

# Building a Future in STEM: The Girl Scouts and a University Partnership

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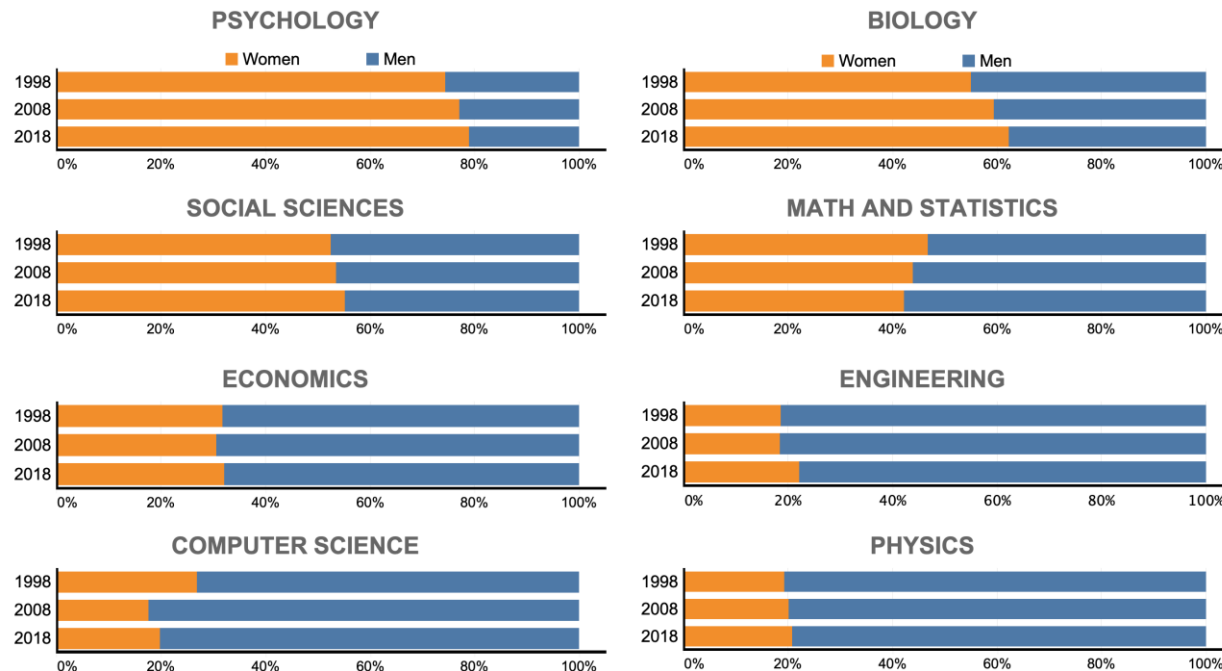
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# Overview of the gender disparity in engineering and STEM fields

## BACHELOR'S DEGREES EARNED BY WOMEN AND MEN

SELECTED FIELDS - 1998, 2008 & 2018



Source: National Science Foundation

EconoFact econofact.org

- Women earning close to half of all STEM bachelor's degrees in the United States
- Women earned two-thirds of bachelor's degrees in life sciences, psychology, and social sciences
- Women are underrepresented in more math-intensive fields: 39% in geoscience, 22% in engineering, 42% in mathematics, 19% in computer science, and 40% in the physical sciences.

# Understanding the Girl Scouts as a Strategic Partner

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## Estimated Current Membership

- 1.7 million girls
- 750,000 adult volunteers

## Girl Scout's STEM Outcomes

- STEM Interest: positive affect and curiosity towards STEM
- STEM Confidence: feelings of self-efficacy in relation to STEM
- STEM Competence: ability to think scientifically when working to solve a problem
- STEM Value: understanding the role STEM plays in everyday life

# Benefits to Universities

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- Leverage of Girl Scouts' **established network for outreach**, reducing the logistical burden of managing minors.
- Partnership **helps universities navigate regulations** and resource constraints when working with minors.
- The role of university students as mentors has benefits of **combating imposter syndrome** and enhancing retention in STEM programs.

# Benefits to Girl Scouts and Troop Leaders

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Girl Scouts  
of the USA

- GSO own outcomes, STEM programming is where they see the highest gains and impact on our Challenge Seeking outcome.
- Some leaders are intimidated to offer engineering badges
- Access to university facilities, equipment, and expertise.
- Access to college role models

# Specific STEM Activities and Badges Facilitated

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## **THINK LIKE AN ENGINEERING JOURNEY FOR BROWNIES & JUNIORS**

### Grade Level

- Brownies – grades 2 – 3
- Juniors – grade 4 – 5

### Badge Requirements:

1. Find out how engineers use design thinking to solve problems.
2. Do 3 design thinking activities
3. Plan a Take Action project that helps others.

# Specific STEM Activities and Badges Facilitated

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## **DAISY ROLLER COASTER DESIGN CHALLENGE BADGE**

Grade Level – Kindergarten - 1<sup>st</sup>

### Badge Requirements

- Make a simple roller coaster car
- Build a model of a roller coaster
- Test your roller coaster

One of Daisy Mechanical Engineering Design Challenge Badges

- Board Game Design Challenge
- Roller Coaster Design Challenge
- Model Car Design Challenge

# Specific STEM Activities and Badges Facilitated

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**Junior Think Like A Programmer Badge**



**Daisy STEM Career Exploration Badge**

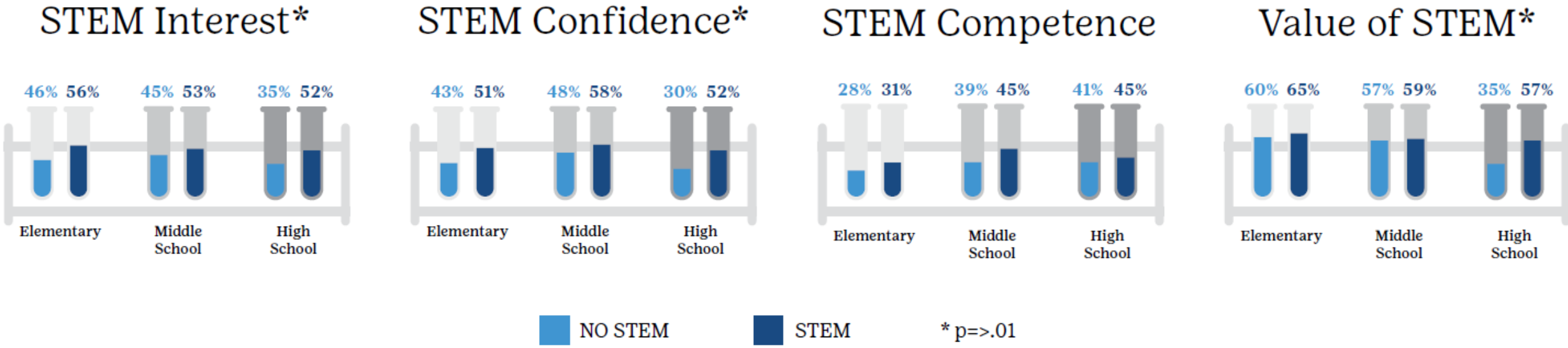


**Ambassador Designing Robots Badge**



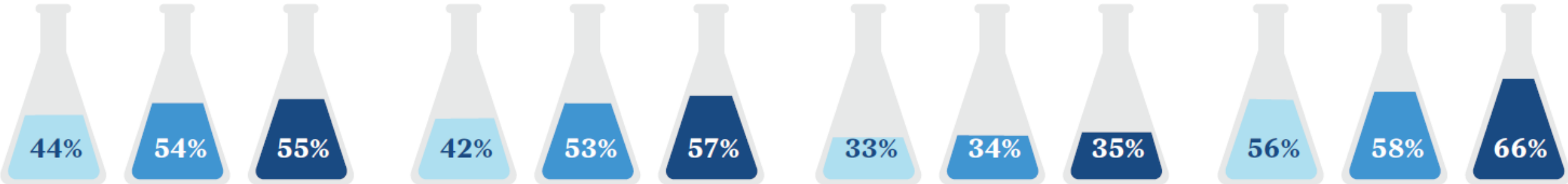


# Evidence of Impact and Outcomes



# Evidence of Impact and Outcomes

Percentage of Girl Scouts Developing STEM Outcomes



STEM Interest\*

STEM Confidence\*

STEM Competence

Value of STEM\*

■ NO STEM    ■ 1 STEM Activity    ■ 2 or more STEM Activities    \* p=>.01

# Overcoming Challenges in Partnership Implementation

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## Timeline Challenges

- GSUSA need time to recruit troops, would like up to a year
- Students work in 16 week chunks of time with definite times that won't work
- Find the SWEET SPOT

## Regulatory Challenges with minors

- Take the time to understand Girl Scout policies and how these fit with your university
- Getting university students to complete any required training early

# Future Directions and Expanding the Partnership

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**Daisy Cybersecurity Basics Badge**



**NEW Makers Badges**



**Senior Space Science Expert Badge**



# Conclusion

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- Partnership between universities and Girl Scouts can be mutually beneficial.
- Early exposure to STEM for young girls has long-term impact on diversity in engineering and STEM fields.
- Easy way for other universities to build similar partnerships to foster a more inclusive environment in STEM.

# Thank you!

## Questions & Discussion

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