Stereotype threat in mathematics: a comparison of girls in single-sex and educational schools.

Emma Cruz-Duran (2009) compared the phenomenon of stereotype threat in girls from single-sex and coeducational schools for her Doctoral Dissertation in Psychology. This research was motivated by a concern about the lack of women in the STEM (science, technology, engineering and mathematics) fields.

A girl’s stereotypical beliefs about maths, her maths self-efficacy, expectations about maths and interest in maths, all potentially affect whether or not she will pursue study and a career in STEM. ‘It is, therefore, important to examine the variables that may lead girls to avoid these professions’ (p. 1). Another important element to explore is whether girls’ stereotypical perceptions about maths are mitigated by their schooling environment: single-sex or coeducational.

In this study, 415 high school girls (aged approximately 16 years) were selected as participants from Catholic single-sex and coeducational schools in the New York City area (p. 22). Fourteen maths teachers from the schools also participated. Questionnaires, surveys, maths tasks and interviews were all used to collate the data.

Cruz-Duran found that school type was related to many variables (pp. 34-36):

- Girls in single-sex schools demonstrated higher maths grades in school and performed higher on the given maths task than girls in coeducational schools
- Girls from the single-sex schools reported identifying with their gender more strongly than girls in coeducational schools
- Coeducational girls tended to endorse more stereotypes than their single-sex counterparts
- Students with higher maths self-efficacy performed better in school and on the given maths task, expected to do better on maths tasks, and reported greater interest in maths-related careers
- Girls who believed in their abilities were able to display this confidence in their work, despite being presented with information on negative stereotypes
- Students who reported higher expectations for performance did better on a maths task and reported greater interest in maths
- There were no major differences between girls in single-sex and coeducational schools in the domain of maths identification
- Teachers in both school contexts did not strongly endorse stereotypes on girls' maths abilities

The finding that girls from single-sex schools endorsed fewer stereotypes was particularly salient ‘when considering that stereotype endorsement significantly predicted a student's self-efficacy in mathematics’ (p. i).

It was concluded that ‘exposure to positive role models, testing in same-sex environments, creating a sense of belonging, and teaching students to view intelligence as a flexible trait’ all reduced the effects of stereotype threat (p. 41).