



Investing in our Students' Future Proof of IMPACT

After the competitions FIRST conducts extensive interviews with participants to evaluate the effectiveness of the program. This is a summary of those findings.

FIRST has experienced rapid national growth and high levels of participant retention over its ten-year existence.

Year	No, Teams	Percent Increase From Previous Year	Percent Retention From Previous Year	Number Regional and National Events
1992	27	-	-	1
1993	24	(11%)	40%	1
1994	42	75%	66%	1
1995	59	40%	48%	2
1996	92	56%	69%	2
1997	152	65%	73%	4
1998	199	31%	80%	5
1999	269	35%	75%	8
2000	379	41%	90%	11
2001	510	35%	85%	14
2002	642	44%	88%	17
2003				23

Evidence of the Positive Impact of FIRST

From 1995 through 2000, formal evaluations of FIRST were conducted. Below is a quick summary of what was discovered about the very positive impact that FIRST has had on high school students based on survey responses from school personnel, corporate and university partners, parents, and the students themselves.

1995 Post-Competition Survey

Respondents included 205 corporate participants, 290 student participants, 62 school personnel participants, and 145 parent participants.

Sample of Findings:

- More than 70% of all survey respondents indicated that as a result of being involved in FIRST, they enjoy science more or rediscovered how much fun science can be.
- 71% of the parents responding to the survey thought that FIRST influenced their son or daughter to pursue a career in science /engineering.

- 96% of the student respondents have a better idea of what engineering is and how it is used, 87% think math and science can be exciting, and 91% saw how skills learned in class can be applied to a real-world setting.

1998 Post-Competition Survey

Respondents included a sampling of 200 students, school personnel, corporate/university partners, and parents.

Sample of Findings:

- 81% of parents, 99% of teachers, and 95% of corporate/university partners thought that FIRST influenced students to pursue a scientific/technical career.
- 99% of school personnel said that their students have a greater enjoyment of science since being involved in FIRST.
- 96% of school personnel said that their students have a greater enjoyment of math since being involved in FIRST.
- 98% of school personnel reported that their students have improved problem solving abilities.
- 84% of school personnel reported they would incorporate new activities into their curriculum following their participation in FIRST.
- 93% of school personnel reported a better understanding of the skills their students need to succeed in technical/scientific/engineering fields.

2000 Post-Competition Survey

Respondents included 2100 student participants.

Sample of Findings:

- Returning FIRST students' attitudes about science and math were significantly more positive than those of new students.
- Returning FIRST students' perceived knowledge of science and math careers was significantly greater than those of new students.
- Returning FIRST students were significantly more likely than new students to indicate their intention to continue pursuing science, math, engineering, and/or technology in the education and career arenas.
- Returning FIRST students had significantly more positive attitudes about the working world than new participants.
- Returning FIRST students' self images were significantly more positive than those of first-time participants.

Preliminary Survey Analysis

The following is a preliminary analysis of a sampling of 300 students responding to Pre- and Post-Competition Surveys.

- FIRST students are highly positive about experiential or cultural aspects of FIRST; including the respect and support students accord one another and the level of inspiration offered by the environment.
- FIRST students' attitudes about teamwork are significantly more positive after FIRST than they were before the 200 session.
- Students' attitudes are significantly more positive about the working world after they participate in FIRST. They appear to have a better understanding of what employers are looking for in an employee and have a better grasp of the importance of time management.
- Students feel better about themselves after their FIRST experience than they do coming into the program. On average, they spend 16 weeks on their projects. They spend an average of 19 hours per week working on related tasks.
- FIRST builds relationships between students and sponsors. Student participants have positive impressions of their team sponsors. Two-thirds indicate some interest in working for one of their team sponsors after completing their education, and a fifth actually had plans to work for one of their team sponsors in a summer internship of a part-time job.
- Students' satisfaction with their experience participating in the FIRST Robotics Competition is high across the board.

FIRST's Positive Impact on Schools

In recent years, as teams mature and become an integral part of a school's culture and curriculum, there have been numerous anecdotal accounts of the effects of FIRST participation on school culture, student performance, school-business partnerships, and curriculum, as well as on student attitudes and aspirations.

Here are a few examples.

William Grady Technical Vocational High School, Brooklyn, NY (*New team in 2000*)

- Creation of two-year robotics major

- New professional development opportunities for teachers and improved teacher morale
- Adoption of a five-course pre-engineering curriculum

George Westinghouse Vocational Technical High School, Brooklyn, NY (*New team in 2000*)

- Adoption of a five-course pre-engineering curriculum
 - Participation in regional school reform effort of increase opportunities for applied learning
 - New opportunities for professional development
- Bound Brook High School, Bound Brook, NJ (*FIRST team since 1997*)

- Increase in graduates going on to engineering
- Increased enrollment in science courses
- Improved student achievement in science course
- Creation of courses related to pre-engineering
- Creation of substantive business-education partnerships

East Technical High School, Cleveland, OH (*FIRST team since 1995*)

- Improved student academic performance
- Improved student performance on state proficiency assessments
- Increased post-secondary college enrollment and pursuit of four-year engineering studies
- Increased student participation in SMET (science, math, engineering, technology) extracurricular activities

Foothill High School, San Jose, CA (*FIRST team since 1999*)

- Increased attendance
- Increased enrollment in Algebra I and subsequent mathematics courses
- Increased enrollment in advanced science
- Increased participation in after-school SMET-related activities

Watchung Hills High School, Warren, NJ (*FIRST team since 1997*)

- Creation of student-run industry integrated within school-day
- Improved teacher morale
- Revisions to curriculum
- Renovation of metal shop into a pre-engineering and physics learning center
- Creation of mentorship involving engineers, technicians, and machinists

FIRST is NASA's most Effective Public Education Program

"It has been the most effective program NASA has seen since it was established in 1959."