

## When do Female Role Models Help Women's STEM Outcome?

### Background

A common assumption in behavioral sciences is that exposing women to female role models can help to ease the undermining influence of stereotype threat, consequently improving their chances of success in science, technology, engineering, and mathematics (STEM, Marx & Roman, 2002). But do such ingroup role models *always* enhance STEM outcomes of women? Recent research in our lab suggests that female (vs. male) role models can sometimes harm women's academic outcomes (see Fig. 1). Does this effect arise because women were exposed to an average (as opposed to an exceptional) female role model? There are indications that both types of ingroup role model could undermine women's STEM-related performance. When might either type of ingroup role model harm women's performance and, why?

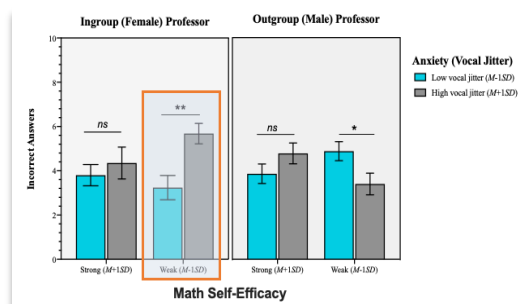


Fig. 1. Significant interaction between role model's (professor) sex, female students' anxiety, and subject specific self-efficacy in predicting incorrect MCQ answers following a live class. (Owuamalam et al., 2023).

### Aims and Methods

This project will use simulated classrooms to investigate the when[s] and why[s] of the effect that ingroup role models have on women's STEM-related outcomes (e.g., test performance). We will adopt a variety of niche measurements (e.g., acoustic

eavesdropping of students' vital signals like heartbeat using 5G Wi-Fi sound receptors, Wei et al., 2015) in addition to the traditional self-reported experiences in the classroom. It is assumed that anxiety might be one possible mechanism that explains the effect of role model type on women's STEM-related outcomes.

### Relevance

The project bridges interests of various psychology subdisciplines, including psychophysiology, engineering, educational psychology, and social psychology.

### Training

The candidate's research activity will be based in Durham, Psychology. Besides a training in general research skills, the candidate will develop a deeper understanding of the psychophysiological approach. The candidate will receive an advanced training in multivariate statistics and mediation analyses.

### Suitable for

PhD and MSc by Research students.

### References and Further Read

Marx, D. M., & Roman, J. S. (2002). Female role models: Protecting women's math test performance. *Personality and Social Psychology Bulletin*, 28(9), 1183-1193..

Owuamalam, C. K., Karunagharan, J. K., Meeter, M., Caricati, L., & Reyna, C. (2023). *Role models can undermine academic outcomes of anxious students from stereotyped backgrounds*. Unpublished manuscript.

Wei, T., Wang, S., Zhou, A., & Zhang, X. (2015, September). *Acoustic eavesdropping through wireless vibrometry*. In Proceedings of the 21st Annual International Conference on Mobile Computing and Networking (pp. 130-141).