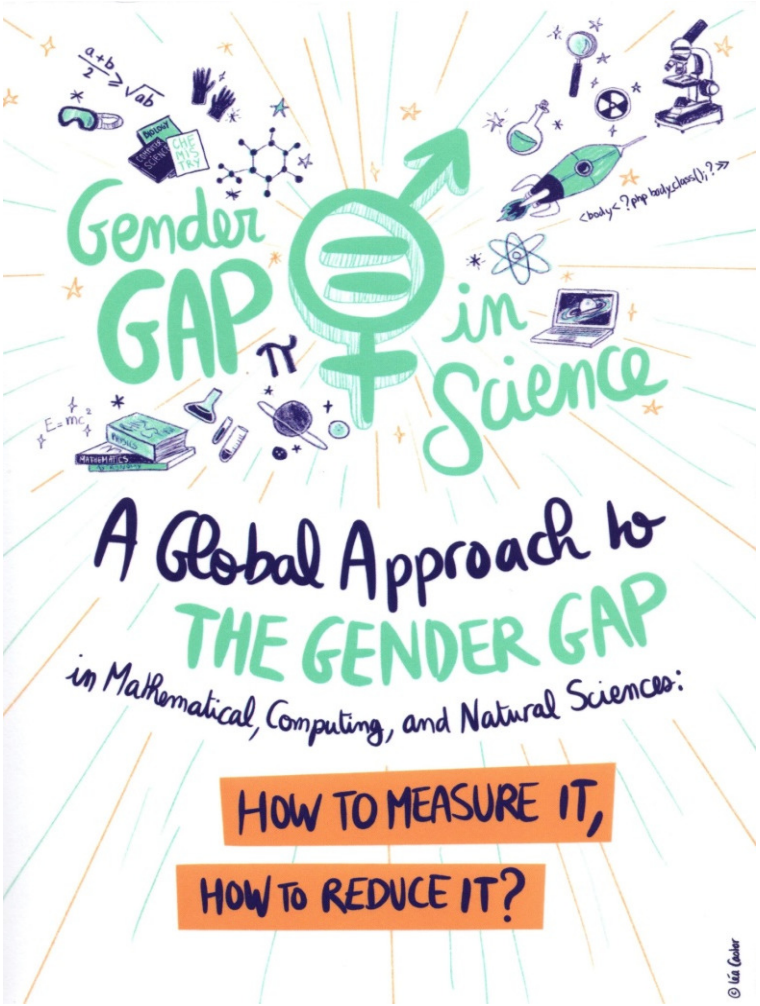
Measuring and Reducing the Gender Gap in the Mathematical, Computing, and Natural Sciences



Webinar

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The National Academies of
SCIENCES • ENGINEERING • MEDICINE

Measuring and Reducing the Gender Gap in the Mathematical, Computing, and Natural Sciences

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Gender Gap Project

What is the gender gap?

The term gender gap refers to any difference "*between women and men in terms of their levels of participation, access, rights, remuneration or benefits.*"

World Economic Forum, *The Global Gender Gap Index 2020*,
http://reports.weforum.org/global-gender-gap-report-2020/the-global-gender-gap-index-2020/

The Gender Gap in Science

Fewer than 30% of the world's researchers are women.

UNESCO Institute for Statistics, *Women in Science*,
http://uis.unesco.org/en/topic/women-science

Project Overview

Three-year project funded by International Science Council and partner Unions – 2017 to 2019

Continuing gender gap at all levels

International Science Council
The global voice for science

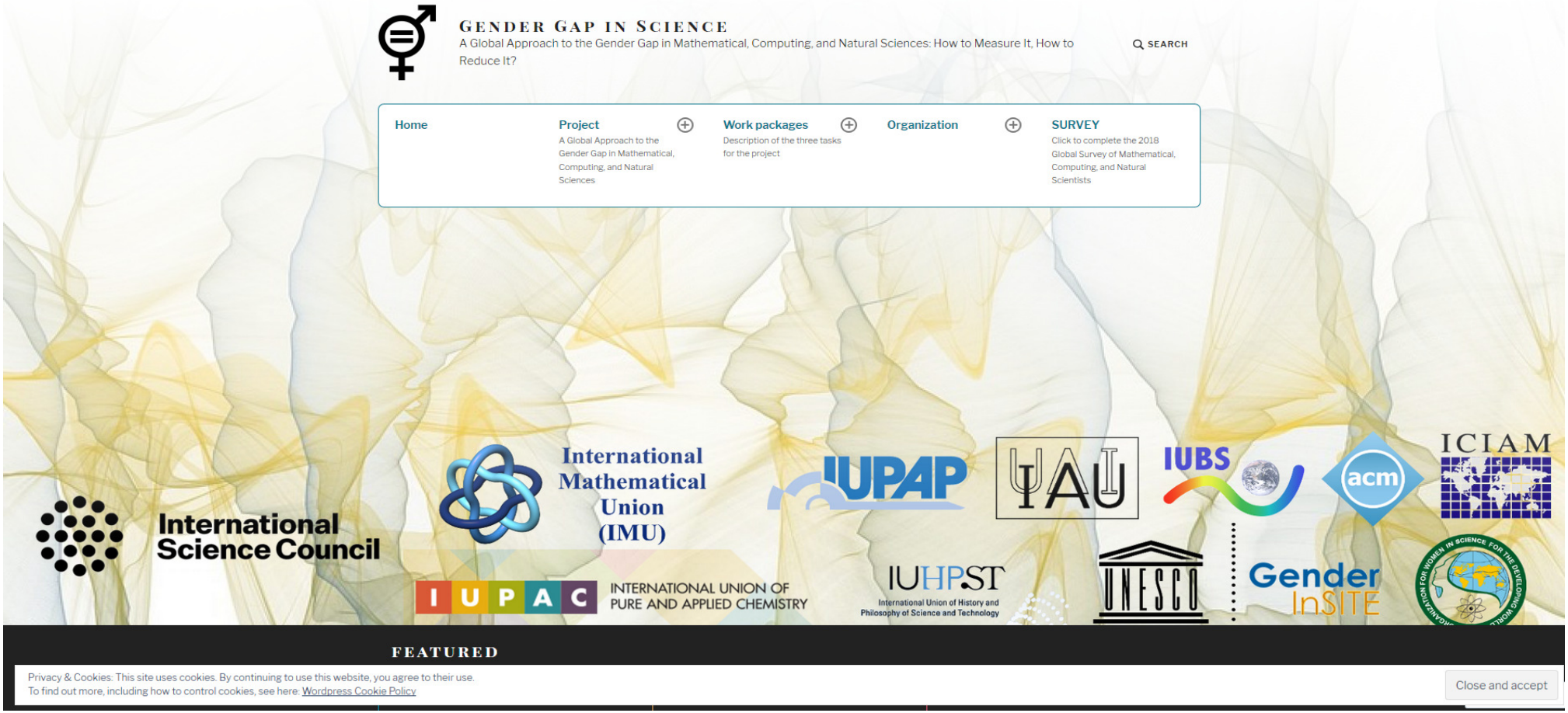
Barriers to achievement for women still exist, especially in developing countries

Project aims:

- Sound data to support possible interventions – contrasts and common ground across regions, cultures, developed and developing countries, men and women, sciences and mathematics
  - Evidence for trends
  - regional information on careers, jobs, salaries
  - Publication patterns

- Encourage young women to study and work in science, math
  - Good practices around the world
  - Recommendations for improvement

Partner Organizations



Objectives

Provide evidence via a **joint global survey** and a **study of publication patterns** to provide reliable data on which to orient future actions.

Provide easy access to **materials to encourage young women** to work in our fields, including information about careers and salaries directed at parents, schools, and others who influence the careers of girls, in particular in the developing world.

Collaborate via workshops with social scientists working in gender and science, obtaining **contrasts and commonalities** across regions and cultures, less and more highly developed countries, and across different disciplines.

Recommend practical policies and actions that will reduce the gender gap.

The Speakers

Global Gender Gap Survey

Susan White currently serves as the Interim Director of the Statistical Research Center (SRC) at the American Institute of Physics. She joined the SRC after twenty years of serving as a faculty member specializing in applied quantitative and statistical methods in three different schools of business.

The Speakers

Study of Publication Patterns

Prof. Dr. Helena Mihaljević studied mathematics at the Georg-August-University Göttingen. In 2009 she received her PhD in mathematics from the University of Liverpool on topological dynamics of entire transcendental functions. She worked as a research assistant at the Department of Mathematics at the Christian-Albrechts-University of Kiel, as editor and deputy head of department at FIZ Karlsruhe - Leibniz Institute for Information Infrastructure, and as senior data scientist at The Unbelievable Machine Company in Berlin. Since 2018 she has been Professor for Data Science at the University of Applied Sciences (HTW) Berlin. Her professorship is associated with the Einstein Center Digital Future [https://www.digital-future.berlin/ueber-uns/professorinnen/prof-dr-helena-mihaljevic/]. Her teaching and research activities focus on statistical data analysis, applied machine learning, and information retrieval.

The Speakers

Database of Good Practices

Merrilyn Goos is Professor of STEM Education at the University of Limerick, Ireland, and Director of EPI*STEM – the National Centre for STEM Education. She was Vice-President of the International Commission on Mathematical Instruction (ICMI) from 2017-2020 and has been elected for a second term from 2021-2024.

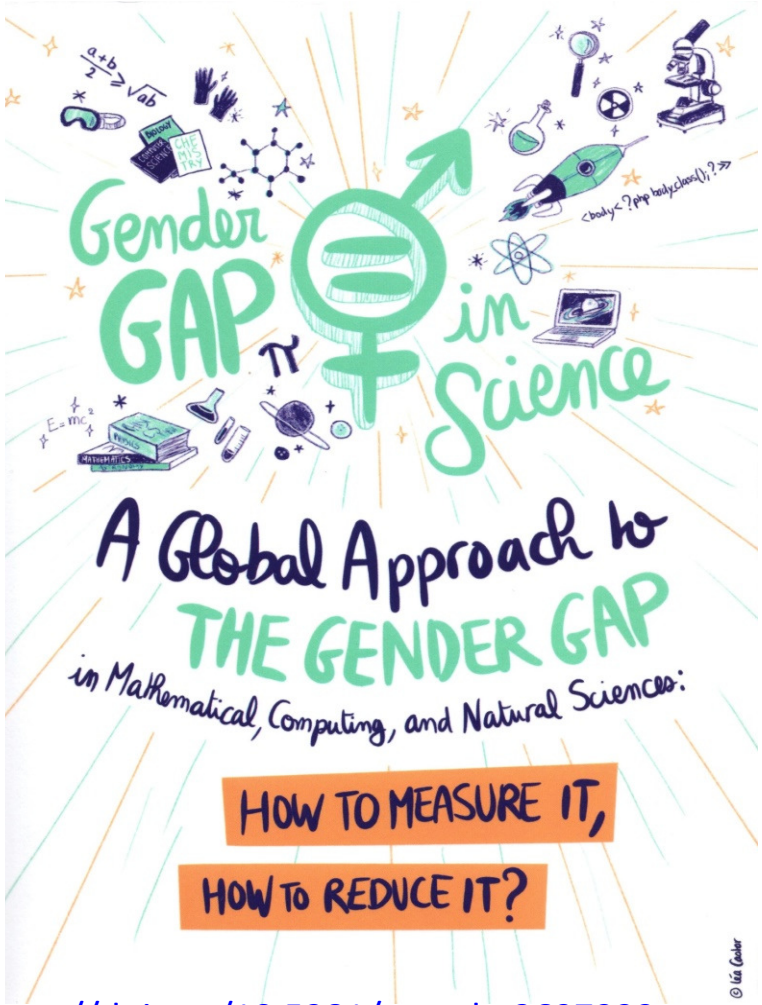
The Speakers

Recommendations and Next Steps

Mei-Hung Chiu is a Distinguished Professor of Science Education at the National Taiwan Normal University. She has an Ed.D. from Harvard Graduate School of Education. Her research interests include students' perceptions of scientific models and modeling competence, facial expression in science learning, and STEM education. Dr. Chiu was a former President of National Association for Research in Science Teaching (NARST, based in the USA, 2016-2017) and chair of Committee on Chemistry Education of IUPAC. She was a recipient of the Distinguished Contribution to Chemical Education Award from the Federation of Asian Chemical Societies (FACS) in 2009 and also a recipient of the Distinguished Contribution to Science Education Award from Eastern-Asian Science Education Association (EASE) in 2016.

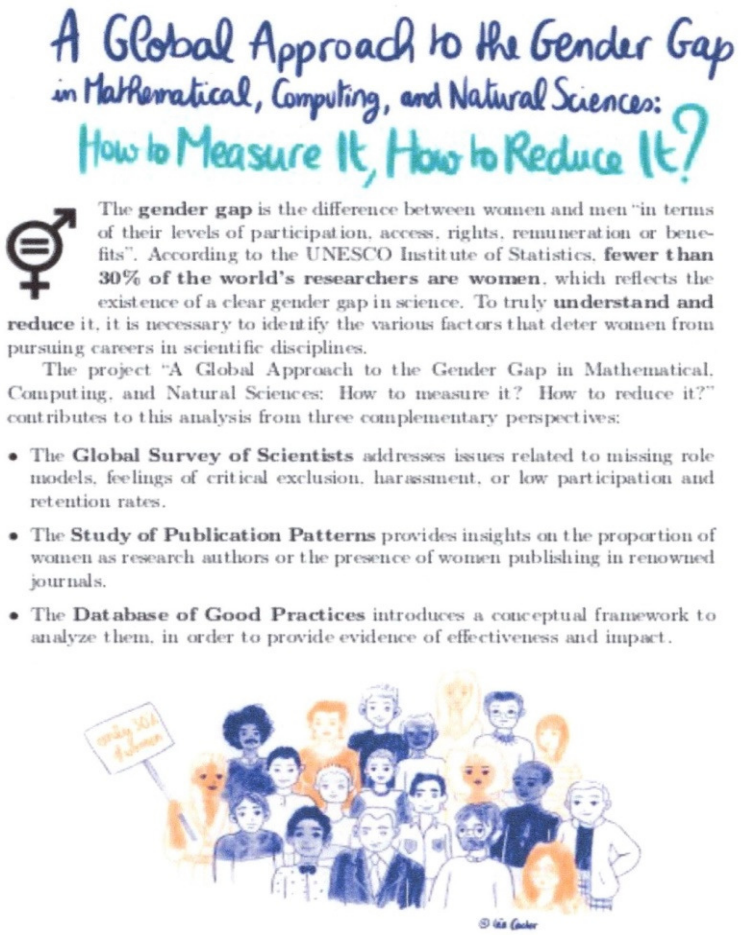
Publications

Final Report



https://doi.org/10.5281/zenodo.3697222

8-Page Booklet



A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?

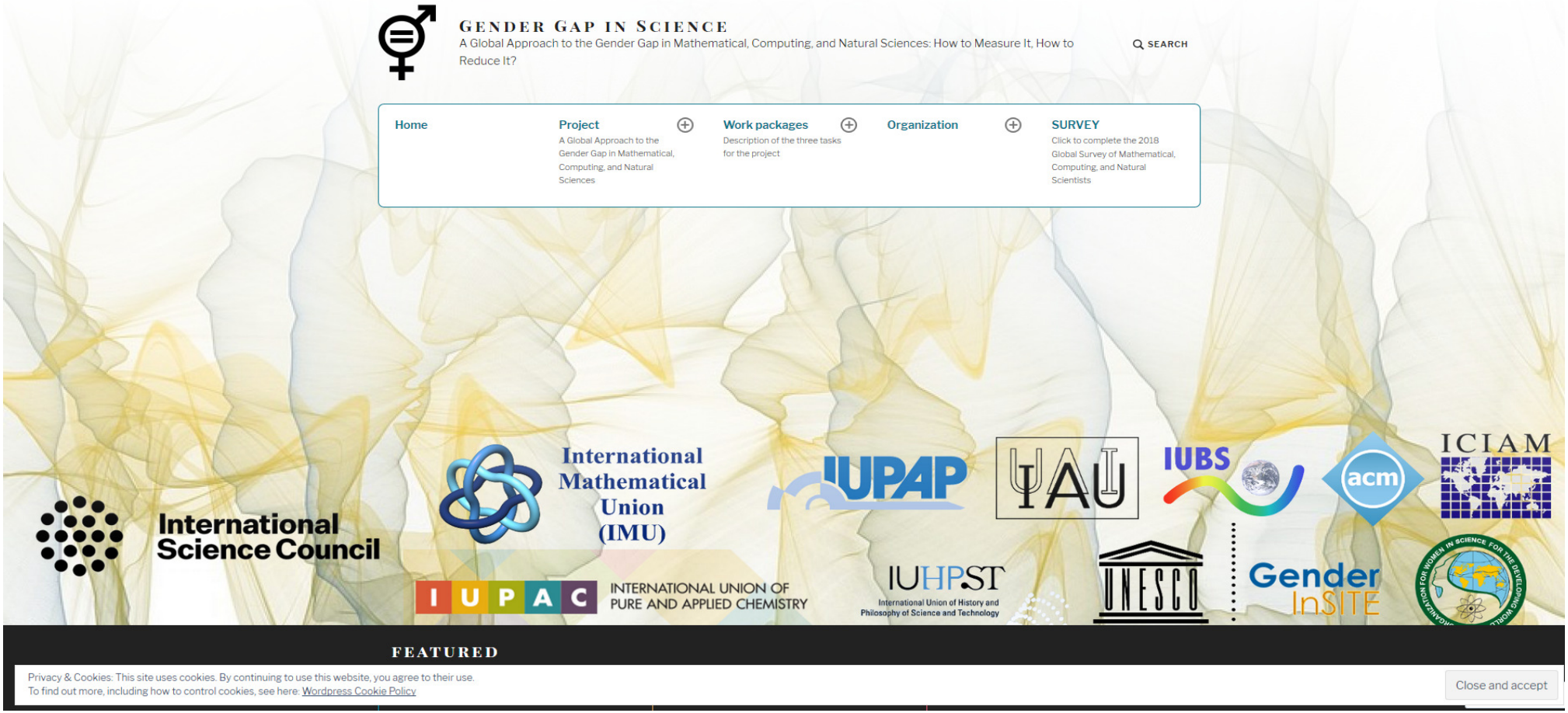
The **gender gap** is the difference between women and men "in terms of their levels of participation, access, rights, remuneration or benefits". According to the UNESCO Institute of Statistics, **fewer than 30% of the world's researchers are women**, which reflects the existence of a clear gender gap in science. To truly **understand and reduce** it, it is necessary to identify the various factors that deter women from pursuing careers in scientific disciplines.

The project "A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to measure it? How to reduce it?" contributes to this analysis from three complementary perspectives:

- The **Global Survey of Scientists** addresses issues related to missing role models, feelings of critical exclusion, harassment, or low participation and retention rates.
- The **Study of Publication Patterns** provides insights on the proportion of women as research authors or the presence of women publishing in renowned journals.
- The **Database of Good Practices** introduces a conceptual framework to analyze them, in order to provide evidence of effectiveness and impact.

https://gender-gap-in-science.org/promotional-materials/

Web Site



https://gender-gap-in-science.org/