



Why sexism is still present in science and what we can do about it...

Phimale coffee lecture on May 11, 2023
by Daniela Rupp, assistant professor in DPHYS



My way towards a relaxed and informed attitude on gender equality

- Excellent book "Why science is sexist" by my colleague Prof. Nicola Gaston, U Auckland
- Yes, there is a problem.

“Women are, on average, over-represented in lower status awards and positions but under-represented in higher status awards and positions”

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3. Empirical results
4. Mathematical model

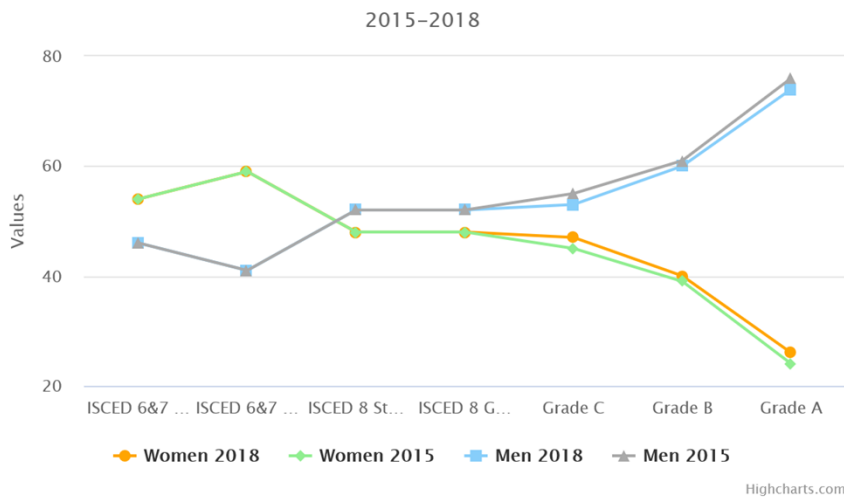
Research articles
Gender and societies: a grassroots approach to women in science
Alex James, Rose Chisnall and Michael J. Plank
Published: 04 September 2019
<https://doi.org/10.1098/rsos.190633>

Abstract
Women are under-represented in science. We show that the extent of the gender gap varies depending on the status of the position in question and there are simple steps that can be taken to improve diversity. We analyse data on the activities of over 30 science societies spanning four countries and five distinct discipline areas. Our

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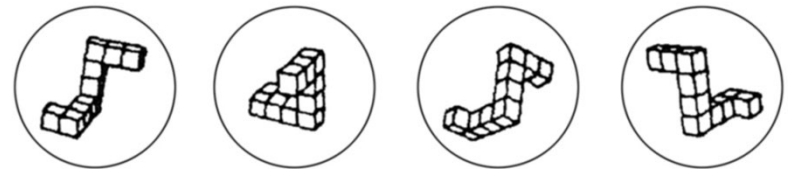
Proportion (%) of men and women in a typical academic career, students and academic staff, EU-27



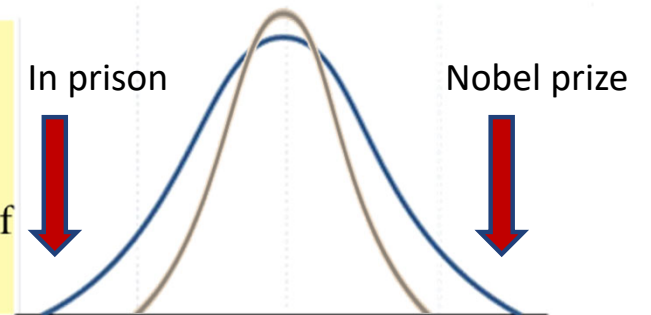
<https://ec.europa.eu/assets/rtd/shefigures2021/index.html>

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- It really bothered me: (Why) are men better than women at doing...?
 - Different life choices?
 - Women don't like to negotiate?
 - Different capability?



“It does appear that on many, many different human attributes-height, weight, propensity for criminality, overall IQ, mathematical ability, scientific ability-there is relatively clear evidence that whatever the difference in means-which can be debated-there is a difference in the standard deviation, and variability of a male and a female population.”



http://www.harvard.edu/president/speeches/summers_2005/nber.php

Larry Summers, while being Harvard President



Die meisten Studentinnen wollen lieber einen erfolgreichen Mann als selber Karriere machen

Studie über Studentinnen an Uni und ETH Zürich
Lieber einen erfolgreichen Mann als selber Karriere machen

SOZIOLOGIN
Publiziert 8. Mai 2023, 04:58
Frauen wollen kaum Karriere machen – ist die Gleichstellung gescheitert?

STUDIE ZU GLEICHSTELLUNG
Die meisten Studentinnen wollen erfolgreichen Mann statt Karriere

Umfrage veröffentlicht
Studentinnen wollen erfolgreichen Mann Karriere

Neue Zürcher Zeitung

KOMMENTAR

Familie macht viele Frauen glücklich – mit Diskriminierung hat das nichts zu tun

Eine Umfrage zeigt, was wir schon immer ahnten: Frauen sind weniger karriereorientiert als Männer.

Das sagt eine Studentenehmerin

watson hat mit einer der rund 10'000 Studentenehmerinnen gesprochen. Sarah Scheidmantel doktort am Lehrstuhl für Medizingeschichte der Universität Zürich und sagt: «Ich war erstaunt über die Fragen, die für die Erfassung für die Studie gestellt wurden.» Sie ergänzt: «Ich habe mir überlegt, die Umfrage abubrechen, denn sie war durchzogen von Suggestivfragen. Zudem wurde nicht darauf eingegangen, wie eine verbesserte gesellschaftliche Situation die Antworten verändern würde. Das hätte natürlich einen enormen Einfluss auf die Ergebnisse.»

«Die Reproduktion von Geschlechtsstereotypen in dieser Umfrage hat mich offen gesagt schockiert», sagt Scheidmantel.

fügt an: «Ich war irritiert und dachte mir während des Ausfüllens, dass man die Adjektive hätte mischen und bei beiden dasselbe fragen können. Das hätte meiner Meinung nach aufschlussreichere Ergebnisse generiert.»

- Different life choices?
- Women don't like to negotiate?



Sarah Scheidmantel empfindet die Studie als problematisch. bild: zvg

Die GLP-Nationalrätin führt aus: «In einer Welt, in der es schwieriger ist für Frauen, Karriere zu machen, ist es nicht erstaunlich, dass Frauen andere Wege wählen, um ihre Ziele zu erreichen. Die Studie macht nämlich keine Aussage darüber, ob dieses anscheinend angestrebte Leben als Zweitverdienerin wirklich die erste Wahl der Frauen ist oder ob sie sich einfach der Realität anpassen und bereits wissen, dass es wegen teuren – und teilweise in der öffentlichen Meinung verpönten – Kinderbetreuungsplätzen, steuerlicher Benachteiligung und fehlender Elternzeit sowieso auf diese Rollenteilung hinausläuft.»

Culture, Gender, and Math

Luigi Guiso,^{1*} Ferdinando Monte,^{2*} Paola Sapienza,^{3*†} Luigi Zingales^{4*}

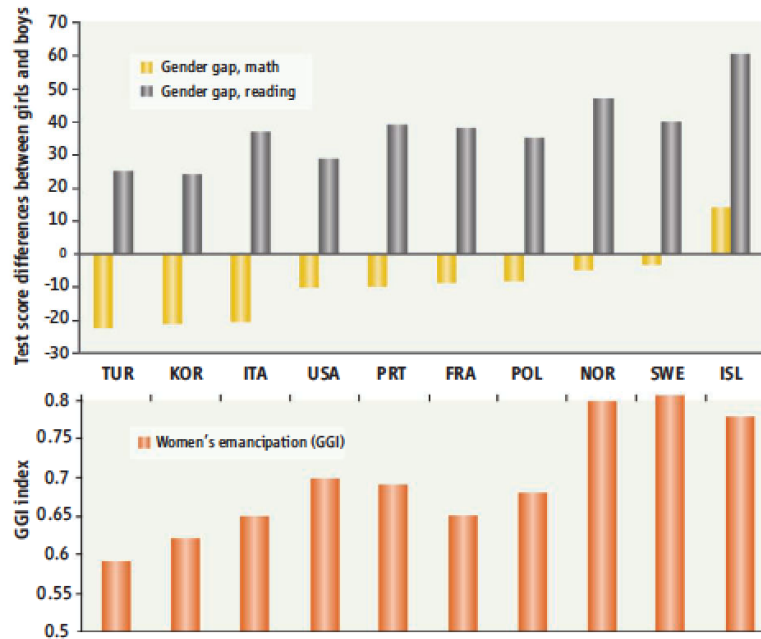
The existence (1), degree (2), and origin (3, 4) of a gender gap (difference between girls' and boys' scores) in mathematics are highly debated. Biologically based explanations for the gap rely on evidence that men perform better in spatial tests, whereas women do better in verbal recall ones (1, 5, 6). However, the performance differences are small, and their link with math test performance is tenuous (7). By contrast, social conditioning and gender-biased environments can have very large effects on test performance (8).

To assess the relative importance of biological and cultural explanations, we studied gender differences in test performance across countries (9). Cultural inequalities range widely across countries (10), whereas results from cognitive tests do not (6). We used data from the 2003 Programme for International Student Assessment (PISA) that reports on

by country (see chart, above): in Turkey, -22.6 , whereas, in Iceland, 14.5 . A similar variation exists in the proportion of girls over boys who score above 95%, or 99% of the country-level distribution (fig. S2A).

Analysis of PISA results suggests that the gender gap in math scores disappears in countries with a more gender-equal culture.

results, we classified countries according to several measures of gender equality. (i) The World Economic Forum's Gender Gap Index (GGI) (10) reflects economic and political opportunities, education, and well-being for women (see chart). (ii) From the World Values Surveys (WVSs) (13), we constructed an index of cultural attitudes toward women based on the average level of disagreement to such statements as: "When jobs are scarce, men should have more right to a job than women." (iii) The rate of female economic activity reflects the percentage of women age 15 and older who supply, or are available to supply, labor for the production of goods and services. (iv) The political empowerment index computed by the World Economic Forum (8) measures women's political participation, which is less dependent on math skills than labor force participation. These four measures are highly correlated (table S2).



Math and reading gender gaps. In more gender-equal cultures, the math gender gap disappears and the reading gender gap becomes larger. (Top) Gender gaps in mathematics

Science, 320, 1164
(2008)

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- Why this is (at least for now) the wrong question:

There are mechanisms at work sustaining inequality.
Let's get rid of them and then look again 😊

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- Where is **hidden bias** ?

Whether these gender biases operate in academic sciences remains an open question. On the one hand, although considerable research demonstrates gender bias in a variety of other domains (19–23), science faculty members may not exhibit this bias because they have been rigorously trained to be objective.

- Moss-Racusin 2012, *Science faculty's subtle gender biases favor male students*
- 170 tenured faculty of 6 large US universities' Biology, Physics, Chemistry departments.
- Led to believe they treat a real CV, give real feedback.
- Only Jennifer / John exchanged

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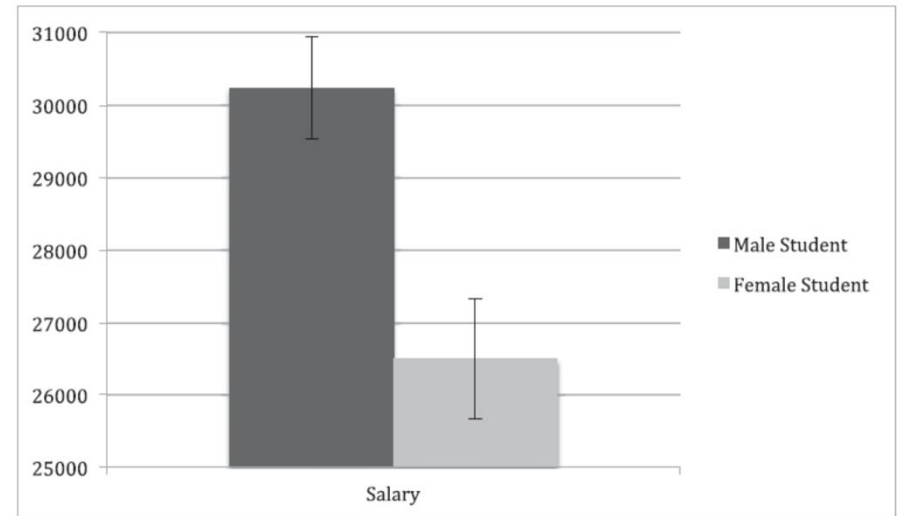


Fig. 2. Salary conferral by student gender condition (collapsed across faculty gender). The student gender difference is significant ($P < 0.01$). The scale

bias against female competence is NOT A MALE ISSUE!

Variable	Male target student				Female target student				<i>d</i>
	Male faculty		Female faculty		Male faculty		Female faculty		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Competence	4.01 _a	(0.92)	4.1 _a	(1.19)	3.33 _b	(1.07)	3.32 _b	(1.10)	0.71

We are all carrying the believe that this male person is more competent.

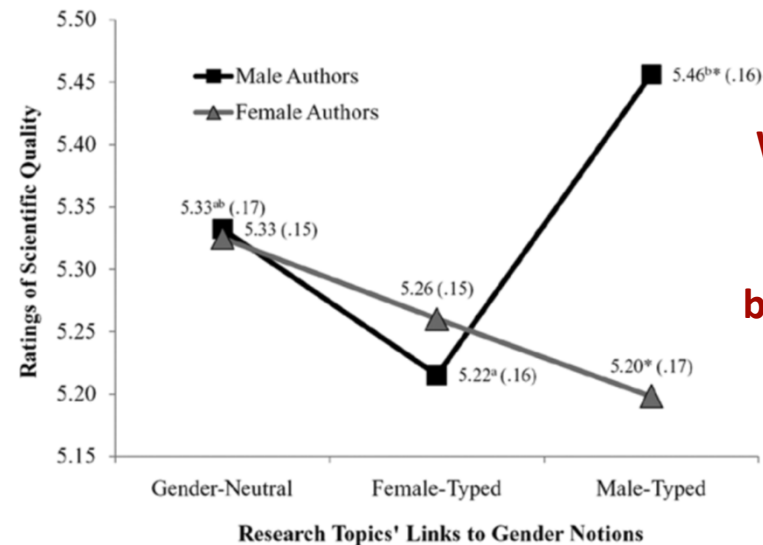
Knobloch-Westerwick 2013, *The Matilda Effect in Science Communication: An Experiment on Gender Bias in Publication Quality Perceptions and Collaboration Interest*

Female-typed research areas

- Infants' Visual Attention to Videos as a Function of Program Pacing
- The (Mis)perceivers: Gender Differences in Self-Other Body Image Discrepancies and Body Dissatisfaction

Male-typed research

- Trust Games: Impact of Seller Photo and Reputation on Trust in Computer-Mediated Transactions
- The Role of Communication in Political Participation: Exploring the Social Normative/Cognitive Processes Related to Political Behavior



We really think that the same work is better, when we believe it was carried out by a male!

A national sample of graduate students enrolled in communication programs at both the PhD and MA levels was recruited. E-mail requests were sent to 39 different graduate chairs or program directors, asking them to forward a recruiting e-mail and link for the study to their current graduate students. Of the 243 individuals from 20 different institutions that completed the online session, 70% were female. The average age was 28.55 years ($SD = 5.97$).

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- Why this is (at least for now) the wrong question:
- Where is **hidden bias** and **what can we do?**
- **Constructed criteria** confirm our gut feeling

Research Article

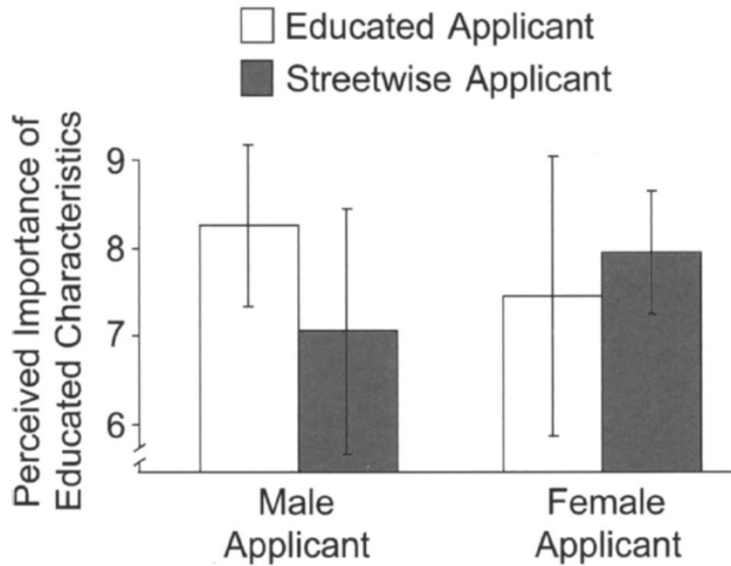
Constructed Criteria

Redefining Merit to Justify Discrimination

Eric Luis Uhlmann and Geoffrey L. Cohen

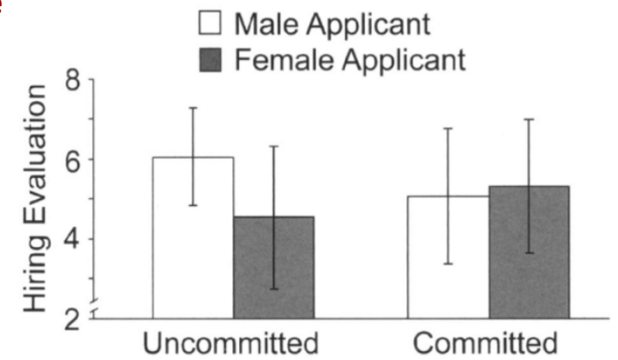
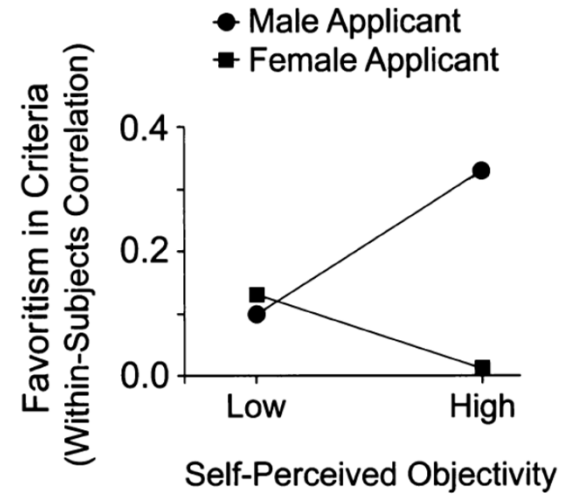
Yale University

Application for
the job of Police
Chief:



If we suspect bias, we are
less susceptible

Commitment to hiring
criteria - stated before
evaluation



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- Where is **hidden bias** and what can we do.
- **Constructed criteria** confirm our gut feeling
- Key barrier inside myself and others:
Stereotype threat

Moè 2007, *Are males always better than females in mental rotation?*
Exploring a gender belief explanation



Reasons?

- Genetic
- Strategic
- Spatial experience
- **Stereotype threat**

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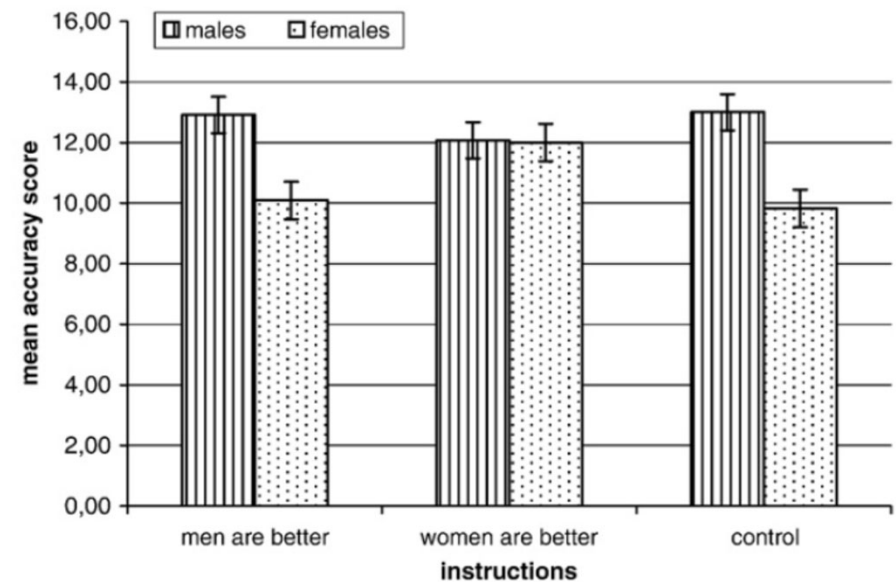
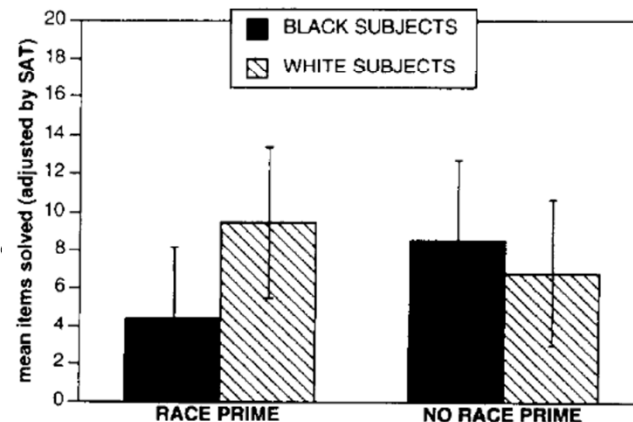


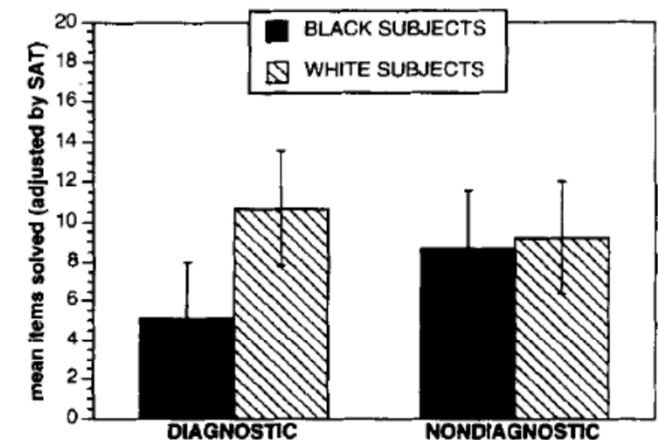
Fig. 2. Mean MRT accuracy score in males and females after instructions.

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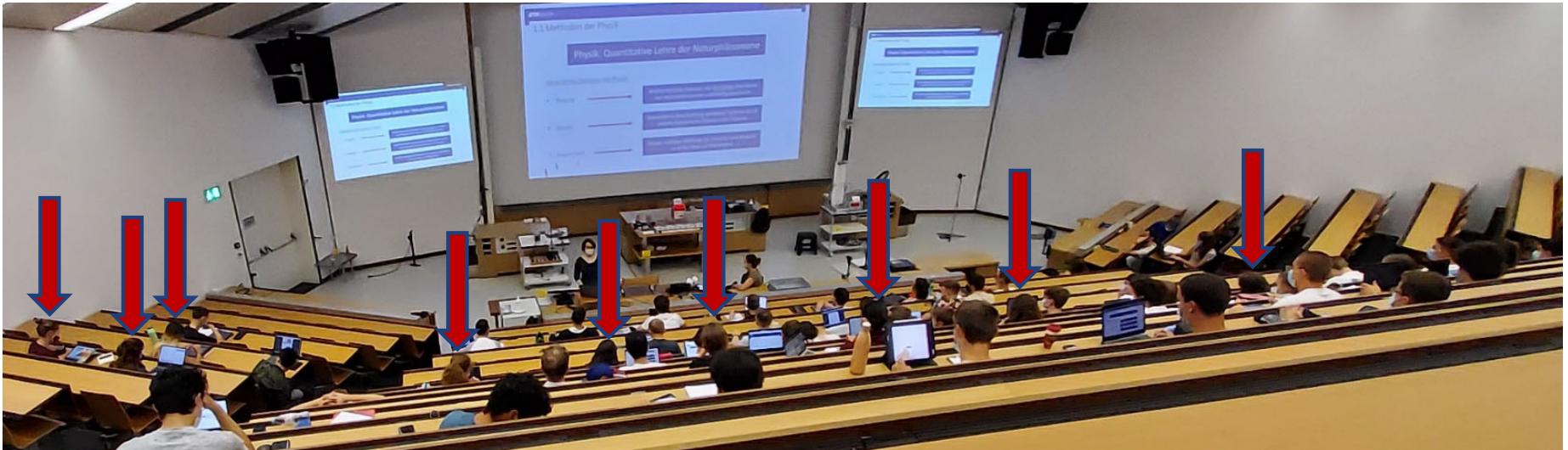


Steele 1995, *Stereotype threat and the intellectual test performance of African Americans*



Reality check

- I know that the stereotype threat is an issue. In physics, at ETH, in my lecture
- I want to be good for those affected and for all the others, too
- Do my measures change something? And in the right direction?



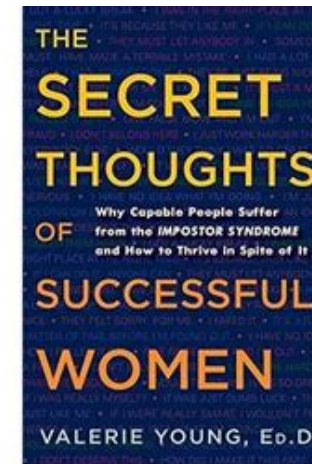
What I try to do

die Körper auf anderen Bahnen, als im Inertialsystem. Wir schreiben



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Stereotype threat and the **Imposter syndrom**



Reason #2 why you may feel like an imposter:
You are a student.

Reason #3 why you may feel like an imposter:
You work in an organizational culture that feeds self-doubt

Reason #7 why you may feel like an imposter:
You represent your entire social group.

A woman doing what?



1943: Anthea Abercrombie, a technician at the Dominion Physical Laboratory in Gracefield, Lower Hutt, measures screw gauges in the meterology room

and what we can do about it...

- Become aware of our privileges
- Become aware of our biases
- Figure out how they influence our behavior

- Your ideas?

Last slide of my Phimale Coffee Lecture in November 2019:



I know that I share the wish for equal opportunities and a more just society with a lot of people, female and male. I believe that we can only move forward together, and **we cannot not stop at closing the gap between healthy white males and healthy white females.**