Reducing Boys' Stereotyping
of Girls' STEM Ability

ENGENDERING SUCCESS IN STEM

Our research team designed & tested an **intervention**[1] aimed at **reducing gender stereotyping** in STEM environments[2-4], **improving the climate** before girls decide whether to take STEM courses in high school[5]

Girls & women face a "**chilly climate**" in STEM partially because of boys' & men's **gender stereotypes**[6] that emerge early & strengthen through early adolescence[14,23]

Boys have **stronger associations** between STEM success & men than women[7-11], despite girls' STEM abilities **typically aligning** with (or **exceeding**) boys'[12-15]

667 boys* ages **9-15**
3 STEM camp locations
2017-2019

Design

Intervention goal: provide evidence to boys* in late childhood to early adolescence that girls' STEM abilities are **stronger than they appear**[16]. A **multi-step model** counteracted boys' potential defensiveness[17-18]:

Facilitating open-mindedness

Boys reflected on a **self-affirming value** to reduce psychological threats[17,19]

Personalizing the message

Role model **described a woman peer in STEM** whose abilities he had **initially underestimated**[22], then asked boys to consider if they had **similarly underestimated the STEM abilities of a girl** in their peer group

1 Initial data collection
Used surveys to learn each boy's perceptions & top values

2 Credible evidence from a man in a position of authority (role model)

Presented **strong, credible**[20,21] **evidence** that girls' & women's true STEM ability is **underestimated** & **underappreciated**[17]

3 Additional data collection

**as self-reported by participants*

Structure

Participants were invited to complete **surveys** & have a **paired conversation** with a **role model**

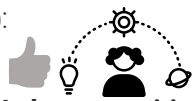
	Monday: **Intake survey**	Midweek: **Semi-structured one-on-one conversation**	Friday: **Exit survey**
Control group	Survey • Value ranking	Meant to mirror typical discussion (e.g. favourite camp activity)	Survey • Perceptions of STEM abilities of girls & boys
Intervention group	Survey • Value ranking	Role model shared a story of why he chose a STEM major, framed to **connect to each boy's top-rated value**	Boys learned about **latent ability** & **stereotypes**, & how they **can bias perception**
			Role model discussed **a STEM mentor** & her **latent abilities**; boys asked to described a **time they underestimated a girl** in their peer group's STEM abilities

Latent ability & perception:
Explained to boys using analogy of a runner wearing ankle weights that **masked his true potential speed**

Results

The intervention group:

Displayed **less in-group bias**



Had more positive perceptions of girls' STEM ability

Effect was **stronger for younger boys** than adolescents –

late childhood may be optimal for bias reduction interventions[25,26]

Next steps

Future interventions should test the longevity of these effects, if repetition is needed, & which components of the multi-stage intervention are essential.

For more information, visit:
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About Project PRISM

How can we make STEM a more attractive and meaningful option for adolescent girls and boys alike? Project PRISM (Promoting Rising Inclusion and STEM Motivation) investigates best practices for boosting girls' belonging in STEM, while bolstering boys' respect for girls' abilities. To combat obstacles girls may face in pursuing a STEM career, Project PRISM tests interventions that: (1) change boys' beliefs about girls via implicit bias training and presenting real evidence that test scores underestimate girls' abilities, (2) expose girls to successful role models who share their values and preferences, and (3) encourage girls to identify with STEM by recognizing that a STEM career can help them accomplish some of their most cherished goals.

About Engendering Success in STEM (ESS)

Engendering Success in STEM (ESS) is a research partnership focused on evidence-based solutions to foster positive working environments for people in STEM (Science, Technology, Engineering, and Math). We bring together social scientists, STEM experts, and stakeholders in STEM industry and education to use an evidence-based approach to break down barriers people face on their pathway to success. Canada's Social Sciences and Humanities Research Council reviewed and funded this project.

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