Research shows FIRST® drives STEM engagement and outcomes

FIRST® is a mission-driven global robotics community that prepares young people for the future and inspires today’s kids to build tomorrow’s leaders.

Research from a multi-year longitudinal study shows FIRST is advancing its mission to increase the number of students interested in STEM — and that interest is influencing their educational and career choices.

FIRST students are prepared for greater success in the classroom and workforce.

At FIRST, we understand that interest, rather than academic proficiency, is a greater predictor of children pursuing studies and careers in STEM fields. Our evidence-based programs use strategies known to increase student interest and engagement in science, technology, engineering, and math (STEM), including:

- HANDS-ON LEARNING
- WORKING AS A TEAM ON REAL-LIFE PROBLEMS
- EXPOSITION TO CAREERS AND ADULT MENTORS
- EMPHASIS ON FIRST CORE VALUES
- CULMINATING CELEBRATION WHERE STUDENTS CAN SHOWCASE WHAT THEY CREATED AND LEARNED

OUR PARTNERSHIP WITH BRANDEIS UNIVERSITY
FIRST is partnering with Brandeis University to conduct a multi-year longitudinal study measuring STEM-related impacts.

The study included 822 FIRST students and 451 comparison group students. The comparison group included students who did not participate in FIRST programs, but were enrolled in science and math classes at the same schools. All students received a baseline survey and follow-up surveys each year.

OVERALL, 79% OF STUDENTS REMAINED IN THE STUDY AT YEAR SEVEN.
**Research Highlights**

**FIRST** prepares students for a STEM future

**Gains in Workforce Skills**
**FIRST** participants show significant gains in workforce skills such as teamwork, communication, and problem-solving.

“**FIRST** has given me life skills and tools to work well with others and be a team player and always do my personal best with **Gracious Professionalism**. These are skills I will use in my daily life and beyond!”

---

**FIRST Alumni**

By their fourth year of college, **FIRST** alumni are more likely to be majoring in STEM fields than comparison group peers.

<table>
<thead>
<tr>
<th></th>
<th><strong>FIRST ALUMNI</strong></th>
<th><strong>COMPARISON GROUP</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>DECLARE A MAJOR IN STEM (SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH)</td>
<td>89%</td>
<td>58%</td>
</tr>
<tr>
<td>DECLARE A MAJOR IN ENGINEERING OR COMPUTER SCIENCE</td>
<td>68%</td>
<td>29%</td>
</tr>
</tbody>
</table>

**Women in FIRST**

Young women in **FIRST** have significant gains in all STEM areas including STEM interest, career interest, activity, knowledge, and identity compared to young women in the comparison group.

<table>
<thead>
<tr>
<th></th>
<th><strong>FEMALE FIRST ALUMNI</strong></th>
<th><strong>FEMALE COMPARISON GROUP</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>DECLARE A MAJOR IN ENGINEERING OR COMPUTER SCIENCE</td>
<td>51%</td>
<td>16%</td>
</tr>
</tbody>
</table>

**Benefits of FIRST**

**FIRST** students are two times more likely to show an increase in STEM-related attitudes and interests than comparison group students. Positive impacts are evident for all **FIRST** students regardless of race, gender, income, or community type.

**FIRST STUDENTS ARE SIGNIFICANTLY MORE LIKELY TO SHOW GAINS IN STEM OUTCOMES THAN COMPARISON STUDENTS**

- **STEM Interest**
- **STEM Career Interest**
- **STEM Knowledge**
- **STEM Activity**

---

Detailed information about the study can be found at [www.firstinspires.org/impact](http://www.firstinspires.org/impact)

All differences statistically significant, p ≤ .05

**FIRST** the **FIRST** logo, **FIRST** Robotics Competition, **FIRST** Tech Challenge, and **Gracious Professionalism** are trademarks of For Inspiration and Recognition of Science and Technology (FIRST). **LEGO** is a trademark of the LEGO Group. **FIRST** LEGO League is a jointly held trademark of **FIRST** and the LEGO Group. ©2021 **FIRST**. All rights reserved. DI010