

Engaging Ethnic Minority Girls in Science: An Evaluation of the Girls Are G.R.E.A.T. Science Enrichment Program

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The National Partnership for Advanced Computational Infrastructure and
Rozeanne Steckler, Senior Staff Scientist
San Diego Supercomputer Center, University of California-San Diego

By
Baine B. Alexander and Olga Lucia Herrera
LEAD Center
University of Wisconsin-Madison

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I. Introduction: Statement of the Problem

Mathematics and science knowledge has been identified as an important component of an informed U.S. citizenry, as well as a key part of our nation's economic growth.^{1 2} The Bureau of Labor Statistics projections for 1998-2008 predict a 27% growth (5.3 million new jobs) in science, engineering, and computer-related fields.³ There are predictions that the U.S. will face a severe labor shortage of those with training in the sciences. Thus, it is critical that all students have access to a high quality education in the area of mathematics and science. However, a significant amount of research has documented a gender gap in participation in math and science related fields.^{4 5 6} Despite the fact that women comprise half of the total workforce they are only one-fifth of the current science and engineering workforce.⁷ It is important to note that substantial gains have been made in the past ten years, but a disparity in participation between males and females remains. This gap in participation is caused by multiple factors at different points in the educational pipeline. Research suggests that girls, on average, begin to turn away from science early on in their education.⁸ Some of this has been attributed to the impact of strong culturally stereotyped messages about female identity and ability in these areas, thereby potentially introducing insecurity and a diminished self-confidence when performing in math and science. This can lead to less positive attitudes towards these fields of study. Girls who develop negative attitudes towards science during elementary and middle school often close off options by choosing to forgo high school science and math courses beyond the minimum requirements, thereby making it difficult to acquire the academic background necessary for both undergraduate course work and careers in science, math, or engineering.^{9 10}

There is an even larger achievement and participation gap in science and math-based fields between white students and (with the exception of Asian-Americans) students belonging to racial and ethnic minority groups.^{11 12 13} Ethnic minorities, on average, are the children most left behind in science and math education. The gap between white students and minority students begins in K-12 education, as evidenced in the data from the National Assessment of Educational Progress (NAEP).¹⁴ Gaps in proficiency in mathematics and science are substantial, and have remained unchanged since 1990.¹⁵ For example, in science achievement level, as demarcated by the categories of *advanced*, *proficient*, *basic*, and *below basic*, 62% of White high school seniors

¹ Freeman, P. & Aspray, B (1999). The supply of Information Technology Workers in the United States. Washington, D.C.: the Computing Research Association.

² Report of the Congressional Commission on the advancement of Women and Minorities in Science, Engineering, and Technology Development (2000). Land of Plenty: Diversity as America's Competitive Edge in Science, Engineering, and Technology.

³ Bureau of Labor Statistics (2001), Civilian Labor Force, 2000-2010, Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics.

⁴ National Science Board (2000), Science and Engineering Indicators—2000. Arlington, VA: National Science Foundation.

⁵ AAUW (1992). How schools shortchange girls. Washington, D.C.: AAUW Foundation Research. AAUW (1992).

⁶ AAUW (1998). Gender gaps: Where schools still fail our children. Washington, D.C.: AAUW Foundation Research

⁷ National Science Board. (2000). Science & engineering indicators - 2000. Arlington, VA: National Science Foundation, (NSB 00-1). Available: <http://www.nsf.gov/sbe/srs/seind00/access/c3/c3s2.htm#c3s211>.

⁸ AAUW (1998). Gender gaps: Where schools still fail our children. Washington, D.C.: AAUW Foundation Research AAUW (1998). Gender gaps: Where schools still fail our children. Washington, D.C.: AAUW Foundation Research

⁹ *ibid.*

¹⁰ Milbourne, Linda (2001) Encouraging Girls in Science and Math, in *The ERIC review: K-8 Science and mathematics education*, volume 6, issue 2.

¹¹ Report of the Congressional Commission on the advancement of Women and Minorities in Science, Engineering, and Technology Development (2000). Land of Plenty: Diversity as America's Competitive Edge in Science, Engineering, and Technology.

¹² National Science Board (2000), Science and Engineering Indicators—2000. Arlington, VA: National Science Foundation.

¹³ Patricia B. Campbell Beatriz Chu Clewell 1999 Projects in Education Vol. 19, number 2, page 50, 53 Education Week

¹⁴ National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 and 2000 Science Assessments.

¹⁵ *ibid.*

were at or above the basic level as compared to 22% of Blacks, 30% of Hispanics, and 44% of American Indians.¹⁶

The combination of female and minority status in many cases poses an even greater impediment to participation and achievement in science and mathematics. In particular, according to a recent report, Latinas are lagging behind other racial and ethnic groups of girls in key indicators of educational achievement.¹⁷ For example, the high school graduation rate for Latinas is lower than for girls in any other racial or ethnic group. Latinas are also less likely to take the SAT exam than their White counterparts and the least likely of any group of women to complete a bachelor's degree.¹⁸ The role of women in traditional Hispanic culture is an important factor in these achievement and participation indicators. Traditional roles and expectations of Latinas can clash with the behaviors and activities required for academic success.¹⁹ However, it is important to note that Latinas perform better than their male peers on many educational outcome measures.^{20 21}

Minority children represent a rapidly growing percentage of the school age population, such that by 2012 students of color are expected to make up 24% of the under-18 population and will represent more than half of the student population in three to seven states.²² Overall, census projections indicate that by 2030 approximately 40% of all Americans will be members of minority groups constituting "the new majority."^{23 24} In contrast, the scientific and technical fields that under-gird our nation's current economic power and future economic potential are dominated by White and Asian males. As achievement and skill in science and technology become evermore important to individual and national advancement in the global, high-tech economy of the 21st century, the need to provide American citizens from all backgrounds with the opportunity to develop scientific and technical competency becomes more pressing. The United States can meet the projected shortage of scientists, mathematicians, engineers, and technology professionals only by attracting underrepresented minorities and women to these occupations. Because minorities will represent the largest influx in the workforce in this period, it is critical that they have the educational background to meet the economic needs of the nation.

There are many factors that contribute to unequal achievement and participation in the sciences by underrepresented minorities. In particular, poverty, overcrowded urban schools, inadequate educational funding and resources, and less rigorous curriculum disadvantage minority students educationally.^{25 26 27} In addition, a 1998 Congressional report on women and minorities in

¹⁶ *ibid.*

¹⁷ Ginorio, A. & Huston, M. (2000). *¡Sí, Se Puede! Yes, We Can: Latinas in School*, Washington, D.C.: American Association of University Women (AAUW) Educational Foundation.

¹⁸ *Ibid.*

¹⁹ *ibid.*

²⁰ *ibid.*

²¹ U.S. Department of Education (1998). *Hispanic Dropout Project. No More Excuses: The Final Report of the Hispanic Dropout Project*. 1998. Washington, D.C.: U.S. Department of Education.

²² *Population Predictions of the United States by Age, Sex, Race, and Hispanic Origin: 1995-2050*. U.S. Bureau of the Census, Current Population Reports, P25-1130.

²³ *Ibid.*

²⁴ Bowen, W. & Bok, D. (1998). *The shape of the river: long-term consequences of considering race in college and university admissions*, Princeton, N.J. : Princeton University Press.

²⁵ Oakes, Jeannie (with Tor Ormseth, Robert Bell, Patricia Camp) 1990. *Multiplying Inequalities: The Effects of Race, Social Class, and Tracking on Opportunities to Learn Mathematics and Science*. Santa Monica: The RAND Corporation.

²⁶ Trent, William, and Dawn Owen-Nicholson, Timothy K. Eatman, Marya Burke, Jamie

science found that students from schools with high concentrations of minority and poor students tend to have less qualified science and math teachers than do other schools.²⁸ As the percentage of minority and poor students in a school increases, the percentage of teachers lacking either certification or a major in mathematics and science increases.²⁹ Oakes (1990) found that low-income and minority students have only limited contact with qualified science and math teachers. Oakes also found that students from low-income/high minority concentration schools have little access to strong science laboratories, computer equipment, and other science equipment. Furthermore, the instructional emphasis in these schools is often on preparation for standardized tests, and these limited curricular goals do not promote interest in further study.³⁰ As a result of all these factors, minority students often dislike or fear science, do poorly in it, and opt to take the minimum number of math and science courses, leaving them without an adequate foundation in these areas.³¹

Numerous programs at the national and institutional level have attempted to address this problem in different ways and at different levels in the educational pipeline. Some have argued that, although strategies are needed at all educational levels, primary and secondary programs are critical to solving the problem of the achievement and participation gap of women and minorities in science, mathematics, engineering, and technology-related fields. Research suggests that critical attitudes and beliefs about science that are linked to engagement in science courses and future course-taking patterns are established at an early age and are most open to influence between the ages of 8 and 13.^{32 33} The science standards of the National Council of Teachers of Mathematics (1989) and the National Research Council (1995) both advocate reforms of instructional strategies to incorporate the hands-on science activities and small-group learning that have been shown to boost learning for many students, particularly girls and ethnic minorities.³⁴ It has also been recommended that science and math activities in the classroom be taught in such a way that students experience math and science as applicable to their daily lives and in ways that encourage self-confidence and positive attitudes.³⁵

In this report, we describe and provide evaluation results on a program that attempts to address the issue of encouraging female ethnic minority student interest in science and math at the primary educational level.

Daugherty, and Kathy Norman.. "Justice, Equality of Educational Opportunity, and Affirmative Action in Higher Education." In Mitchell Chang, Daria Witt, James Jones, and Kenji Hakuta (Eds.) (2000). *Compelling Interest: Examining the Evidence on Racial Dynamics in Higher Education*, a report of the AERA panel on racial dynamics in colleges and universities.

²⁷ Oakes, Jeannie (1985). *Keeping Track: How Schools Structure Inequality*. New Haven, CT: Yale University Press.

²⁸ Committee on Equal Opportunities in Science and Engineering (1998). *The 1998 Biennial Report to the United States Congress*. Arlington, VA: National Science Foundation.

²⁹ U.S. Department of Education (1998). Hispanic Dropout Project. *No More Excuses: The Final Report of the Hispanic Dropout Project*. 1998. Washington, D.C.: U.S. Department of Education.

³⁰ Clark, J. (2001). Minorities in science and mathematics: A challenge for change, in *The ERIC review: K-8 Science and mathematics education*, volume 6, issue 2.

³¹ Ibid.

³² Hill, G. & Atwater, M. (1995). Attitudes toward science of urban 7th grade life science students overtime, and the relationship to future plans, family, teacher, curriculum, and school. *Urban Education*, volume 30, issue.

³³ Koballa, T. R., Jr., & Crawley, F. E. (1988). A summary of research in science education—1988. *Science Education*, 74(3), 369-371.

³⁴ Campbell, P. B. & Clewell, B. C. (1999). Science, math, and girls. *Education Week*, Volume 19, number 2.

³⁵ Clark, J. (2001). Minorities in science and mathematics: A challenge for change, in *The ERIC review: K-8 Science and mathematics education*, volume 6, issue 2.

II. The Girls Are G.R.E.A.T. Program

In 1980, the San Diego-Imperial Girl Scout Council developed the Girls Are G.R.E.A.T.(Gifted, Resourceful, Extraordinary, Ambitious and Talented) program, an in-school and after-school outreach program designed to bring Girl Scouting to girls living in the communities of San Diego and Imperial counties. The program reaches girls who live in areas where Girl Scout troops have not been successfully developed because of lack of adult volunteer leadership, language/cultural barriers, and economic hardship. The Girls Are G.R.E.A.T. (GRG) program was designed to break through these barriers and further the Girl Scouts' mission to make Girl Scouting available for all girls.

The San Diego Super Computer Center (SDSC), under the leadership of one of its scientists, Dr. Rozeanne Steckler, has been conducting science enrichment outreach programs for girls and members of underrepresented groups since 1987. In 1997, in an effort to have greater impact by increasing the number of participants, Steckler initiated a partnership between SDSC and the San Diego Imperial Girl Scout Council's Girls Are G.R.E.A.T. program. Through this partnership, a science component was incorporated into GRG and was delivered to minority girls in the inner city and border communities in grades 2-8 in the San Diego City Schools. Between 1980 and 2001, the program had grown from serving 200 girls in four elementary schools to over 5,600 girls in over 50 elementary and middle schools throughout San Diego and Imperial counties. In these two counties there are nine school districts: The San Diego Unified District, San Ysidro, Sweetwater Union High, Chula Vista, Escondido Union, National, South Bay Union, Oceanside Unified, and Vallecitos School District.

A. Description of the program

The GRG programs are delivered to elementary and middle school students either during regular school hours or after school hours. The two forms of program delivery are informally referred to as the "in-school" program and "after-school" program. The logistics of delivering the program are different for each modality. The after-school program is coordinated by three or four Program Leaders and taught to groups of as many as 70 girls at a time. For the in-school program, which is the focus of this evaluation report, teachers are given the option of having a Girl Scout program provided to the girls in their classroom during school hours. Teachers that request the program generally team up with an adjacent class so they can participate in the program together. The boys from both classrooms are combined and either receive alternative programming or have an extra recess on the days that the Girl Scout program is offered. Total GRG classroom size ranges from 20-35 student participants. The GRG program is conducted by two Girl Scout Program Leaders for a 45-minute period in each classroom twice a month. One of the classroom teachers is always present while the GRG program is taking place, although they often use this time to do preparatory work or grading.

SDSC and the San Diego-Imperial Girl Scout Council share responsibilities for delivering the GRG program. SDSC develops the science enrichment curriculum, acquires and lends the materials, and trains the Girl Scout staff. Girl Scout staff members (many of whom are bilingual) are in charge of teaching the curriculum to the students during school or after school. A broad range of programming is offered in the areas of health, math skills, science, technology, violence prevention, conflict resolution, communication, career exploration, and building self-esteem. The science enrichment component of the GRG program, which was the main focus of

the evaluation, contains over 35 modules in the areas of computer science, earth science, life science, and physical science. The science modules were developed to ensure agreement with state and district standards. The science modules emphasize hands-on inquiry and learning through exploration. Each curriculum module is organized with instructions for the Program Leader and with all materials necessary to carry out the activities that accompany the lesson.

Family Science Night is an auxiliary component of the SDSC-sponsored Science GRG-program that was started in 1998. Generally, one or two Family Science Nights are offered annually and are held in one of the area schools where the GRG program is delivered. These evening programs are for the families of the girls who receive the GRG program. In addition to a dinner, the families are introduced first-hand to sample activities that the girls experience while in the GRG program. The activities include hands-on activities with computers, erector sets, microscopes, and rockets. Upon completion of each science activity assembled at various stations, girls receive a stamp on their Science Night passport. If they earn stamps at all of the activity stations, they receive a *Science in a Bag* kit filled with a science experiment and other science-related equipment such as magnifying glasses, slinkies, magnets, rulers, calculators and tanagrams.

There are also speakers provided for the parents on topics such as information about college education, the availability of scholarships and other financial assistance for education, encouragement, and information on the importance of their role in helping their children to excel in school. They offer concrete suggestions about how to assist their children with academic achievement.

B. Goals of the GRG program and the strategies for achieving them

The primary goal of the GRG Program is to advance and sustain girls' interest in science. Interviews with the program director and Girl Scout staff members, and analyses of the program literature provided more detail on the GRG program's goals and the strategies for achieving them. There are three intermediate supporting goals that are intended to contribute to the primary goal. These goals and the strategies for achieving them are listed below:

Primary Goal: *To advance and sustain girls' interest in science, with a special emphasis on minority girls.*

Supporting Goal #1: *Reduce girls' fear and intimidation about science.*

A key philosophy of the program is that girls will be more likely to be interested in science learning if they are not intimidated by science activities and if they can increase their confidence about their ability to explore scientific concepts. Hence, one of the key supporting goals in the GRG program is to address fear, intimidation, and lack of confidence through introducing the girls to specially designed activities that allow interest and engagement to emerge through exploration.

Strategies: 1) The activities in the curriculum involve hands-on exploration that is likely to lead to successful outcomes. These activities are designed to draw the girls in, because they are interesting and fun. 2) The program emphasizes collaborative exploratory activity that reduces

fear and intimidation through mutual group support. Girls who have more experience or aptitude with an activity can assist those with less experience.

Supporting Goal #2: *Expand the students' conception of what science is, and who scientists are.*

The research literature on which this program is based suggests that girls, and minority girls in particular, often have a conception of science as something distant, and unrelated to their everyday world, thus potentially reducing their interest in science learning. The underlying assumption of the GRG program is that introducing participants to the relevance of science for them, and introducing them to female and minority role models involved in science, can increase interest and engagement in science learning.

Strategies: 1) Engaging the girls in class discussions about the nature of science and scientists, including information about women in science. 2) Providing activities that focus on scientific concepts relevant to the student's lives. 3) Exposing the girls to Program Leaders that can act as female role models who are knowledgeable about science and science exploration.

Supporting Goal #3: *Creating an environment that facilitates and encourages active participation in learning by girls.*

In order to counteract the reluctance of many girls to fully participate in math and science activities in a mixed gender classroom, a key supporting goal of the program is to provide a classroom setting where girls can feel comfortable asking questions and exploring in collaboration with their peers.

Strategies: 1) Conducting the program in an all-girl classroom setting. 2) Using collaborative learning groups as a method of encouraging science exploration.

III. Purpose of the Evaluation and Methods

In October 2000, the University of Wisconsin's Learning through Evaluation, Adaptation, and Dissemination (LEAD) Center was commissioned by the National Partnership for Advanced Computational Infrastructure (NPACI) Education, Outreach, and Training component to conduct an evaluation of the GRG program. The primary interest of the client, Dr. Rozeanne Steckler, was to assess the impact of the program and establish which components of the program contribute to successful outcomes. A key aspect of this interest was related to Steckler's plans to scale the program to other sites nationally. In particular, an expected outcome of the evaluation was that the GRG could serve as a national model for implementation by other Girl Scout Councils. A secondary purpose was to provide feedback to the developers and implementers of the program about how to improve the program and maximize its impact.

A. Evaluation research questions

The evaluation sought to find answers to the following research questions:

- What actually takes place in the program? How is the program implemented in the classroom?
- How do the girls experience the program?
- Do students feel more confident in doing science activities as a result of the program?
- Does participation in the program have an impact on students' attitudes towards science?
- How do the girls view the Program Leaders?
- Do Program Leaders act as positive role models for the girls?
- How do the classroom teachers experience the program?
- Do teachers and principals perceive the program as contributing something valuable and unique to their students? If so, what?
- Do educators perceive a need for a science enrichment program in their community?
- What indicators of success do the teachers perceive?
- Do teachers perceive that the program relates to, or builds on, other concepts taught in the classroom?
- Do teachers perceive that the program produces more positive attitudes towards science in their female students?
- Do teachers think that the Program Leaders are well prepared and capable of leading the program?
- Does the program involve the parents of the girls? If so, how?
- What are the key program components that contribute to positive outcomes?

B. Methods

A case study approach was undertaken to carry out this evaluation because it was considered the most viable method of assessing the impact of a program that is delivered in 57 schools and serves over 5,000 girls in the San Diego area. The San Ysidro Elementary School District was selected for this case study because it has been involved with the GRG in-school program for the longest period of time and the program is present in all of the district's schools, thereby providing the most comprehensive exposure to the program of any school district in the area. Data was collected from four different schools in the San Ysidro Elementary District--three elementary schools and one middle school.

For the purpose of triangulation (i.e., establishing the reliability of information by collecting it from multiple stakeholders), data about the program was gathered from six different groups: participants, parents, teachers, school principals, the GRG program director, and other Girl Scout staff. Multiple approaches for collecting and verifying information were also required in order to better address the two main goals of the evaluation: to document and understand how the GRG program is delivered, and to determine its impact.

It is important for the reader to know that the LEAD research team was concerned about the team's ability to collect accurate outcome data directly from the student program participants both because of their age and because of the difficulty of acquiring data from children with whom doesn't have a relationship. As a result, the analysis relied more heavily on teacher interviews and surveys than on student interviews for data on the impact of the program.

In order to address the evaluation research questions, individual interviews, focus group interviews, observations and surveys were conducted with various groups. What follows is a description of each of these data collection activities.

1. Individual interviews

A total of 48 individual interviews were conducted between October of 2000 and June 2001.

- Program leaders (11 initial, 4 follow-up)
- Teachers (13)
- Principals (8)
- Parents of participants (6)
- Program developer/director SDSC (3 interviews)
- Girl Scout GRG manager/curriculum developer (2 interviews)
- Girl Scout administrators (2)

See each of the individual report sections for more details on the methods used for each set of these interviews.

2. Focus group interviews: Student perspective

During February 2001, four focus groups were conducted with six graders in San Ysidro Middle School. The Program Leaders distributed flyers inviting volunteers to participate in a pizza party and focus group discussion. The criteria for participation were: being in the sixth grade, currently participating in the GRG program, and receipt of a signed parental consent form. The focus group interviews were recorded and later transcribed. A total of 26 girls were interviewed in the focus groups.

The focus group method for collecting data from the students was selected as a tool to investigate:

- Girls' views about the program.
- How they feel about science?
- Do they enjoy their science classes?
- Do they ever consider being a scientist?
- Do they like the idea of doing activities without the boys?

Limitations of the focus group interviews with students

The four focus groups in this study included a relatively small number of girls who participate in the GRG program. The small sample was due to scheduling difficulties (focus groups needed to be scheduled around school and parents' hours).

The researchers were aware of the limitations of these interviews because of the difficulty of establishing rapport with children, particularly in such a limited time frame. To minimize the problem of researcher-participant affinity, older girls (6th graders) were chosen. One of the researchers is fluent in Spanish and was able to conduct parts of the interviews in Spanish. However, it is still difficult for the researchers who have no pre-existing relationship with the girls to gain trust and establish rapport with children of this age. Despite these limitations, the interviews served to identify some themes about the program and influenced other data collection and analysis.

3. Observations

To get a better feel for the program, the two LEAD evaluators conducted site visits to three different elementary schools in San Ysidro (Willow, Smythe, and Beyer). Each evaluator observed two to three classrooms where the program was being delivered. They took detailed notes during the observations, and, when possible they conducted informal interviews with the classroom teachers and with the Program Leaders after each session. The observations were helpful for understanding the way in which the program was delivered, the day-to-day activities of the Program Leaders, the approaches used when teaching the GRG programs, and the response and level-of-engagement of the participants. Observations of the GRG sessions were also conducted in other district schools in Chula Vista and the city of San Diego in order to see other examples of the program in schools outside San Ysidro.

LEAD evaluators also observed the February, 2001 Family Science Night at the San Ysidro Middle School.

4. Surveys

A survey was conducted in May 2001 with San Ysidro Elementary School District teachers who teach classes that receive the GRG program. See Section V for details on the sample, the response rate, and the analysis of this survey. The evaluators also analyzed the results of a survey that was designed and conducted by the Girl Scouts at the end of the 1999 school year.

IV. The Case Study Community: San Ysidro

San Ysidro is located within the jurisdiction of the city of San Diego, 15 miles south of the city proper, and immediately adjacent to the United States-Mexico international border at Tijuana. The area is often described as the "Gateway to Mexico," and thus it attracts tourists and transient immigrants coming to the U.S.

The San Ysidro Chamber of Commerce reports that the community's total population in 1990 was 34,379 people, and the projected population for the year 2000 is 45,000. Approximately 75% of the residents in this area are Hispanic/Latino, but there are also a considerable number of Filipinos, African-Americans, Asians, Caucasians, and American Indians. The median age of community members is 24 years old and the median household size is 3.9 persons. The median household income range in 1990 was \$20,000-22,499, and the median household income was estimated to rise to \$24,941 by 2000. Local demographics indicate that this is a community in great economic need. For example, 38.5% of children aged 0-17 years are considered to be living below the poverty level. Educational attainment is also low: about 52% of the people aged 25 years and older have either "less than 9th grade" or only "some high school" education. By comparison, in San Diego County only 18.1% of those 25 or older fall into this demographic category.

The San Ysidro Elementary School District is a growing district with an enrollment of about 4,700 students. The district operates five elementary schools (K-5), one middle school (6-8), and some preschool and child care programs. Most of the students enrolled (93.3%) are Hispanic/Latino, 2.7% are white, 2.2% are African-American, 1.1% are Filipino, and the rest are American Indian, Asian, Pacific Islander and others. The majority (75.5%) of the students qualify for English Learner (EL) programs, and all (100%) qualify for the free/reduced price

meals for children program, a federal program administered by the U.S. Department of Agriculture. Eligibility for the program is by application and is based on income of the child's parent or guardian.

Teachers in the district are for the most part (86%) fully credentialed. The pupil-teacher ratio is 20:1 and the average class size is 25. Most schools have access to computers and the Internet. The number of computers with CD-ROM available to the children is 865. The ratio of students to computers in the district is 5:3.

Guide to the reader

What follows are multiple sections about the GRG Program based on the following different data sources:

- Teachers and principals
- Parents
- GRG Program Leaders

In each section we provide a description of how the data was collected, followed by a discussion of the results.

V. Teacher and Principal Perspectives

In this section we provide information from teachers and principals in the San Ysidro primary and middle schools about the educational needs of children in their community, and how the GRG program addresses those needs. The teachers' perceptions of the program and its impact on their female students are also discussed.

A. Methods

Interviews and surveys were conducted with teachers in the San Ysidro Elementary School District (San Diego County) in the spring of 2001. Through these two data sources we sought information on the teachers' perceptions of the GRG program, its impact on their students, and their level of satisfaction with the program.

Interviews were conducted in-person with teachers and school principals. Interviews with 13 teachers aimed to assess their perception of the program in terms of awareness, quality and usefulness. Ten teachers were interviewed in-person during an on-site visit to San Diego in February 2001, and three additional teachers were interviewed by telephone later in Spring 2001. Four principals were interviewed in person, and four others were interviewed by telephone, totaling interviews with eight principals.

A written survey was sent to all San Ysidro Elementary School District teachers who teach classes that receive the GRG program. Surveys were designed to determine the familiarity of the teachers with the program, their perception of the need and the impact of the program on the participants, their opinion about the preparedness of the Program Leaders, and their specific satisfaction with the science-GRG activities.

Because the distribution of the surveys was coordinated by the Girl Scout staff, the evaluators do not know the exact number of teachers who received the survey. According to the GS staff the survey was distributed to all of the teachers that received the program in the San Ysidro Elementary School District. The program is offered to 162 classrooms in San Ysidro, however, because 2 classrooms are paired for program delivery there is only one teacher present. Therefore we estimate that the survey was distributed to half of the teachers (81). Twenty-six of those 81 teachers completed the survey, for a response rate of 32%. We analyzed the survey data in conjunction with the teacher interview data and, in general we found consistencies between the results of these two data sources.

B. Demographic information about the survey respondents

Our sample of 26 teachers was predominantly female and taught in 4 different schools in the San Ysidro Elementary District—three elementary schools and one middle school. The grades taught by our survey respondents ranged from kindergarten through 6th grade (Table 2).

Table 1: Gender of survey respondents (n=26)

Gender	Frequency	Percentage
Female	22	85%
Male	4	15%
Total	26	100%

Table 2: Grades taught by survey respondents (n=26)

Grade	Frequency	Percentage
Kindergarten	2	8%
First	3	11%
First-Second	1	4%
Second	5	19%
Third	2	8%
Fourth	3	12%
Fifth	4	15%
Sixth	6	23%
Total	26	100%

The average teaching experience of the survey respondents was 9.5 years, ranging from a 2-year minimum to a 28-year maximum. All of the teachers had baccalaureate degrees and 73.1% had master's degrees. All of the teachers surveyed were responsible for teaching all of the following subjects to their classes: math, science, social studies, and language arts.

C. Community and school context: perception that there is a need for the GRG program

The teachers and principals interviewed all discussed the importance of the Girl Scout program in the context of the needs of their community. The following were the major reasons that interviewees gave about why this community needed a program like the Girl Scout program.

- It is an economically and educationally disadvantaged student population.
- Girls' lack confidence in academics, particularly science.
- There is an under-emphasis on science in the curriculum.
- Teachers lack resources to teach science.

1. *Economically and educationally disadvantaged student population*

All of the teachers and principals interviewed discussed the pressing needs of students in their community as a result of poverty, lack of resources, language barriers, and lack of exposure to educational experiences. One principal in San Ysidro stated that,

All of our students receive free lunch and free meals and 80% are at the poverty level. I would say of our 1450 [students], about 800 have only one parent at home, and that's pretty high. That [has] a big impact because that translates into the majority of them are going to be on welfare. They're going to live in a place where they don't have very much. They don't leave the area on weekends, because very few [have cars].

One of the principals interviewed specifically referred to his school's annual Academic Performance Index (API) rank from the California Department of Education, and said that compared to 10 schools in the area with similar demographics they were on the bottom. He used this data to underscore that his school's students have a lot of needs.

Some of our interviewees raised the issue that the impact of the GRG program is potentially greater for these students as a result of these demographic factors.

2. Girls' lack of confidence in academics; particularly science

Most of the teachers interviewed and surveyed believed that girls in particular could benefit from exposure to science activities. Indeed, 88% of our survey respondents agreed with the statement that their school had a need for activities and programs that increase girls' confidence in math and science. Some interviewees raised the issue that traditional Latino culture tends to orient girls toward domestic responsibilities and that exposing these girls to science programs provided them with other options. Below, one such teacher describes this goal and the problem of girls lacking confidence in science relative to the boys:

[I would like] to create an environment in which the girls feel that they're capable of doing just about anything. Capable of doing things such as sciences, and that it's not just for guys, anyone can get into it. Just getting exposure more than anything else. We treat everyone the same, yet it's amazing that in math and science, the ones that are always raising their hands or participating or screaming the answers are mostly boys. At least that's what I've noticed in the middle school. The girls, for some reason, tend to be a little shy.

3. Under-emphasis on science in the curriculum

The majority of the teachers interviewed noted that they spend very little time teaching science to their students. A middle school teacher reported that she only does two science lessons a year with her students. An elementary school teacher stated that there is not a well-defined science curriculum, only standards. Many of the teachers related that currently standardized test scores determine the focus of the curriculum. In San Ysidro low standardized test scores and the resulting low rankings of these schools in San Diego County has meant that the majority of school time is spent on literacy and very little on science education (*see* Blueprint for Student Success in a Standards-Based System

http://www.sdcs.k12.ca.us/comm/current_issues/blueprint/blueprint.html#b1

4. Lack of resources to teach science

A lack of resources was the number one reason given by teachers we interviewed for not being able to teach science adequately. Many teachers reported that if they had access to materials they would teach more science. Many reported that if they could borrow the materials from the Girl Scout program, they would use them to teach the boys themselves.

D. Impact of the program

Both surveys and interviews indicated that teachers were overwhelmingly positive about the GRG program and reported a wide range of impacts. The majority of the teachers surveyed (73%) expressed that if given a choice they would offer the program to their girls on a weekly basis rather than every other week. Almost all of the teachers we interviewed discussed how one of the most important outcomes of the program was that it exposed the girls to new ideas and experiences. Most of the teachers discussed how almost all of their students came from backgrounds in which they had very limited exposure to a broad range of experiences, particularly educational experiences. For these teachers one of the most basic functions of the GRG program is giving students the exposure and opportunity to try things that they have never done before.

In discussing the impact of the program, one teacher emphasized that one could only speculate on the ultimate impact of the GRG Program. She stated that many of the possible impacts may not be immediately apparent, only emerging later in the girls' educational life. When asked about whether the program had an impact on academic competency this teacher replied,

Yes and no. Yes, there is, but do you see it the next day in math class? No. I mean no seed ever sees its flower...But does it impact them? Absolutely. It is a safe hour for them. Number two, it is an hour where girls can shine. And all of that adds up. It all makes a foundation. That's not going to make them be class president tomorrow, but it's a foundation. And role models, you can never have too many successful female role models besides their teachers. They need to see people who aren't teachers, too. It all makes a difference. And that's what this is about. That building bridges activity, I have a little girl in my class that thinks math is from the devil. And she was in there building the little bridge, and she thought she was all that. It makes them feel more competent.

In terms of general outcomes, one of the school principals interviewed discussed how the school staff considered the GRG program to be part of their school's effort to promote a culture of learning amongst their students. One aspect of this was the evening programming associated with the GRG (Science Night), which involves both parents and children. It was essential to this principal that parents get involved in their children's education, and he viewed the GRG's Family Science Night as a successful vehicle for promoting this kind of parental involvement.

In the survey teachers were asked the extent to which the GRG program provided their students with various learning opportunities and built on the classroom curriculum (see Table 3). Over 50% of teachers felt that the program provided either 'a lot' or 'a fair amount' of all of the opportunities listed.

The most frequently cited impacts, based on this particular survey question, were that the program:

- encourages collaborative learning (84% responding "a lot" or a "fair amount")
- provides girls with opportunities to ask questions (73% responding "a lot" or a "fair amount")
- provides opportunities for girls to feel comfortable doing science-related activities (68% responding "a lot" or a "fair amount")
- provides opportunities to do hands-on science (62% responding "a lot" or a "fair amount")

Table 3: Teacher perceptions of the degree to which the GRG Program provides their students with various learning opportunities (n=26)*

Learning opportunities	Number and percent of teachers who chose particular rating						
	A lot 1	A fair amount 2	Some 3	A little 4	Not at all 5	Don't know	Mean (S.D.)
Encourage collaborative learning with other students	11 42%	11 42%	2 8%	0 0%	0 0%	2 8%	1.50 (.76)
Provide the girls with opportunities to ask questions	14 54%	5 19%	2 8%	2 8%	1 4%	2 8%	1.65 (1.23)
Provide opportunities for girls to feel comfortable doing science-related activities	8 30%	10 38%	3 12%	3 12%	0 0%	2 8%	1.73 (1.22)
Provide opportunities to do hands-on science learning activities	10 39%	6 23%	4 15%	4 15%	0 0%	2 8%	1.92 (1.23)
Expose the girls to new ideas related to science	7 27%	8 31%	4 15%	5 19%	0 0%	2 8%	2.12 (1.24)
Build on lessons the students were taught in school	9 35%	6 23%	4 15%	3 11%	2 8%	2 8%	2.12 (1.42)
Provide the girls with access to science-related resources	6 23%	8 31%	4 15%	3 11%	2 8%	3 12%	2.15 (1.43)

*Organized by learning opportunities that were rated as occurring most frequently to least.

When asked specifically about the effects of the GRG program, the majority of teachers reported seeing increases in all of the areas except confidence working with computers and school attendance (see Table 4).

Table 4: Effect of the GRG Program on participant attendance, interest, confidence, self-esteem, and motivation (n=26)

Program outcomes	Number and percent of teachers who chose each rating						Mean (S.D.)
	Increased a great deal 1	Increased 2	Has not changed 3	Decreased 4	Decreased a great deal 5	Don't know	
Self-esteem	9 35%	11 42%	4 15%	0 0%	0 0%	2 8%	1.65 (.85)
Comfort working in collaborative groups	9 35%	12 46%	4 15%	0 0%	0 0%	1 4%	1.73 (.78)
Motivation towards learning	7 27%	14 54%	4 15%	0 0%	0 0%	1 4%	1.81 (.75)
Confidence in doing science activities	6 23%	10 38%	7 27%	0 0%	0 0%	3 12%	1.81 (.98)
Confidence working with computers	2 8%	6 23%	11 42%	0 0%	0 0%	7 27%	1.81 (1.27)
Interest in school activities	2 8%	16 61%	6 23%	0 0%	0 0%	2 8%	2.00 (.80)
School attendance	1 4%	5 19%	16 62%	0 0%	0 0%	4 15%	2.27 (1.12)
Other: (Comments contributed by respondents)							
• Meeting girls from other classes and social/language groups.	1 ----- 1	0 0%	0 0%	0 0%	0 0%	0 0%	-----
• Interest in learning new things.							

***Organized by highest increase in program outcome to lowest**

In the following sub-sections the key outcomes that emerged from both surveys and interviews are discussed in more detail.

1. Increased collaborative learning skills

Eighty-four percent of teachers who responded to the survey said that the GRG encouraged collaborative learning with other students either “a lot” or “a fair amount.” Interviewees also discussed how the GRG program promoted cooperative group skills. A few teachers suggested that this outcome may be because the group activities in the GRG program are un-graded, resulting in different group dynamics that can promote cooperative connections between students and a different approach to learning. As one teacher observed:

The cooperation was neat because it wasn't for a grade, and sometimes that kind of helps. It's just fun, and it's not for a grade. Usually everything we do in group work has a grade, so they're on each other. 'Hey, you're going to get us an F.' When they were doing [the GRG activities] I saw that the girls were saying things to each other like, 'Hey, that's a good idea. Alright, she's right, let's do it that way.' So they were pushing each other on.

2. More positive attitudes towards science and increased confidence in doing science activities

As discussed in section V. C2, teacher interviewees expressed the need for girls in particular to be exposed to science enrichment activities because of their confidence gap relative to boys, and

because of cultural factors that make girls less likely to be interested and comfortable with math and science. Eighty-eight percent of teacher survey respondents agreed that the science component of the program had a positive effect on the girls' attitudes towards science. Further, 61% of the survey respondents said that the program increased the students' confidence in doing science activities (Table 4). Interview data confirmed these findings. Most of the teacher interviewees stressed that through separating the girls from the boys and providing them with science-related activities, the program increased the girls' confidence and comfort in asking questions and exploring concepts through activities. Teachers and principals underscored how a lack of confidence is a serious problem for these girls and that the types of hands-on science activities and exploration that they engaged in within the GRG Program promoted a sense of mastery that could potentially be transferred to other academic and experiential contexts.

Some teachers reported seeing impressive science achievement in girls that had previously been some of their most reluctant and shy students. For example:

I had all girls participating [in the school science fair]. And of course, all boys too. One of the winners was a girl that is very shy, that hardly ever participates in class. But yet, she won first prize in the 7th grade. And people were saying, "Is this girl in a Girl Power club?" I said, "Well, she's not in Girl Power," which happens to be another club that they do after school. And I said, "As far as I'm concerned, I don't think she's involved with any sports out of school, the only thing that she's doing, is Girl Scouts, a class that comes here to school." We can never know, but I think indirectly there's a connection [with her participation in the GRG Program].

In addition to teacher discussion of the benefits of the science-related activities, middle school teachers in particular discussed how the activities involving social issues are pertinent for teenage girls. These were viewed as very important and had an impact on their female students.

3. Developing better English language skills

Another significant outcome of the program that emerged in interviews with teachers was that the GRG program offered numerous opportunities for their students to improve their English language skills. As noted earlier, a large percentage of the student population in San Ysidro are native Spanish speakers. Therefore a critical educational goal in the schools is increasing the students' English language proficiency. The teachers noted that the procedure of having the program delivered in English but having a Spanish-speaking program leader occasionally translate at different points in the lesson, not only reinforced the learning of the material but assisted in increasing the students' English language skills. Another feature of the program that teachers identified as enhancing student language learning was that since the program was delivered to a combination of two classrooms at once, teachers used this as an opportunity to combine classrooms of transitional English speakers with more fluent English speakers. This procedure was of particular benefit to the transitional speakers in terms of increased language learning.

4. Increased motivation towards learning and interest in school activities

Eighty-one percent of survey respondents said that the GRG program increased their students' motivation towards learning and 69% thought that it increased their students' interest in school activities. These same benefits were mentioned by the teachers we interviewed.

5. Reinforces classroom curriculum

Some interviewees discussed how the GRG science activities reinforced what they had already taught in the classroom. This was particularly the case at the elementary school level. One teacher gave the example of how she had taught a unit on sound and that the GRG activities helped to solidify the learning of the concepts she had introduced to the students.

E. Teacher perceptions of the program

1. Overall satisfaction

We asked the teachers to rate both their overall satisfaction with the Girl Scouts in-school program, and whether they considered the program to be worthwhile. All of the teachers surveyed rated themselves as either satisfied (89%) or somewhat satisfied (11%) with the program. Teachers overwhelmingly agreed that the program is worthwhile for their female students (Table 5).

Table 5: Frequency and percentage of teachers that consider the Girl Scout program worthwhile (n=26)

Statement to be rated	Number and percent of teachers who chose particular level of agreement					Mean (S.D.)
	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4	Don't Know 5	
Overall, I find the Girl Scout in-school program to be worthwhile for the girls	20 77%	5 19%	0 0%	0 0%	1 4%	1.23 (.59)

In general, teachers perceived that the program had changed over the last few years and noted, in particular, an increase in the number of science-related activities. When asked how their opinion of the Girl Scout in-school program changed over the year, 54% of survey respondents said that they thought the program was better. The main reasons given for how it had improved were:

- Better materials due to grants/gifts
- Activities that are more interactive
- Curriculum content of more interest to girls
- Better organization of lessons with more obvious educational objectives

2. Key program components that contribute to positive outcomes

Below we describe the program components that teacher survey respondents and interviewees thought were essential in contributing to the positive outcomes of the GRG program.

a. Using hands-on science

Many teachers expressed that the most important aspect of the program was the hands-on/exploratory approach to teaching science. When asked which activities they considered best for their students, thirteen out of 22 survey respondents said science-related activities (health-related and activities involving learning about social skills were examples of other highly rated activities). One teacher said that initially she was reluctant to have the program in her class because she thought that her students would just be doing “cutesie” activities, but she was pleased to discover that “they actually do science.” She went on to say that if they were only

doing craft activities, she wouldn't support having the program replace valuable class learning time.

All of the teachers stressed that a hands-on learning approach promotes more internalization of concepts and therefore more long-term retention of knowledge. One teacher noted that this method is particularly good for kinesthetic learners. All of the teachers noted that they were unable to utilize these hands-on methods in their science teaching due to lack of material resources.

b. Providing science-related equipment

Many of the teachers who noted a change in the program over time cited an increase in the use of high quality science-related equipment as one of the major changes. Many of the teachers felt that the equipment is critical to the success of the hands-on activities. One teacher discussed how the resources that the Girl Scout program provided to teach science were one of the most significant aspects of the program. She explained that she could not teach a lot of hands-on science because of the lack of access to resources. Another teacher gave the specific example that she had taught a unit on sound and had not had the funds to buy a tuning fork but had described it to her students as a way of explaining concepts related to understanding sound. When the girl scouts came in and did a program on sound they brought many tuning forks so the girls could be exposed to a visual representation of sound through the use of tuning forks and other materials.

c. Presenting academically-related material in a relatively informal context

Several teachers noted that some of the positive outcomes of the program are linked to the relative informality of the classroom activities. For example, although the activities take place in the classroom, the students are not graded, they are not expected to take notes, and they know they won't be tested on the material. This allows the students to approach the exploration of science in a more relaxed and open manner. Furthermore, it encourages them to work collaboratively. The following teacher's comments were representative of this perspective:

I like the way the program is being given right now, because it makes the girls more relaxed. See, they're not given any quizzes, they're not given any tests...Sometimes you learn a lot more when you're in a relaxed mood, not thinking that you're expected to do certain things.

This informal approach may be particularly efficacious for students who lack confidence and are anxious about a particular academic subject.

d. Creating an all-girl classroom setting

Almost all of the teachers interviewed said they saw clear and unique benefits resulting from having girls separated from the boys while participating in the program. The teachers discussed how, in classes where both boys and girls were present, the girls were less active in discussions and more hesitant to ask questions, particularly in the areas of math and science. The following interview excerpts are representative of this widely held perspective:

The first time I saw the girls by themselves with the Girl Scouts in my classroom, there was such a difference. The whole level of weirdness just went down. And their rapport with each other, there was none of that competitive girl stuff about boys. I mean they're only 12 and 11, but even so, it gave them a

chance, like they learned to build bridges the other day. When else are girls going to be pushed towards an engineering-like activity? So, I was real impressed by that.”

[When the girls are separated from the boys in a classroom context they] tend to open up a little bit more. Because the boys are so aggressive sometimes. I'm serious, they tend to want to dominate or control, they're the ones that want to answer most of the questions. The girls, they're a little shy or embarrassed, and they might not want the boys to think that they don't know things.

3. Teacher views of the student reactions to the program

When asked how they would rate their students' overall reaction to the GRG program, 96% of survey respondents said that the reaction was favorable. In both survey comments and in interviews teachers described how the girls looked forward to the program, how the girls asked when the Girl Scouts were coming next, and in general teachers stated that the girls clearly enjoyed the GRG activities.

4. Teacher perceptions of the Program Leaders

As the primary point of contact with the students, the Program Leaders are a key component of the Girl Scout in-school program. As we have discussed in earlier sections of this report, the Program Leaders are completely responsible for conducting the classes. Because this program is conducted during school time and, at least in part, focuses on a traditionally academic subject, a key issue was the teachers' perception of whether these individuals were qualified to be teaching science material. In both interviews and surveys teachers were asked about their perceptions of the Program Leaders' effectiveness and competency in presenting science-related material and in leading the girls in hands-on science activities. A clear majority (77%) of survey respondents agreed that the Program Leaders presented the science material in an effective manner and that the Program Leaders were qualified to deliver the science programs (Table 6). Teachers seemed very supportive of having the Program Leaders in the classroom.

However, a few teachers offered suggestions and feedback about the Program Leaders. One teacher suggested that it would be an even more powerful program if the Program Leaders were given more training. When asked what could be improved about the program, this teacher stated that:

The leaders, the ones that come to the classroom, I think they're prepared but, it wouldn't hurt if these leaders could be given some training to make their activities even stronger, to make them more powerful.

Another teacher responded to the survey question about what could be changed or added to the program by saying that, "I would like the leaders to be able to communicate in English at a higher standard of grammar." She explained her request by adding:

It seems like a slam but it is not meant to be. Often the leaders speak English as a second language. An accent is acceptable, but basic mistakes in grammar are not. I do not think saying things in English like "I seen" or "It didn't do nothing" are acceptable levels of spoken English. These are young women with at least a high school education, and many are bilingual...Most of the children in our school hear English only at school, so I believe it should be a high standard of English. Other than this pet peeve, I love the program and what it does for the girls.

In addition, one teacher expressed that sometimes the activities are not explained clearly until the girls encounter problems.

Table 6: Teacher opinions about Program Leaders' competency in delivering science material (n=26)

Statement to be rated	Number and percent of teachers who chose particular level of agreement					Mean (S.D.)
	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4	Don't Know	
The Program Leaders present the science material in a clear and effective manner	11 42%	9 35%	1 4%	0 0%	5 19%	1.23 (.82)
I believe that the Program Leaders are qualified to deliver the science programs	10 39%	10 39%	1 4%	0 0%	5 18%	1.27 (.83)

5. Concerns about not offering a parallel program for the boys

Almost all of the teachers we interviewed voiced concerns that the boys were not being offered a parallel type of program to the GRG program. In the elementary schools the boys often were given time out on the playground while the girls participated in the science program. In some of the middle school classrooms the boys were given time in the computer lab. A number of teachers mentioned that there had been a Boy Scout program in the past but that it was no longer available. The teachers emphasized that the boys could also benefit from a program such as this one, particularly in their disadvantaged community. Eighty percent of the teachers who responded to the survey said that if they had the materials they would be willing to do similar activities with the boys (Table 7). The majority of interviewees also said that they would be interested in providing parallel activities for boys using the same materials.

Table 7: Teacher opinions about using science materials to do activities with the boys (n=26)

Statement to be rated	Number and percent of teachers who chose particular level of agreement					Mean (S.D.)
	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4	Don't know 5	
If I could borrow the same science materials (from an outside source) I would be willing to do the same activities with the boys	14 54%	7 27%	1 4%	2 8%	2 7%	1.50 (.99)

6. Suggestions for improvement

The following were the most frequently cited suggestions for improving the GRG program from the teachers we surveyed and interviewed.

a. Offer the program more often

Many survey respondents (65%) recommended that the program be offered once a week rather than once every two weeks. They felt that this would allow the program to go into more depth and that the students would benefit from the continuity that this increased program frequency would allow.

b. Align the program with state science standards

A few teachers made the suggestion that it would be optimal for them if the GRG program would be tied to the grade level science standards. Other teachers did not mention standards but indicated that the program already reinforced topics they had taught in class. One teacher was opposed to it being aligned too much with standards because he thought that this might change the character of the program:

Let's say they come to a classroom and they say, "By the way," you know, "these are the objectives, this is what we're going to be learning, by the end of the lesson, you should know this and that. And we're going to be asking you to make sure that the objectives that we covered, that you know them." 'Cause you know, when you start saying that, they want to say, "Oh my God, do I have to take notes?"

c. Provide more Family Science Nights

Teachers and principals emphasized the importance of involving the parents in the education of their students. Family Science Night was viewed as an important vehicle for achieving this goal. However, the program customarily only offers one or two Family Science Nights per year. This group of teachers recommended that it would be optimal if they could increase the number of opportunities to bring parents and students together in an educational setting.

VI. Parent perspectives on the Girl Scout Program

A. Methods

Interviews with parents of girls that were participating in the Girl Scout program were conducted during the February 9, 2001 Family Science Night at the San Ysidro Middle School. These 15-20 minute individual interviews were conducted in Spanish with 6 parents. The interviews were taped, transcribed and translated. The purpose of these interviews was to better understand the parents' background and their educational plans for their daughters, their perception of the program, and the reasons they had for attending the event.

B. Parental awareness of the GRG program and their perspectives on the impact of the GRG

All but one of the parents interviewed were aware that their daughters participated in the Girl Scout Program during school. However, they had varying degrees of awareness of the specifics of the activities their daughters engaged in during the program. Most of the parents discussed how they liked the program because of its focus on science and computers. They thought that the field of science was important for their daughters' futures. They expressed that what their girls learned in the Girl Scout program would help them in school and also would motivate them towards a career. The following interview excerpt is representative of the parental perspective:

My daughter talks about the classes she has with the Girl Scouts, about spending time with the girls, how they relate to other people, and mainly that then Girls Scouts are pushing them to build some career. What they do is really helpful for their future.

C. Family Science Night

Family Science Night is an event that brings together parents and daughters that participate in the Girl Scout program. In the San Ysidro area these events are held twice during the school year. See section II. A., for a full description.

1. Why parents attended GRG Family Science Night

Most of the parents interviewed came to Family Science Night because their daughters requested that they take them. A few of these parents discussed how they themselves were uncertain about what the evening would involve and whether they should come, but their daughters insisted that they attend. One parent that had attended a previous Family Science Night said, "It is very unique event, something special for my daughter." This parent went on to say that she appreciates this event because she can bring all of her children and provide them with opportunities to learn about science and computers. Exposing them to these types of educational activities is important to her because it is something they don't have regular access to. Another parent described Family Science Night as:

...giving them the opportunity to practice and do projects and to communicate with other people. [My daughter] is very social, so she likes to share, see and do things. It seems to me that it's something that helps them open up their imagination and the activities are easy to do and to learn from.

2. Barriers to parental involvement in Family Science Night

The parents interviewed during Family Science Night were asked to speculate about why other parents might not bring their children to this event. All of their explanations related to parents not knowing enough about the Girl Scouts or a lack of information about Family Science Night and what it involves. Several of the interviewees raised the issue that Hispanic parents tend to mistrust organizations that they do not know about. In particular, they do not like their girls being alone or participating in groups that they are not familiar with. When asked why, one parent responded that, “as a Mexican we always have bad ideas about the girls disappearing or that something can happen to them.” She thinks Hispanic parents may not enroll their girls in Girl Scouts activities because they do not trust the organization. One parent discussed her own fears:

Because you hear a lot of things about people who are poorly placed here, who like to come and watch kids or do bad things to the kids. I’m scared. But that’s why I like that it’s inside the school and that it’s during school hours and a few hours after school. This is the way I like it. Because I’m still scared, there are many things. I hear a lot of things.

One parent suggested that other parents don’t attend Family Science Night because they think of it as something complicated and distant and they don’t understand what it is. Another parent suggested that some parents don’t understand that it is an educational program. She told the story about a friend who thinks her daughter should be reading instead of having the Girl Scouts come to the class. This parent is concerned that the program may be a waste of time instead of learning.

D. Parental perspectives on their daughters’ educational and career goals

All of the parents discussed how they wanted their daughters to get a college education. Each then discussed their concerns about the potential obstacle of financing such an education. Several mentioned that they needed to explore how to get scholarships to help pay for college education and one mentioned that her daughter would have to work and go to school at the same time. Almost all of the parents discussed how their daughters had professional aspirations (e.g. veterinarian, doctor, teacher, lawyer, writer) and how they supported these aspirations. For example, one mother discussed how pleased she was that her daughter’s goal was to become a doctor:

I love it. I want her to study, finish her career, and be a doctor. That’s what she wants. Medicine, and surgery for children. It is important that she have patience and dedication to her work, because medicine is a very difficult career. They’re many years. I told her, if you want to finish your medical career and you want to be a good doctor you have to dedicate yourself completely to your career and forget about the boyfriends and friends and later you’ll have time for everything else.

E. Parental perspectives on the community

In our interviews we asked parents about their thoughts and concerns about their community. The following major issues were raised by parents:

- Problems with speaking and understanding English
- Lack of economic resources
- Lack of parental education
- Concerns about gangs and drugs

The most frequently mentioned issue was that of language barriers encountered by parents in the community because many don't know English. Because of their poor English language skills many parents feel intimidated and therefore do not attend parent meetings and other school activities. One parent described the situation:

In terms of education, the majority of the families that I deal with in the schools don't have a high education... The people who are closest to me are Mexican, and you know that the majority of the Mexican people are embarrassed that they don't speak English, embarrassed being in another country. And a lot of times they don't participate in the school for these reasons. Usually they have not finished school, and they don't know English. I know a group of mothers who don't write in Spanish. They can't even read it. I was helping on the bilingual committee and almost always the problem of the mothers is their English. They are embarrassed. I always have to be pushing the mothers, 'Don't be embarrassed, hey, let's go.' I've helped several mothers. But that's their problem, that they feel intimidated.

In addition, some parents do not encourage their children to learn their native language. As a result, the children may have trouble mastering Spanish. One parent expressed concern about this:

There are a lot of those [parents that don't want their children to learn Spanish]. I have met some people. They cross the line and don't turn around. They don't care to know from where they came from. Maybe because they don't want to know where they came from. There are little kids from 2nd or 3rd grade that don't speak to you in Spanish. They've forgotten their roots, culture, everything. They don't want to turn around. The parents themselves try not to speak in Spanish.

Parents also discussed fears of adolescents being out of control in their community. They were particularly concerned about kids getting involved in gangs that bring weapons to school and take drugs.

VII. GRG Program Leaders

A. Methods

Individual interviews were conducted with all 11 of the Program Leaders that are responsible for program delivery of the GRG Program in all of the participating schools in the San Diego area. The purpose of these interviews was to obtain their perspective about program delivery, their role in the program, and its impact. In addition, their feedback on the program was used by the science enrichment program developer, Rozeanne Steckler, and the Girl Scout administration, to improve the program. A second set of interviews with four of the Program Leaders was conducted after a training by Steckler to assess the impact of the training. This type of formative feedback was provided throughout the evaluation year. All interviews were semi-structured, following an interview protocol.

B. Program Leaders' background

The Program Leaders are a group of 11 paid, female Girl Scout staff members who are responsible for teaching the GRG curriculum. Most of the Program Leaders were born in the U.S. and grew up in California. Seven of them are of Hispanic background. Six of the Program Leaders have completed college, and the rest have some college education (usually 1 or 2 years). Six of the Program Leaders speak English with small amount of knowledge of Spanish. Three of them are completely bilingual in English and in Spanish. Two Program Leaders are fluent in Spanish with some English competency.

Four of the Program Leaders are full-time employees, with the remainder working part-time. The average number of years the full-time Program Leaders have been working with the Girl Scouts was 4.5 years. Turnover is higher among part-time Program Leaders, but many (at least four) have worked in this position for at least 2 years. Prior to working at the Girl Scouts, almost all of the Program Leaders had some experience working with children in the health or education fields (day care, teacher assistant, volunteering at school or at the Girl Scouts, nursing, etc)

C. Program Leaders' regular duties

The GRG in-school program is delivered in selected classrooms and schools over the course of the school year during one 45-minute period every two weeks. The Program Leaders responsible for teaching the GRG curriculum are assigned a particular "lesson" for each day at the school they have been assigned to. They review the background materials from the curriculum and some times adapt the program for a particular age level. The Program Leaders come into the scheduled classes in pairs, matched by experience and language knowledge. Although, the program is always taught in English, generally a Program Leader fluent in Spanish teaches with one who is fluent in English.

The Program Leaders are given 45 minutes of a classroom period to deliver the program. In some cases they have brief contact with the teachers. This involves some coordination of time allotted, classroom arrangement, and waiting for the boys to move out while girls from other classes arrive. Generally, the schools combine 2 classrooms of girls. Most teachers are present while the Program Leaders are teaching the program, but, do not participate. After every girl is at her desk, the Program Leaders start by doing the Girl Scout promise, answering questions

from the girls about a previous activity and explaining about the day's activity. Generally, the Program Leaders give an introduction to the scientific concept and then let the girls explore the topic through the planned activities. All science and non-science activities are hands-on. The girls work independently while the leaders are available to provide directions, explanations, and assistance with the activity.

Many Program Leaders describe their work as being similar to that of an 'independent teacher.' They prepare their lessons and deliver the programs. Their relationships with teachers and parents vary from school-to-school and classroom-to-classroom. According to some of the Program Leaders, they consider building a rapport with the teachers and principal of the schools to be part of their role.

D. Program Leaders' training

The GRG program has two managers, one that is responsible for the overall program and another that focuses on the curriculum, training, and direct management of the Program Leaders. Program Leaders receive an initial training from a Girl Scout GRG administrator at the outset of their employment. Then they are assigned to teach with a full-time, experienced leader initially, shadowing her until they are ready to be independently working with another Program Leader. When questions arise, Program Leaders can consult with the manager in charge of developing the curriculum of the non-science activities. This person has been trained more intensively by science program developer Rozeanne Steckler, and they are in regular contact so that the manager can receive ongoing consultation about curriculum questions raised by the leaders.

The entire group of Program Leaders receive at least two training sessions a year in order to teach the science curriculum. Training is scheduled on-demand or when a new program is introduced during the school year. Although the GRG science curriculum does not require an in-depth understanding of science, leaders are taught the basic science concepts that underlie the activities. The science training is conducted by Rozeanne Steckler, a scientist from the SDSC. Program Leaders commented on how helpful it was to be trained by a person who had an in-depth understanding of scientific concepts.

According to the Program Leaders, training consists mostly of reviewing the units and the corresponding activities, with Steckler simulating a classroom situation and the Program Leaders playing the role of the students.

In our initial interviews with the Program Leaders, almost all of them said that they would want to receive more training. They expressed interest in learning more, and in understanding how to communicate this information to the students. They said that they understood the activities, but needed to feel more confident about and have deeper knowledge of the topics:

Personally I benefit more from more studying and more training. A lot of times I find myself wishing we could have, instead of one hour training on this program, half a day, where we totally soaked [into]and understood more of it. Instead, I tend to study on the side a little more."

Over the course of this evaluation, this request for additional training was passed to Dr. Steckler as feedback, and in May of 2001 she organized a half-day training session with the goal of reinforcing the concepts for two of the units and introducing two new units.

In June, four full-time Program Leaders were interviewed to gather feedback on the May training. During the interviews, the Program Leaders indicated a high level of satisfaction with the training received. As a result of the training they felt better prepared to teach the programs and more confident about their knowledge of the science behind the units. In particular, they noted that the training had helped them to understand that the emphasis in the classroom should be *on science exploration through the activities* rather than on directly teaching the girls about the scientific theory. This latter point had been one of the primary goals of the training for Steckler.

E. Program Leaders' perceptions of the purpose of the GRG Program

All of the Program Leaders interviewed discussed how they feel that the GRG Program serves a real need in the community schools. They said that the GRG program provides the opportunity of girl scouting to minority girls, and Hispanic girls in particular, who live in impoverished areas. One Program Leader said:

I believe that what we do, and what Girls Are Great is all about, is that we go out into areas that can't get traditional Girl Scout troops. Into areas where they don't really know much about Girl Scouts, and we're able to provide programs for the girls.

The Program Leaders feel that the GRG Program provides opportunities for girls in the San Ysidro community to learn about science and other topics and do activities to which they otherwise wouldn't be exposed.

The Program Leaders discussed how the main purpose of the science curriculum was to:

- *Teach science in a way that removes the stereotypes about the subject, makes science accessible to young women, and promotes interest.*

... I think that we need to make science accessible to women, to young women, and what a great opportunity to do it through Girl Scouts.

[The purpose of the science GRG program] ... is probably to demystify science a little bit. Because when you think of science, or when I think of algebra, you know, I think of hard math. So a lot of times I think that kids have the idea that science is for the brainy kids, the kids that go to private school. And I think the program simplifies, and demystifies science, because they look at this as fun, you can do it, everybody can do it, and here are these wonderful things you can learn, like playing with these toys.

- *Introduce the girls to the possibility of women having careers in science*

For me, it's trying to make them comfortable with science. Because almost every time I deliver a program, I'll say, there are women doing this for a career. And then I'll explain to them what the name [for such career] is, like maybe there will be a Paleontologist. I'll say, 'there are women doing this and enjoying their career.' So that's my objective, because their mothers are either first or second generation Americans. In their culture women stay home and take care of the babies. Maybe if they know that they can have a career, some of these girls can get out of that, being programmed. But some of them, the culture takes over, and they just do what their mom did.

- *Reinforce, through fun activities, what the girls learn in the classroom curriculum*

It's a very good program, because the girls have fun and they learn something. Even if they have already learned some of the topics at their school, we reinforce and help them to understand by explaining some of the things the teacher has already told them.

- *Provide the girls with information about health, art, and culture*

In addition to the science curriculum the Program Leaders discussed how the GRG has programs that focus on communicating information about health related topics that are particularly germane for girls. There are also programs that involve the arts and culture.

Overall the Program Leaders felt that they were introducing the girls to new ideas about science and ways of thinking about their own participation as girls in science. They saw themselves as trying to inspire interest in science for these girls through hands-on activities.

F. Program Leaders' perceptions of the impact of the GRG Program

The Program Leaders discussed what they considered to be the impact of the GRG Program on the girls and the program strategies that facilitated bringing about these outcomes. The key outcomes were:

- Program Leaders feel they are 'planting a seed' through teaching the science curricula to these girls.
- Learning science through a hands-on approach.
- Encouraging girls interest in science.
- Improving the girls' understanding of the English Language and of the science through bilingual support.

1. Program Leaders feel they are 'planting a seed' through teaching the science curricula to these girls

Many Program Leaders used the metaphor of 'planting a seed' to refer to the type of impact that the GRG science program has on the girls. They all felt that the program introduced the girls to science in a different way than they traditionally learn this subject in school and that through their experiences in the program, the girls' interest in science would develop over time. The leaders explained that many of the impacts will only be seen in the long term. However, they believe that the girls are learning through their experiences in the program and that some of the impact of the program is already visible in the enthusiasm of the girls, their interest in doing the GRG activities, and their responses to questions posed in class. They felt that the program helped the girls to be more confident about learning and about science in particular and more knowledgeable about future educational and career possibilities. Two Program Leaders comments were representative of this point of view:

In Mexico, we don't have the culture of being able to work in science, even though we have the university, which is free. The places from where most of these people come, they don't have that culture....This is why I like this program. Some of these girls will be the ones who will carry [that new perspective]. Maybe only some of them will be able to be engineers, but even as mothers, they will teach their own family that they can do this kind of stuff. We are planting the seed now.

There is a lot to teach the girls, don't do drugs, buckle up, etc. These are good things for them to learn, for kindergarten and first grades, but for second and third graders, we have to start planting the seed for them to learn science. Because science is important for the future, and they have to learn to use computers. Every one now uses them.

2. *Learning science through a hands-on approach*

Program Leaders expressed that they felt that the program does increase the girls' knowledge of science. According to some of the Program Leaders, the hands-on activities facilitate the process of learning science. They feel that this approach is particularly effective in teaching science because the girls perceive it as fun and it is different from how science is taught in the regular classrooms. As one Program Leader said:

The GRG Program introduces science to the girls, and the hands-on activities are what makes a big difference in the science program. Because you explain it, and they put their hands on the activity, then they understand it.

Another commented:

The girls in the program are exposed to things that they may have come across briefly in school but have not had hands-on experience with. That [hands-on experience] helps them retain all the good information they receive in the school system. It helps them have a concrete way of learning.

3. *Encouraging girls' interest in science*

a. Program Leaders as role models

Almost all of the Program Leaders expressed that many of the girls appear to have positive feelings about them and respect them. The girls express these feelings by making special efforts to talk to them and writing cards to the Program Leaders. The positive relationships between the Program Leaders and the girls laid the groundwork for role modeling. Many of the Program Leaders discussed how they were very conscious of being role models for the girls. The girls feel like they may be able to become like some of them. Several of the Program Leaders said that the girls would ask about their background and how they had learned about science and other topics. They felt that their knowledge of science showed the girls that women [the Program Leaders] can teach this topic and that the girls can learn it while they have fun. Program Leaders discussed this point as follows:

What do they think about me? Sometimes they think I am wonderful; most of the time, they see me like I know everything. They come up and admire, they want to be like you sometimes.

I've had girls say, you know, teacher, I didn't know that you knew this information, and how did you learn it, and where did you learn it...They try to learn more about how did you get where you are.

I feel that I am doing something productive, as far as being a good role model for girls of all ages, especially the older ones.

The Program Leaders felt that their role modeling for the girls was particularly important because it offered an alternative to the traditional role of women in Hispanic culture:

Well, you know, in the U.S., I mean just in society in general, women don't have enough self-empowerment. And we reach these girls when they're young and let them know, "Hey you're smart. You can be this, you can be that." We're going out there being positive role models, and being strong and confident women. And to them, if they don't have any other role models in their life, they can say at least, "Well she did it. And she was able to make it." And so, I think that's one very strong point: being able to give the girls that confidence that they need or that is lacking in their life.

In the Mexican culture and the Latin culture, it used to be that girls could only choose to be a mother. Or maybe they can be a nurse or secretary. That's it. Now with these programs, we are telling them, you can be an astronaut, an engineer, you can be whatever you want. It's a new generation, then.

b. The importance of an all girl classroom

The Program Leaders were very supportive of the all-girl classroom in which the GRG Program is delivered, particularly for teaching science. They felt like this created a positive and safe learning environment for the girls. This Program Leader's comments were representative:

The reason why they like our science program is because normally, within the school day when they do their science program, the girls have to constantly compete with the boys during any of the science activities. If the kids get on the computers or if they do anything with microscopes, the boys are right in there and kind of boot the girls out of the way. But with our program, there are no boys. It's all girls. And the girls are able to go farther and be able to concentrate and ask questions and not be shy because a boy will cut them down or say, "That's not a very good answer," or something like that. The girls are a little bit more open to us, too, because we [Program Leaders] are female too. So we have that one-on-one rapport with the girls. And they're able to open up and ask us questions.

4. Improving the girls' understanding of the English Language and of science through bilingual support

Program Leaders discussed how having bilingual Program Leaders in the classroom was helpful in increasing the girls comfort and understanding of the science, as well as in terms of increasing English language skills. One Program Leader described this as follows:

If the person who is giving the program is only English speaking, after they finish a sentence, or two, I will do it in Spanish, so the girls will get the whole message, get everything. They can understand. And the problem is, some of the girls, who have been waiting for their families to bring them into the United States, when they come from the third grade in Mexico and they put them in third grade here in the United States, they don't know a word of English, so it's hard for them. You can see the blank look on these girls' faces and maybe teachers think they don't have a good mind. I notice that- I always ask teachers, can I do it in Spanish? Because they are not understanding. And what we want is for them to understand. You can ask them a question in English and nobody will raise their hand because they don't know what we are talking about. But as soon as I do it in Spanish, you can see all the hands raising. Then with the games we play and the songs we sing, it's there for them to repeat and repeat, and we help them start to get more English. I tell them to talk in English and that they need to repeat after [the English speaking Program Leader], because I want you to learn English without my accent.

F. Teacher reactions to the GRG Program: Feedback received by the Program Leaders

In discussing the impact of the GRG program on the girls, Program Leaders almost always raised the feedback they had received from the classroom teachers as evidence of impact. They recounted how they often receive positive feedback from the teachers and that the teachers express that they value the program. Teachers have noted that the program increases the girls'

confidence and self-esteem and that it complements and reinforces the classroom curriculum. One Program Leader said that,

When we do the science activities, [the teachers say], ‘Ahhh, this is great, because we have to teach science, and when you guys bring science programs it goes right along with our curriculum, and that’s good because the girls are learning more about science.’

Another Program Leader provided an example of a specific GRG science activity that the teachers responded positively towards:

Like the skeleton program, the teachers had already done a unit on that topic. So we build a skeleton. It’s fun for the girls, but at the same time they learn the main parts of the skeleton and they have that to take home. I did that program last week and the teachers were very happy. They said that this is a wonderful program and we received a lot of complements, because it’s something that reinforces and helps the girls to understand better what they already did in class.

One Program Leader raised the issue that some teachers may have the misconception that the GRG Program spends valuable class time working on craft type projects with the girls. She stated that:

There was one incident where we were sitting in the lounge and one of the teachers was talking to another, stating what a waste of time he thought it was to have the Girl Scouts work with their girls. He had the perception that all we did was go in and do crafts with the girls. But after one or two times, he changed his whole attitude towards us. ‘Cause he thought that, we were just going in there and making friendship beads. Because he does not stay in class while we were there he did not know what went on.

Though most of the teachers appear to be aware of the nature of the program, this Program Leader, and other Girl Scout administrative staff, discussed the importance of informing teachers and principals about the goals and curriculum used in the GRG program. Based on interviews conducted with school principals, there is a need for a trained professional from the GRG office to brief the principals about the program and how it fits with other academic learning goals for their students. This is particularly important given the pressures to increase standardized test scores.

G. Impact of GRG on Program Leaders

Most of the Program Leaders discussed how teaching in the GRG program has had a positive impact on them. Most notably, teaching the activities in the science program has provided an opportunity for Program Leaders to become more familiar and skilled in an academic subject and has had an impact on their confidence. Almost all of the Program Leaders discussed initial concerns about their ability to teach genetics or do engineering activities with the girls. After training and a lot of practice, all of the Program Leaders indicated that they had alleviated most of their concerns, although each of them mentioned an activity that they still struggled with. One Program Leader described her experience in the following way:

A couple years ago when they started having us do the science program, I was really, really apprehensive at first because I wasn’t very good at science when I went through schooling. So I was a little on the scared side myself. But I put that in the back of my mind, because I really wanted to learn this not only for myself, but also for the girls. I don’t want them to graduate from high school and have that fear of science like I have had.

Some of the Program Leaders were surprised that they now enjoy and understand science even though they had previously not considered themselves “the kind of person who would do science.” The effect on many of the Program Leaders has been an increase in their own self-esteem and confidence. Having gone through the process of learning science themselves has made them realize that it is important for girls of Hispanic background to be exposed to science, because this is not something that their parents encourage them to learn.

At first it was like, ‘oh, I don’t know if I can do this.’ But now I really do. You know, not many people on our team like or feel comfortable with this program, but I love it and it’s called Gene’s genetics. And I just think it’s really interesting. And I think the girls like that program too. Yes, I do feel more comfortable [than I did at first].

... There were some things about science that I had read about or that were taught to me, but now I understand more. Now I like learning more about them.

H. Obstacles that the Program Leaders face

1. Time limitations: Having a 45 time limit to teach the program can be stressful

Every Program Leader interviewed discussed the difficulty of trying to lead the girls through the activities in the day’s curriculum within the 45-minute class period. In the time allotted, they need to organize the girls, unpack the materials, explain the activity, do the activity with the girls and clean up. The Program Leaders said that this situation was stressful and they felt like they couldn’t properly lead the girls through some of the lessons in the time period allotted. A comment by one Program Leader is representative of this perspective:

The problem is that Rozeanne gives us these wonderful programs, but we have like 30 minutes to deliver them. And they’re just really complex programs, and it’s next to impossible to do in 30 minutes. I mean, we have 45 minute blocks, but first you have to get the girls from both rooms settled down, and then you do whatever paper work you have to do, because we’ll invite them to the Science Night and hand out fliers. Then we have to explain all of that, and that takes time out of the program.

During the evaluation, this problem was raised with the GRG manager and the developer of the curriculum from SDSC. In response to this feedback, a new training was initiated that was geared towards minimizing the emphasis on the direct teaching aspect of the programs and allowing for more time for exploration through hands-on activities. This greatly reduced the time pressure.

2. In-school GRG Program more effective than after-school Program

Program Leaders expressed that it is easier to teach within a classroom setting. They felt this because in the in-school program they have fewer girls to teach and are in a classroom environment that is more conducive to learning. Program Leaders expressed this belief in the following way:

I prefer the in-school program [vs. the after-school program] because we tend to have the girls during the time that they’re more attentive, their attitude is more positive. I think it’s because they’re not as burned out as they are at the end of the day. At the end of the day at the after school program, they seem to be real fidgety. They feel like it is time to go home.

The in-school program is less chaotic because you have more of a classroom setting. It is more structured. The kids are sitting at their desks and the teacher may be there, and it is not that noisy because it is enclosed.

VIII. Conclusion

Based on our case study in one school district that has long used the Girls are G.R.E.A.T. Program we found that the Program addresses key issues in the education of girls in science and mathematics.³⁶ Research suggests that low self-confidence and negative attitudes towards science and math are critical factors in girls turning away from these educational areas. By providing opportunities for girls to collaboratively explore through hands-on science activities in a safe and comfortable environment, the GRG program helps to engage girls in learning, develop more positive attitudes towards science, and increase their self-confidence. This program serves a particularly important need in poor ethnic minority communities where resources are scarce and science education may not be emphasized because of a more dominant focus on reading and literacy in the curriculum. As with many programs that address access issues for girls in science and mathematics, this type of program would provide benefits for ethnic minority boys as well.

³⁶ It is important to note that the GRG Program is offered in many districts in the San Diego area and we are unable to verify the extent to which the program implementation and impact is similar in these other sites.

Appendix 1: Teacher Survey
University of Wisconsin-Madison LEAD Center
Girl Scout In-School Program Teacher Survey

(1) Name: _____

(2) Name of School: _____

(3) Grade taught: _____

(4) What is your gender?

____ Male ____ Female

(5) What subject(s) do you teach?

____ Math ____ Science ____ Social Studies ____ Language Arts

____ All of the above Other: _____

(6) What is your academic preparation for being a teacher?

B.A./B.S. ____ field: _____ Minor: _____

M.S./M.A. ____ field: _____

Other degrees or certifications:

(7) How many years have you taught? _____

(8) Please rate your overall satisfaction with the Girl Scouts in-school program? Check **one** of the following:

____ Satisfied

____ Somewhat satisfied

____ Somewhat dissatisfied

____ Dissatisfied

(8a) Please explain your rating:

(9) How would you rate your students' overall reaction to the Girl Scout in-school program?

Check **one** of the following:

____ Favorable

____ Somewhat favorable

____ Somewhat unfavorable

____ Unfavorable

(9a) Please explain your rating:

(10) How often did the Girl Scout program concentrate on the following activities in your classroom? (Circle one number for each line.)	Very often	Often	Some	Occasionally	Not at all	Don't know
	1	2	3	4	5	
Arts and crafts activities	1	2	3	4	5	
Health-related activities	1	2	3	4	5	
Science-related activities	1	2	3	4	5	
Computer-related activities	1	2	3	4	5	
Social-skills-related activities	1	2	3	4	5	
Other _____	1	2	3	4	5	

(10a) Please tell us which two types of activities you consider best for your students (Describe or name them).

(11) How has your opinion of the Girl Scout in-school program changed over the course of the year? Check **one** of the following:

- It is much better
 It is better
 It is the same as it was at the beginning of the year/last year
 It is worse
 It is much worse

(11a) Please explain your answer:

(12) What effect has the Girl Scout Program had on the following: (Circle one number for each line.)	Increased a great deal	Increased	Has not changed	Decreased	Decreased a great deal	Don't know
	1	2	3	4	5	
school attendance	1	2	3	4	5	
interest in school activities	1	2	3	4	5	
comfort working in collaborative groups	1	2	3	4	5	
confidence working with computers	1	2	3	4	5	
confidence in doing science activities	1	2	3	4	5	
motivation towards learning	1	2	3	4	5	
self-esteem	1	2	3	4	5	
Other _____	1	2	3	4	5	

(13) In your opinion, to what extent did the Girl Scout program do the following? (Circle one number for each line.)	A lot -----	A fair amount -----	Some -----	A little -----	Not at all -----	Don't know
a. Expose the girls to new ideas related to science	1	2	3	4	5	
b. Provide the girls with access to science-related resources	1	2	3	4	5	
c. Build on lessons the students were taught in school	1	2	3	4	5	
d. Encourage collaborative learning with other students	1	2	3	4	5	
e. Provide opportunities to do hands-on science learning activities	1	2	3	4	5	
f. Provide the girls with opportunities to ask questions	1	2	3	4	5	
g. Provide opportunities for girls to feel comfortable doing science-related activities	1	2	3	4	5	

(14) To what extent do you agree or disagree with the following statements? (Circle one number for each line.)	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't know
In my school there is a need for activities/programs that increase girls' confidence in math and science	1	2	3	4	
The science aspect of Girl Scout program has a positive effect on the girls' attitudes towards science	1	2	3	4	
The program leaders present the science material in a clear and effective manner	1	2	3	4	
I believe that the program leaders are qualified to deliver the science programs	1	2	3	4	
The science programs are appropriate to the time allotted	1	2	3	4	
I believe that I could use the class time taken by the Girl Scout Program more effectively	1	2	3	4	
If I could borrow the same science materials (from an outside source) I would be willing to do the same activities with the boys	1	2	3	4	
Overall, I find the Girl Scout in-school program to be worthwhile for the girls	1	2	3	4	

(15) How often does your class participate in the Girl Scout program?
 ___ Twice a week ___ Once a week ___ Once every two weeks ___ Once a month

(16) If you had a choice how often would you have your class participate?
 ___ Twice a week ___ Once a week ___ Once every two weeks ___ Once a month

(17)What would you like to see changed or added to the program to improve its effectiveness in your classroom?

Other comments:
