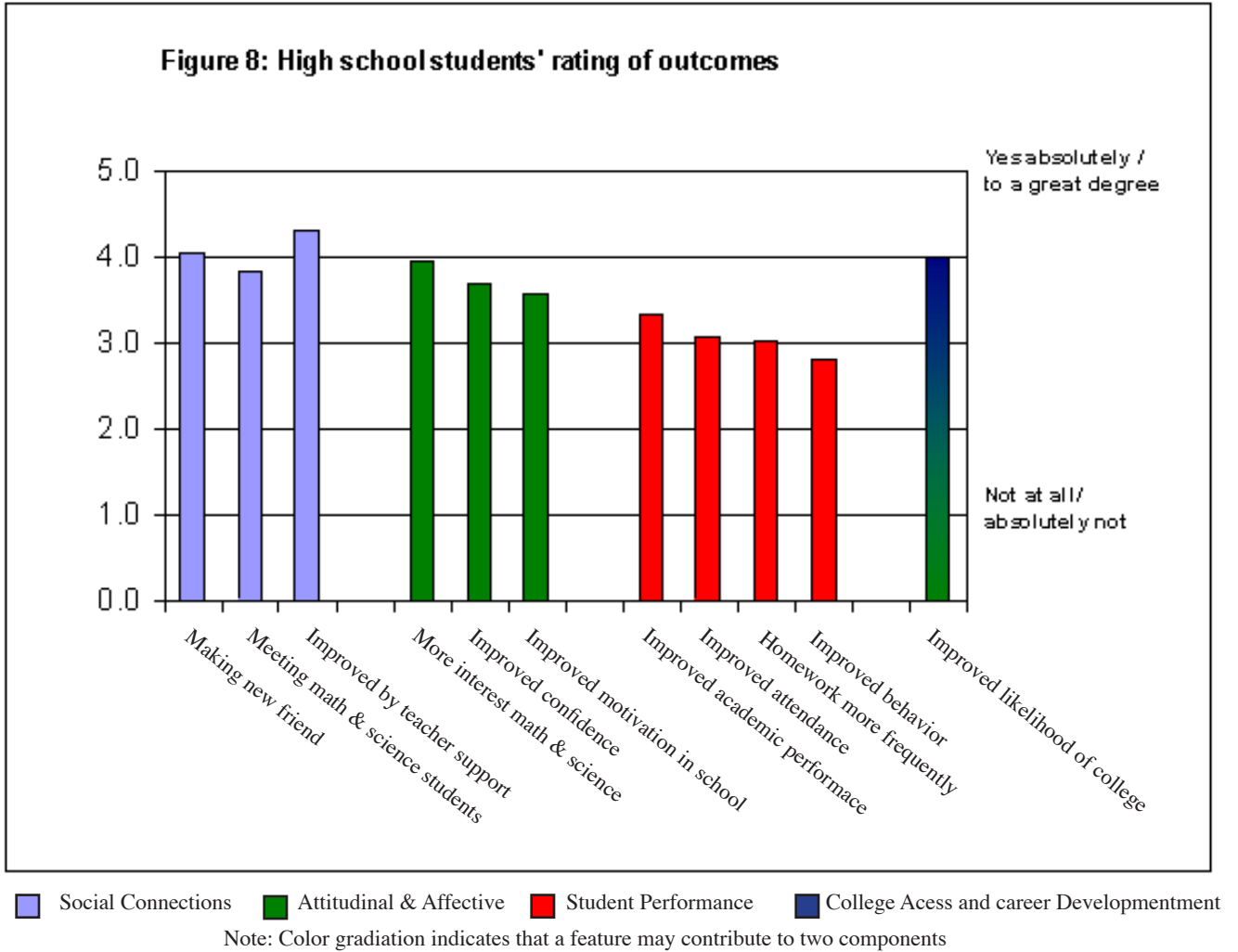


■ Social Connections
 ■ Attitudinal & Affective
 ■ Student Performance
 ■ College Access and career Development

Note: Color gradation indicates that a feature may contribute to two components

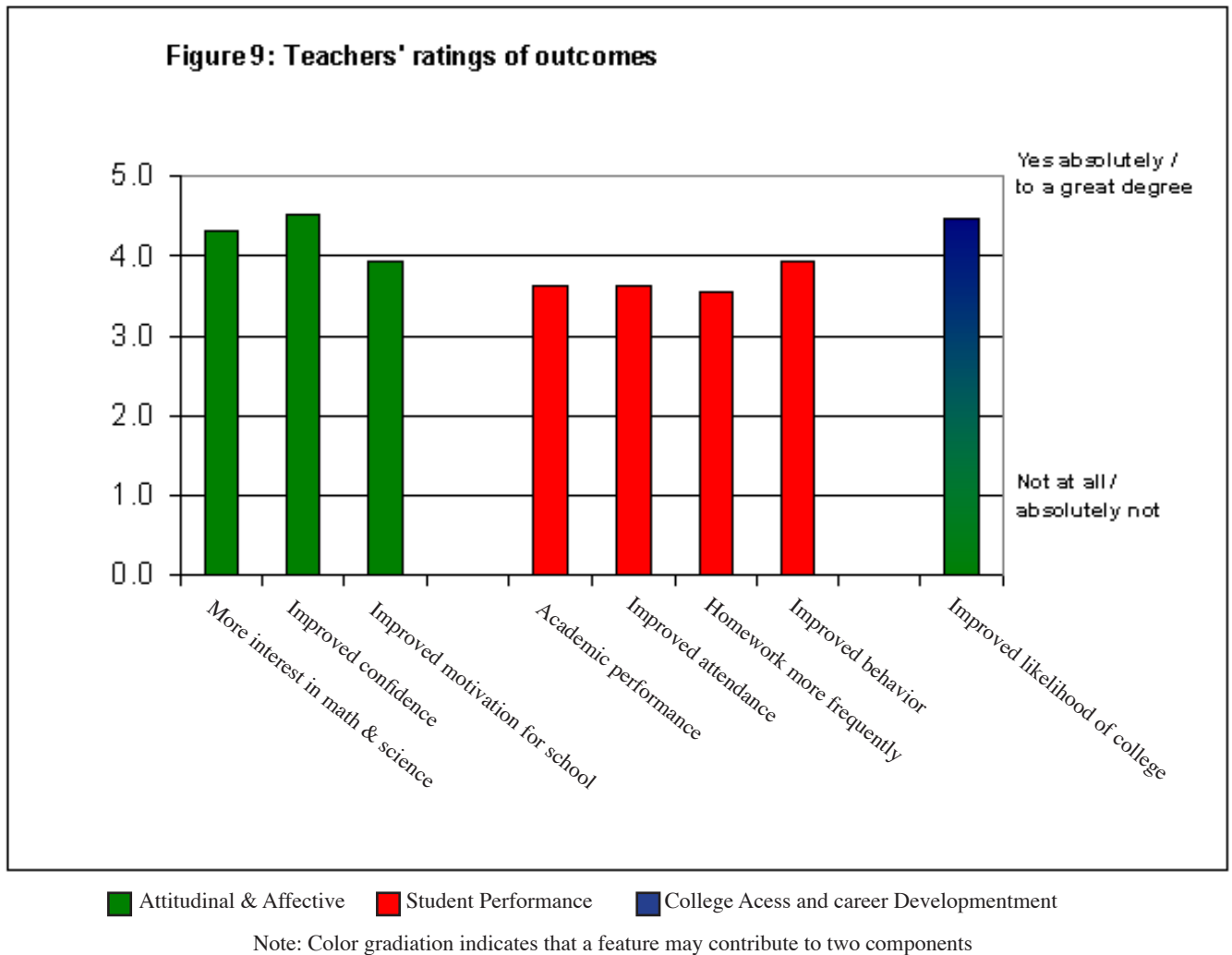
Assessment of Program Outcomes by Constituency

Ratings of program outcomes by SMILE High School students



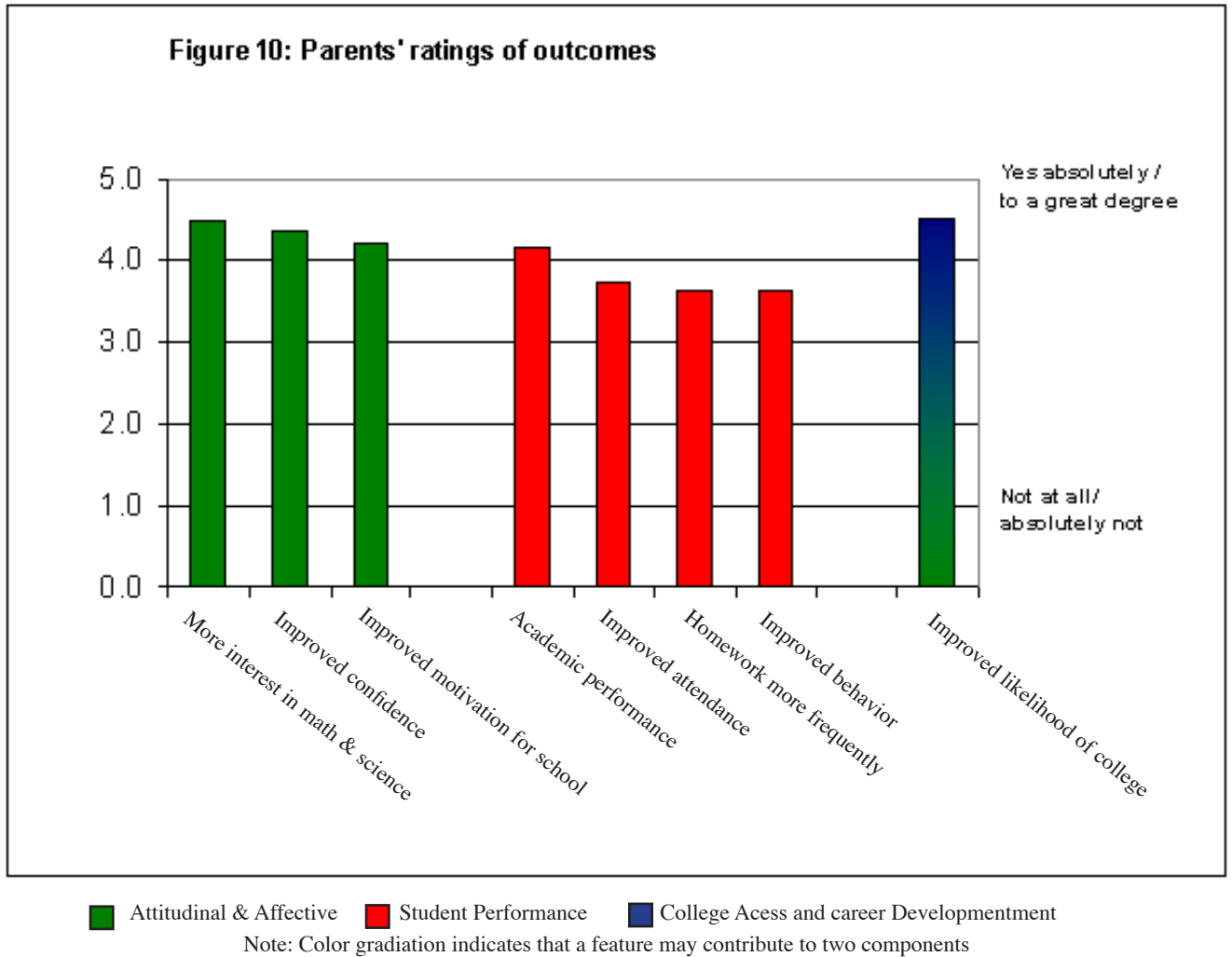
Assessment of Program Outcomes by Constituency

Ratings of program outcomes by SMILE Teachers



Assessment of Program Outcomes by Constituency

Ratings of program outcomes by SMILE Parents



Conclusions and Recommendations

Conclusions:

The URI SMILE Program has proven to be a highly successful and multi-faceted science and math academic enrichment program serving public school students in four Rhode Island communities. Since its founding in 1994, URI SMILE has met its goals by helping the vast majority of participating students increase their interest in science and math, encouraging them to stay in school, and giving them the motivation, confidence, and college-preparatory curriculum they need to enroll in and graduate from college and pursue careers in science, math, engineering, and the health professions.

The most successful components of SMILE are the weekly after-school SMILE Club meetings, the college and career field trips, and the annual off-site events, including the Elementary Outdoor Science Adventure, the Engineering Challenge Weekend, and the Environmental Challenge Program. The weekly SMILE Club meetings provide an academically rigorous, yet relaxed and fun environment where students participate in hands-on projects in small groups, can be with friends, get extra attention from teachers, and explore new science and math concepts. As several students said, the club meetings allow us to “learn new things in a fun way.” The college and career field trips, particularly those to local employers, reinforce students’ sense of how math and science are applied in the “real world.” The annual off-site events also allow students to learn about college life and careers, interact with college mentors and other professionals, and experience how science and math can be applied. One graduate captured the success of all aspects of SMILE in one brief sentence: “I didn’t feel like I was being taught, but I still learned.”

SMILE students gleaned many benefits from the program, particularly in terms of the social connections they developed and their confidence and motivation about school and higher education. Students made friends, enjoyed meeting people who shared an interest in science and math, and built strong relationships with their teachers. In addition, SMILE participants increased their interest in science and math, their motivation to do well in school, and their own confidence level. Most importantly, SMILE students developed a strong belief that they could and would go to college.

While all SMILE students valued their SMILE teachers highly, this was reinforced and amplified in the additional comments of SMILE graduates. They emphasized the importance of recruiting and retaining passionate and committed teachers as SMILE club leaders. Graduates commented that the quality and impact of their SMILE experience was a direct result of a committed and creative SMILE teacher (e.g., teaching the students about the impact of frogs on the environment by taking them out in search of frogs), and, conversely, the negative impact when particular teachers seemed to be “going through the motions”. Ensuring that passionate teachers continue to lead SMILE Clubs was one of the top two recommendations graduates from various SMILE school districts made about the program. Although most SMILE students had a good base level of academic performance and behavior before entering the program, SMILE helped students maintain their academic performance and school behavior. Elementary students in particular saw SMILE helping them focus on completing their homework and improving their academic performance. Students in their first year of SMILE, regardless of age, viewed the program as having a major positive impact on their attendance, behavior, academic performance, and homework completion.

Recommendations:

The URI SMILE staff asked the evaluator to solicit recommendations for improvement from all constituents. This evaluation has shown that SMILE is a well-regarded and highly respected program, and most recommendations reflect the constituents’ interest in further expanding SMILE. Any expansion of the URI SMILE program would involve greater costs, and would have implications for SMILE’s revenue strategy.

Recommendations for expansion include:

1. Broaden the scope and reach of URI SMILE: All constituencies express the desire to expand the base number of SMILE students in the existing clubs, develop new clubs in additional schools, expand the contact time per week, offer more off-site activities, and offer more parent/family events.

2. Provide more formal emphasis on college information and awareness. SMILE maintains a strong emphasis on encouraging students to pursue postsecondary education, providing college role models, and connecting further

education to careers, particularly in technical fields. Students have to apply to three colleges and complete paperwork for financial aid during their senior year in high school in addition to maintaining a schedule that includes college preparatory science and mathematics classes. However, students perceive that there is little formal counseling or advising on college selection and application, secondary school course selection related to eventual college success, financial aid, and other aspects of college access programming.

SMILE would benefit from the addition of an on-site guidance counselor. Providing formal college counseling would be a very fruitful expansion of the program, and would significantly improve SMILE's effectiveness in this area.

3. Increase professional development opportunities for teachers.

Teachers expressed an interest in more professional development opportunities, including more training on developing and implementing hands-on activities, more workshops targeted specifically at elementary school SMILE teachers, more technology-focused workshops, and increased joint club planning and troubleshooting time into the teacher workshops. Any expansion of professional development would require both increased funding and coordination with the participating school districts regarding releasing teachers, covering classes with substitutes, and other aspects of supporting teacher professional development.

4. Create a full-time coordinator position: The founder of the URI SMILE Program has successfully guided it since its founding in 1994. She serves as a SMILE Club teacher/advisor and the part-time coordinator of the entire program, and is assisted by a part-time program development coordinator. In order to address the recommendations in this report and continue to develop and refine the SMILE model, the program needs a full-time coordinator, with appropriate support staff and infrastructure. It is important to note that expanding the administrative staff in this way would require a significant level of new funding for the program.

A few recommendations for improvement could be achieved within current budgetary restraints.

Non expansion recommendations include:

1. Increase communication. Although teachers rated institutional support for SMILE as better than "good," they expressed an interest in increased communication between SMILE teachers and with URI SMILE staff.

2. Diversify program offerings: The program activities, both in the weekly after-school SMILE Club meetings and in the field trips and annual off-site events, could be more varied, while remaining intellectually challenging, relevant, and engaging. In particular, high school students and students who had been in the program for multiple years emphasized the importance of diversifying the problems and experiments they work on in order to motivate them to stay actively engaged in SMILE.

SMILE teachers expressed their willingness and desire to participate in designing additional standardized components for the SMILE curriculum. The challenge will be to continue to provide a curriculum with a significant level of direction and guidance while leaving room for teachers to continue to adapt and improvise according to their teaching style and the needs and interests of the students.

3. Create more publicity and visibility for SMILE: Teachers, students, and principals alike recommend increased promotion of the program within the schools, school districts, and communities that SMILE serves to raise the program's visibility and generate more involvement and support. They believe its visibility needs to be increased among students and teachers within their schools and school districts, as well as to members of their school communities to highlight SMILE students' successes.

Building on Success

SMILE has had a distinguished and successful first decade in Rhode Island. The program has provided many students with high quality and rigorous academic experience, stimulating their interest in math and science, and giving them the confidence and motivation to pursue postsecondary education. SMILE has created a community of learning and provided a safe and comfortable environment where students can focus on academics.

SMILE is well aligned with the University of Rhode Island's outreach, community service, and diversity goals. As the program continues to evolve and develop, SMILE is poised to expand and deepen its impact on Rhode Island's youth, supporting them to achieve their potential, and increasing the diversity and number of students prepared to pursue careers in science and math.

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Finally, we express our appreciation to the students, their parents, graduates of SMILE, and SMILE teachers who were enthusiastic about this study and took the time to respond to our questionnaires and to participate in focus groups where they spoke of their experiences.

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