



MAGUIRE
ASSOCIATES

*Advancing
Higher Education
Through Insight
and Innovation*

Partnership for Reform in
Science and Mathematics

Preliminary Evaluation of the
Public Awareness Campaign
A Market Research Report

February 2007

TABLE OF CONTENTS

	Page
Introduction	1
Summary of Results from the Survey of Parents of School-Aged Students	3
Summary & Strategic Recommendations	67

INTRODUCTION

Scope of the Engagement

In September 2004, Maguire Associates initiated a research program for the Board of Regents of the University System of Georgia to support activities of the Partnership for Reform in Science and Mathematics (PRISM), a five-year initiative funded by a National Science Foundation (NSF) grant. PRISM's mandate is to raise aspirations and achievement in science and mathematics for all Georgia students and close achievement gaps among demographic groups throughout the state. This is expected to involve reform efforts in pedagogy, counseling, higher education, and community involvement in rural, suburban and urban parts of Georgia.

Part of the grant funding is earmarked to create a public awareness campaign, which is expected to leverage PRISM's efforts with students, parents, the schools, and members of the broader community.

The purpose of this research program is to help:

- Gather baseline data on attitudes towards, and achievement in, science and mathematics;
- Guide the development of the most effective communications to students, parents, and the community at large about the importance of science and mathematics education; and
- Measure shifts in attitudes and behavior among key constituent groups.

There are to be three phases of research in support of the PRISM public awareness campaign:

- Phase I: Initial data gathering and development of strategic marketing messages (*completed in 2005*);
- Phase II: Preliminary evaluation of public awareness campaign effectiveness and message refinement; and
- Phase III: Final post-test evaluation of marketing efforts.

Overview of the Phase II Research

This report summarizes the findings from the Phase II research. The primary goal of this research is the preliminary evaluation of the PRISM public awareness campaign's effectiveness.

The Phase I research showed that parents are the primary influencers of children's interests, ambitions and decisions. As such, the PRISM public awareness campaign

appropriately elected to direct most of its initial efforts toward parents. The public awareness campaign included a wide variety of advertisements: billboards, bus shelters, public service announcement TV ads, radio spots, parent guides, etc. Some of the messages included in the ads are:

- *Help your kid go places in life.*
- *What every child needs to know.*
- *One formula can change her future.*
- *Multiply her opportunities.*
- *If he can do equations, he can do anything.*
- *She is not afraid of spiders, snakes or science. Especially not science.*
- *You don't have to know calculus, just make sure I do.*

The Phase II research included an on-line survey with parents of school-aged students in specific zip codes in the state of Georgia in June/July 2006. The details of the methodology are summarized in Appendix I.¹ This research followed an advertising campaign targeting parents in early 2006. The research tested PRISM's visibility among parents. It also evaluated the effectiveness of a wide variety of campaign advertisements (including television ads, billboards, and bus shelter cards) in conveying targeted messages to parents in a compelling way. This report summarizes the findings from that research.

It is divided into four sections:

- This first section introduces the research.
- The second summarizes the results of the parent survey.
- The third section is written with an eye toward informing the public awareness campaign. Recommendations are offered regarding adjustments in strategy that can be made to get maximum value out of existing materials and simple alterations or variations on the existing themes that would hone the messages and make them even more effective.
- Finally, through a series of appendices, we provide the details of the PRISM research methodology, an annotated survey instrument, and the supporting data tables.

¹ The Phase I and II parent research employed different sampling strategies. See Appendix I for detailed summary of the Phase II methodology.

SUMMARY OF RESULTS FROM THE SURVEY OF PARENTS OF SCHOOL-AGED STUDENTS

Profile of the Parents

Five hundred and fifty-eight (558) parents of school-aged students completed the Phase II research survey. In contrast, 451 parents participated in the Phase I research. Despite the different recruitment methodologies employed in the Phases I and II (see Methodology detailed in Appendix I), the two samples of parents are similar on a number of characteristics:

- Parents in both phases of the research tend to be **female** (80.9% of the Phase I parents and 76.5% of the Phase II parents are the mother or other female guardian) rather than fathers or other male guardians.
- **Household incomes** cited are comparable and represent a good distribution across both parent samples (see Figure A).
- Parents were asked to answer the questions with a particular child of theirs in mind. In Phase I, the survey invitations were distributed through selected PRISM schools, and parents with more than one child were instructed to answer the questions in the survey keeping in mind their son or daughter who brought home the invitation letter. If more than one child brought home an invitation, they were instructed to answer the questions with the oldest/older child who brought home an invitation in mind.

In the Phase II research, the invitations were not distributed to parents through their child(ren). Rather, postcards were mailed directly to a purchased list of parents in particular Georgia zip codes, and parents were screened to be sure they had at least one child living in their household who was in grades K-12 for the 2005-2006 academic year. Parents with more than one child were asked to answer the questions in the survey with their oldest/older K-12 school-aged child in mind.

Parents in both samples answered the questions with an approximately even distribution of male and female children in mind. In both instances, about half of the parents had a **female** child (daughter) in mind when they answered the questions (50.7% in Phase II and 51.2% in Phase I).

- Both samples have good representation in the **grade level** of the child, although there are more 11th and 12th graders and fewer 6th graders in the Phase II than I survey samples (see Figure B).
- Top professions are similar across the two groups of parents (see Figure C), but do vary significantly within each by gender (see Tables 3.5d-1 and 3.5d-2 in Appendix III).

Figure A

Household Income

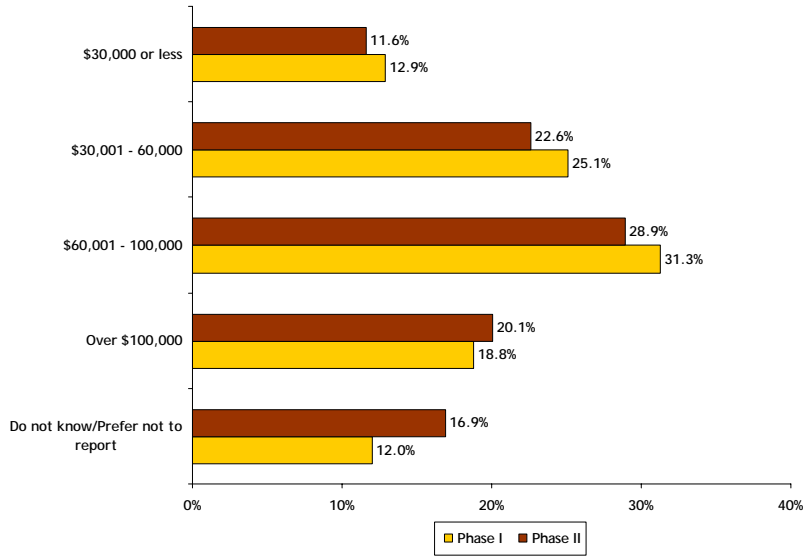


Figure B

Child's Grade in School

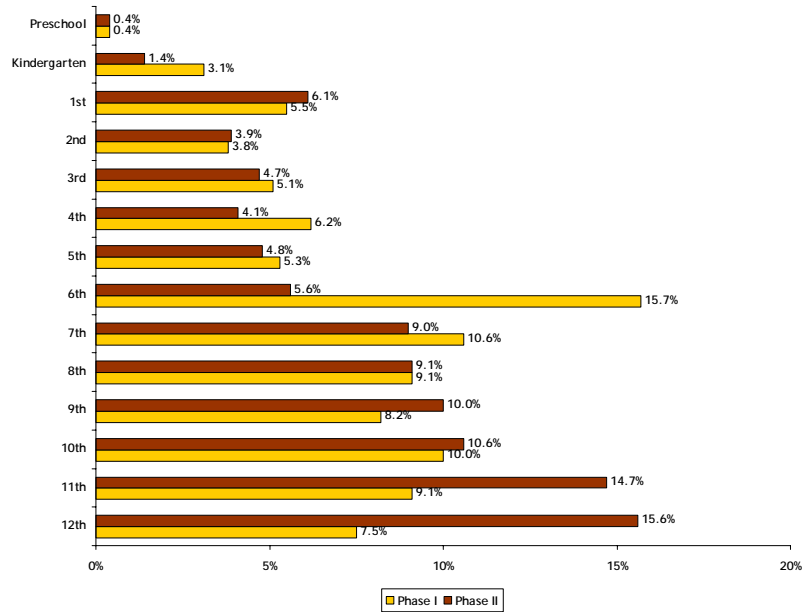


Figure C

Responding Parents' Top Professions

Phase I

- Homemaker/Stay at home (14%)
- Teacher/Professor (13%)
- Administrative/Support services (8%)
- Manager (5%)
- Business owner (4%)

Phase II

- Teacher/Professor (18%)
- Homemaker/Stay at home (12%)
- Administrative/Support services (9%)
- Accountant/Banker (4%)
- Healthcare (3%)

Q: What do you do for a living?

The parents in the two research phases differ more on other demographic dimensions, including ethnicity, number of children, highest level of education, and residency:

- The Phase II parents include a higher proportion of **Black/African American** parents (24.6% versus 7.3% in Phase I). In Phase II, the parents' ethnic makeup was:
 - 68.1% **White/Caucasian**,
 - 24.6% **Black/African-American**,
 - 1.6% **Hispanic**,
 - 1.6% **multi-racial**,
 - 1.4% **Asian**, and
 - less than 1% are **American Indian/Alaskan Native**.

In the Phase I research, survey respondents reported the following ethnic identifications: 87.6% **White/Caucasian**, 7.3% **Black/African-American**, and 1.8% **Hispanic**. Less than 1% each were **Asian**, **multi-racial**, or **American Indian/Alaskan Native**.

In both research phases, approximately 2% of the parents opted not to report their ethnicity.

- The Phase II parents include more **single child households** (44.8% vs. 16.2% in Phase I; see Figure D).
- The Phase II sample includes more parents with **at least some college** (78.3% vs. 59.4% in Phase I; see Figure E).

Figure D

Number of K-12 Children

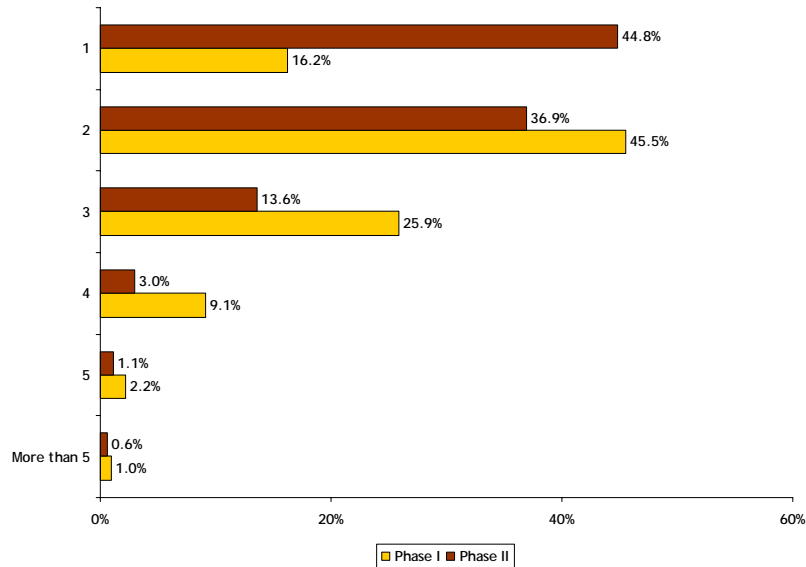
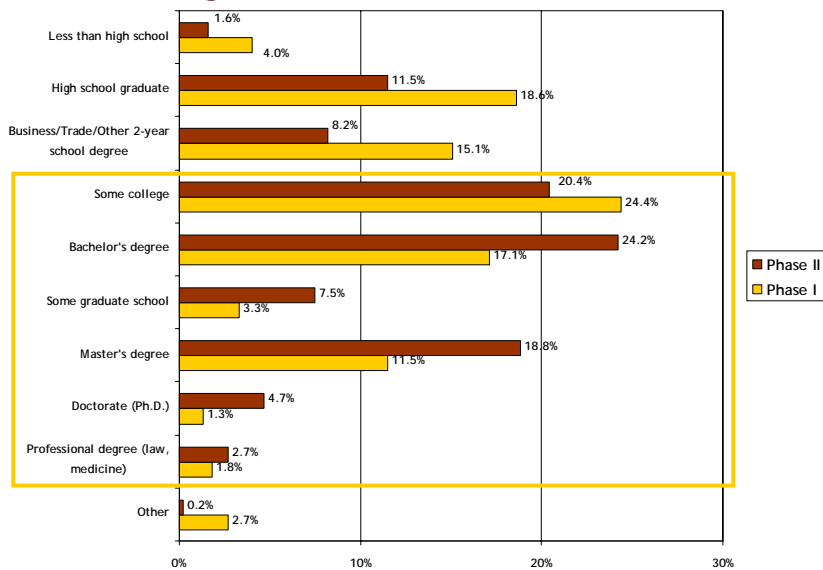


Figure E

Responding Parents' Highest Level of Education

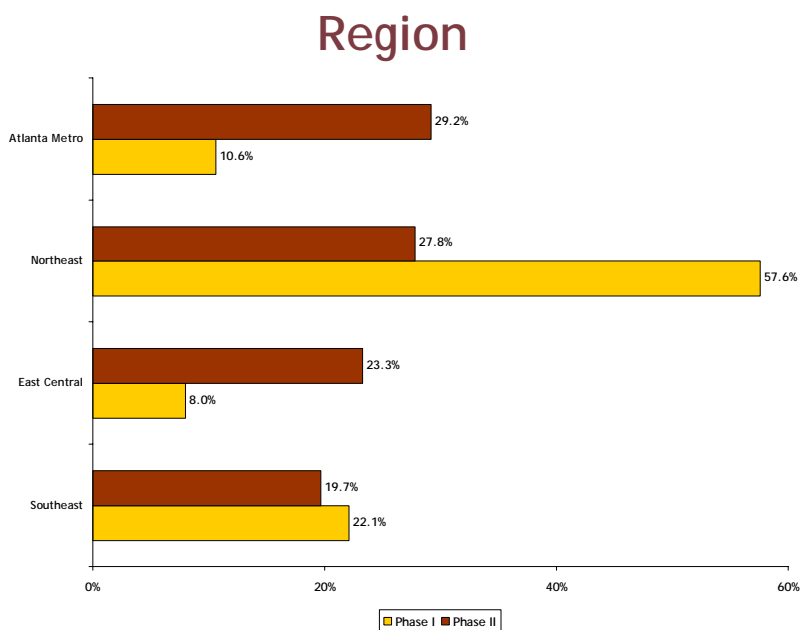


- In the Phase I research, parent response from the Northeast region was far higher than from other areas (see Figure F). In fact, over half of the parents in the Phase I sample (57.6%) were parents of a child who attends an elementary, middle or high school in the Northeast PRISM pilot region. Another 22.1% attended a Southeast school; 10.6%, an Atlanta school; and 8.0%, an East Central school.

In contrast, in Phase II there was a more even representation across the four regions: 27.8% **Northeast**, 19.7% **Southeast**, 29.2% **Atlanta Metro**, and 23.3% **East Central**. While we highlight segmentation differences later in this report, it is worth noting here that there are key demographic differences between parents in the four regions in the Phase II research. Specifically, compared to the other regions, the Atlanta Metro region includes a higher proportion than the other regions of:

- Parents who are **single, never married**,
- **Black/African-American/Afro-Caribbean** parents,
- Parents who report a household income **over \$100,000**,
- Parents who report a **professional degree** (law, medicine), and
- Parents who have answered the questions with a **male** rather than a female child in mind.

Figure F



Note: Sampling method was different for Phase I and II parent research. See 'Methodology' for specifics.

Overall Findings

Compared to the first phase, Phase II of the research employed a sampling strategy designed to reach a much broader array of parents with school-aged children within the four PRISM pilot regions. Therefore, we must exercise caution in using earlier results as a benchmark for evaluating changes in parental attitudes, behaviors, or reports of their child's experiences in math and science in this phase of the research. Despite these differences, however, there are remarkable similarities in key takeaways from questions that were repeated in this second phase.

Similar to the Phase I research, one of the more important findings from this research is that while there are some differences among the subgroups of parents (e.g., gender, ethnicity, etc.), the parents who participated in this research are much more similar than different in their attitudes and educational aspirations for their child. Differences tend to be in degrees or levels of response rather than extreme differences of opinion or behavior.

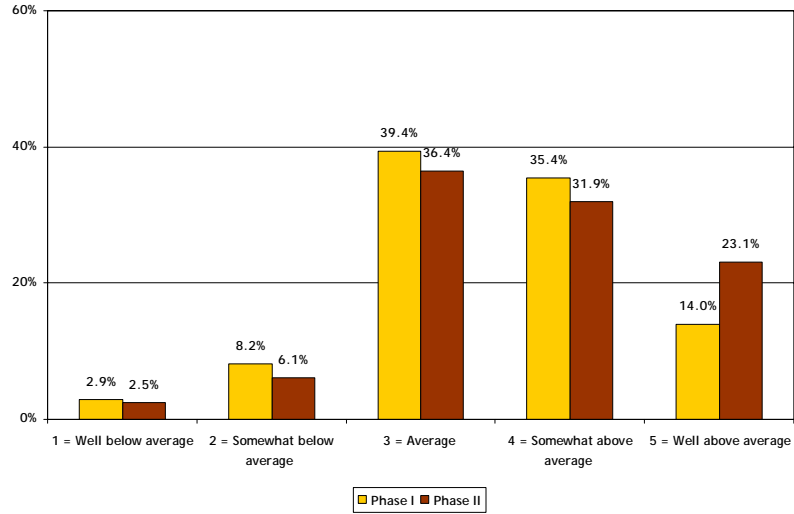
This is good news in that the same messages and communication approaches continue to be appropriate for most, if not all, parents. As such, this section summarizes the overall findings first with some selected subgroup differences noted. Later in the document, more comprehensive subgroup differences for the parent survey results are detailed by region, type of school, ethnicity, household income, parents' gender, education level, math and science ability, whether or not their child attends a PRISM Partner School, and whether or not the parent recalls seeing at least one of the presented PRISM ads.

Parents' Assessment of Their Child's Interest and Academic Ability

Similar to the Phase I parents, the parents included in the Phase II research tend to rate their own abilities in science and mathematics as average or above. The Phase II parents, however, are slightly more likely to report their abilities in either area are “**well above average**” than the Phase I parents (see Figures G-1 and G-2).

Figure G-1

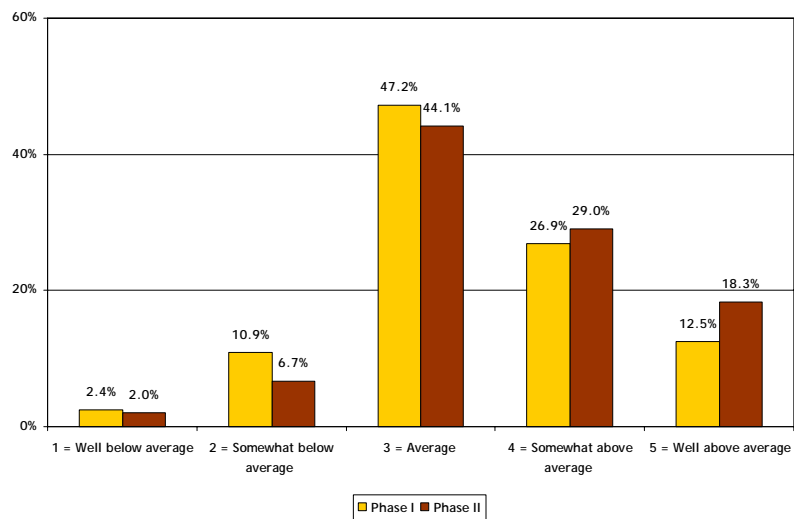
Parents' View of Their Own Mathematical Ability



Q: Please rate your level of ability in the area of mathematics.

Figure G-2

Parents' View of Their Own Science Ability



Q: Please rate your level of ability in the area of mathematics.

Parents in both research phases were asked to rate their agreement with several statements designed to gather assessments of their child’s math and science abilities (see Figure H). These results suggest that parents generally think their child is “**doing well in math and science.**” They think that neither subject area is “**too hard for their child**” and tend to disagree that “**some students just can’t do math or science.**”

The Phase I and II parents also moderately agree that their child would like both science and math more if they were “**made more interesting**” and that math and science are among their “**child’s favorite subjects in school.**”

Figure H

Agreement with Math/Science Statements

	Math		Science	
	Phase I	Phase II	Phase I	Phase II
My child is doing well in math/science.	3.94	4.16	4.11	4.22
Some children just can't do math/science.	2.48	2.37	2.21	2.07
Math/Science is too hard for my child.	1.77	1.80	1.70	1.69
(Math/Science) is among my child's favorite subjects in school.	3.32	3.51	3.47	3.71
My child would like (math/science) more if it were made more interesting.	3.33	3.66	3.28	3.63

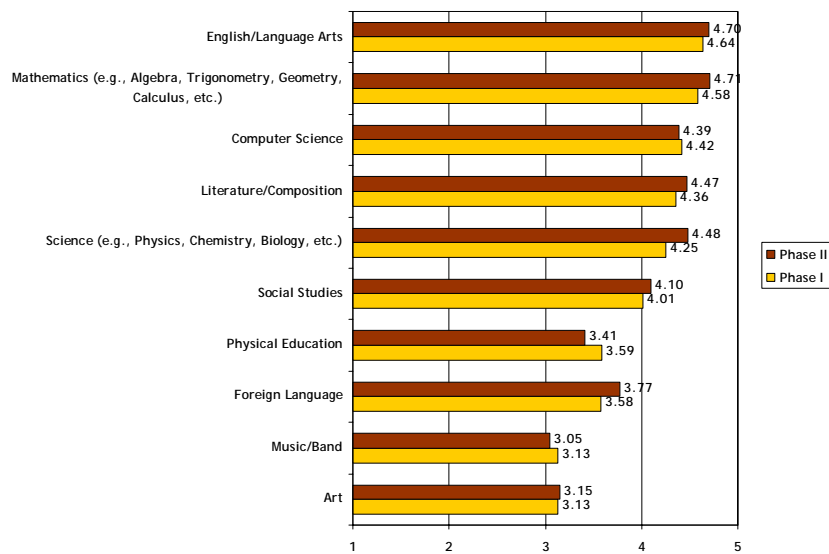
Q: Please rate each of the following descriptions for your level of agreement. Scale: 1 = Strongly Disagree to 5 = Strongly Agree

The Importance of Math and Science

Parents were asked how important they thought it was that their son or daughter did well in each of 10 different subject areas, including mathematics and science using a 5-point scale where 1 = Not at all important and 5 = Extremely important. Similar to the Phase I findings, the Phase II parents regard both math and science as highly important and think **mathematics** is even more important than **science** (see Figure I).

Figure I

Importance of Subject Areas



Q: How important do you think it is that your son/daughter does well in each of the following subject areas? Scale: 1 = Not at all Important to 5 = Extremely Important

While segmentation differences will be detailed later in this document it is worth noting here that several findings are consistent with the Phase I parent results despite demographic differences in the two samples:

- Parents who consider their own science ability as somewhat or well above average consider **science** slightly more important than those who evaluated their ability as average or below.
- There is no difference in parents' assessments of the importance of math and science by: region, household income, child's type of school, parents' gender, parents' highest level of education, and parents' mathematical ability.

However, unlike the Phase I parent results, in the Phase II data, parents of color rate **mathematics** as slightly more important than White/Caucasian parents.

In sum, in the follow-up parent research we continue to find that parents do not think math and science are too hard for their child and generally think their child is doing well in these subjects, although they think the subjects could be made more enjoyable. The next section examines parents' educational aspirations for their child and their own involvement in their child's education.

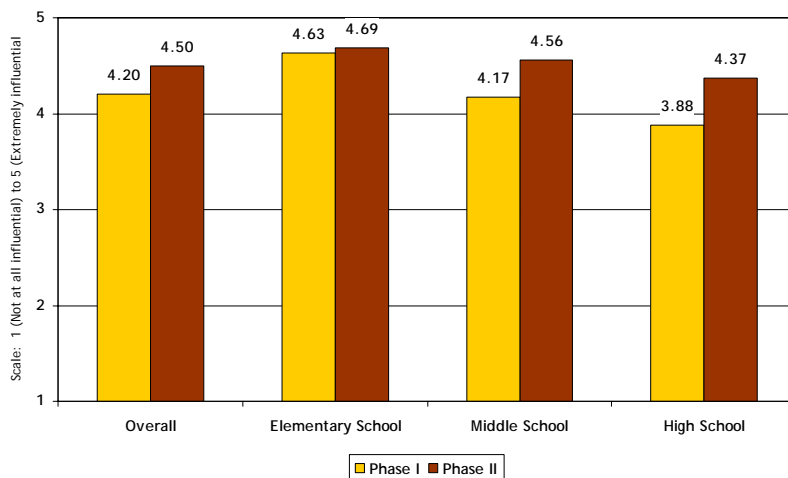
Parental Involvement and Their Educational Aspirations for Their Child

As has already been noted, one of the primary goals of the Phase I research was to gain a better understanding of the roles different individuals play in students’ interest and achievement in science and mathematics. The results from the Phase I surveys of high school students uniformly revealed that parents are students’ primary influencers and that parents appreciate the important role they play in their child’s education.

In the follow-up Phase II research, parents were also asked how influential they think they and their spouse/partner are in their child’s interest and achievement in school, the vast majority of both groups of parents (91.4%) report they are “**very influential**” or “**extremely influential.**” However, as the following graphic shows (Figure J), perceived parental influence lessens as children progress from elementary to middle to high school.

Figure J

Parents’ Perception of Their Influence on Child’s Achievement in School



Q: How influential do you think you are (and your spouse/partner is, if applicable) in your child’s interest and achievement in school?

The parents were asked to rate their level of agreement with several statements designed to assess the impact and support of different individuals on their child’s learning in math and science (see Figure K). Parents report their child generally “**knows where he or she can go to get help with math and science**” and is “**encouraged to do better in math/science**” by both themselves and their child’s math/science teacher. Parents also think teachers generally and “**explain math and science in a way that helps their child to understand it.**”

Parents report they do not have much “**difficulty helping their child with mathematics or science**”; however, they have more trouble helping their child with mathematics than science. Parents generally agreed that students “**can do well in math or science and still be considered ‘cool’.**”

Figure K

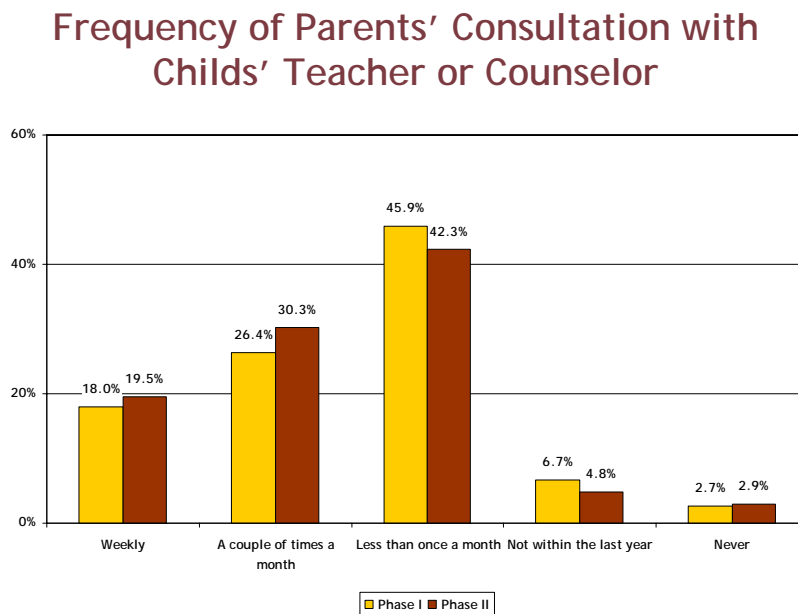
Agreement with Math/Science Statements

	Math		Science	
	Phase I	Phase II	Phase I	Phase II
I encourage my child to do better in math/science.	4.39	4.56	4.21	4.42
My child know(s) where to go when he/she needs help in math/science.	4.04	4.32	4.06	4.26
My child's mathematics/science teacher encourages him/her to do better.	3.91	4.11	3.87	4.00
At my child's school, students can do well in mathematics/science and still be considered "cool."	3.88	4.14	3.78	4.12
I find it difficult to help my child when he/she has questions about mathematics/science.	2.69	2.66	2.30	2.28
My child's teacher(s) doesn't explain math/science in a way that helps him/her to understand it.	2.28	2.45	2.22	2.22

O: Please rate each of the following descriptions for your level of agreement. Scale: 1 = Strongly Disagree to 5 = Strongly Agree

The parents were asked to indicate how often they talk with their child’s teacher or school counselor about how he or she is doing in school (see Figure L).

Figure L



Q: How often do you talk with your child's teacher or school counselor about how he/she is doing in school?

The parents in both research phases were asked to indicate how often they are involved in each of seven different education-related activities with their child (see Figure M). Overall, parents report that they most frequently:

- **Talk with their child about how he or she is doing in school;**
- **Emphasize the importance of doing well in school in order to be successful;**
- **Help do homework; and**
- **Talk with their child about life outside of school and how it relates to what he/she is studying in school.**

Parents least frequently talk with their child about:

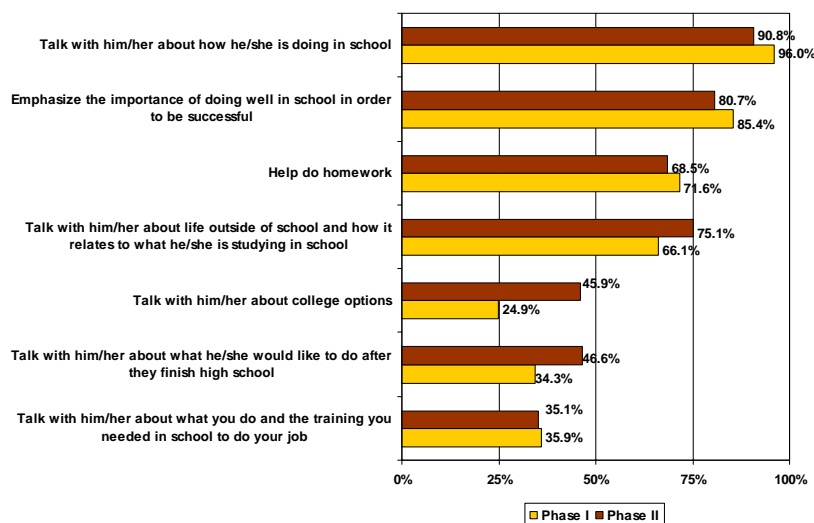
- **His/her college options;**
- **What he/she would like to do after high school; and**
- **What they do and the training they needed in school to do their job.**

As would be expected, there are some variations in responses to these questions by the child's level in school. Specifically, parents of elementary school students more often help their child with his/her homework, while parents of high school students more often

talk with their child about what he/she would like to do after they finish school and about college options.

Figure M

Percent of Parents Reporting They Help Their Child Do Specific Things At Least Once or Twice a Week



Q: How often do you do each of the following with your child?

Similar to Phase I parent results, the follow-up parent research shows:

- Parents' level of self-assessed influence on their child's interest and achievement in school drops as their child progresses from elementary to middle to high school.
- Parents of elementary school children consult more frequently with their child's teacher or counselor than do parents of middle or high school students.
- A higher percentage of parents of elementary school students report that they have daily talks with their child about how he/she is doing in school than is reported by parents of middle and high school students.
- The proportion of parents who help their child with their homework at least once or twice a week decreases as students progress from elementary to middle to high school.
- Overall, mothers (or other female guardians) and parents of color tend to report being more involved with their child's education.

In sum, as in the Phase I research, the follow up research reveals that parents' level of involvement tends to lessen as their child progresses through school, and parents only infrequently talk with their child about life outside of school, how it relates to what he or she is studying in school, or the type of training they needed to do their job. The next section examines parents' perceptions of the connection between math and science and their career and college aspirations for their child.

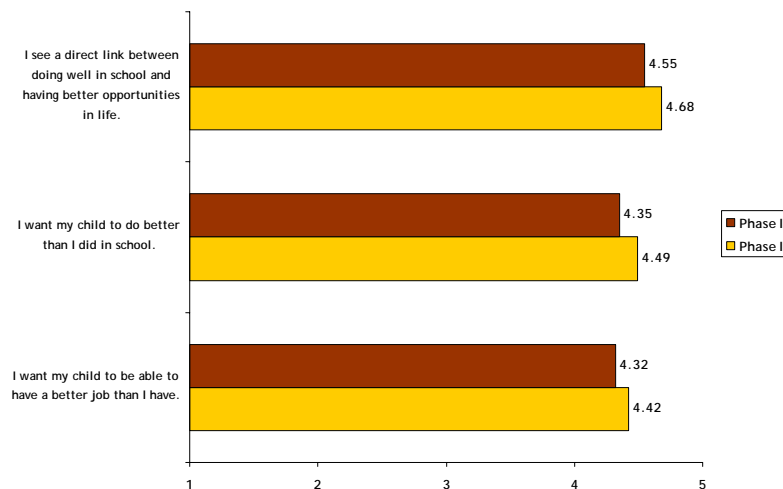
Connecting Math & Science with Career and College Aspirations

The parents were also asked about their agreement with a number of statements relating to general academics and aspirations for their child (see Figure N). Overall, parents mostly agree with:

- **I see a direct link between doing well in school and having better opportunities in life;**
- **I want my child to do better than I did in school; and**
- **I want my child to be able to have a better job than I have.**

Figure N

Parents' Level of Agreement with General Academics Statements

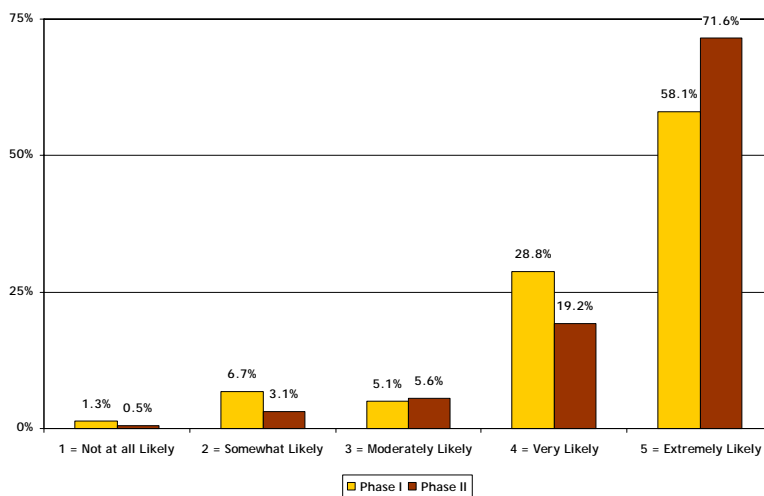


O: Please rate each of the following descriptions for your level of agreement. Scale: 1 = Strongly Disagree to 5 = Strongly Agree

While many of the parents in the sample have not attained a college degree, most would like to see their child do. Indeed, the vast majority of parents in both samples report it is “**very likely**” or “**extremely likely**” their child will go to college (see Figure O-1), and Phase II parents are slightly more likely to aspire for their son or daughter to achieve an advanced degree (see Figure O-2).

Figure O-1

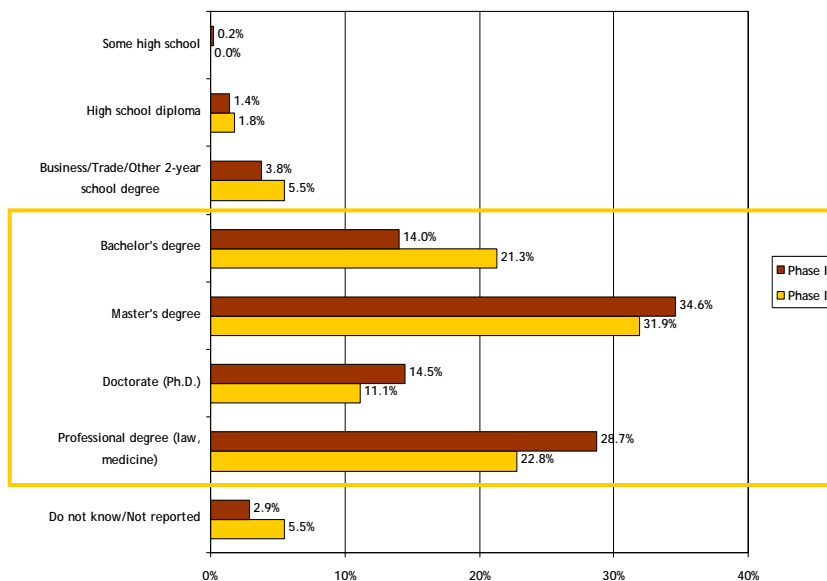
Likelihood of Child Going to College



O: How likely is it that your child will go to college?

Figure O-2

Parents' Educational Aspirations for their Child



Q: What is the highest level of education you hope your child will complete?

The parents generally understand the importance of math and science in their child's future professional lives (see Figure P). They agree that it is necessary to **“know at least some mathematics and/or science to do most jobs”** and their child will need **“a good knowledge of mathematics/science in order to do well in their chosen career or trade.”** However, parents tend to have more difficulty seeing the connection between the sciences and jobs than they do mathematics and jobs.

On the whole, parents believe their child sees **“connections between the math/science he/she is learning in school and what goes on outside of school,”** and they believe **“math and science are important even for children who do not plan to go to college.”**

Figure P

Agreement with Math/Science Statements

	Math		Science	
	Phase I	Phase II	Phase I	Phase II
You have to know at least some mathematics/science to do most jobs.	4.56	4.67	3.65	3.84
My child will need a good knowledge of mathematics/science in order to do well in his/her chosen career or trade.	4.33	4.48	3.89	4.11
My child does not see any connection between the mathematics/science she/she is learning in school and what goes on outside of school.	2.41	2.16	2.26	2.07
Math/Science is not very important for children who don't plan to go to college.	1.49	1.42	1.81	1.73

Q: Please rate each of the following descriptions for your level of agreement. Scale: 1 = Strongly Disagree to 5 = Strongly Agree

In sum, although many of the parents in the Phase II research are not college-educated, they have high academic expectations for their child. Parents also continue to evidence a keen appreciation for the link between doing well in school and having opportunities in life, and want their child to do better both in school and professionally than they did. However, both research phases reveal that parents could more frequently talk with their child about how life outside of school relates to what he or she is studying in school and what type of training they needed to do their jobs to reinforce the important relationship between learning and professional success.

Familiarity with PRISM and Tagline

The primary purpose of the Phase II parent research was to evaluate the public awareness campaign underway. However, before showing parents the advertisements and collecting their reactions and feedback, the parents were asked several questions to gauge their general familiarity with PRISM and the public awareness campaign (PAC) logo.

Overall, 10.6% of the parents report that their child attends a **PRISM Partner School** (see Figure Q-1). The percentage varies by region, with parents in East Central being the most likely to report that their child attends a PRISM Partner School (15.4%) followed by Northeast (11.0%), Southeast (9.1%), and Atlanta Metro (7.4%).

Parents were asked to record the name of the school their child attends and those schools were examined to determine how many of the parents' children actually attend a PRISM

school, regardless of their parent's recollection. In actuality, we found that 361 of the 558 parents surveyed (64.7%) recorded a PRISM Partner School as the school their son or daughter attends. The percentage whose child actually attends a PRISM Partner School varies by region: 73.6% Southeast, 71.6% Northeast, 70.0% East Central, and 47.8% Atlanta Metro (see Figure Q-2).

Among the parents whose child actually attends a PRISM School, a slightly higher percent (15.5%) identified their child as one who attends a PRISM Partner School (see Figure Q-1); however, this is not encouraging as the percentage should be closer to 100% recognition. In short, many parents whose child attends a PRISM Partner School are not aware of it. The Highlighting Group Differences section of this report summarizes differences between parents whose child attends a PRISM School and those whose child does not.

Figure Q-1

Parent Report Child's School a PRISM Partner

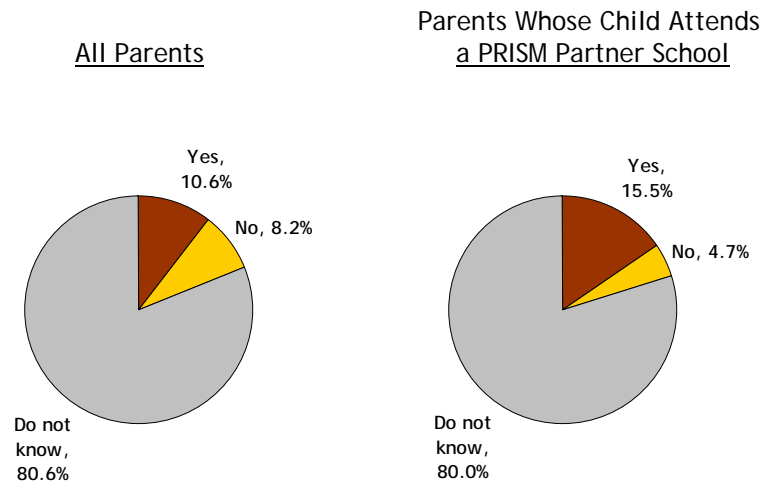


Figure Q-2

Actual PRISM Partner School

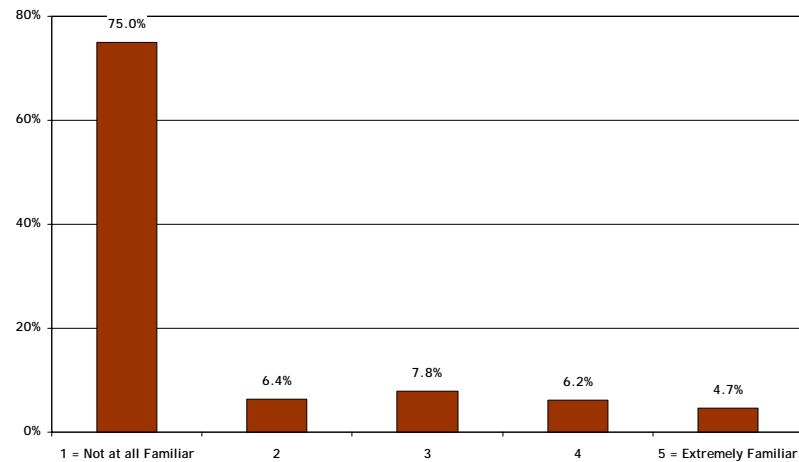
	Child Attends a PRISM Partner School (% of Region)	Child Does Not Attend a PRISM Partner School
Atlanta Metro	78 (48%)	85
East Central	91 (70%)	39
Southeast	81 (74%)	29
Northeast	111 (72%)	44

Further overall findings include:

- A quarter of the parents cited some level of familiarity with “PRISM, the Partnership for Reform in Science and Mathematics”; however, the vast majority (75.0%) reported that they are **“not at all familiar”** (see Figure R). Examination of average familiarity ratings by region reveals little variation, although East Central seems to be the most familiar of the four areas. Examination of the segmentation tables also reveals:
 - Parents whose child attends a PRISM School report more familiarity than do those who do not (mean = 1.70 vs. 1.40).
 - College graduates or those with an advanced degree report more familiarity than those who are not a college graduate (1.79 vs. 1.31).
 - There are no significant differences in familiarity by child’s grade, gender of the parent, ethnicity of the parent, and household income.

Figure R

Familiarity with PRISM



Q: How familiar are you with PRISM, the Partnership for Reform in Science and Mathematics?

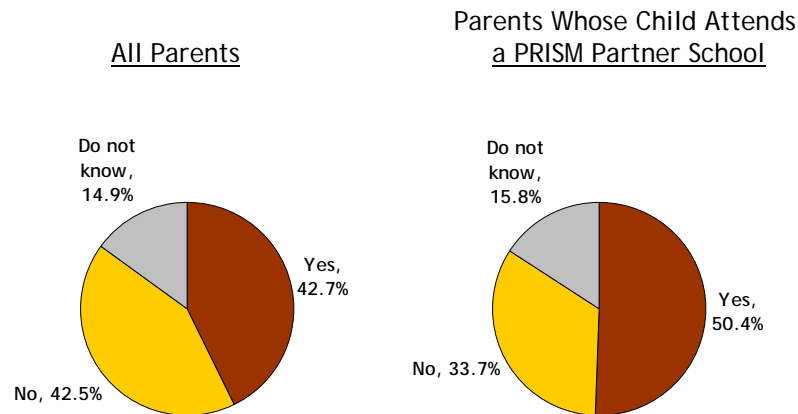
- Two in five parents (42.7%) recalled seeing or hearing **“Math+Science=Success” tagline** within the past year (see Figure S). Recall varies by region, with 56.9% of East Central parents recalling the tagline compared to 42.7% of Southeast, 36.8% of Northeast and 36.8% of Atlanta Metro parents recalling seeing or hearing it.

Recall also varies by other factors:

- Not surprisingly, recall is greater (50.4%) among parents whose child attends a PRISM Partner School compared to those who do not (28.4%).
- Parents of color have higher recall than do White/Caucasian parents (53.9% vs. 38.2%).
- There is no significant difference by gender of parent, child’s grade, household income and highest level of education of parent responding to the survey.

Figure S

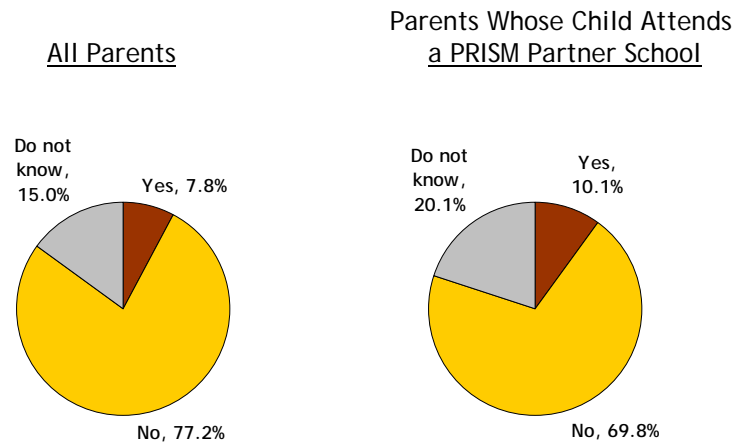
Seen or Heard "Math + Science = Success" Within Past Year



- Among those who did not recall seeing or hearing "Math + Science = Success" within the past year, few (7.8%) recall seeing the **public awareness campaign logo** (see Figure T). This also varies by region, with East Central having the greatest recall of the logo (16.1%). Only about 6% of the parents in the other three regions recalled the logo.
- Those who recalled either the tagline or the logo were asked to describe whatever they could remember about where they saw or heard the expression and any other pictures or messages that accompanied it. Among parents whose child attends a PRISM Partner School, top mentions were: **at child's school** (34.0%), **billboard** (16.0%), **poster or flyer** (8.5%), and **TV commercial** (6.0%). Top responses among those whose child does not attend a PRISM Partner School were similar except **billboard** (23.8%) leads the responses, followed by **at child's school** (11.1%), **TV commercial** (7.9%), and **poster or flyer** (6.3%). While it may seem strange that parents whose child does not attend a PRISM Partner School recall seeing the logo or tagline at their child's school, it may be that the parent has several children and in fact, one of their other children attends a PRISM Partner School.

Figure T

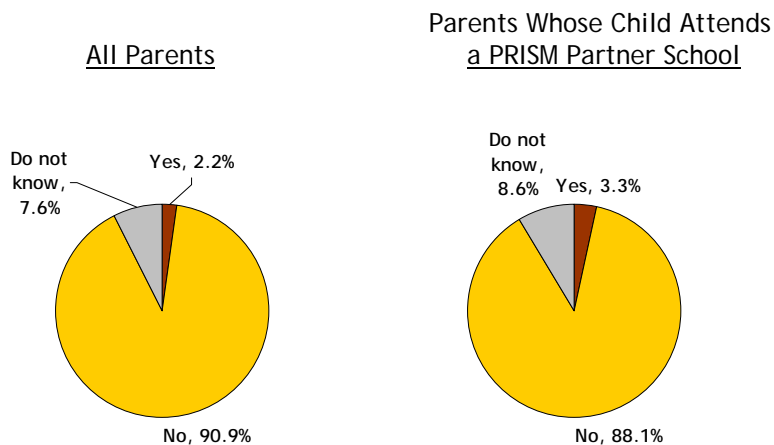
Among Those Who did not Recall Seeing or Hearing
 "Math + Science = Success" Within Past Year ...
Recall Seeing Public Awareness Campaign Logo



- Few parents (2.2%) recall receiving a **parent guide** (see Figure U). Again, recall is highest in the East Central region (5.3% compared to 3.6% Southeast, 0.6% Atlanta Metro, and 0% Northeast). These small percentages are not surprising as the parent guides were not widely distributed: some of the regions gave them out during the spring and many were planning to distribute them after this research in the fall of 2006.
- Parent guide recall also varies by child's grade, with recall being highest among parents of elementary school children (4.3%), which is interesting given that the distribution of the brochures is being targeted at parents of middle and high school students and not elementary students.

Figure U

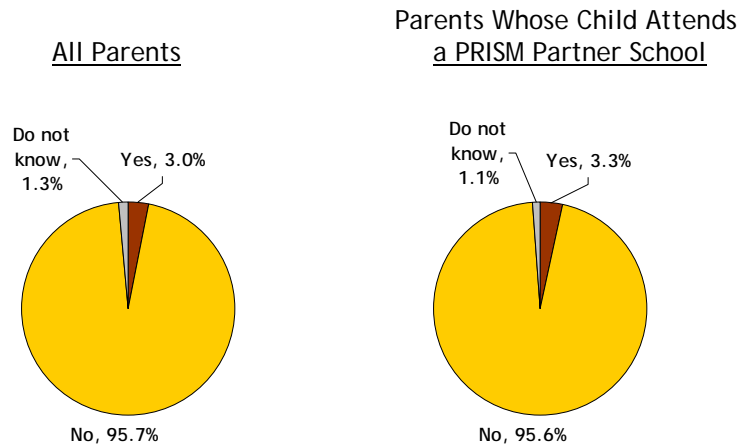
Recall Receiving a "Math+Science=Success" Parent Guide



- Few parents (3.0%) have visited **Mathsciencesuccess.org website**, although recall is again highest in the East Central region (5.4%). The fact that few parents have visited the website is perhaps not surprising given later evaluations of the ads reveal that parents thought the website was not in large enough type and were not sure what the website was for.

Figure V

Visited Mathsciencesuccess.org Website



Advertisement Evaluation

The primary purpose of the Phase II parent research was to evaluate the public awareness campaign underway. Evaluated ads include billboards, bus shelter cards and TV ads.

The following are some of the overall findings regarding the ads tested:

- The billboard “**Help your kid go places in life**” receives the highest recall of all the advertisements tested. This was true in all four of the regions.
- Overall recall was higher among parents whose child attends a **PRISM Partner School**.
- The highest recall overall is in the **East Central** region. Discussion of the results during the August summary presentation attended by PRISM staff speculated that the reason for this difference is that the billboards in that area were located in particularly prominent areas and that there is not as much competition in terms of advertisement attention especially compared to more urban regions.
- The print ads with the highest profile of ratings are:
 - **You don’t have to know calculus, just make sure I do.**

- **She’s not afraid of spiders, snakes or science. Especially not science.**
- **One formula can change her future.**
- The print ad that receives the lowest profile of ratings is:
 - **What every child needs to know.**
- The two TV ads tested receive very favorable evaluations. Recall is higher for the “**Thank You**” ad, especially in the Southeast and East Central regions. This makes sense given that there were more TV spots in these two regions.
- Pre- and post-ad testing revealed little change in parents’ interest in learning more about ways to encourage their child’s interest in math and science, which was very high in both instances.

Evaluation of the Print Ads

A total of seven print ads were tested in the survey. Each ad was randomly shown to a portion of the sample, such that each parent evaluated three of the seven ads. The ads include two bus shelter ads (out of the five that were included in the public awareness campaign) and five billboards (see Figure W-1). Parents were asked whether the ads were familiar (W-2 and W-3), made a series of diagnostic evaluations (W-4), and commented on the message of the advertisement and what they liked and did not like about each.

The following pages detail overall reactions to and evaluations of each of the seven ads. Comprehensive segmentation differences are summarized in a later section, **Highlighting Group Differences**.

Figure W-1

Print Ads

Bus Shelters



Billboards

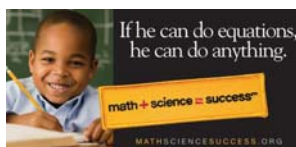


Figure W-2

Recall Seeing Print Advertisements

Ad	Parents Overall			Recall Among Parents Whose Child Attends a PRISM School
	Yes	No	Not sure/Not reported	
Help your kid go places in life.	20.0%	64.2%	15.9%	24.8%
What every child needs to know.	9.9%	76.0%	14.2%	12.0%
You don't have to know calculus, just make sure I do.	6.3%	84.5%	9.2%	7.5%
She's not afraid of spiders, snakes or science. Especially not science.	5.4%	85.4%	9.2%	5.0%
One formula can change her future.	5.4%	79.6%	15.0%	6.8%
If he can do equations, he can do anything.	5.2%	83.6%	11.2%	6.5%
Multiply her opportunities	3.7%	87.6%	8.7%	4.8%

Figure W-3

Recall Seeing Print Advertisements

	Percent Who Recall Seeing Advertisement			
	Metro Atlanta	East Central	Southeast	Northeast
Help your kid go places in life.	20.0%	25.0%	17.4%	16.9%
You don't have to know calculus, just make sure I do.	3.1%	9.3%	4.0%	8.6%
What every child needs to know.	7.5%	13.5%	10.3%	9.3%
She's not afraid of spiders, snakes or science. Especially not science.	8.0%	3.6%	3.8%	5.4%
One formula can change her future.	2.6%	9.1%	10.5%	1.7%
If he can do equations, he can do anything.	1.4%	10.2%	4.3%	5.9%
Multiply her opportunities	4.3%	2.0%	7.0%	1.5%

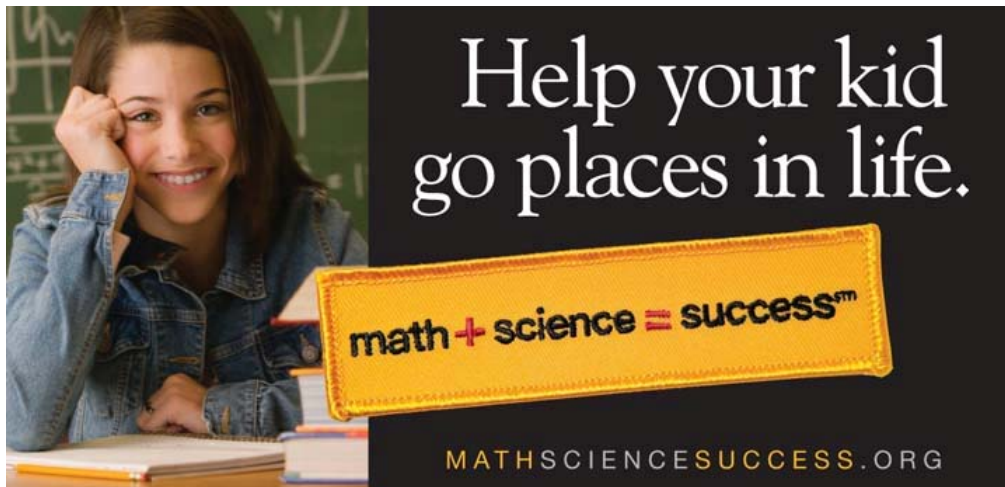
Figure W-4

Evaluation of Print Advertisements

Ad	Overall	Likeable	Informative	Believable	Persuasive	For Someone Like Me
Help your kid go places in life.	3.95	4.03	3.44	3.73	3.47	3.59
You don't have to know calculus, just make sure I do.	4.16	4.14	4.09	4.01	3.90	3.81
What every child needs to know.	3.53	3.54	3.23	3.40	3.12	3.14
She's not afraid of spiders, snakes or science. Especially not science.	4.16	4.07	4.15	3.92	4.01	3.85
One formula can change her future.	4.12	4.11	3.83	3.91	3.78	3.79
If he can do equations, he can do anything.	3.88	3.89	3.58	3.69	3.58	3.53
Multiply her opportunities	3.77	3.72	3.47	3.62	3.45	3.44

Q: Please rate this advertisement on a five-point scale where 1 = Poor and 5 = Excellent for each characteristic.

PRINT AD 1: Help Your Kid Go Places in Life



240 parents viewed this billboard ad.

Recall:

- Recall is highest for this advertisement across all of the regions. Follow up conversations reveal that this ad may have received more placements despite the fact that the ads were planned to be evenly placed throughout the four regions and no one ad was to receive more placements than the others.
- Non-white parents (38.1%) are significantly more likely to recall this ad than are White/Caucasian parents (14.8%).
- Higher recall is found among parents whose child attends a PRISM partner school (24.8% vs. 10.8% whose child does not).

Message of this ad:

- When asked to describe in their own words the message of this ad, many parents refer to the connection between math and science and success, but do not mention their role as a parent as being a critical messenger of this to children.
- Some parents also seem to think that this ad is geared toward girls/daughters, and others refer to the website, saying from the ad it is not clear that PRISM is more than a website with information.

Evaluations:

- Parents of color find this ad significantly more **for someone like me** than White parents (4.08 and 3.46, respectively; 1 = Poor to 5 = Excellent)

- Non-college graduates find it more **informative** than do college graduates (3.73 and 3.26, respectively)

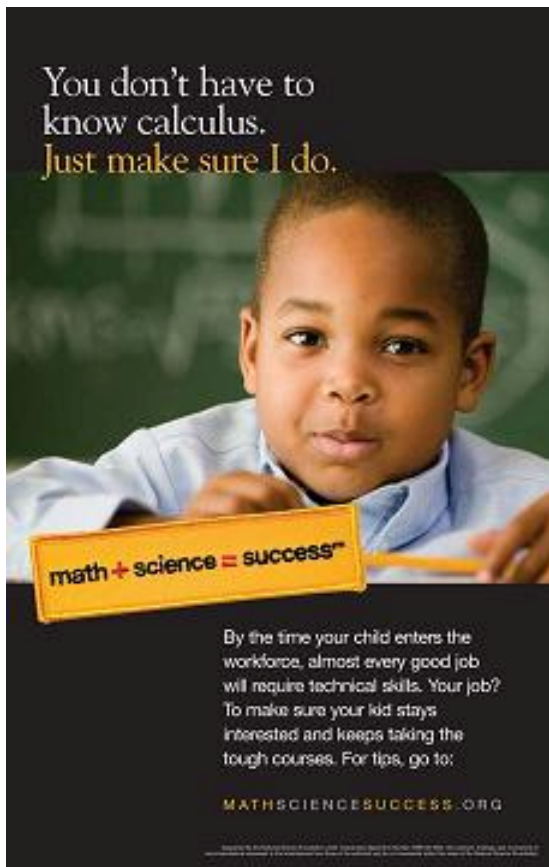
Likes:

- *It shows a young female instead of a male, and it does not perpetuate any of the "nerd" stereotypes through the way she is dressed.*
- *I like the slogan, and the patch is easy to remember.*
- *It encourages parental involvement in children's education which is sorely lacking in the southern U.S.*

Dislikes:

- *Too gender specific and too white, middle class America. She looks like an honor roll student from a stable home with actively involved, well educated parents.*
- *It doesn't give enough information.*
- *Gives me no indication of action on my part.*

PRINT AD 2: *You Don't Have to Know Calculus, Just Make Sure I Do*



239 parents viewed this bus shelter ad.

Recall:

- Recall is highest in the East Central and Northeast regions (9.3% and 8.6%, respectively).
- Mothers are more likely to recall seeing this ad than fathers (7.3% vs. 1.7%).

Message of this ad:

- When asked to describe in their own words the message of this ad, parents generally get that this message is targeted at them and that it directs them to act.
- Some specific parents also commented:
 - *Many individuals do not have an understanding of what calculus is.*

- *Calculus is a high school to college math discipline. The child in the ad is too young.*

Evaluations:

- Minority parents feel the ad is more **persuasive** than White parents (4.14 and 3.82, respectively; 1 = Poor to 5 = Excellent).
- Parents with average or below math ability also find this ad more **persuasive** than do those with higher self-reported math ability (4.02 vs. 3.80).

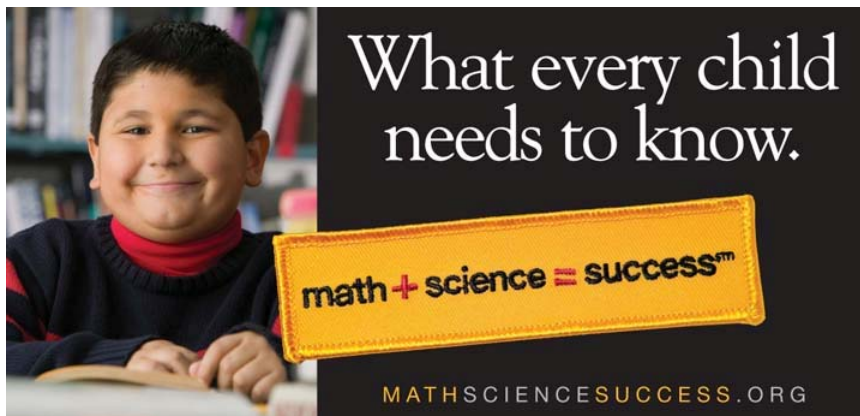
Likes:

- *The idea that I don't have to be good in math or science to encourage my child in these subjects. I especially like that the ad tells me how to do this by explaining my job is to encourage and reward my child's staying in math and science courses.*
- *It's showing a young black male who will one day succeed if given the right tools.*
- *It is simple, gentle, and succinct. It is not gimmicky, silly, or insulting.*

Dislikes:

- *It makes me feel a little guilty because my children are about finished with school, and they didn't take calculus and I never felt it was important. Actually, I feel they will be fine without it, considering their career plans.*
- *It would be nice to see an adult in the background. Either that or another child looking impressed with (adulating) the focal child. Peer pressure is important.*
- *The only call for action provided on this poster is a web site. What about those who don't have easy access to the internet in their homes?*

PRINT AD 3: What Every Child Needs to Know



233 parents viewed this billboard ad.

Recall:

- Recall is relatively high among all the regions: East Central (13.5%), Southeast (10.3%), Northeast (9.3%), and Atlanta Metro (7.5%).
- Lower income groups have better recall: 20.0% of \$30K or less and 18.4% of \$30K-60K compared to just 4.1% of over \$60K income group.
- Higher recall is found among parents whose child attends a PRISM school (12.0% vs. 6.0% whose child does not).

Message of this ad:

- Many comments are directed at or regard the child's ethnicity. Some parents saw the ad as being particularly directed at Hispanic families and not all families.

Evaluations:

- Compared to fathers, mothers find this ad more **likeable** (3.21 and 3.64, respectively) and **informative** (2.88 and 3.34; 1 = Poor to 5 = Excellent)
- Compared to White/Caucasian parents, those of other ethnicities find this ad more **informative** (3.10 and 3.61, respectively), **believable** (3.28 and 3.81), **persuasive** (3.02 and 3.52), and **for someone like me** (3.04 and 3.54).
- Non-college graduates believe this ad is more **informative** (3.61 and 2.99, respectively), **believable** (3.69 and 3.21), **persuasive** (3.46 and 2.89), and **for someone like me** (3.51 and 2.90) than do college graduates.

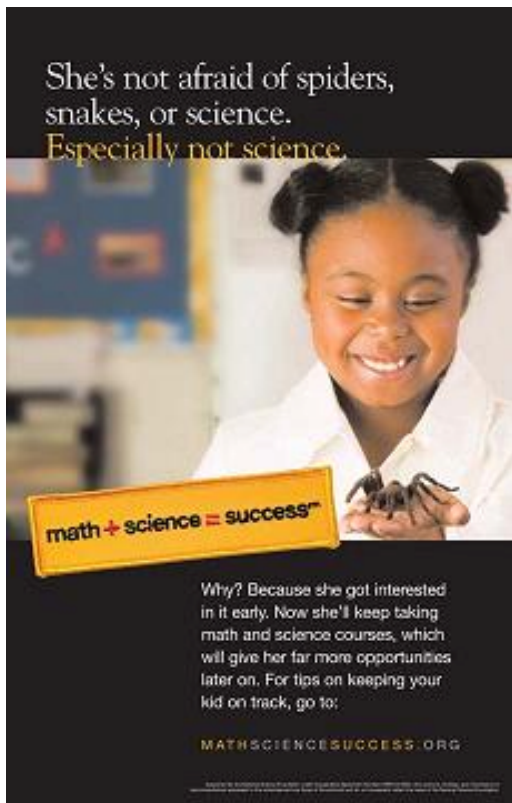
Likes:

- *I like the fact that the child in the ad is just an ordinary looking kid, in fact, he could be the chubby kid that gets picked on, but is very good at math and science.*
- *I like that the kid looks like a student of color.*
- *It's simple and to the point. Makes me want to visit the Web-site to obtain additional information.*

Dislikes:

- *The boy in the photo is cute; however, I believe he comes across as a nerd – just the image that math and science is apparently trying to get away from in education.*
- *The kid is not dressed in the way my children and their friends find "cool".*
- *Why can't it show what he could achieve. Like the kid could be seeing himself as an astronaut, doctor, underwater biologist, etc...*
- *The website gets lost.*
- *I am not sure what the ad is promoting.*

PRINT AD 4: *She's Not Afraid of Spiders, Snakes or Science. Especially not Science.*



239 parents viewed this bus shelter ad.

Recall:

- Given that this ad was only placed in the Atlanta Metro region during the campaign, it is surprising that there are not a bigger difference in recall between Atlanta and the other regions: Atlanta Metro (8.0%), Northeast (5.4%), Southeast (3.8%), and East Central (3.6%).

Message of the ad:

- Many parents thought this ad was “eye catching.”
- Some thought the ad implies that girls are especially afraid of science.
- Some parents thought the text was informative and liked the message that children should be exposed to science at an early age.

Evaluations:

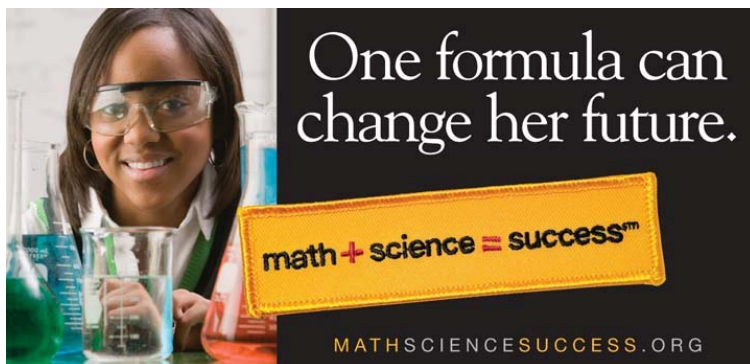
- Compared to White/Caucasian parents, those of other ethnicities like this ad better **overall** (4.02 and 4.42, respectively) and say is more **for someone like me** (3.67 and 4.23; 1 = Poor to 5 = Excellent).

Likes:

- *I like that it's a student of color; I like that it gives an explanation and that it gives some 'instruction' as to what to do next.*
- *I liked the statement "for tips on keeping your kid on track."*
- *It is very eye-catching. It piqued my interest enough to make me want to read the fine print. It is informative.*
- *The ad represents a black student who looks like over 90 percent of the students in the Atlanta Public School System.*

Dislikes:

- *The spider is very creepy. I don't know very many children that would pick one up, no matter how comfortable with science they are.*
- *The photo of a student without any facial blemishes, thin, pretty, and black with conservative attire is really not representative of the way our students really look.*
- *The URL really needs to be highlighted, this type of ad is the kind people will recall and will want to research.*

PRINT AD 5: One Formula Can Change Her Future

240 parents viewed this billboard ad.

Recall:

- While recall is low, it is higher in the Southeast and East Central regions (10.5% and 9.1%, respectively) than in Atlanta Metro (2.6%) and the Northeast regions (1.7%).

Message of the ad:

- Some parents thought the audience for this ad is limited to African American girls.

- Some parents did not see any call of parental action in this ad. In fact, some thought the message targeted the child rather than his/her parents.

Evaluations:

- Mothers tend to give this ad higher evaluations than do fathers **overall** (4.21 and 3.77) and find it more **informative** (3.93 and 3.47), **believable** (4.02 and 3.57) and **persuasive** (3.87 and 3.40; 1 = Poor to 5 = Excellent).
- Non-college graduates feel this ad is more **believable** than do college graduates (4.13 and 3.76).
- Compared to White/Caucasian parents, those of other ethnicities give this ad higher evaluations **overall** (4.01 ad 4.39) on all five criteria:
 - **likeable** (4.02 and 4.35),
 - **informative** (3.67 and 4.20),
 - **believable** (3.78 and 4.26),
 - **persuasive** (3.66 and 4.09), and
 - **for someone like me** (3.65 and 4.16).

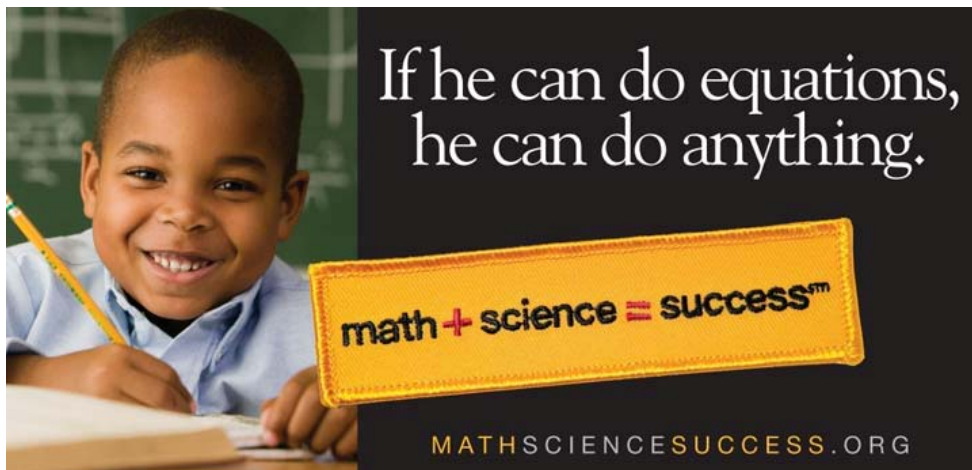
Likes:

- *It's catchy and seems to make science more "cool."*
- *Great graphics with a clear and concise message. An eye catcher. Excellent!*
- *How the word formula backs up math+science=success. Very clever!*
- *I like that the girl is black and she looks like the teens in my house and their friends.*
- *I liked the impression that one instance of fun in math and science can cause a child to be interested for life.*

Dislikes:

- *I would like to see a group of students interacting and in a positive learning environment.*
- *No real description on how to help your child.*
- *Making a statement, but what are you advertising?*

PRINT AD 6: *If He Can Do Equations, He Can Do Anything*



232 parents viewed this billboard ad.

Recall:

- Recall is highest in East Central (10.2%), followed by Northeast (5.9%), Southeast (4.3%) and Atlanta Metro (1.4%).
- Recall is higher among the higher income groups (4.5% of over \$60K and 11.5% of \$30K-60K) compared to \$30K or less (0%).

Message of the ad:

- Many parents saw no call to action in this ad.
- Some mentioned that the ad doesn't tell them how the website can help them.
- One parent said, "*It is not a true statement,*" and another mentioned, "*Can students this young really do equations?*"

Evaluations:

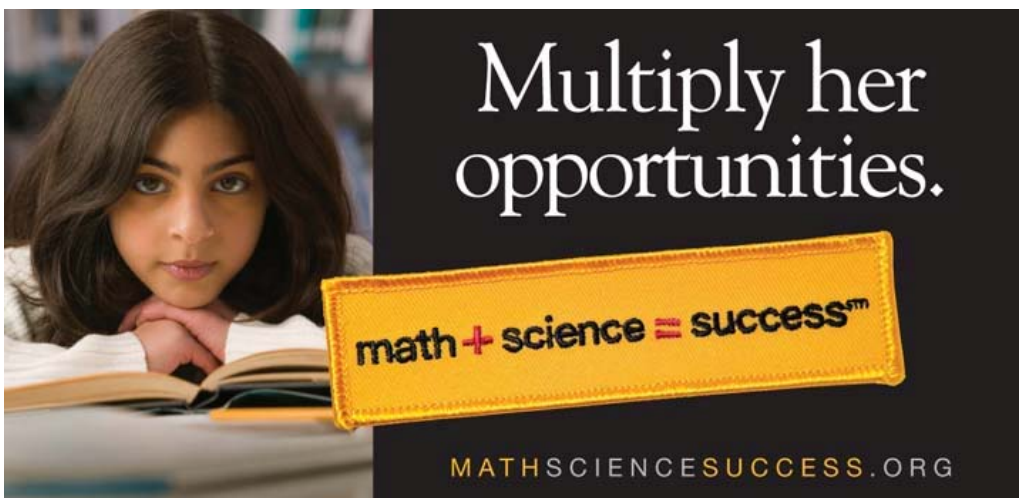
- No differences among demographic subgroups.

Likes:

- *Friendly, shows that you need to be involved with math at an early age.*
- *It is a young African-American child so it portrays math as important to everyone regardless of age or race.*
- *It's all good. Layout, colors, photo with soft focus math like blackboard in background. Contagious smile.*

Dislikes:

- *A bit too simplistic to be believable.*
- *No indication of action for me.*
- *Need a reason to go to the website.*
- *Is math.org [sic] another website trying to sell me something?*

PRINT AD 7: Multiply Her Opportunities

242 parents viewed this billboard ad.

Recall:

- Recall is comparable across the regions: Southeast (7.0%), Atlanta Metro (4.3%), East Central (2.0%), and Northeast (1.5%).
- Slightly higher recall among parents of color (5.7%) compared to White/Caucasian parents (2.4%).

Message of the ad:

- Many parents do not seem to understand that the message targets parents. One even remarks, *“The teacher needs to challenge the students more.”*
- Some parents think the ad is targeted at girls and not boys.

Evaluations:

- Compared to White/Caucasian parents, those of other ethnicities believe this ad is more **informative** (3.33 and 3.84), **believable** (3.49 and 3.99), and **for someone like me** (3.26 and 3.88).

Likes:

- *The picture. I especially like that the student is an attractive girl since the stereotype of a math and science student is an unattractive, nerdy boy.*
- *Play on words with “multiply” in the title. Girl will appeal to most nationalities as an average girl. Open book adds to the picture as if she looked up from studying.*
- *It is calming. It makes you think of all nationalities. It stresses the importance of learning all areas of math, not just the basic addition and subtraction.*
- *Thought provoking statement.*

Dislikes:

- *I don't like the one person approach (whether, male, female, black, white). Also it is not appealing to middle or high school kids.*
- *I doubt that most people in the state of Georgia will get the message.*
- *Not at all informative, no facts given. Very dull message that will not be remembered.*
- *No info just very vague if you were not familiar with the program already you would have no idea what the ad was about.*

Other Comments Regarding Print Ads

Parents made several other comments and observations with regard to the print ads they saw that are worthy of note:

- No white males were included in any of the ads.
- None of the ads seem to get at the “fun-ness” of math and science. They are all very school and outcome focused.
- None of the ads have multiple children in them.
- There are no parents in any of the ads. None with a parental voice.

Evaluation of the Public Service Announcement TV Ads

Two TV ads were tested in the survey. Each ad was randomly shown to a portion of the sample, such that each parent evaluated either of the two ads. (Only parents with a high speed Internet connection were asked to evaluate the TV ads.) Parents were asked whether the ads were familiar, made a series of diagnostic evaluations and commented on what they liked and did not like about each. The following shows how the ads were placed in the winter 2006 wave of the public awareness campaign:

- Atlanta/Northeast (Athens)
 - 40 total spots
 - Time period
 - 1/23/06 (18 spots)
 - 1/30/06 (16 spots)
 - 2/6/06 (6 spots)

- Southeast (Savannah)/East Central (Statesboro)
 - 252 total spots
 - Time period
 - 1/23/06 (60 spots)
 - 1/30/06 (57 spots)
 - 2/6/06 (44 spots)
 - 2/13/06 (35 spots)
 - 2/20/06 (28 spots)
 - 2/27/06 (20 spots)
 - 3/06/06 (8 spots)

The following pages detail overall reactions to and evaluations of each of the two TV ads. Comprehensive segmentation differences are summarized in the later section, **Highlighting Group Differences**.

Figure X

Public Service Announcement TV Advertisements



TV AD 1: I Can Do Anything

219 parents viewed this ad.

Recall:

- Overall, 8.2% of parents recall seeing this TV advertisement. Recall is highest in Southeast (14.3%), followed by East Central (10.2%), Atlanta Metro (7.6%) and Northeast regions (3.2%).
- Recall is higher among parents of color than White/Caucasian parents (18.1% and 5.0%, respectively).

Evaluations:

- Overall evaluation, as well as on the five specific characteristics, is very strong.
- Mothers find this ad more **believable** (4.30 and 3.84, respectively) and **for someone like me** (4.22 and 3.69) than do fathers.
- Compared to White/Caucasian parents, those of other ethnicities find this ad more **believable** (4.07 and 4.54), **persuasive** (4.04 and 4.49), and **for someone like me** (3.95 and 4.46).

Likes:

- *Quick and to the point. Puts it straight forward that if you know math and science things will be easier for you in the future.*
- *Simplicity. Very persuasive. To the point. Gave specific examples that children and adults can understand about how math and science can benefit someone in their daily life/career. Excellent role models in the ad. Clean & modern composition.*
- *Shows the practicality and usefulness of math and science in everyday decision making.*
- *I like the message the kids are getting across to more kids.*

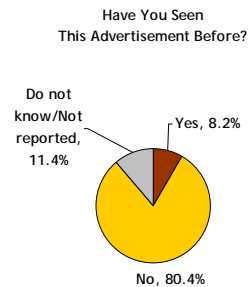
Dislikes:

- *Use real kids; these look like kids from well-to-do families who have opportunities most children don't have.*
- *Doesn't really state what they can do for my child.*
- *I think the attire of some of the kids should have been changed. I would like to see an ad that shows kids that you can be 'cool' and smart. My kids said a couple of the kids were 'nerds'.*
- *It is obviously aimed at minority students. You need more generic to keep all kids interested.*
- *It doesn't say what your organization does or why a parent should visit the site.*

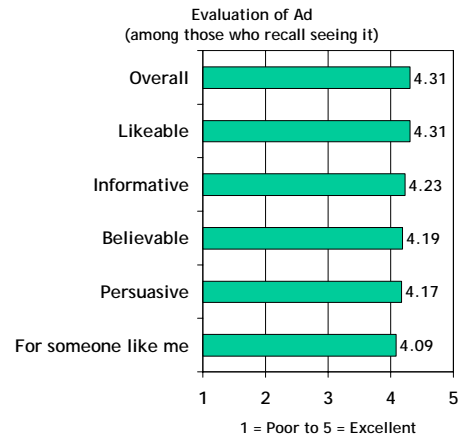
Figure Y

Video 1: "I Can Do Anything"

Windows Media(TM)
Video File



Note: 219 parents viewed this TV advertisement.



TV AD 2: Thank You

220 parents viewed this ad.

Recall:

- Recall is highest in Southeast (23.1%) and East Central (22.9%) regions, followed by the Northeast (7.9%), and Atlanta Metro (4.3%) regions

Evaluations:

- Non-college graduates find this ad is **for someone like me** more than do college graduates (4.19 and 3.74).

Likes:

- Appealing children, different ages, conversational tone. Simple message.*
- I really liked this advertisement. It shows how some children think. What I took out of this was the quote "I may not thank you now but.....one day."*

- *The overall message of how math and science is important to the success of the individual. Many good career options open up and the chances of success are greater if the person has a strong background.*

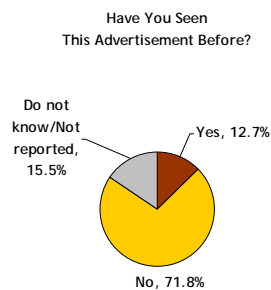
Dislikes:

- *The message "If you MAKE me?" I just don't agree with the tactic.*
- *Not persuasive. Why should I MAKE my child take math and science? Why doesn't my child WANT to take math and science?*
- *The address for the website is not large enough. Be better for it to be a little bit larger.*
- *This ad does not show kids among their peers - they need to show a winning child holding her own ground against loser bullies, loser parents, and loser teachers. Being a success needs self-confidence.*

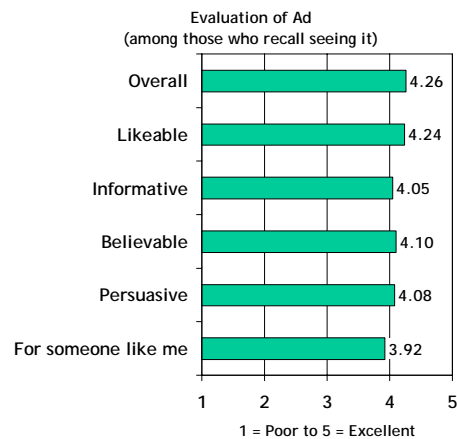
Figure Z

Video 2: "Thank You"

Windows Media(TM)
Video File



Note: 220 parents viewed this TV advertisement.



In sum, the public service announcement TV ads tested receive very favorable evaluations. Recall is higher for the "Thank You" ad, especially in the Southeast and East Central regions. (Again, this makes sense given that there were more TV spots in these two regions.) Many parents thought that the TV ad had great diversity – ethnic, age, gender, etc. – which many felt the print ads (bus shelters and billboards) did not. They also felt

the children looked believable and thought that the ad worked for both parents and children and was persuasive, successfully appealing to the emotions. Parents did, however, have several suggestions, including having the kids in the ad be shown in a more natural setting and repeating the website and putting it in a larger font so it can be more easily read.

In the Highlighting Group Differences section that follows, differences between parents who recall seeing at least one of the ads presented to them and those who do not are detailed.

Evaluations of the Effectiveness of Different Means of Communication

The parents were also asked to evaluate seven different means of communication for their effectiveness in communicating with parents like themselves about the importance of math and science education for children (using a 5-point scale where 1 = Not at all Effective to 5 = Extremely Effective). Overall, parents thought **TV ads** were the most effective (4.06). The next most effective means of communication in their judgment were **parent guides/booklets** (3.91), **movie theater preview/ad** (3.56), **posters sent home from school** (3.18) and **billboards** (3.03). The parents felt advertisements in **bus shelters** (2.50), **mall kiosks/signage** (2.94) were the least effective; however, the next section details some key differences in these effectiveness ratings among parents, particular by household income, ethnicity, highest level of education, and gender of the parent (note: many of these variables are, of course, interrelated).

Highlighting Group Differences

The previous section summarized the overall prevailing opinions expressed by parents of school-aged students in Georgia as well as selected subgroup differences. The purpose of this section of the report is to examine the research in-depth by key audiences to determine what differences may exist in the opinions and behavior of important subgroups in the sample. The following subgroups selected for segmentation and further analysis were determined in consultation with PRISM Leadership:

- **Region** - Atlanta Metro vs. Northeast vs. East Central vs. Southeast
- **Child's Grade** - Elementary vs. Middle vs. High School.
- **Ethnicity** - White/Caucasian vs. Other.
- **Household Income** - \$30,000 or less vs. \$30,001 - \$60,000 vs. Over \$60,000.
- **Gender of Parent/Guardian** - Female vs. Male.
- **Parents' Educational Level** - College Degree vs. Less than a College Degree.

- **Parents' Math Ability** - Somewhat/Well Above vs. Average or Below.
- **Parents' Science Ability** - Somewhat/Well Above vs. Average or Below.
- **Whether Child Attends a PRISM Partner School** – Yes vs. No.
- **Ad Recall** – Recalled Seeing at Least One of the Presented PRISM Ads vs. Did not Recall Seeing Any of the Presented Ads.

It is important to note that, while we will be exploring the ways in which various subsets differ from one another, for the most part opinions and behavior do not change dramatically among subgroups. Teasing out nuances will allow for the targeting of messages and strategies, but the overall findings conveyed in the previous section should be kept in mind.

Summary of Regional Differences

Parents from the Atlanta Metro region have a somewhat distinctive profile compared to others. They are more likely to:

- Be **Single, never married** (17.1% vs. Northeast 7.1%, East Central 4.6%, Southeast 4.5%)
- Be **Black/African-American/Afro-Caribbean** (41.1% vs. Southeast 20.9%, Northeast 16.8%, East Central 16.2%)
- Be affluent, with household incomes **over \$100,000** (28.8% vs. Southeast 20.9%, Northeast 16.1%, East Central 13.1%)
- Have **professional degrees** such as law or medicine (12.1% vs. Northeast 7.0%, Southeast 2.3%, East Central 2.0%)
- Have completed the survey with a son rather than a daughter in mind (59.5% vs. Southeast 47.3%, East Central 44.6%, Northeast 43.9%)

Despite the differences in their profile, there are few attitudinal differences between parents from Atlanta versus other regions, or among any of the other groups:

- Parents from Atlanta more often see math as one of their child's particular strengths, especially compared to parents from the Northeast. They agree more strongly that **math is among my child's favorite subjects in school**, (3.83 vs. East Central 3.47, Southeast 3.37, Northeast 3.30). They are the least likely to agree that **math is too hard for my child** (1.61 vs. East Central 1.78, Southeast 1.82, Northeast 1.99).
- Parents from the East Central region were more likely to only envision a **2-year degree** for their child (9.2% vs. Northeast 3.9%, Southeast 1.8%, Atlanta 0.6%).

There are several lines of evidence that the East Central region is doing a more effective job of getting the word out among parents regarding the PRISM name and the resources available to them. Although few parents overall feel they know very much about PRISM, parents in the East Central region report the highest **familiarity** of any region (1.84), particularly compared to Atlanta (1.44; Southeast 1.57, Northeast 1.56). East Central parents are also much more likely to recognize the PRISM **slogan**, “Math + Science = Success,” as one they have seen or heard within the past year (56.9% vs. Southeast 42.7%, Atlanta and Northeast 36.8%). Similarly, those who did not initially find the slogan familiar nevertheless more often recognized the public awareness campaign **logo** when they were shown an example of it (16.1% vs. Southeast 6.3%, Northeast 6.1%, Atlanta 5.8%). Significantly, parents from the East Central region are the most likely to have visited the mathsciencesuccess.org website, which is promoted in each of the public awareness campaign advertisements (5.4% vs. Atlanta 3.1%, Northeast 2.6%, Southeast 0.9%).

Similarly, although the parent guide has not yet been widely distributed, parents in the East Central region (5.3%) along with those in the Southeast (3.6%) are more likely to have received it than parents in either Atlanta or the Northeast region (0.6% and 0.0%, respectively).

It is interesting to note, however, that the only regional difference in prior advertising **recall** for any of the public awareness campaign pieces is for the television commercial, **Thank You** – one of the strongest advertising promotions in the campaign. Significantly more parents from the East Central and Southeast regions report seeing this commercial (22.9% and 23.1%) than parents in the other two regions (Northeast 7.9%, Atlanta 4.3%). There are no regional differences in opinions regarding the profiles of any of the print or television ads, and parents provide similar feedback across regions regarding the best media to use in reaching out to them.

Summary of Differences by Child’s Grade

There are expectable differences between parents of high school students versus parents of younger children, especially those in elementary school:

- Parents of high schoolers are the least likely to be involved on a daily basis in activities like **talking with the student about how he/she is doing in school** or **helping do homework**.
- In contrast they are involved at a much higher level in **talking to the child about college options** and **talking with him/her about what he/she would like to do after they finish high school**.
- Parents of high school students also have the least **contact with the child’s teacher/counselor**. Only 33.0% of them have had contact a couple of times a month, compared to 56.8% of parents of middle school students and 76.4% of parents with children in elementary school.

Parents of middle school students, in contrast, are the most involved of the three groups **in talking with the child about what the parent does and the training the parent needed in school to do their job.**

When asked to evaluate statements about their children's experiences and attitudes in math and science, both topics are seen by parents of high school students as problematic. Both math and science are less likely to be **one of their child's favorite subjects** (**math**: 3.32 vs. middle school 3.53, elementary school 3.87; **science**: 3.49 vs. middle school 3.87, elementary school 3.98). Parents of highschoolers also say that, **when their child needs help understanding the subject matter, it is significantly more difficult for them to get what they need** from either the **parent** (**math**: 3.03 vs. middle school 2.55, elementary 2.01; **science**: 2.49 vs. middle school 2.17, elementary 1.99) or the **teacher** (**math**: 2.58 vs. middle school 2.43, elementary 2.19).

Interest in **learning more to support their child's interest in math and science** is significantly lower in parents of high schoolers (4.17) than among parents of younger children (elementary 4.54, middle 4.46), and is unchanged after exposure to several public awareness campaign ads (4.12). Engaging parents of younger children will be an easier hurdle for PRISM to tackle, and may in fact be critical in order to instill a passion for math and science in children before disappointing failures have dimmed their enthusiasm for the subjects.

Regardless of their child's level in school, parents report similar levels of **recall** of the various print and television ads, and rate them similarly in terms of their strengths and weaknesses. Parents also largely are similar in their views of the most effective means of communicating with them, with one exception. Parents of middle school students see **parent guides/booklets** as substantially more useful in reaching out to them (4.16) than do parents of high school students (3.77).

Summary of Differences by Ethnicity

Minority students lag far behind whites, on average, in math and science in the state of Georgia. Therefore, parents of color are a particular target of the PRISM public awareness campaign, in an attempt to mobilize their involvement to enhance the interest, and ultimately the performance, of their children in these subjects.

The minority parents who participated in this study come from a variety of backgrounds, but they are predominantly **Black, African American or Afro-Caribbean** (83%). Much smaller proportions are **Hispanic** or **multi-racial** (both 5.4%), **Asian** (4.8%), or **Native American** (1.2%). As might be expected, ethnic minorities differ from Caucasian parents in several important aspects of their profile:

- More are from the **Atlanta metropolitan** area (47.8% vs. Caucasian 21.5%)

- They represent almost all of the **single, never married** parents (27.2% vs. Caucasian 0.7%), and are almost twice as likely to be **divorced or separated** (22.4% vs. 12.9%)
- They have substantially more modest household incomes (22.4% under \$30,000 vs. 7.1% of whites).
- More have not completed a college degree (53.2% some college or less vs. 37.3%)

Parents of color report similar educational aspirations for their child, and say that they tend to be more involved in their child's education. They are far more likely to report daily involvement in activities with their child such as:

- **Emphasizing the importance of doing well in school in order to be successful** (61.8% vs. 40.0%)
- **Talking to him/her about life outside of school and how it relates to what he/she is studying in school** (52.1% vs. 29.2%)
- **Talking with him/her about college options** (24.8% vs. 10.5%)
- **Talking with him/her about what he/she would like to do after they finish high school** (26.6% vs. 8.9%)
- **Talking with him/her about what the parent does and the training the parent needed in school to do his/her job** (21.2% vs. 5.0%).

Minority parents consider math somewhat more **important** than do Caucasian parents (4.82 vs. 4.66), and they agree more strongly that they **encourage their child to do better in mathematics** (4.72 vs. 4.51). Yet, they are less certain that **at my child's school, students can do well in math and still be considered 'cool'** (3.92 vs. 4.23).

While there is no significant difference between minorities and Caucasians in the **importance** of science as a subject in school, parents of color are less inclined to believe that **my child will need a good knowledge of science in order to do well in his/her chosen career or trade** (3.90 vs. 4.20). Similar to math, they are somewhat less certain than white parents that **at my child's school, students can do well in science and still be considered 'cool'** (3.90 vs. 4.21).

Although neither white nor non-white parents are very **familiar** with PRISM (1.56 and 1.66), minority parents are more likely to recall seeing the PRISM **slogan**, "Math + Science = Success" within the last year (53.9%, vs. 38.2% for White/Caucasian parents). A significant finding of this study is that, while both groups of parents initially have comparable levels of interest in **learning more about encouraging their child's interest in math and science** (minorities 4.45 vs. white/Caucasian 4.29), after exposure to the advertisements minority parents show significantly higher interest compared to whites (minorities 4.54 vs. whites 4.19). This difference is driven primarily because of a shift

from neutral to high levels of interest among parents of color while whites trend downward, perhaps sensing somewhat accurately that the ad campaign is not targeted primarily at them.

Minority parents reported higher previous **recall** of all of the public awareness materials tested except for the **She's not Afraid of Spiders** and **If He Can Do Equations, He Can Do Anything** print ads and the **Thank You** television ads, (although because over a month had elapsed since the close of the public awareness campaign they were sometimes “not sure” whether the ads were familiar):

- Differences were significant for prior recall of:
 - **One Formula Can Change Her Future** (29.6% yes/not sure vs. Caucasian 14.0%)
 - **You Don't Have to Know Calculus** (23.0% yes/not sure vs. Caucasian 10.6%)
- They were nearly three times as likely to recognize two of the billboards:
 - **Multiply Her Opportunities** (18.6% yes/not sure vs. Caucasian 6.6%)
 - **Help Your Kid Go Places in Life** (38.1% yes among minorities, 14.8% for whites)
- Parents of color were more than three times as likely to remember seeing the television commercial **I Can Do Anything** (18.1% yes vs. Caucasian 5.0%).

There were more differences in perceptions of the ads by ethnicity than by any other segmentation, with significant differences present for seven of the nine print and television advertisements evaluated. In every instance of significant differences, parents of color rated the advertisements better **overall**, more **likeable**, **informative**, **believable**, **persuasive**, and especially more **for someone like me**. These included:

- You Don't Have to Know Calculus (bus shelter):
 - **Persuasive** (4.14 vs. Caucasian 3.82)
- She's Not Afraid of Spiders (bus shelter):
 - **Overall** (4.42 vs. 4.02)
 - **For someone like me** (4.23 vs. 3.67)
- Help Your Kid Go Places in Life (billboard):
 - **For someone like me** (4.08 vs. 3.46)

- What Every Child Needs to Know (billboard):
 - **Informative** (3.61 vs. 3.10)
 - **Believable** (3.81 vs. 3.23)
 - **Persuasive** (3.52 vs. 3.02)
 - **For someone like me** (3.54 vs. 3.04)
- One Formula Can Change Her Future (billboard):
 - **Overall** (4.39 vs. 4.01)
 - **Likeable** (4.35 vs. 4.02)
 - **Informative** (4.20 vs. 3.67)
 - **Believable** (4.26 vs. 3.78)
 - **Persuasive** (4.09 vs. 3.66)
 - **For someone like me** (4.16 vs. 3.65)
- Multiply Her Opportunities (billboard):
 - **Informative** (3.84 vs. 3.33)
 - **Believable** (3.99 vs. 3.49)
 - **For someone like me** (3.88 vs. 3.26)
- I Can Do Anything (television):
 - **Believable** (4.54 vs. 4.07)
 - **Persuasive** (4.49 vs. 4.04)
 - **For someone like me** (4.46 vs. 3.95)

When asked about the effectiveness of different ways of communicating with them, minority parents rate all forms of communication as more likely to reach them compared to whites, and like Caucasians they rate **television advertisements** and **parent guides/booklets** as the most preferred. However, there are secondary avenues such as **posters sent home from school** and **advertisements in bus shelters** that are considered far more effective by minority parents than white ones (**posters**: minorities 3.72 vs. Caucasians 2.97; **bus shelters** minorities 3.04 vs. whites 2.28).

Summary of Differences by Household Income

There are a few profile differences worth noting between respondents from the most affluent segment in the study (over \$60,000) and those from the least affluent segment (\$30,000 or less). The former were much more likely to be **married** (91.9% vs. 23.0%), **white** (76.9% vs. 41.5%), highly **educated** (8.7% had Ph.D.'s compared to none in the lowest income group), and almost five times more likely to be **male** (30.0% father or other male guardian vs. 6.1%).

Parents with lower incomes express a strong desire for their child to **be able to have a better job than I have** (lower income 4.58 and middle income 4.48, vs. higher income 4.17). Consistent with this, there is some tendency for parents making less than \$30,000 a year to report giving their child more frequent encouragement than affluent parents by, for example:

- **Emphasizing the importance of doing well in school in order to be successful;**
- **Talking with him/her about life outside of school and how it relates to what he/she is studying in school;**
- **Talking with him/her about what he/she would like to do after they finish high school;** and
- **Talking with him/her about what the parent does and the training the parent needed in school to do his/her job.**

However, the more affluent parents are significantly more confident that their child will go on to college (4.76 vs. lower income 4.43, middle income 4.31).

Parents from higher-income households do not regard math and science as any more **important** for their children than parents from more modest homes, however they are much more confident of **their own abilities** in these areas (**math**: 3.82 vs. 3.44 for both lower and middle income groups; **science**: 3.77 vs. middle income 3.37, lower income 3.22). Perhaps because of this, affluent parents are less likely to agree that either **subject is too hard for their child** (**math**: 1.67 vs. lower income 1.80, middle income 1.97; **science**: 1.54 vs. lower income 1.90, middle income 1.85). In fact, in science they are the least apt to agree that **some children just can't do science** (1.94 vs. lower income 2.19, middle income 2.27), and the least likely to **find it difficult to help my child when he/she has questions about science** (2.16 vs. middle income 2.28, lower income 2.69).

There were no reported differences by income level in familiarity with PRISM and recall of the PRISM logo and public awareness campaign tagline; however, a few of the specific print ads were less likely to have been seen by the most affluent respondents. These included **One Formula Can Change Her Future** (billboard; 83.8% no vs. lower income 65.5%, middle 70.0%), the billboard **What Every Child Needs to Know** (85.4% had not seen vs. lower income 68.0%, middle 61.2%), and the billboard **If He Can Do Equations** (88.4% no vs. lower income 85.2%, middle 69.2%). Parents evaluated all

print and television ads comparably in terms of their quality on a variety of dimensions, regardless of their household income.

When asked about the most effective means of communicating with them, lower-income parents, who are a particular focus of PRISM public awareness outreach, show significant differences from high-income parents in their receptiveness to different forms of communications. Like the most affluent parents they regard **television ads** and **parent guides/booklets** as the best strategies, but they are dramatically more receptive to **posters sent home from school** (3.82 vs. 2.91), **advertisements in bus shelters** (3.08 vs. 2.31), and **mall kiosks/signage** (3.48 vs. 2.72). There are smaller, but still very significant, differences for the effectiveness of **parent guides/booklets** (4.31 vs. 3.74) and **billboards** (3.46 vs. 2.86).

Differences by Gender of Parent/Guardian

The only demographic differences between mothers and fathers who responded to the survey are those we might expect:

- Mothers were less likely than fathers to be **married** (68.4% vs. 92.0%).
- They were far less likely to report **household incomes** over \$100,000 (15.5% vs. 34.1%)
- They were unlikely to have achieved the highest levels of **education** (only 2.1% had doctorates compared to 12.6% of responding fathers).

Although mothers and fathers believe they have comparable **influence on their child's interest and achievement in school** (4.52 vs. 4.42), mothers see themselves as more involved in their child's education, reporting higher frequencies of activities such as:

- **Talking with him/her about how he/she is doing in school;**
- **Emphasizing the importance of doing well in school in order to be successful;**
and
- **Talking with him/her about life outside of school and how it relates to what he/she is studying in school.**

Parents of either gender share similar educational aspirations for their child.

Mothers place greater emphasis on some of the liberal arts such as **English/language arts** (4.74 vs. 4.56) and **social studies** (4.16 vs. 3.91). Parents are similar in their views of the **importance of math** and **science** for their children. However, mothers regard themselves as less capable in both subjects (**math** 3.59 vs. 3.95; **science** 3.44 vs. 3.92), which may explain why they more often report that they **find it difficult to help my child when he/she has questions about mathematics** (2.77 vs. 2.24), as well as **science**

(2.40 vs. 1.89). Mothers are also less likely to recognize than fathers that **you have to know at least some science to do most jobs** (3.78 vs. 4.04), although both show high agreement. Parents' reports about their attitudes and their child's experiences in math and science are otherwise remarkably similar.

Mothers and fathers show similar levels of exposure to PRISM and to the advertisements tested. Although the differences between mothers and fathers in the way they view the ads are not numerous, where they differ mothers liked the advertisements more:

- Compared to fathers, mothers find the **What Every Child Needs to Know** billboard more **likeable** (3.64 vs. 3.21) and **informative** (3.34 vs. 2.88).
- They also give higher ratings to the **One Formula Can Change Her Future** billboard, rating it higher **overall** (4.21 vs. 3.77), and for **informativeness** (3.47 vs. 3.93), **believability** (4.02 vs. 3.57) and **persuasiveness** (3.40 vs. 3.87).
- They rated the **I Can Do Anything** TV commercial more **believable** (4.30 vs. 3.84) and more **for someone like me** (4.22 vs. 3.69).

As might be expected, when parents are asked about the best ways to reach them regarding their child's education, mothers believe they are more accessible through virtually all mediums compared to fathers.

Summary of Differences by Educational Level

As has already been noted in earlier summaries, the highest education level of the parent is somewhat entangled with several of the other profile variables. Parents who have not completed college are more often:

- From the **East Central** or **Northeast** regions (55.8% vs. 47.7%), than from the **Southeast** and **Atlanta Metro** area (44.2% vs. 52.4%).
- **Mothers** or **other female guardians** (83.7% vs. 71.8%)
- **Single, divorced, or widowed** (34.3% vs. 20.7%)
- **African American** (34.3% vs. 17.3%)
- Less **affluent** (52.7% make less than \$60,000 compared to 21.0% of the more highly educated group)
- Somewhat more likely to be reporting on a **daughter** (56.2% vs. 47.1%).

These parents are significantly more likely to see their child's educational horizons as limited. They more often envision the **student's highest level of education** being a 2-year degree (7.7% vs. 0.9%). Although the vast majority of them anticipate that their son

or daughter will attend college, they are much less certain than are parents who are college graduates (4.35 vs. 4.75). Nevertheless, parents with less than a college degree are much more likely to report daily involvement in activities such as:

- **Emphasizing the importance of doing well in school in order to be successful** (57.9% vs. 39.3%)
- **Talking with him/her about life outside of school and how it relates to what he/she is studying in school** (45.0% vs. 30.7%)
- **Talking with him/her about college options** (21.8% vs. 10.2%)
- **Talking with him/her about what he/she would like to do after they finish high school** (19.7% vs. 10.5%)
- **Talking with him/her about what the parent does and the training the parent needed in school to do his/her job** (14.2% vs. 7.1%).

Parents who lack a college education agree even more strongly than others both that they **want their child to do better than they did in school** (4.52 vs. 4.22) and that they **want their child to be able to have a better job than they have** (4.55 vs. 4.15).

Not surprisingly, less-educated parents believe they have less **math and science ability** than those who are more highly trained (**math**: 3.35 vs. 3.90; **science** 3.24 vs. 3.77). When asked to rate agreement with a variety of statements about math and science, this group of parents is far more likely to regard the subjects as difficult or perhaps impossible for their child, less likely to see the relevance of the subject, and less able to help the student who is struggling.

**Table 3.15f -- GA PRISM Phase II - Parents Survey
Independent T-Test Analysis of Agreement With Statements Regarding
Mathematics by Highest Level of Education of Parent/Guardian**

	Highest Level of Education of Parent/Guardian		Significant Differences
	College Graduate or Advanced Degree	Not a College Graduate	
	(1)	(2)	
My child does not see any connection between the mathematics he/she is learning in school and what goes on outside of school.	2.11	2.24	Not Significant
My child will need a good knowledge of mathematics in order to do well in his/her chosen career or trade.	4.46	4.51	Not Significant
You have to know at least some mathematics to do most jobs.	4.68	4.66	Not Significant
Math is among my child's favorite subjects in school.	3.57	3.41	Not Significant
My child would like mathematics more if it were made more interesting.	3.66	3.66	Not Significant
Math is too hard for my child.	1.65	2.00	2>1
My child is doing well in mathematics.	4.32	3.94	1>2
At my child's school, students can do well in math and still be considered "cool."	4.16	4.11	Not Significant
My child knows where to go when he/she needs help in mathematics.	4.37	4.25	Not Significant
I find it difficult to help my child when he/she has questions about mathematics.	2.44	2.98	2>1
My child's mathematics teacher encourages him/her to do better.	4.11	4.10	Not Significant
I encourage my child to do better in mathematics.	4.52	4.63	Not Significant
My child's teacher(s) doesn't explain mathematics in a way that helps my child to understand it.	2.36	2.58	Not Significant
Some children just can't do mathematics.	2.22	2.58	2>1
Math just isn't very important for children who don't plan to go to college.	1.37	1.50	Not Significant

Maguire Associates, Inc. Concord, Massachusetts

Notes: Bold indicates significant market segment differences ($p < .01$).

Scale: 1 (Strongly Disagree) to 5 (Strongly Agree).

**Table 3.16f -- GA PRISM Phase II - Parents Survey
Independent T-Test Analysis of Agreement With Statements Regarding
Science by Highest Level of Education of Parent/Guardian**

	Highest Level of Education of Parent/Guardian		Significant Differences
	College Graduate or Advanced Degree	Not a College Graduate	
	(1)	(2)	
My child does not see any connection between the science he/she is learning in school and what goes on outside of school.	1.98	2.20	Not Significant
My child will need a good knowledge of science in order to do well in his/her chosen career or trade.	4.21	3.96	1>2
You have to know at least some science to do most jobs.	3.95	3.70	1>2
Science is among my child's favorite subjects in school.	3.80	3.57	Not Significant
My child would like science more if it were made more interesting.	3.58	3.69	Not Significant
Science is too hard for my child.	1.56	1.87	2>1
My child is doing well in science.	4.31	4.10	1>2
At my child's school, students can do well in science and still be considered "cool."	4.17	4.06	Not Significant
My child knows where to go when he/she needs help in science.	4.31	4.18	Not Significant
I find it difficult to help my child when he/she has questions about science.	2.13	2.51	2>1
My child's science teacher encourages him/her to do better.	3.99	4.02	Not Significant
I encourage my child to do better in science.	4.41	4.43	Not Significant
My child's teacher(s) doesn't explain science in a way that helps my child to understand it.	2.15	2.33	Not Significant
Some children just can't do science.	1.91	2.29	2>1
Science just isn't very important for children who don't plan to go to college.	1.66	1.83	Not Significant

Maguire Associates, Inc. Concord, Massachusetts

Notes: Bold indicates significant market segment differences ($p < .01$).

Scale: 1 (Strongly Disagree) to 5 (Strongly Agree).

College graduates report more **familiarity** with PRISM (1.79) than those with less than a college degree (1.31). They are also more likely to believe that their child **attends a PRISM school** (13.9% vs. 6.0%) and are more likely to be familiar with the PRISM **tag line**, "Math + Science = Success" (44.9% vs. 39.1%).

Children whose parents do not have college degrees, and therefore may be navigating the college preparation and college choice process with little guidance or support, are another special target for PRISM. Therefore, it is of particular note that non-college educated parents are more responsive to the ads. Before exposure to the advertisements, they show interest similar to that of highly educated parents in **learning more about encouraging their child's interest in math and science** (non-college 4.35 vs. college 4.31). After exposure, there is a significant difference between the groups, with less-educated parents showing increased interest (4.44 vs. 4.17). The shift is accounted for predominantly by an increase among this group in parents who have become extremely interested (56.0% pretest, 62.0% posttest), while educated parents trend downward.

Where there are differences between groups, less-educated parents find the commercials more engaging:

- They rate the billboard **Help Your Kid Go Places in Life** more **informative** (3.73 vs. 3.26)
- The billboard **One Formula can Change Her life** is more **believable** to low income parents (4.13 vs. 3.76)
- They find the **Thank You** television commercial speaks more to **someone like me** (4.19 vs. 3.74).
- The strongest differences by education are for evaluations of the billboard **What Every Child Needs to Know**. Less-educated parents rated it substantially more **informative** (3.61 vs. 2.99), **believable** (3.69 vs. 3.21), **persuasive** (3.46 vs. 2.89), and **for someone like me** (3.51 vs. 2.90).

When asked what means of communication are effective in reaching them, less-educated parents give higher ratings to all of the channels evaluated. Like college-educated parents, they believe that **television commercials** and **parent guides/booklets** are the most effective. However, while **movie theater preview/ad** is the only secondary channel rated higher than a 3.0 by highly educated parents (3.39), less-educated parents give promising ratings not only to **theater previews** (3.79) but also **posters sent home from school** (3.56), **mall kiosks** (3.30), and **billboards** (3.29).

Summary of Differences by Parents' Math Ability

Parents who may feel that they are not strong in math are one of PRISM's outreach targets. These parents are:

- More often **female** (84.0% are mothers and other female guardians vs. 70.2% among higher ability parents).
- Less often **affluent** (12.4% in households making over \$100,000 per year vs. 26.2% of high-ability households).
- Far less well-educated (48.4% have not earned a bachelor's degree, while only 27.7% of higher-ability parents had not yet completing college).

Parents with less confidence in math think their child is very **likely to go on to college** (4.47), but still their certainty is significantly lower than that of parents with higher math ability (4.67). Further, their perception of themselves as lacking in math ability is compounded by a similar lack of **ability in science** (3.12 vs. 3.89).

Parents with lower math ability find it more difficult to **help their child when he/she has questions** in both **math** (3.26 vs. 2.18) and **science** (2.50 vs. 2.12). Otherwise, they differ

from higher-ability parents only in their perceptions that their child is handling mathematics well and getting the help that he or she needs:

- **Math is too hard for my child** (1.95 vs. 1.68);
- **My child is doing well in mathematics** (3.99 vs. 4.30); and
- **My child knows where to go when he/she needs help in mathematics** (4.20 vs. 4.42).

Parents with less math ability report less familiarity with PRISM than their more capable peers (1.46 vs. 1.71). However, they have comparable levels of prior exposure to the public awareness ads and, for the most part, similar evaluations of the ads. Appropriately enough, they see the **You Don't Have to Know Calculus** bus shelter card as much more **persuasive** (4.02 vs. 3.80).

When asked about the best communication channels for reaching them, parents with less math ability give higher marks compared to other parents to **billboards** (3.25 vs. 2.86), **posters sent home from school** (3.39 vs. 3.03) and **advertisements in bus shelters** (2.67 vs. 2.38).

Summary of Differences by Parents' Science Ability

Like parents who regard themselves as weaker in math, those who believe they have less math ability are:

- More often **female** (84.7% vs. 67.3%)
- Less **affluent** (10.5% are in households making more than \$100,000 vs. 30.7%)
- Far less well **educated** (55.9% have less than a college degree, compared to only 25.7% of those more comfortable with their understanding of science).

While parents with lesser science ability are very confident that their child will probably **go on to college** (4.49), their expectation is still significantly less than that of parents who consider themselves knowledgeable in science (4.69).

Parents with less ability in science also regard it as a somewhat less **important** subject for their children (4.35 vs. 4.61), and their lack of confidence in science is compounded by a similarly low opinion of their **abilities in math** (3.28 vs. 4.11). However, while the low science ability and low math ability groups overlap, they are not identical. Unlike parents with low math ability, those who feel they do not grasp science very well have pervasively poorer opinions of their child's abilities, performance, and their own ability to assist in both subjects, and are less sure of the relevance and value of either one, particularly science.

Table 3.15h -- GA PRISM Phase II - Parents Survey
Independent T-Test Analysis of Agreement With Statements Regarding Mathematics by Science Ability of Parent/Guardian

	Science Ability of Parent/Guardian		Significant Differences
	Somewhat/Well Above Average	Average/Below Average	
	(1)	(2)	
My child does not see any connection between the mathematics he/she is learning in school and what goes on outside of school.	2.15	2.18	Not Significant
My child will need a good knowledge of mathematics in order to do well in his/her chosen career or trade.	4.52	4.45	Not Significant
You have to know at least some mathematics to do most jobs.	4.75	4.60	1>2
Math is among my child's favorite subjects in school.	3.49	3.53	Not Significant
My child would like mathematics more if it were made more interesting.	3.71	3.61	Not Significant
Math is too hard for my child.	1.70	1.89	Not Significant
My child is doing well in mathematics.	4.27	4.08	Not Significant
At my child's school, students can do well in math and still be considered "cool."	4.07	4.20	Not Significant
My child knows where to go when he/she needs help in mathematics.	4.43	4.23	1>2
I find it difficult to help my child when he/she has questions about mathematics.	2.29	2.99	2>1
My child's mathematics teacher encourages him/her to do better.	4.14	4.07	Not Significant
I encourage my child to do better in mathematics.	4.57	4.56	Not Significant
My child's teacher(s) doesn't explain mathematics in a way that helps my child to understand it.	2.39	2.49	Not Significant
Some children just can't do mathematics.	2.20	2.52	2>1
Math just isn't very important for children who don't plan to go to college.	1.36	1.47	Not Significant

Maguire Associates, Inc. Concord, Massachusetts

Notes: Bold indicates significant market segment differences ($p < .01$).

Scale: 1 (Strongly Disagree) to 5 (Strongly Agree).

Table 3.16h -- GA PRISM Phase II - Parents Survey
Independent T-Test Analysis of Agreement With Statements Regarding Science by Science Ability of Parent/Guardian

	Science Ability of Parent/Guardian		Significant Differences
	Somewhat/Well Above Average	Average/Below Average	
	(1)	(2)	
My child does not see any connection between the science he/she is learning in school and what goes on outside of school.	1.90	2.22	2>1
My child will need a good knowledge of science in order to do well in his/her chosen career or trade.	4.33	3.92	1>2
You have to know at least some science to do most jobs.	4.12	3.59	1>2
Science is among my child's favorite subjects in school.	4.04	3.41	1>2
My child would like science more if it were made more interesting.	3.57	3.68	Not Significant
Science is too hard for my child.	1.49	1.87	2>1
My child is doing well in science.	4.39	4.07	1>2
At my child's school, students can do well in science and still be considered "cool."	4.14	4.11	Not Significant
My child knows where to go when he/she needs help in science.	4.39	4.14	1>2
I find it difficult to help my child when he/she has questions about science.	1.86	2.66	2>1
My child's science teacher encourages him/her to do better.	4.11	3.91	Not Significant
I encourage my child to do better in science.	4.48	4.36	Not Significant
My child's teacher(s) doesn't explain science in a way that helps my child to understand it.	2.05	2.37	2>1
Some children just can't do science.	1.90	2.22	2>1
Science just isn't very important for children who don't plan to go to college.	1.60	1.85	2>1

Maguire Associates, Inc. Concord, Massachusetts

Notes: Bold indicates significant market segment differences ($p < .01$).

Scale: 1 (Strongly Disagree) to 5 (Strongly Agree).

Like parents who see themselves as weak in math, parents who regard themselves as having little ability in science are a particular outreach target for PRISM's public awareness campaign. They are even less likely than parents with higher science ability to feel that they are **familiar** with PRISM (1.40 vs. 1.82). However, the campaign works as well for them as it does for their counterparts. There are no differences by science ability in parents' previous exposure to PRISM advertising or their evaluations of the strengths and weakness of the various ads.

Parents who see themselves as less skillful in science are more receptive than others to some of the communication channels tested, specifically **parent guides/booklets** (4.05 vs. 3.77), **posters sent home from school** (3.43 vs. 2.91), and **advertisements in bus shelters** (2.69 vs. 2.30).

Summary of Differences by Child's Attendance at a PRISM Partner School

Parents whose child attends a PRISM Partner schools are:

- Half as concentrated in the **Atlanta metro** region as those with children in non-PRISM schools (21.6% vs. 43.1%)

- Somewhat more likely to be **single or divorced** (27.7% vs. 18.8%)

These parents say they more often **emphasize the importance of doing well in school in order to be successful**. They are significantly less likely than their counterparts in other schools to engage in weekly consultations with their child's **teacher or counselor** (16.1% vs. 25.8%), and they have a stronger desire to see their child **do better in school than they did** (4.43 vs. 4.18).

Parents of children in PRISM schools attach a similar importance to math and science as their counterparts, and give similar assessments of their own abilities in these subjects. They differ in only a few of their attitudes and observations about math and science. They report that at their child's school it is not as easy **for a child to do well in either subject and still be considered "cool"** (**math**: 4.04 vs. 4.33; **science** 4.02 vs. 4.32). They are also somewhat more inclined to believe that **some children just can't do math** (2.48 vs. 2.18).

Ironically, the vast majority of parents whose children attend PRISM partner schools are unaware of that fact (79.2% don't know for sure and 4.7% think they do not). Still, parents with children in PRISM partner schools report greater **familiarity** overall with the program (1.70 vs. 1.40), and are more likely to report hearing the PRISM **slogan** "Math + Science = Success" within the past year (50.4% vs. 28.4%). As might be expected, their exposure to the slogan is more likely to occur **at their child's school** (34%), although 11% of those whose children do not attend PRISM schools also report seeing the logo at school. It is unclear whether this may be "ghost awareness" (which would be unusually high, but may be due to the fact that many of these parents have multiple children and may have seen the logo at another of their child's schools) or whether some teachers may be adopting PRISM materials even though they are not in pilot schools. **Billboards** have also been relatively effective outreach tools in creating visibility for PRISM (identified by 16% of parents of PRISM students and 24% of other parents), much more so than **posters/flyers** (9% and 6%), or **television commercials** (6% and 8%) and **school newsletters** (2% and 6%). It will be important to compare these reported exposure levels against the extent to which these various channels have actually been used, and the costs of each one, in planning future media spending for PRISM public awareness outreach to parents. Only parents of children in PRISM schools reported having received a **parent guide** (3.3% vs. 0.0%).

When asked about previous exposure to PRISM ads, there is some indication that parents of children in partner schools have gotten more exposure to the **Help Your Kid Go Places in Life** and **What Every Child Needs to Know**, although because of the time elapsed since the end of the campaign they are not always sure whether the ad is familiar (43.9% yes/not sure vs. 16.8%; 29.3% yes/not sure vs. 12.0%, respectively).

Parents of students in PRISM schools find **Help You Kid Go Places in Life** more **informative** than others (3.58 vs. 3.20). They also regard **You Don't Have to Know Calculus** as more **persuasive** (3.96 vs. 3.78). Otherwise their assessments of the advertisements are comparable to their counterparts. When asked how to best

communicate with them, parents of PRISM students differ only in being more interested in receiving **parent guides/booklets** (4.00 vs. 3.74).

Summary of Differences by Ad Recall

Parents who recalled having previously seen at least one of the advertisements they were asked to evaluate differed from their counterparts in several respects:

- They were most heavily represented in the **East Central Region** (30.8% vs. 20.7% of those with no prior recall), while their counterparts had the greatest regional representation in the **Atlanta metro** area (31.6% vs. 22.4%) and **Northeast** region (29.4% vs. 23.1%).
- More were **mothers** or **female guardians** (85.3% vs. 73.5%)
- They were much more likely to be **Black/African American** (38.4% vs. 19.8%)
- Consistent with the higher proportion of mothers and African Americans, they were more often **single** or **divorced** (34.3% vs. 21.2%)

Parents who recall seeing or hearing one of the tested ads are far more likely to **talk with him/her about college options** on a daily basis (21.6% vs. 12.8%). Otherwise, there are no differences in their level of involvement or perceived influence on their child's education, no differences in their attitudes about math and science, and no perceived differences of their children's experiences in those two subjects.

Having familiarity with PRISM advertising seems to be the best marker of a parent's sense of knowing PRISM well. Parents who recalled previously seeing at least one of the ads that they were asked to evaluate were much more likely to report high levels of **familiarity** with the program overall (4 or 5 on a 5-point scale; PRISM parents 25.1% vs. other parents 6.0%). They were also far more likely to report that their child's school was a **PRISM partner** (22.3% vs. 6.5%), and be familiar with either the **tag line** (79.7% vs. 29.8%), or the **logo** (tested only among those not recognizing the slogan; 26.6% vs. 5.9%). Almost all of the parents who had **visited the PAC website** or **received a parent guide** were among the group who were also familiar with at least some of the advertising (website visitors 10.4% vs. 0.4% among those unfamiliar with advertising; received parent guide 7.6% vs. 0.2%).

Parents who were already familiar with at least one of the commercials they evaluated also tended to give PRISM ads higher ratings on various aspects of their profiles:

- They found many of the ads more **for someone like me**:
 - **Help Your Kid Go Places in Life** (3.89 vs. 3.47)
 - **She's Not Afraid of Spiders, Snakes or Science** (4.18 vs. 3.72)

- **One Formula Can Change Her Future** (4.12 vs. 3.67)
- **If He Can Do Equations, He can do Anything** (3.89 vs. 3.47)
- **I Can Do Anything** (4.41 vs. 3.97)
- **You Don't Have to Know Calculus** is more **persuasive** to them (4.23 vs. 3.81) as is **If He Can Do Equations** (3.70 vs. 3.39).
- **Multiply Her Opportunities** is more **believable** (4.08 vs. 3.50), as is **I Can Do Anything** (4.55 vs. 4.07)
- **I Can Do Anything** is rated higher **overall** (4.60 vs. 4.20).

As might be expected, parents who have seen PRISM advertising before are somewhat more receptive to outreach through the media that had been most heavily used: **billboards** (3.52 vs. 2.86) and **bus shelters** (2.77 vs. 2.41).

SUMMARY & STRATEGIC RECOMMENDATIONS

Key Findings

Compared to the first phase of the research, conducted in late 2004 and reported in April 2005, Phase II of the research employed a sampling strategy designed to reach a much broader array of parents with school-aged children within the four PRISM pilot regions. Therefore, we must exercise caution in using earlier results as a benchmark for evaluating changes in parental attitudes, behaviors, or reports of their child's experiences in math and science in this phase of the research.

Having said that, it is encouraging that there are remarkable similarities in key takeaways of the findings from questions that were repeated in this second round of research:

- While there are some differences among parents, the parents are found to be more similar than different in their educational aspirations for their child and in their attitudes about math and science.
- Parents have high academic expectations for their child.
- Parental involvement typically lessens as students progress from elementary to middle school to high school.
- Parents generally feel their child is doing well in math and science and most do not feel either subject is too hard for him / her.
- They appreciate the importance of math and science in both personal and professional lives.
- While few of the parents in the sample have attained a college degree, most aspire for their child to do so.

The primary emphasis of Phase II research was to evaluate various elements of PRISM's public awareness campaign for parents. The earlier research consistently revealed that parents are the strongest source of educational influence for their children. Therefore PRISM's public awareness campaign has thus far been largely directed toward them. The campaign is designed primarily to promote positive beliefs about the importance of math and science in their children's lives, and secondarily to translate those attitudes into more assertive action in their children's educations. Each ad pairs a key message, targeted by the earlier research, with the address for PRISM's website as a resource for playing a more active role in supporting learning in the areas of math and science.

The research tested PRISM's visibility among parents. It also evaluated the effectiveness of a wide variety of campaign advertisements, including television ads, billboards, and bus shelter cards, in conveying targeted messages to parents in a compelling way. It is designed to provide guidance for the strategic deployment of future resources to more

fully engage parents as partners in enhancing their children's participation and success in math and science.

Key findings from these evaluations include:

- Overall, PRISM's visibility among parents is surprisingly low. Even most parents whose children attend PRISM partner schools are not aware of that fact. Recognition of the tag line and logo are higher, but apparently are not being consistently associated with the PRISM name.
- Few have visited PRISM's website or received the parent guide.
- Previous exposure to the ads is associated with a greater feeling of familiarity with PRISM. Parents who had seen advertisements also are significantly more likely to have visited the PRISM mathsciencesuccess.org website.
- The East Central region appears to be noticeably more successful than other regions in creating visibility for PRISM among parents.
- PRISM advertisements are very well received and effective overall, conveying their key messages clearly, concisely, and in a very appealing fashion.
- The ads work especially well for minorities and those without a college education, two of the key targets of the PRISM public awareness campaign.
- The television advertisements have especially strong profiles, which matches well with parents' preference to receive information through television ads.
- The strongest print advertisements were both designed for bus shelters, which is one of the least preferred channels for receiving information – although it is significantly more accessible to minorities and several other targeted subgroups.
- While the ads tested quite well overall, there were consistent themes among those who offered critiques, especially for the print ads:
 - The children looked more affluent than their own children and their dress was too “buttoned up.”
 - It was easier for them to see themselves (and their child) in the ad if their own ethnicity was represented.
 - By picturing only one child, there was a missed opportunity to show a child being a role model for others or resisting peer pressure.
 - While the messages were clear, the call to action in the billboards was less apparent.
 - Because the ads lack any identification associating them with PRISM, NSF, or the Board of Regents, their credibility is diminished and they could be mistaken for a sales pitch.

Recommendations for Action

While it is apparent that PRISM's outreach to parents is off to a good start, there are a wide variety of adjustments in strategy that can be made to get maximum value out of existing materials. Further, there are relatively simple alterations or variations on the existing themes that would hone the messages and make them even more effective.

- Vigorously pursue placing a parent's guide or booklet in the hands of every parent of a child at a PRISM partner school who wants one (and, if possible, even in the hands of those who haven't thought about it). Ensure that the guide is available through a link on the PRISM website, and through a hot link on each participant school's website. Parents say that manuals and booklets are one of the most effective ways to communicate to them, and this is even more true for parents of middle-schoolers, who are a key audience for PRISM outreach.
- All of the advertisements tested well, but some are stronger than others. If they are re-used, control the mix of the different print and television advertisements so that the materials that tested best get more exposure than those that were less compelling.
- Create billboard versions of the two bus shelter ads for the next billboard campaign. Both messages were appealing, informative, and persuasive to parents and were the strongest of the print materials. Notably, parents with less math ability felt that "You Don't Have to Know Calculus" spoke directly to them. It deserves a wider audience.
- Continue to advertise in bus shelters. While parents rated it less effective overall, it is relatively inexpensive and the data suggests this strategy reaches some of the less-advantaged groups that are a particular mandate of PRISM's public outreach efforts. If the options are available and it is not already being incorporated into subsequent phases of the public awareness campaign, also rent space for placards inside and especially on the outside of the buses themselves.
- Develop a stronger call to action in the billboards. Although visually striking overall, and spare as befits a high-speed highway display, simply listing the website address at the bottom is not enough. Even adding "Go to..." or "Learn more at..." would enhance the call to action of these ads. If space at billboards facing stoplights can be rented, a more developed call to action, condensed from those that may have made the bus shelter cards so effective, can be pursued.
- Parents want to see their child in the ads, and are less responsive to a child of a different ethnicity. If the same billboard images are going to be reused, pay attention to the ethnic composition of the neighborhoods where they are placed and make an effort to match the ethnicity of the child to the most likely ethnicity of the viewer. In communities where drivers might see more than one billboard, aim for gender balance and ethnic diversity among the images selected.
- If new images are created, consider posing students in clothing that is more informal, streetwise, and "edgy," emulating the appearance of the students at risk whose parents PRISM most wants to engage.

- If new images are created, consider one or two group shots that display a student or young adult as an admired role model among teenagers, or too “cool” and confident to bow to peer pressure.
- Vigorously seek corporate sponsorships and public service announcement slots that will make it possible to continue using the television ads. These advertisements are very well-crafted and effective, have a powerful message, and show the diversity that parents respond to.
- Study the East Central region to understand what makes PRISM noticeably more visible among parents. Media exposure levels overall were comparable to other regions, with parents report higher previous recall only of the “Thank You” commercial. Yet, they were more familiar with the PRISM name, the slogan, and the logo, were more likely to have received the parent guide, and were more likely to have visited the web site. Look for “best practices” here that can be seeded in other regions to help support their success.
- Create opportunities to put a steady flow of information about the PRISM name and activities at partner schools into the hands of parents. With nearly 84% of all parents of children at PRISM partner schools not being absolutely certain of that fact, this is very low-hanging fruit. As with the public awareness ads, every communication to parents about PRISM activities, philosophy, or strategy should be branded with the PRISM name. While tactics may vary from school to school, PRISM leaders at each participating pilot school should have stated goals for communicating with parents via take-home flyers, school websites, electronic newsletters, after school activities, parents’ nights, suggestions for home activities and discussions that complement PRISM activities in the classroom, etc. They should have metrics for evaluating their effectiveness in making parents aware of PRISM and getting them involved, and ways to share best practices among themselves.
- Increase PRISM’s visibility in the larger community by embedding a PRISM identifier in every PRISM ad and all other outreach material. This will lend credibility to the public awareness campaign ads, and tie the PRISM brand name more clearly to its tag line, logo, website, and reform activities.
- Add NSF identifiers in all advertisements. This will lend additional credibility to each message and enhance the perceived prestige of the entire effort, greatly enhancing its effectiveness.

Many of these recommendations were presented to the PRISM team in August 2006 and it is our understanding that some of these results have been implemented in subsequent waves of the campaign which will serve to build on the early phases of the campaign. We continue to take great pride in and enjoy our work with the PRISM team on this research in support of the public awareness campaign. We are available to answer any follow-up questions you might have about this research and hope we will have the opportunity to work with the PRISM team again on the final phase (III) of the research in late 2008.