

DO ROLE MODELS JUSTIFY THE GENDER-GAP IN STEM?

EXPLORING THE SIDE EFFECTS OF ROLE MODEL INTERVENTION

Discriminations and category-based policies research group

Catherine VERNIERS



Maîtresse de conférences, Laboratoire de psychologie sociale, LPS Université Paris Cité.

Her research focuses on the psychosocial processes at work in the perpetuation of social inequalities.

Research team:

- **Cristina Aelenei**, Maîtresse de conférences, Laboratoire de Psychologie Sociale – LPS, Université Paris Cité
- **Thomas Breda**, Chargé de recherche au CNRS, Professeur associé à l'Ecole d'Economie de Paris
- **Andrei Cimpian**, Professor, Department of psychology, New York University
- **Joseph Cimpian**, Professor, Department of Applied statistics, Social sciences, and Humanities, New York University
- **Lola Girerd**, ATER, Laboratoire de Psychologie Sociale – LPS, Université Paris Cité
- **Laurent Sovet**, Maître de conférences, Laboratoire de Psychologie et d'Ergonomie Appliquée – LAPEA, Université Paris Cité

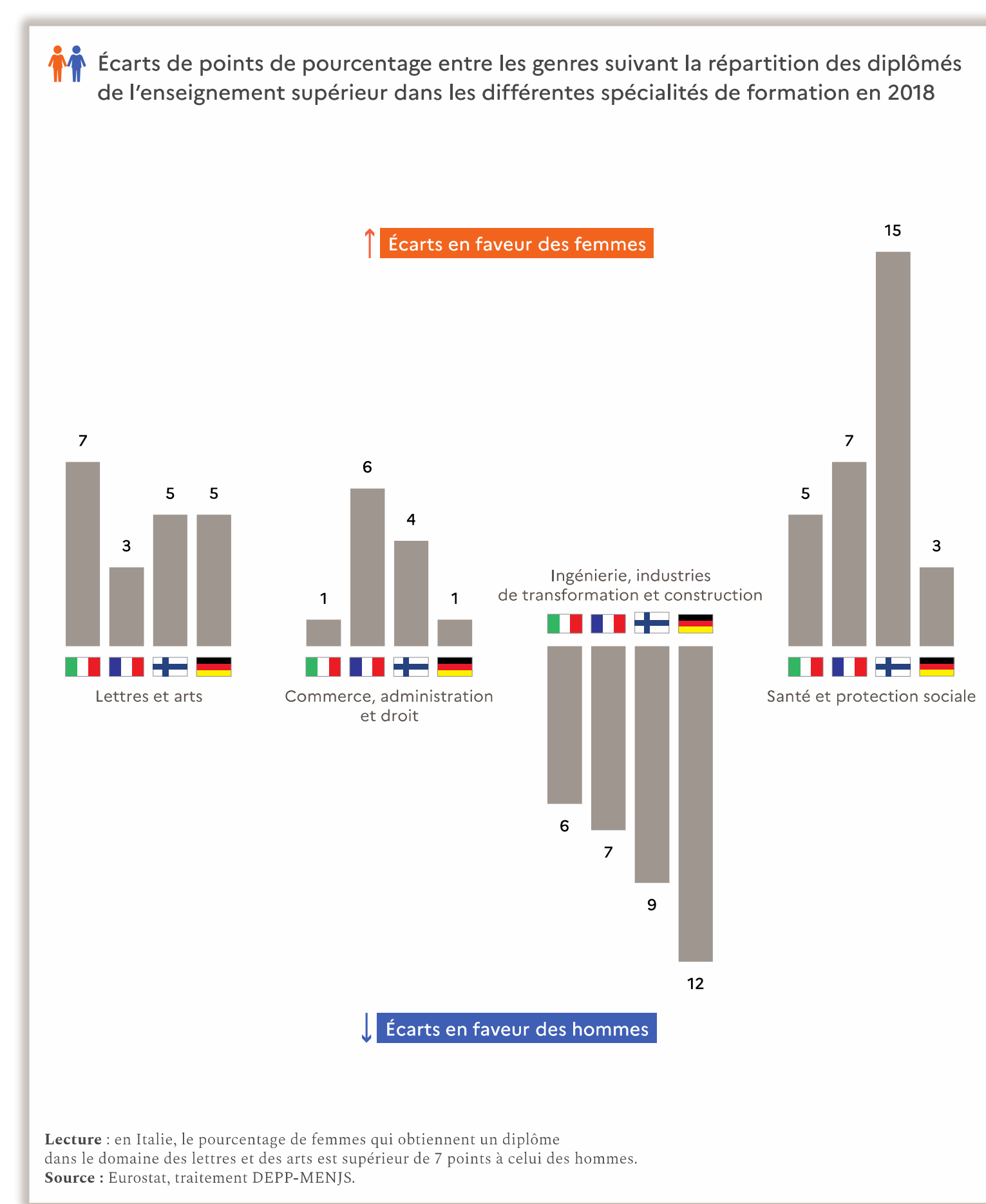
Research assistant:
Emma Molina

The gender gap in STEM fields is of global concern. In many developed countries, girls outperform boys at an early age, and this advantage persists at higher levels of education. Still, the proportion of women in STEM remains low. In 2017, UNESCO's 195 member states agreed to actively support the participation of women in STEM. One way governments tend to meet this challenge is by promoting female role models in science.

The SERMON project will examine whether role model interventions, although well-intended, backfire by drawing attention away from structural barriers to women's STEM pursuit and legitimizing existing gender inequities.

Gender stereotypes and STEM

Gender stereotypes have been extensively investigated as an explanation to account for the gender gap in STEM. For instance, research in social psychology provided experimental evidence that the stereotype according to which computer science is a male domain undermines girls' sense of belonging in this field, which decreases their interest in enrolling in computer science courses.



Role models as a means of tackling the gender gap in STEM

In an attempt to reduce the negative impact of gender stereotypes on students' aspirations, role models represent an appealing tool. A role model (RM) typically is a member of a social group that is negatively stereotyped in a particular domain. The RM's accomplishments are intended to demonstrate that it is possible for members of the RM's marginalized group to succeed in that domain.

Enthusiasm about role models is high. In France, the Ministry for national education and youth provides educational resources with a special emphasis on portraits of female researchers and engineers in the scientific field.

The research so far focused on the impact of RMs on individual students. To our knowledge, no study has examined the potential societal implications of such interventions. Still, there are reasons to suspect that, at the societal level, RM interventions might backfire by justifying existing gender hierarchies.

How does the project contribute to public policy evaluation?

- RM interventions are appealing tools for policymakers because they have intuitive appeal (e.g., "if you don't see it, you can't be it") and cost little to implement. For instance, the widespread use of remote RMs (that is, vignettes about women scientists), is essentially cost-free. Documenting the potential (negative) unintended effects of RM is an important and timely topic, especially since there is currently a dramatic decline in the number of girls in math curriculum in 12th grade, following the reform program of French high schools in 2019.

Potential side effects of RMs

From a psychosocial perspective, RMs are likely to elicit the fundamental attribution error—the tendency to explain individuals' behaviors and outcomes based on internal factors (e.g., ability, ambition) while overlooking broader structural causes.

Therefore, RM interventions might suggest, in an indirect way, that those particular women have exceptional aptitude and/or ambition, while simultaneously reinforcing the belief that women in general lack ability in science and/or the ambition to make it in this competitive field—otherwise, there would have been more women in STEM already!

In essence, then, we suspect that RM interventions may backfire and serve to justify existing gender gaps in the most prestigious fields of education and employment.

Towards an examination of the effect of RMs on the justification of gender hierarchies

The present research program includes:

- A systematic narrative review of the literature on STEM role models, to document the unintended impacts of RMs.

Verniers, C., Aelenei, C., Breda, T., Cimpian, J. R., Girerd, L., Molina, E., Sovet, L., & Cimpian, A. (in press). The Double-Edged Sword of Role Models: A Systematic Narrative Review of the Unintended Effects of Role Model Interventions on Support for the Status Quo. *Review of Research in Education*.

- An experimental test of our hypothesis with French secondary school students using the RM intervention promoted by the French authorities.

