Research projects launched in 2023

Dauphine | PSL
WOMEN AND SCIENCE CHAIR

unesco
University Twinning and Networking Programme

Digital training to fight gender stereotypes and change the educational and professional orientations of women
Pilot project for a randomized trial

Marc Gurgand, Associate professor, Paris School of economics, director, J-PAL Europe, scientific coordinator of IDEE

Quentin Daviot, Chargé de recherche, laboratoire J-PAL Europe

Marion Monnet, Maîtresse de conférence en économie, Irédu-Université de Bourgogne, chercheuse, Institut des politiques publiques

Mathilde Sage, Phd student, Université Paris Dauphine–PSL

Georgia Thebault, Post-doctoral researcher, Sciences Po Paris

Although women now graduate more from higher education than men, they remain largely under-represented in the fields which rely the most on mathematics and computer science. The differentiation of orientation choices according to gender finds its origin very early in the students' school career and persists throughout secondary school, thus foreshadowing the differences observed in the labor market. Intervening as early as possible in the school career, by putting girls in contact with computers and digital technology, seems to be a promising lever in order to arouse their interest in these fields while defusing the gender stereotypes which associate masculinity with these scientific disciplines. Our project proposes to evaluate, through a randomized trial carried out with third grade students, the computer initiation program created by the Witech association. The objective of our project is in particular to evaluate the impact of the program in two different configurations: when the workshop is followed in a single-sex environment (environment which minimizes the expression of gender stereotypes), and when it is followed in the more classic configuration of diversity.

Gender disparities in vital signs monitoring with the integration of radar and ML: extensive examination of radar data and recognition disparities

Julien Le Kernec, Senior Lecturer in Electronic Engineering, James Watt School of Engineering, University of Glasgow, UK

Nour Ghadban, Fellow Researcher at the School of Engineering, University of Glasgow, UK

Mostafa Elsayed, Ph.D. candidate, James Watt School of Engineering, University of Glasgow, UK

Jonathan Cooper, Professor, The Wolfson Chair in Biomedical Engineering and a Royal Academy of Engineering Research Chair, University of Glasgow, UK

The project delves into exploring how gender shapes AI-driven vital sign monitoring via radar data. It aims to assess AI precision in interpreting vital signs and delve into gender-related disparities, covering radar data analysis, hidden biases, and ethical considerations. Factors like AI model design, dataset composition, and vital sign interpretation play crucial roles in revealing potential gender-based differences. The study examines both physiological and social factors influencing gender-related performance variations in AI models, highlighting the precision of radar data collection.
Ethical practices, data transparency, and responsible AI deployment are central to ensuring the openness of the dataset while protecting participant privacy. Beyond healthcare, the research spans societal equity, algorithm transparency, and interdisciplinary collaborations among AI, healthcare, data analysis, and gender experts. By scrutinising diverse datasets and advocating for fairness, this study aspires to transform AI-driven vital sign monitoring, striving for both accuracy and fairness and holding significant implications for healthcare and societal equity.

Ideal STEM academic worker: navigating gender bias and unravelling gender dimensions

Arianna Montorsi, Professor in physics, Department of Applied Science and Technology (DISAT), Politecnico di Torino, Torino, Italy

Mariya Shcherbyna, Research fellow, Department of Management and Production Engineering (DIGEP), Politecnico di Torino, Italy, Associate professor, Department of Philosophy, Cultural Studies and Information Activities, V. Dahl East Ukrainian National University, Kyiv, Ukraine

Greta Temporin, PhD student in Management, Department of Management and Production Engineering (DIGEP), Politecnico di Torino, Torino, Italy

Luca Falzea, PhD in Sociology and Methodology of Social Research, Department of Architecture and Design (DAD), Politecnico di Torino, Torino, Italy

This research delves into the construction and perpetuation of the "ideal worker" archetype in STEM academia. The study posits that, despite the outward appearance of gender neutrality, STEM academia evaluates competencies, job performance, and career advancement based on stereotypically masculine norms, disadvantaging individuals, especially women, who diverge from this norm. Positioned at the intersection of gender studies, organizational behavior and higher education studies, the research aims to fill a gap in understanding the impact of the "ideal worker" model in STEM academia. Employing a case study methodology centered on Politecnico di Torino, a gender-segregated STEM institution, semi-structured interviews with researchers at Politecnico di Torino will be conducted as part of the evidence triangulation process, seeking to unravel the gender-specific consequences of the "ideal STEM academic" narrative.

Underrepresentation of women in scientific disciplines and careers: study of a historical example of the repeal of gender quotas

Georgia Thebault, Ph.D in economics, Sciences Po Paris

Léa Dousset, PHD student, Paris School of economics

Julien Grenet, Research director, CNRS, associate professor, Paris School of economics, Deputy director, Public Policy Institute

Women are still under-represented in scientific disciplines, particularly in the most selective higher education courses. Gender differences in behaviors adopted within competitive environments have been isolated as explanatory factors for this underrepresentation. Our study takes advantage of a historical natural experiment, the merger of the Écoles Normales Supérieures (ENS) for girls and boys in 1986, in order to analyze these mechanisms. Drawing on very rich data collected from the ENS archives and the National Archives, we show that the removal of what looked like a gender quota led to a significant drop in the number of women admitted to ENS in mathematics. This is partially explained by a difference in performance in competitions, but also by a drop in the number of women candidates, particularly from the best preparatory classes. Funding from the Women and Science Chair will make it possible to extend this study to other entrance exams to the ENS (physics, biology and literature), and to study the potential impact of the introduction of the mixed competition on the representation of women in academic careers in France.

Intersectional inequalities in online science dissemination

Orsolya Vasarhelyi, Assistant professor, Center for Collective Learning and Centre for Advanced Studies, Corvinus University, Budapest, Hungary

Ágnes Horvát, Associate Professor of Communication and Computer Science, Northwestern University, IL, USA

Julia Barnett, Ph.D. student in Technology and Social Behavior, Northwestern University, IL, USA

Luca Gallo, Postdoctoral Research Fellow, Department of Network and Data Science, Central European University, Vienna, Austria

In recent years, there has been a growing awareness of the underrepresentation of gender and ethnic minorities in the field of science. Despite this recognition, progress toward addressing this issue has been slow (Sugimoto et al., 2023). Even in developed countries where women constitute approximately 50% of the academic workforce, they often encounter barriers to career advancement. In 2020, for instance, only 35% of full professors in the United States were women, with a mere 8% being non-white women (US Education Report, 2020). Research has consistently shown that diverse teams drive innovation, produce higher-quality research, and reduce bias (Alshebli et al., 2018; Hofstra et al., 2020; Yang et al., 2022; Vedres et al., 2023). One potential avenue for addressing these disparities is through online science dissemination, which has the power to expose the work of underrepresented minorities to a broader audience (Sugimoto et al., 2023). Previous studies have demonstrated that sharing scientific articles online can have a positive impact on citations across various fields (Vasarhelyi et al., 2023). However, it's important to note that this practice can also perpetuate offline disadvantages for female scientists (Vasarhelyi et al., 2021).

Our project takes an intersectional approach to explore how online science dissemination affects the success of diverse coauthor teams in terms of gender and ethnicity. We analyze a unique dataset that combines online sharing data from Almetric.com, citation data from the Web of Science, and coauthor information from the Open Academic Graph. Our central research question is: what is the relationship between online science dissemination and citation impact for diverse coauthor teams?

The implications of our project extend beyond academia. Underrepresented scholars, including women and ethnic minorities, often face obstacles in entering and advancing in scientific careers. Increasing their visibility and early career success can contribute to a more diverse and accomplished academic community, as well as promote research on topics that are frequently overlooked. Our findings can inform strategies for academic institutions, NGOs, and government agencies seeking to support scholars from diverse backgrounds.