Women in Science, why they are so few…

Caroline Champenois,
CNRS-AMU, PIIM, Marseille

FEMMES & SCIENCES
association

Société Française de Physique

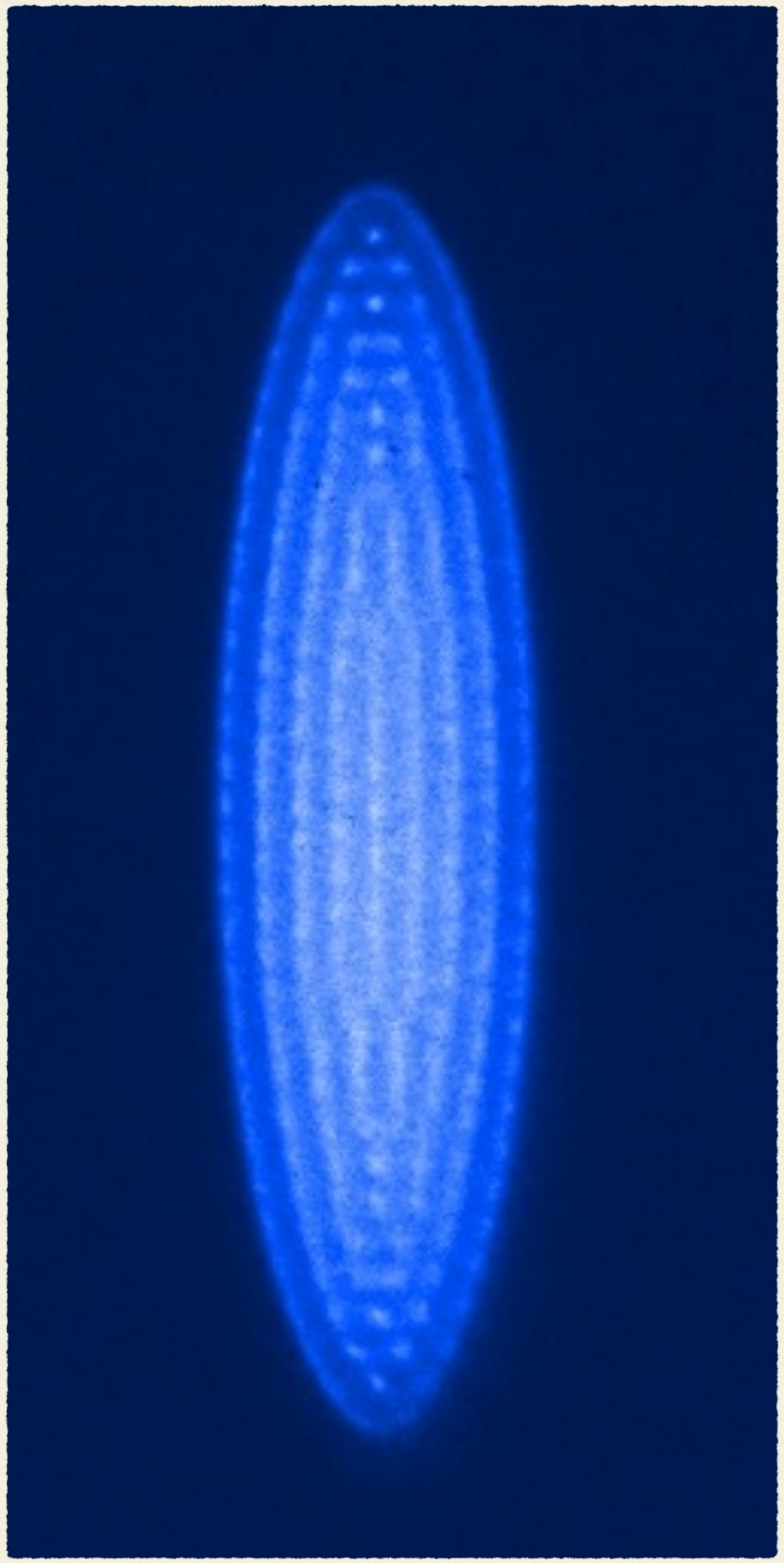
and its Women in Physics committee

Who am I?

I study experimental quantum physics, using interaction between light and atoms.

I work for CNRS on Saint-Jérôme campus in Marseille (PIIM)

a cloud of laser-cooled trapped atomic ions :



Cracking the code:

Girls' and women's education in science, technology, engineering and mathematics (STEM)

Education 2030

Ensuring girls and women have equal access to STEM education and ultimately STEM careers is an imperative from the human rights, scientific, and development perspectives. From a human rights perspective, all people are equal and should have equal opportunities, including to study and work in the field of their choice.

From a scientific perspective, the inclusion of women promotes scientific excellence and boosts the quality of STEM outcomes, as diverse perspectives aggregate creativity, reduce potential biases, and promote more robust knowledge and solutions.[6-8] Women have already demonstrated their abilities in STEM fields, having contributed, for example, to advancements in the prevention of cholera and cancer, expanded understanding of brain development and stem cells, and other discoveries.[9] Maximizing the catalytic role of STEM requires drawing on the widest pool of talent to promote excellence and leaving out women is a loss for all.[10]

From a development perspective, gender inequalities in STEM education and employment perpetuate existing gender inequalities in status and income. Gender equality in STEM will ensure that boys and girls, men and women will be able to acquire skills and opportunities to contribute to and benefit equally from the benefits and assets associated with STEM.[11]

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thank you WAX!

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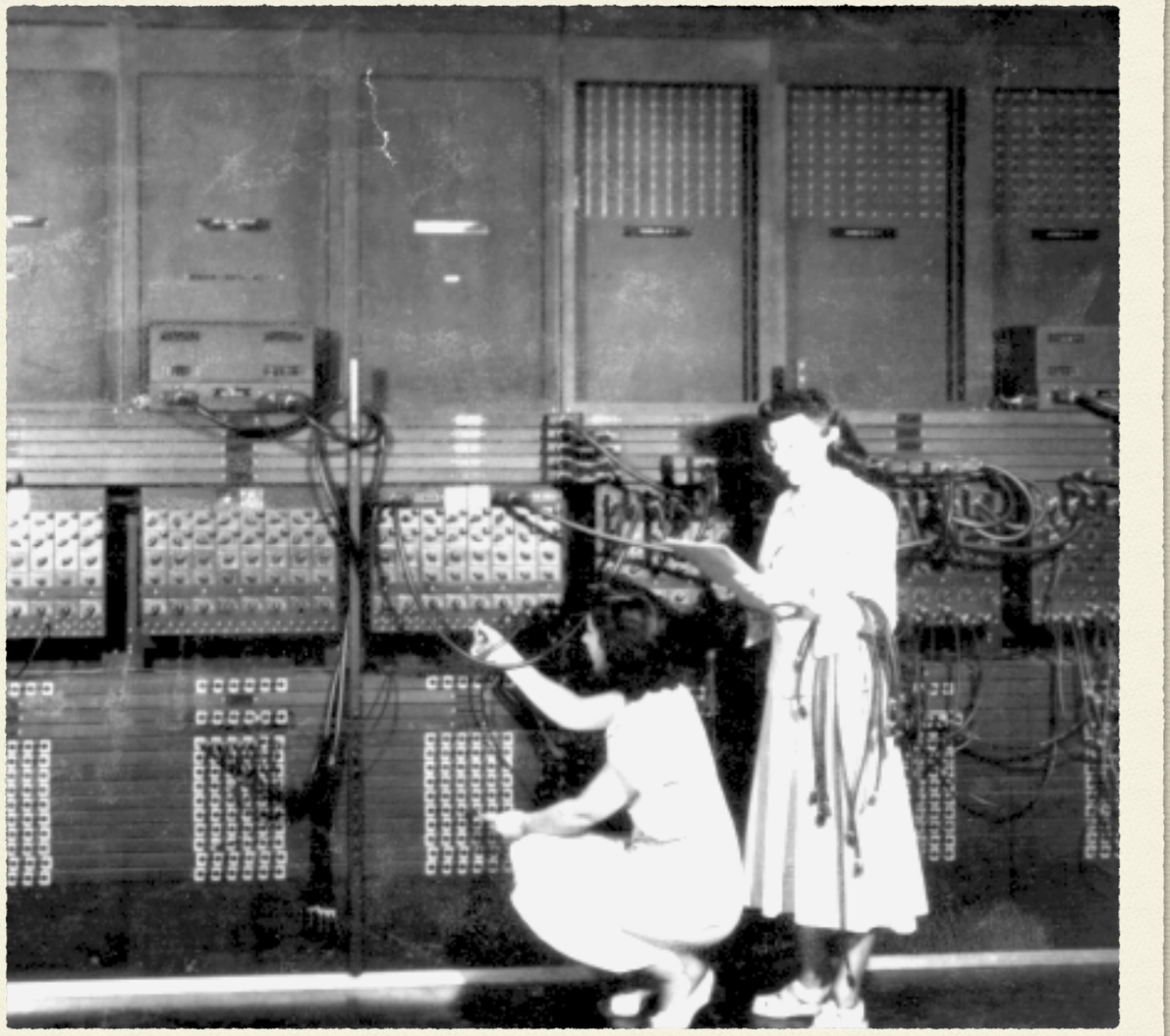
first myth to forget :

the situation of women in science does not improve by itself if we only let time goes....



ENIAC

Research Article

ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

Psychological Science
1–13

DOI: 10.1177/0956797617741719
www.psychologicalscience.org/PS

SAGE

The Gender-Equality Paradox in Science, Technology, Engineering, and Mathematics Education

Gijsbert Stoet[1] and David C. Geary[2]
[1]School of Social Sciences, Leeds Beckett University, and [2]Department of Psychological Sciences, University of Missouri

Using an international database on adolescent achievement in science, mathematics, and reading (N = 472,242), we showed that girls performed similarly to or better than boys in science in two of every three countries, and in nearly all countries, more girls appeared capable of college-level STEM study than had enrolled....A mediation analysis suggested that life-quality pressures in less gender-equal countries promote girls' and women's engagement with STEM subjects.

Gender stereotypes can explain the gender-equality paradox

Thomas Breda[a,b,1], Elyès Jouini[a,b,c], Clotilde Napp[c,d], and Georgia Thebault[a,b,e]

[a]Paris School of Economics, 75014 Paris, France; [b]CNRS, UMR8545, 75014 Paris, France; [c]Université Paris Dauphine, Paris Sciences et Lettres Research University, 75016 Paris, France; [d]CNRS, UMR7088, 75016 Paris, France; and [e]Ecole des Hautes Etudes en Sciences Sociales, 75006 Paris, France

Edited by Paula England, New York University, New York, NY, and approved September 26, 2020 (received for review May 3, 2020)

The so-called "gender-equality paradox" is the fact that gender segregation across occupations is more pronounced in more egalitarian and more developed countries. Some scholars have explained this paradox by the existence of deeply rooted or intrinsic gender differences in preferences that materialize more easily in countries where economic constraints are more limited. In line with a strand of research in sociology, we show instead that it can be explained by cross-country differences in essentialist gender norms regarding math aptitudes and appropriate occupational choices. To this aim, we propose a measure of the prevalence and extent of internalization of the stereotype that "math is not for girls" at the country level. This is done using individual-level data on the math attitudes of 300,000 15-y-old female and male students in 64 countries. The stereotype associating math to men is stronger in more egalitarian and developed countries. It is also strongly associated with various measures of female underrepresentation in math-intensive fields and can therefore entirely explain the gender-equality paradox. We suggest that economic development and gender equality in rights go hand-in-hand with a reshaping rather than a suppression of gender norms, with the emergence of new and more horizontal forms of social differentiation across genders.

POLICY FORUM

EDUCATION

Societal inequalities amplify gender gaps in math

Egalitarian countries cultivate high-performing girls

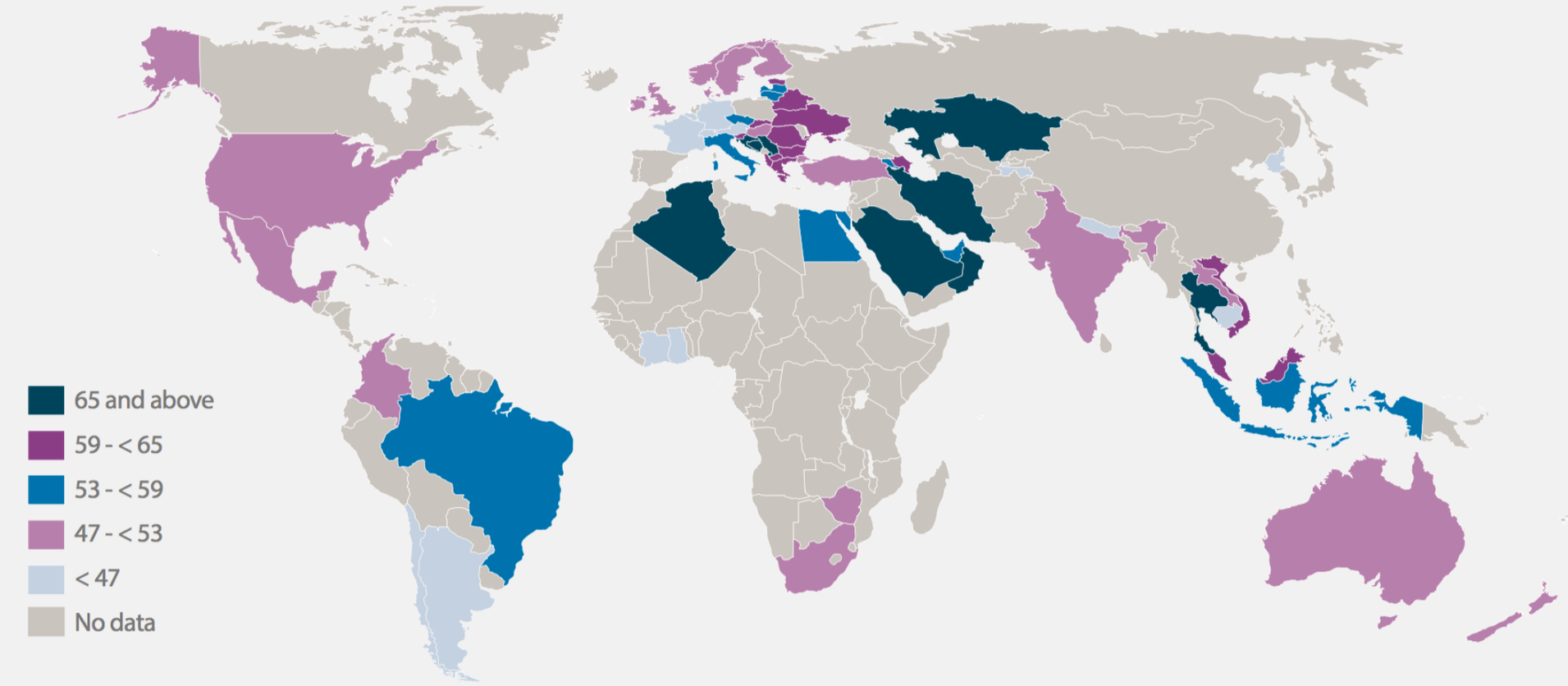
By **Thomas Breda,[1,2] Elyès Jouini,[2,3] Clotilde Napp[2,3]**

the gender gap in math. We relate below gender gaps in math to societal inequalities that are not directly related to gender. We find a strong and robust relationship and provide tests suggesting that it is causal: Countries that are generally more egalitarian, or that have institutions more conductive to equality, have a lower gender performance gap in math, suggesting that this gap is partly shaped by more general societal inequalities.

We conclude that the relationship between the math gender performance gap and societal inequality is larger and more robust than other relationships already documented with more obvious country characteristics such as gender stratification or economic development.

A situation very different from place to place:

Figure 6: Percentage of female students enrolled in natural science, mathematics and statistics programmes in higher education in different parts of the world



Note: This map has a different scale to map below. They are not to be compared directly.
82 countries.

Data source: UIS 2015[25]

petit état des lieux national : le cas du CNRS

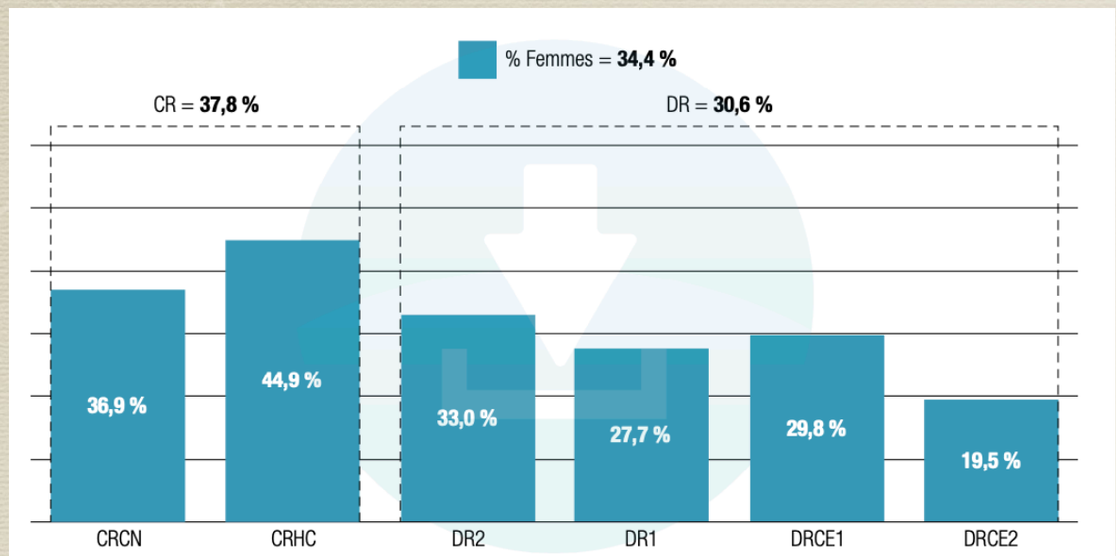


Fig. 6 – Part des chercheuses par corps et grade

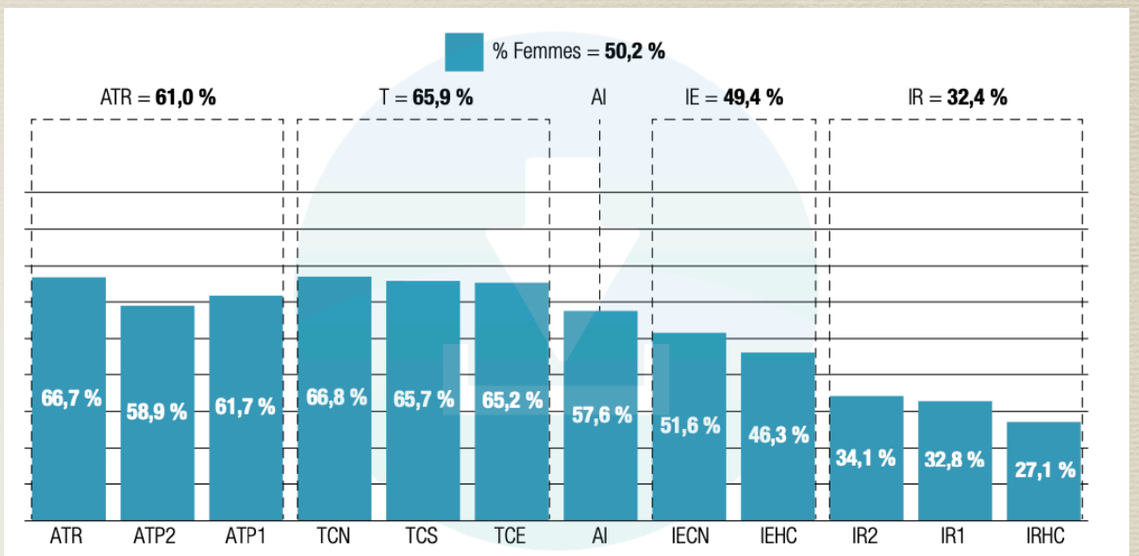


Fig. 7 – Part des ingénieures et techniciennes par corps et grade

Tabl. 33 – Chercheurs et chercheuses permanents selon la section d'évaluation et le grade / corps

SECTION	DRCE		DR1		DR2		TOTAL DR		CRHC		CRCN		TOTAL CR		TOTAL				ÂGE MOYEN	% 55 ANS ET PLUS
	Effectif	% F	Effectif	% F	Effectif	% F	Effectif	% F	Effectif	% F	Effectif	% F	Effectif	% F	H	F	Total	% F		
1	18	16,7 %	90	16,7 %	119	27,7 %	227	22,5 %	20	25,0 %	195	24,6 %	215	24,7 %	338	104	442	23,5 %	48,4	28,3 %
2	11	9,1 %	58	12,1 %	58	13,8 %	127	12,6 %	9	0,0 %	99	10,1 %	108	9,3 %	209	26	235	11,1 %	48,9	31,5 %
3	10	10,0 %	54	22,2 %	71	15,5 %	135	17,8 %	11	18,2 %	131	17,6 %	142	17,6 %	228	49	277	17,7 %	48,8	30,7 %
4	11	0,0 %	48	18,8 %	82	24,4 %	141	20,6 %	14	7,1 %	135	17,0 %	149	16,1 %	237	53	290	18,3 %	49,0	31,7 %
5	10	20,0 %	49	24,5 %	87	20,7 %	146	21,9 %	14	21,4 %	120	34,2 %	134	32,8 %	204	76	280	27,1 %	49,4	31,1 %
6	6	33,3 %	43	18,6 %	79	21,5 %	128	21,1 %	13	15,4 %	155	17,4 %	168	17,3 %	240	56	296	18,9 %	45,2	19,6 %
7	7	14,3 %	49	16,3 %	76	21,1 %	132	18,9 %	15	40,0 %	136	20,6 %	151	22,5 %	224	59	283	20,8 %	46,3	24,0 %
8	13	15,4 %	57	19,3 %	101	18,8 %	171	18,7 %	19	36,8 %	179	19,6 %	198	21,2 %	295	74	369	20,1 %	48,3	26,3 %
9	5	20,0 %	42	11,9 %	56	19,6 %	103	16,5 %	9	0,0 %	105	24,8 %	114	22,8 %	174	43	217	19,8 %	48,4	30,9 %
10	10	30,0 %	69	30,4 %	109	22,9 %	188	26,1 %	19	31,6 %	160	20,6 %	179	21,8 %	279	88	367	24,0 %	49,7	34,6 %
11	5	20,0 %	47	23,4 %	87	25,3 %	139	24,5 %	12	50,0 %	125	30,4 %	137	32,1 %	198	78	276	28,3 %	48,8	29,3 %
12	7	71,4 %	42	16,7 %	59	20,3 %	108	22,2 %	13	46,2 %	118	26,3 %	131	28,2 %	178	61	239	25,5 %	48,2	26,4 %
13	6	16,7 %	52	42,3 %	92	30,4 %	150	34,0 %	20	45,0 %	138	39,9 %	158	40,5 %	193	115	308	37,3 %	49,3	33,4 %
14	7	28,6 %	46	32,6 %	84	39,3 %	137	36,5 %	19	42,1 %	135	31,9 %	154	33,1 %	190	101	291	34,7 %	49,4	34,0 %
41	18	33,3 %	75	18,7 %	77	20,8 %	170	21,2 %	24	25,0 %	188	17,6 %	212	18,4 %	307	75	382	19,6 %	45,6	27,0 %

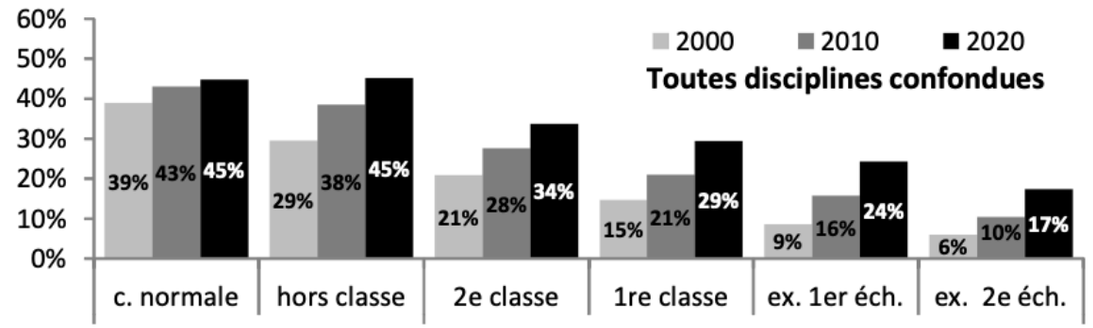
MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR, DE LA RECHERCHE ET DE L'INNOVATION
SECRÉTARIAT GÉNÉRAL
DIRECTION GÉNÉRALE DES RESSOURCES HUMAINES
SERVICE DES PERSONNELS ENSEIGNANTS
DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE

Note de la DGRH

- Enseignement supérieur -

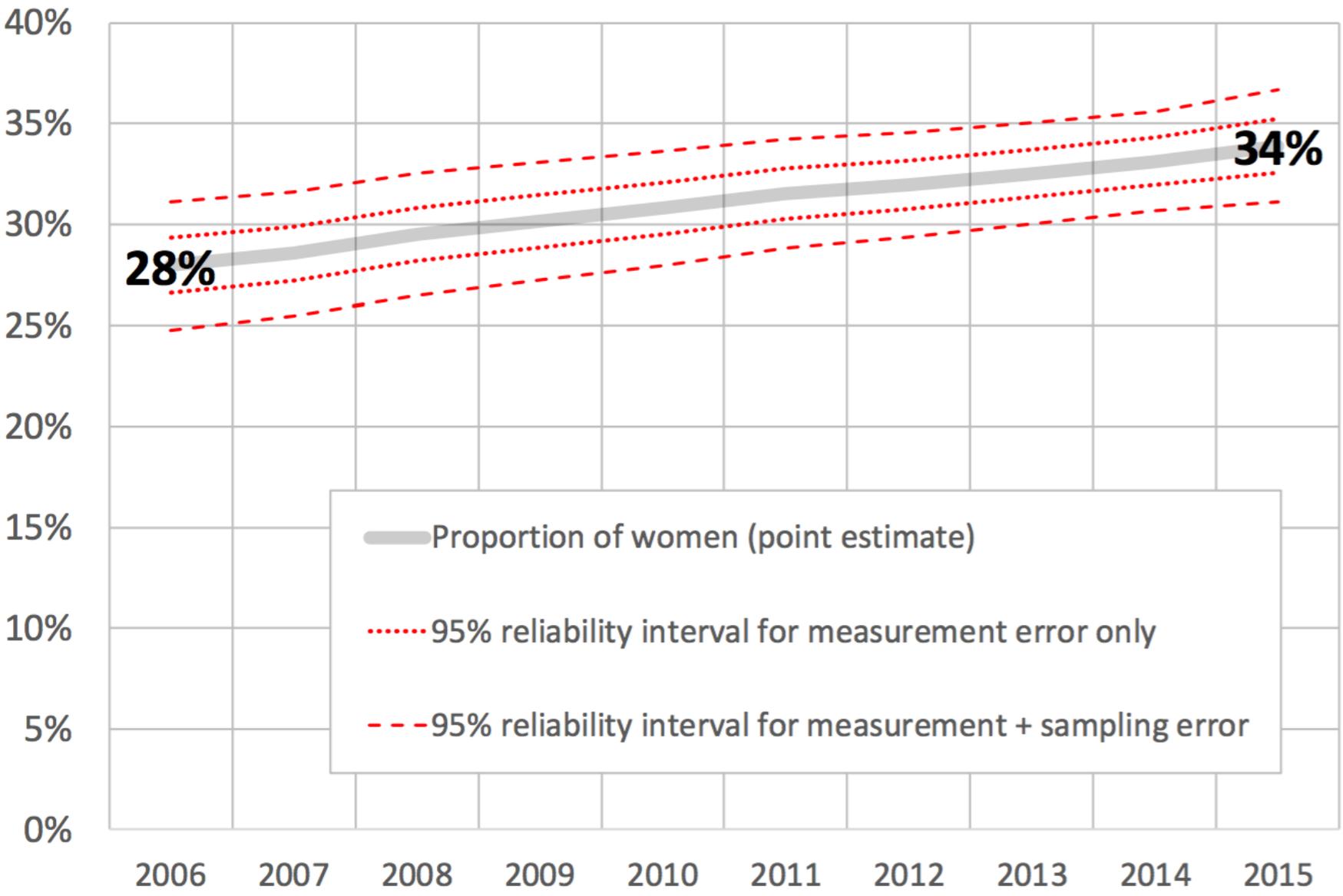
n° 4 - Avril 2021

② Proportion de femmes universitaires selon le grade en 2000, 2010 et 2020



Note de lecture : en 2020, 51 % des MCF de classe normale relevant du Droit-Economie-Gestion sont des femmes.
Source : MESRI DGRH A

Proportion of women is increasing at world level



Proportion of women varies by field

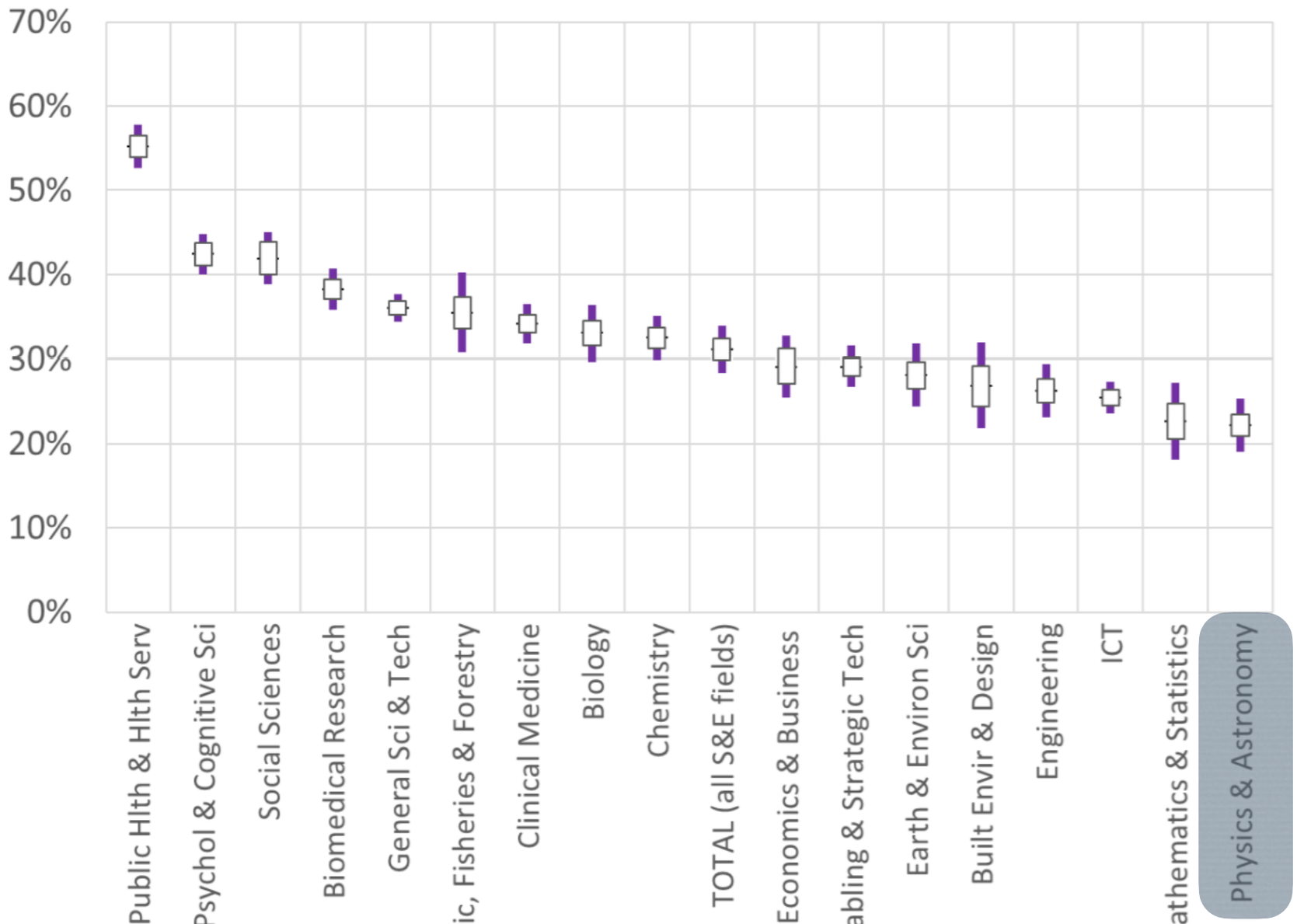
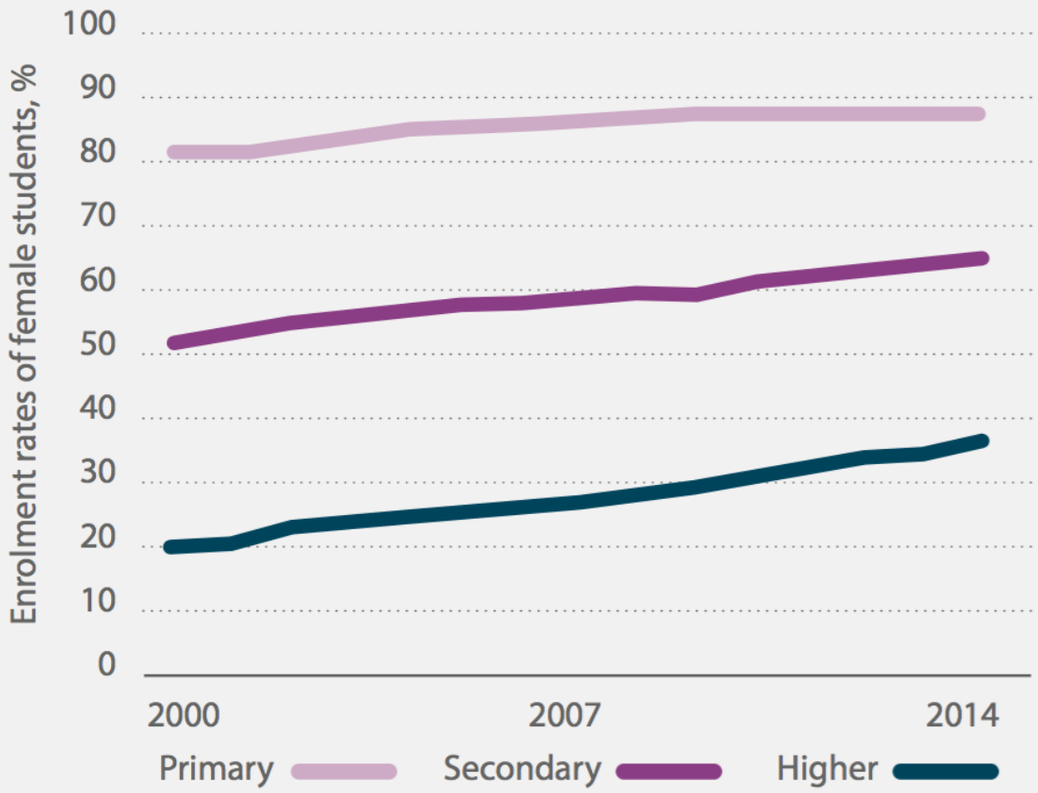


Figure 1: Enrolment rate* of female students, by level of education, world average



Girls' enrolment in education is increasing globally, especially in higher education. *Note: Net enrolment rates for primary and secondary, gross enrolment ratio for higher education.
200 countries and dependent territories. Data source: UIS 2015[25]

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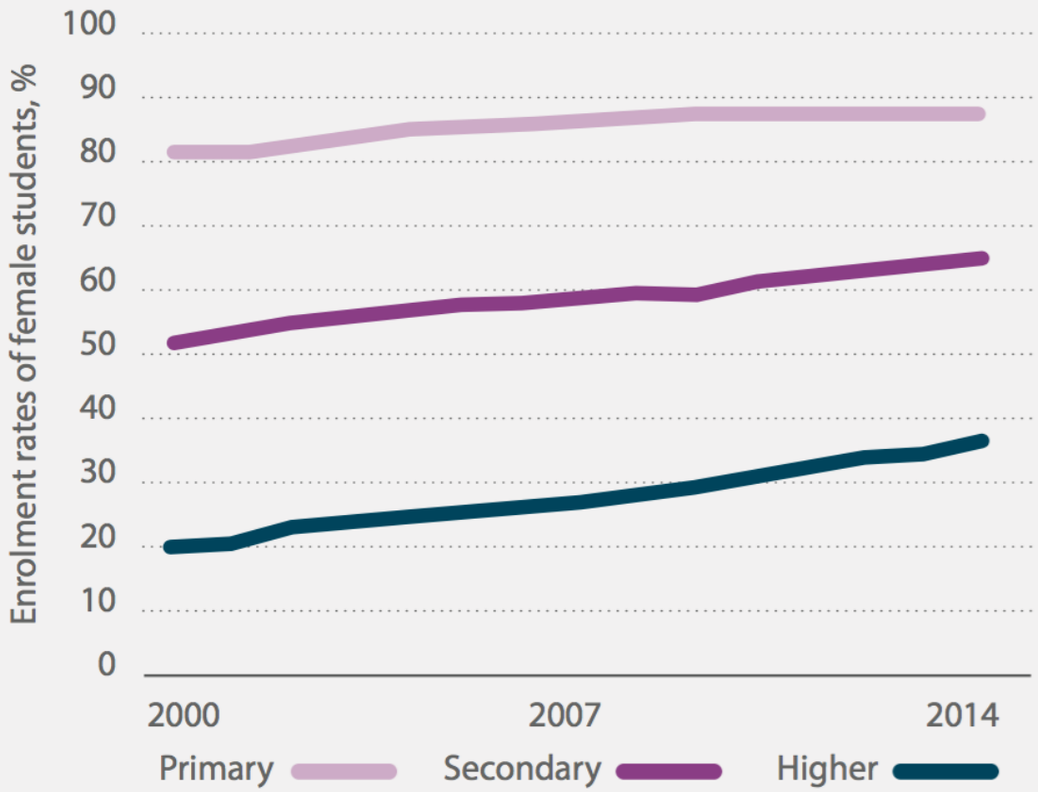

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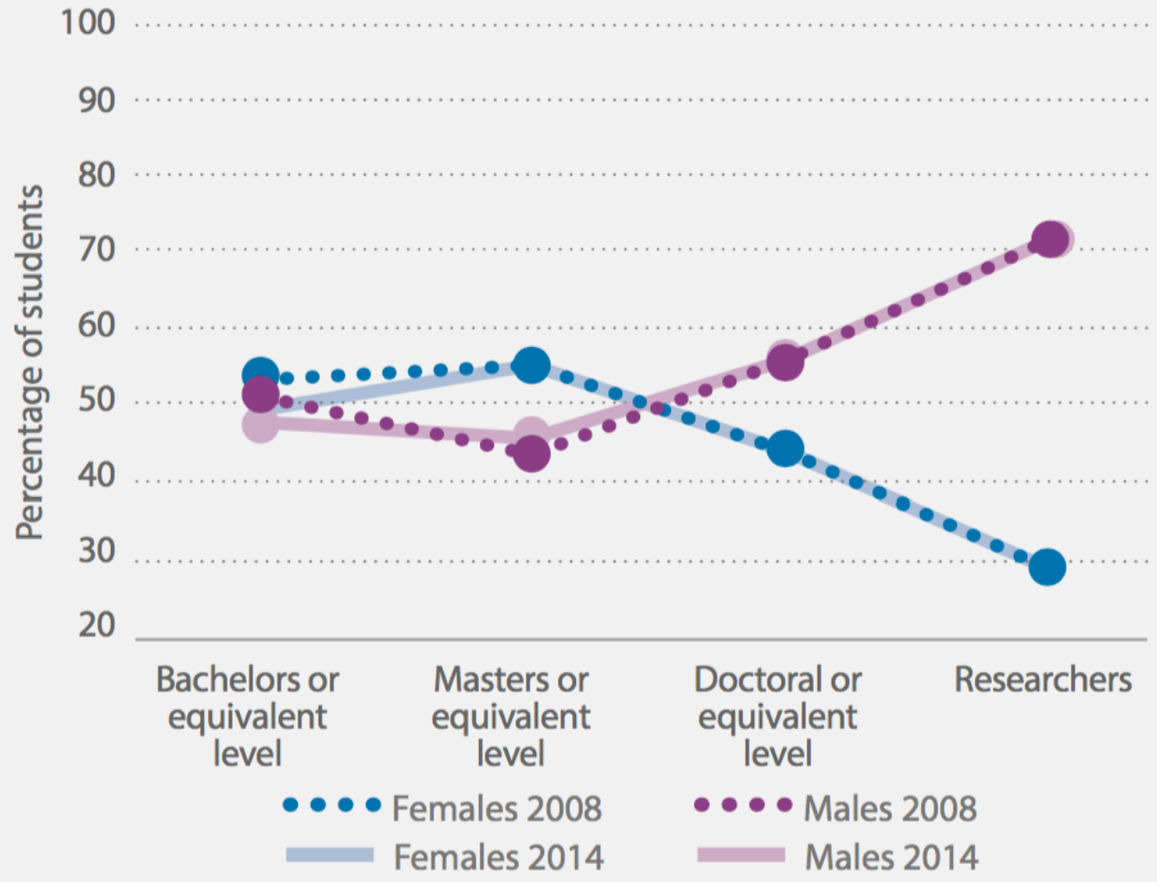
Figure 11: Proportion of women and men in higher education and research, world average



Gender gap widens significantly among science researchers.
226 countries. Data source: UNESCO 2008-2014[11]

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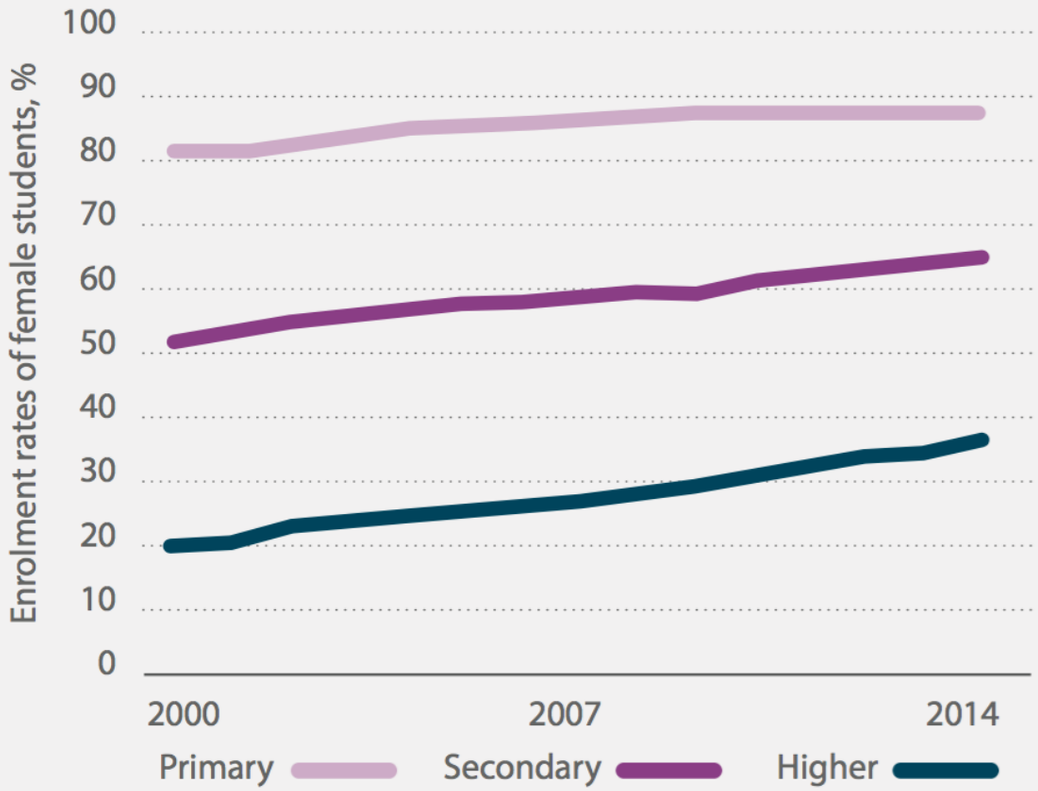

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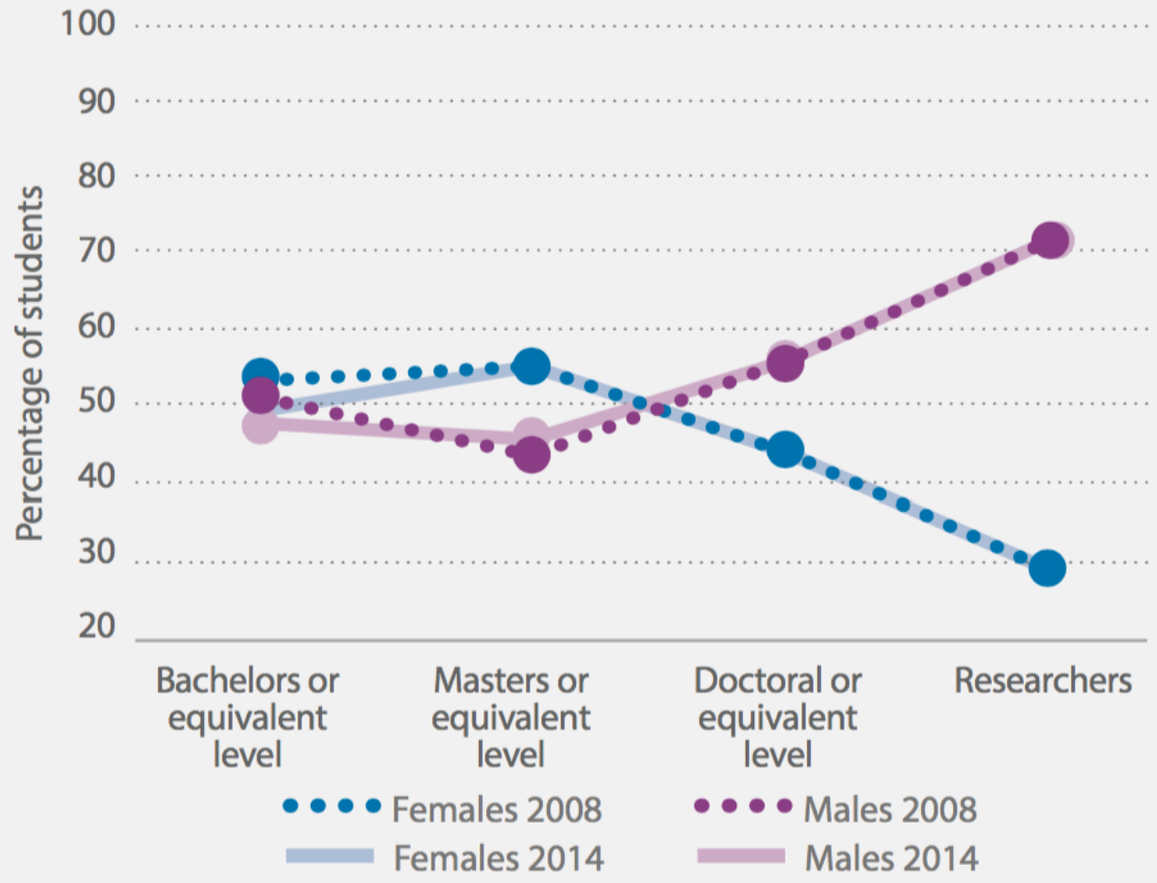

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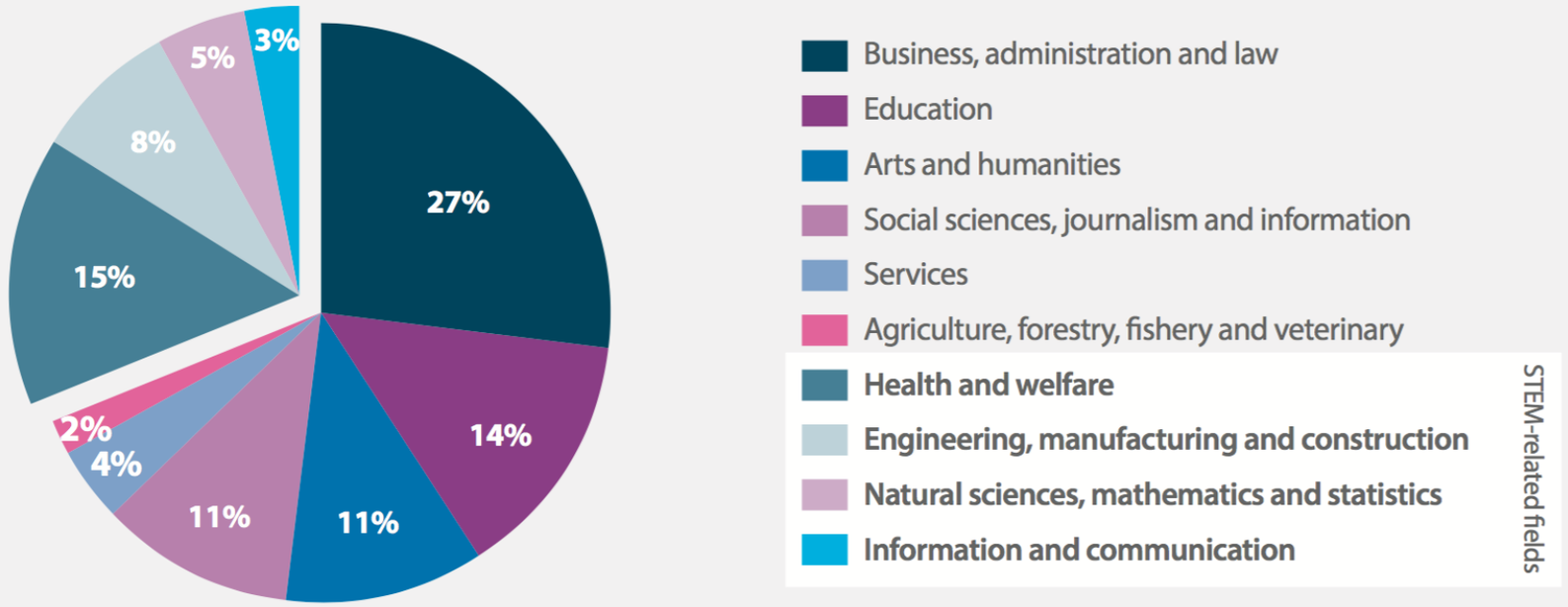
mind small gaps because 0.95*0.95*0.95*0.95*0.95*0.95*0.95=0.70

Figure 5: Distribution of female students enrolled in higher education, by field of study, world average



Only around 30% of all female students select STEM-related fields in higher education.
110 countries and dependent territories.

Data source: UIS 2014-2016[25]

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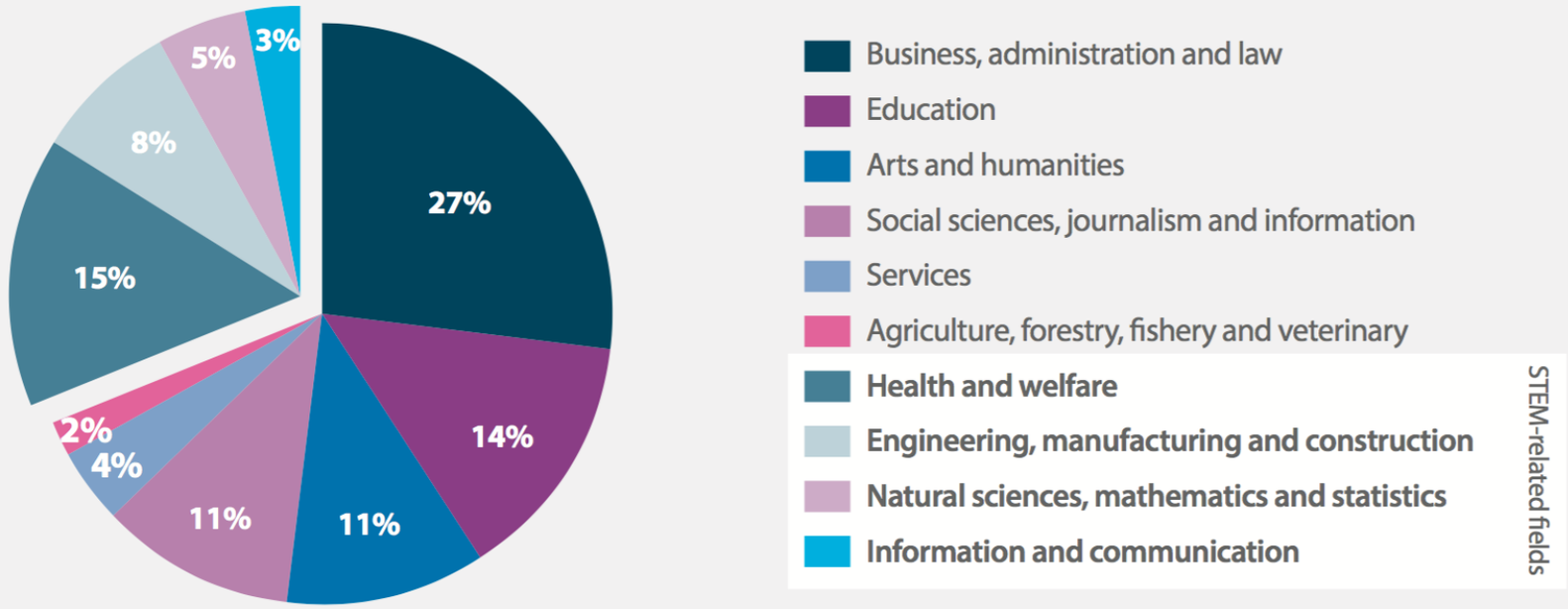

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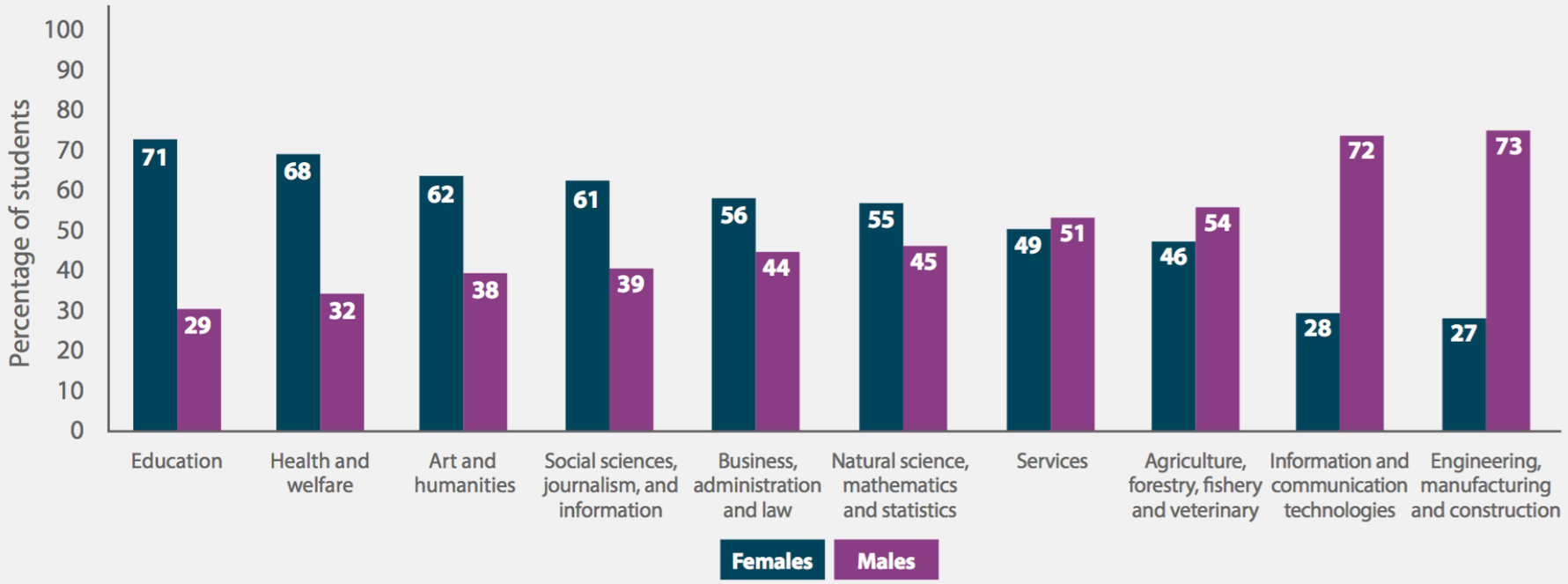
Figure 4: Share of female and male students enrolled in higher education, by field of study, global average



Significant gender differences in higher education enrolments by fields of study.
115 countries and dependent territories.

Data source: UIS 2014-2016[25]

The impact of science achievement on the choice of science-related occupation

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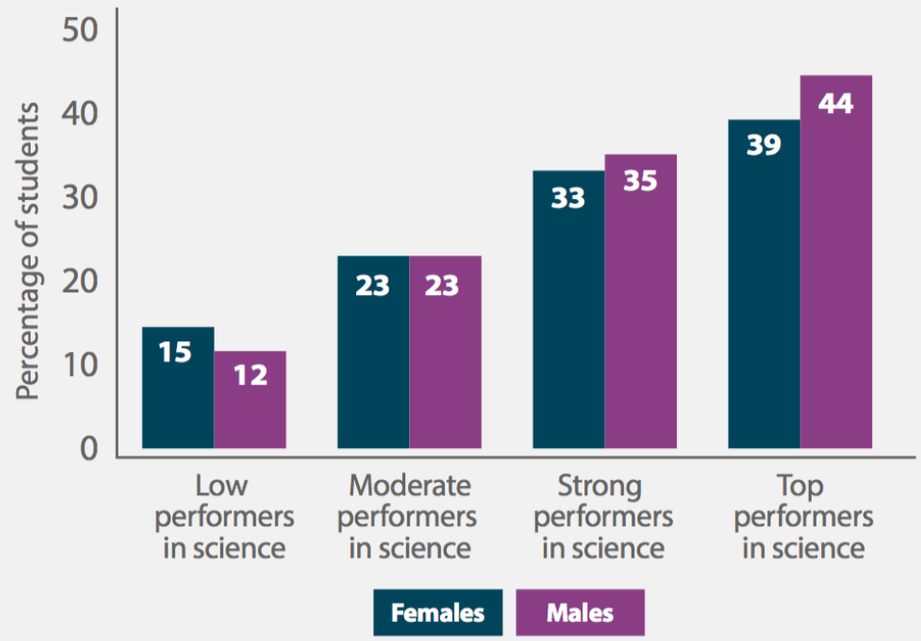
Figure 9: Percentage of students who expect to work in science-related occupations and their level of proficiency in science, 15-year-olds



Girls' and boys' career expectations are affected by their level of proficiency in science.
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Data source: PISA 2015 (OECD countries)[17]

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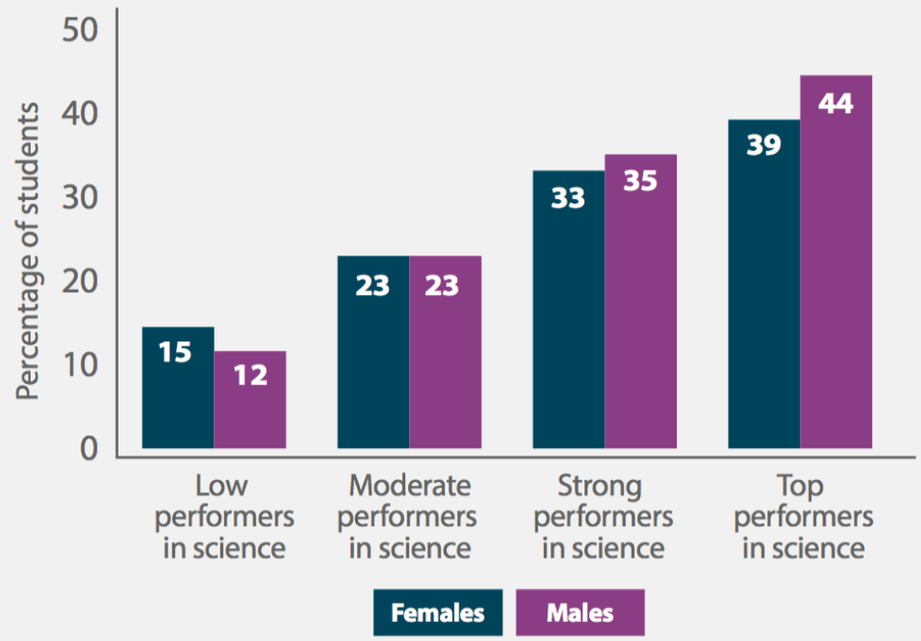

Girls' and boys' career expectations are affected by their level of proficiency in science.
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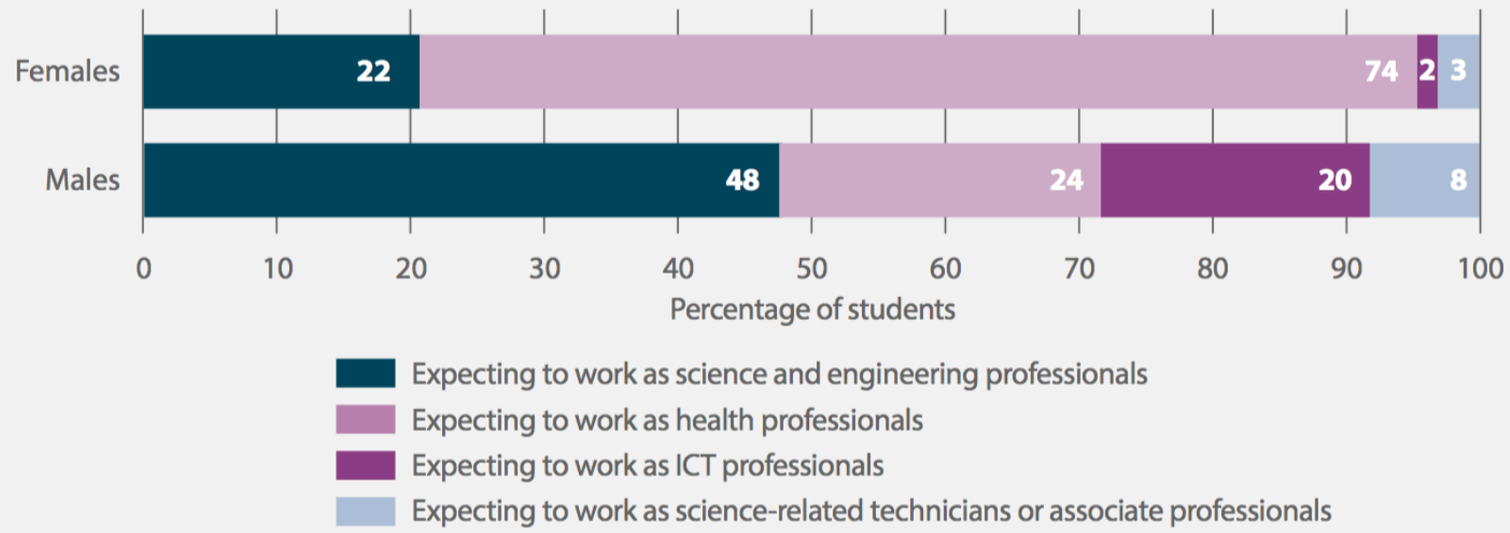
Figure 10: Student expectations on science careers, by sub-field of study, out of those who choose science careers, 15-year-olds



Most 15 year-old girls intending to pursue science careers expect to work as health professionals.
35 OECD countries.

Data source: PISA 2015 (OECD countries)[17]

* the impact of mathematics anxiety?

In many countries, it is widely believed that boys are better at mathematics than girls. This stereotype threatens the results that girls can reach on exams and can have an impact on their choice for studying STEM in high-school and university.

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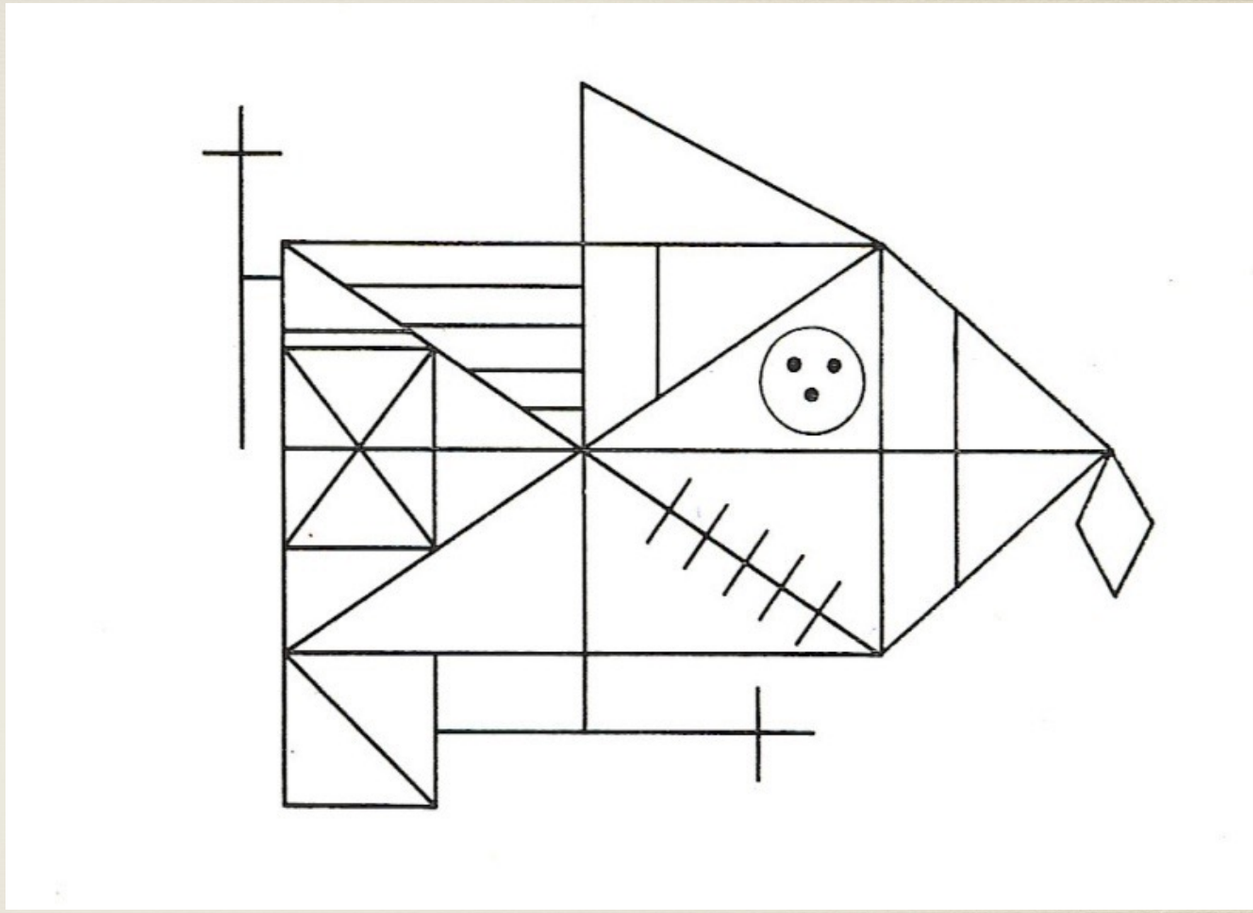

Huguet & Régner
2007: Journal of Educational Psychology
2009: Journal of Experimental Social Psychology

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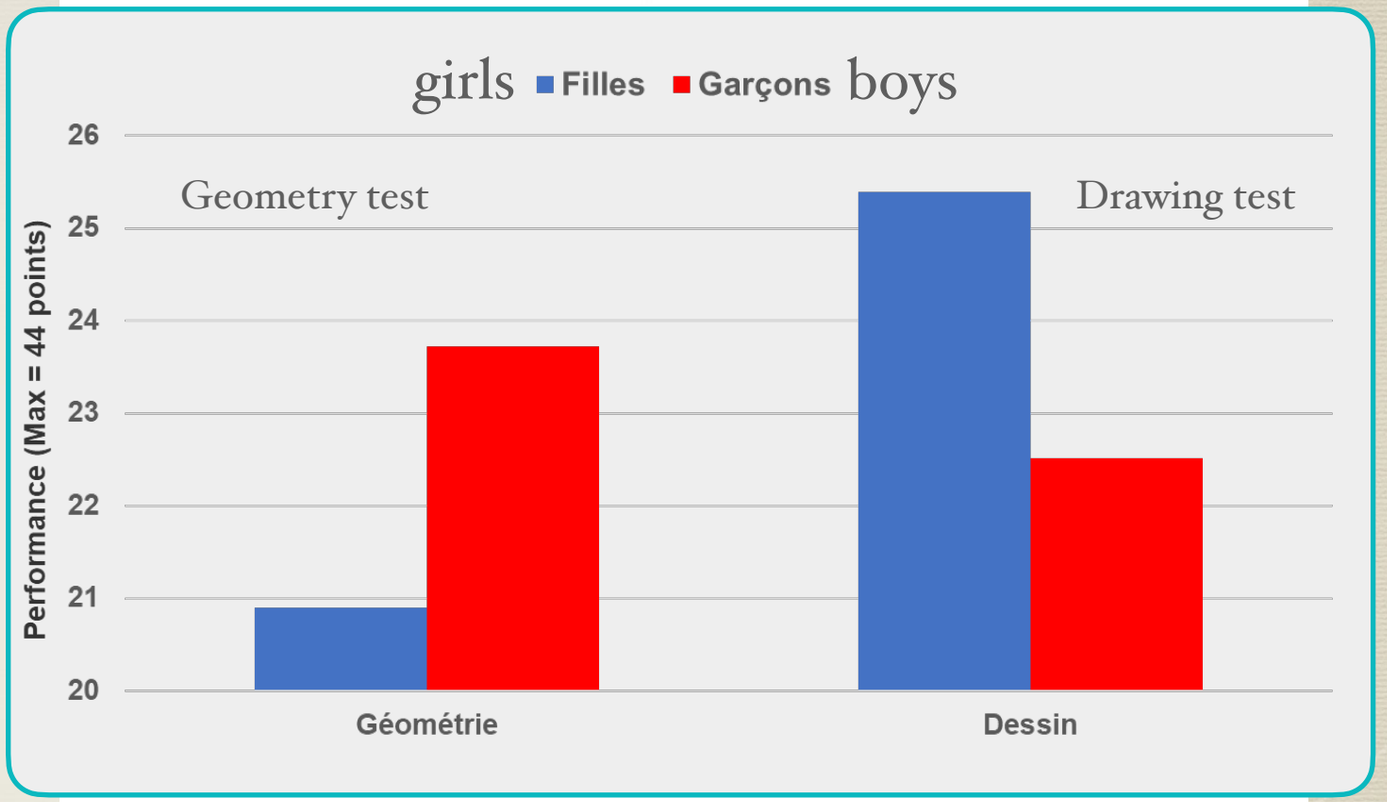

Huguet & Régner
2007: Journal of Educational Psychology
2009: Journal of Experimental Social Psychology

Gender stereotypes about intellectual ability emerge early and influence children's interests

Lin Bian,[1,2]* Sarah-Jane Leslie,[3] Andrei Cimpian[1,2]*

Common stereotypes associate high-level intellectual ability (brilliance, genius, etc.) with men more than women. These stereotypes discourage women's pursuit of many prestigious careers; that is, women are underrepresented in fields whose members cherish brilliance (such as physics and philosophy). Here we show that these stereotypes are endorsed by, and influence the interests of, children as young as 6. Specifically, 6-year-old girls are less likely than boys to believe that members of their gender are "really, really smart." Also at age 6, girls begin to avoid activities said to be for children who are "really, really smart." These findings suggest that gendered notions of brilliance are acquired early and have an immediate effect on children's interests.

Bian *et al.*, *Science* **355**, 389–391 (2017) 27 January 2017

* the impact of mathematics anxiety?

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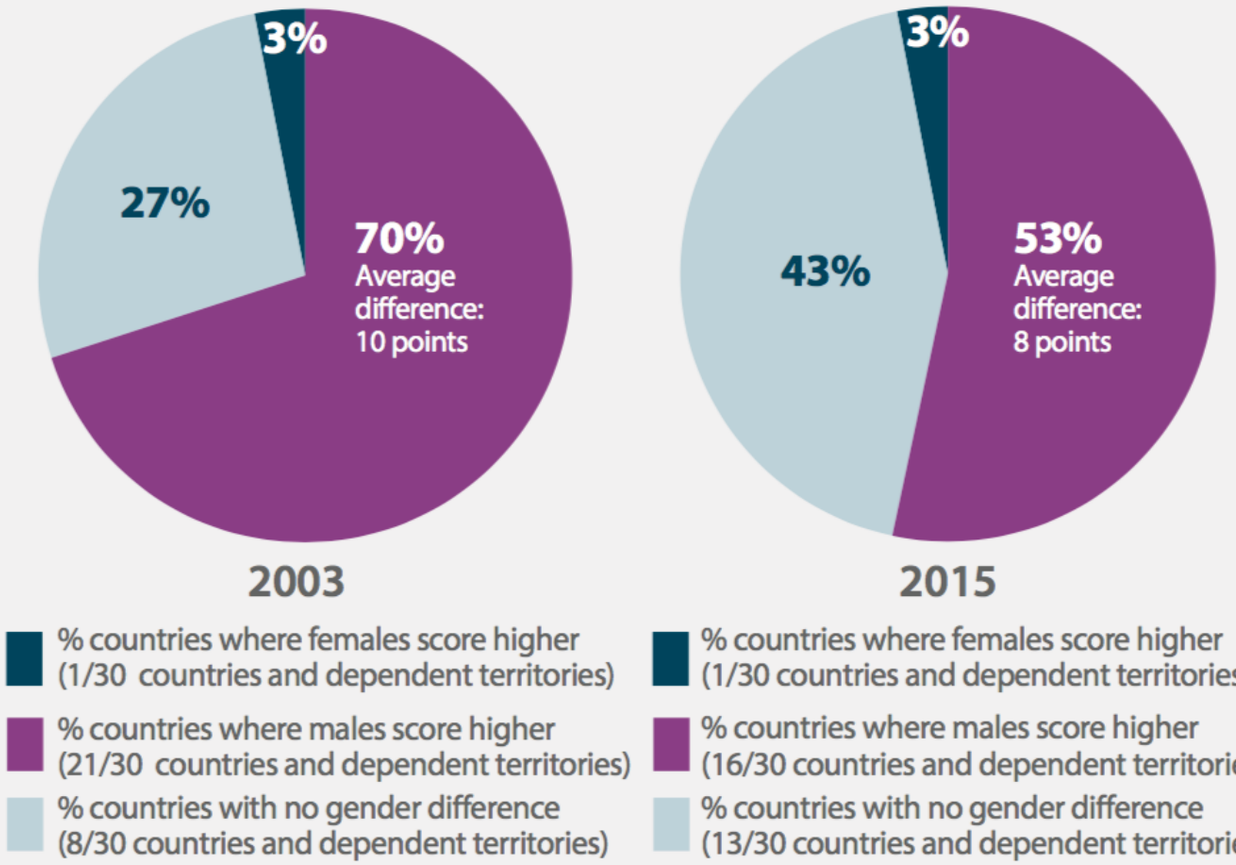
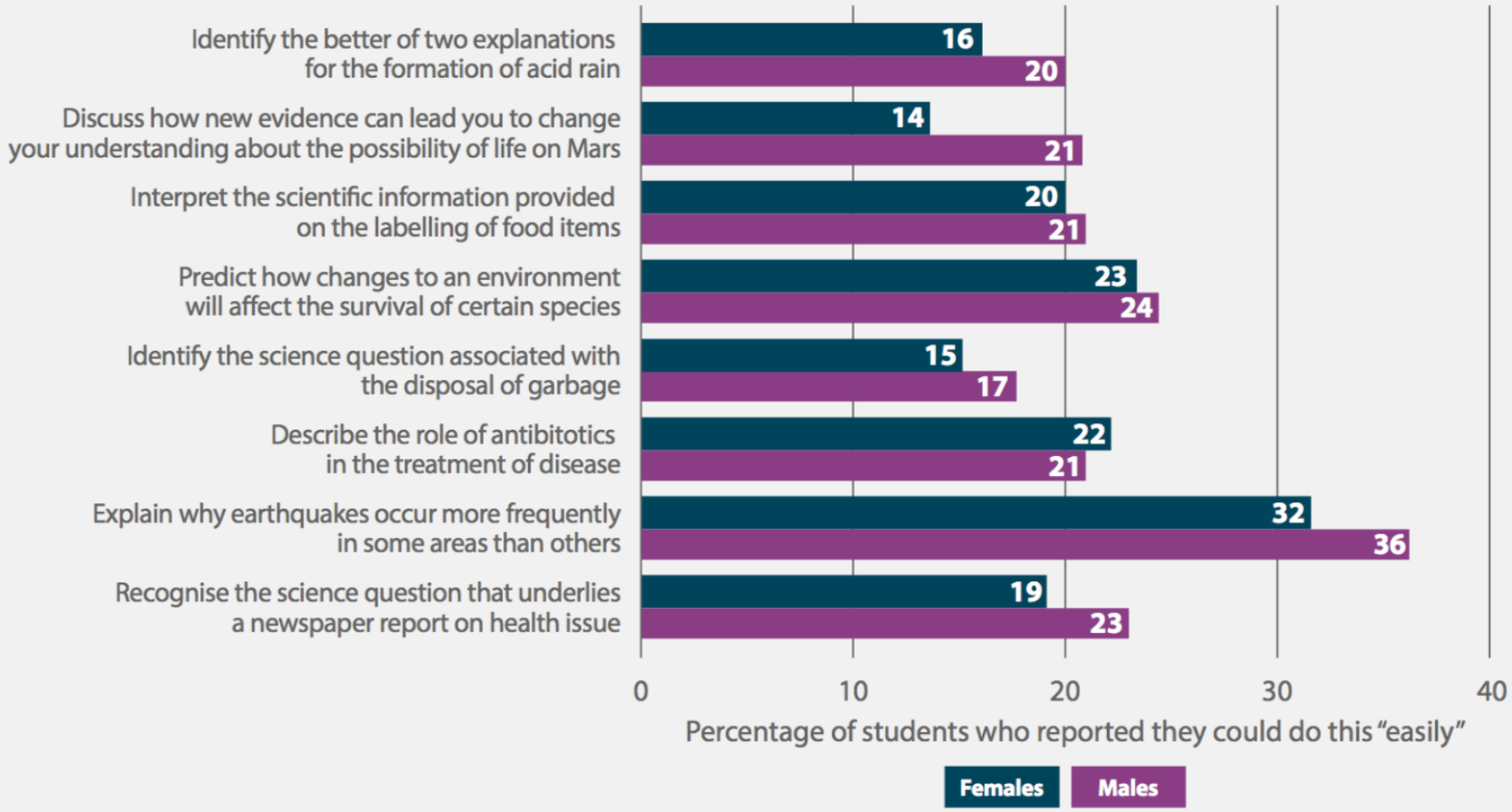
Figure 34: 12-year trends in mathematics achievement, 15-year-olds



Note: Average score difference is calculated as average achievement score points of boys minus that of girls. Score differentials are not available when girls outperform boys. Countries and dependent territories for which trend data are available: Australia, Austria, Belgium, Canada, Czechia, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Rep. of Korea, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, and the United States.

Data source: PISA 2003 -2015 (OECD countries)[17]

Figure 37: Percentage of students who reported that 'they could easily do' certain tasks in science, 15-year-olds



Girls have lower self-efficacy in science than boys, except in health-related topics.
70 countries and dependent territories.

Data source: PISA 2015 (OECD countries)[17]

PISA 2015 confirmed that girls have lower self- efficacy in science and mathematics than boys, a difference that has remained largely unchanged since 2006. Gender differences in science self-efficacy in boys' favour were particularly large in Denmark, France, Germany, Iceland and Sweden. Girls who assimilate gender stereotypes have lower levels of self-efficacy and confidence in their ability than boys.

Figure 36: Ecological framework of factors influencing girls' and women's participation, achievement and progression in STEM studies

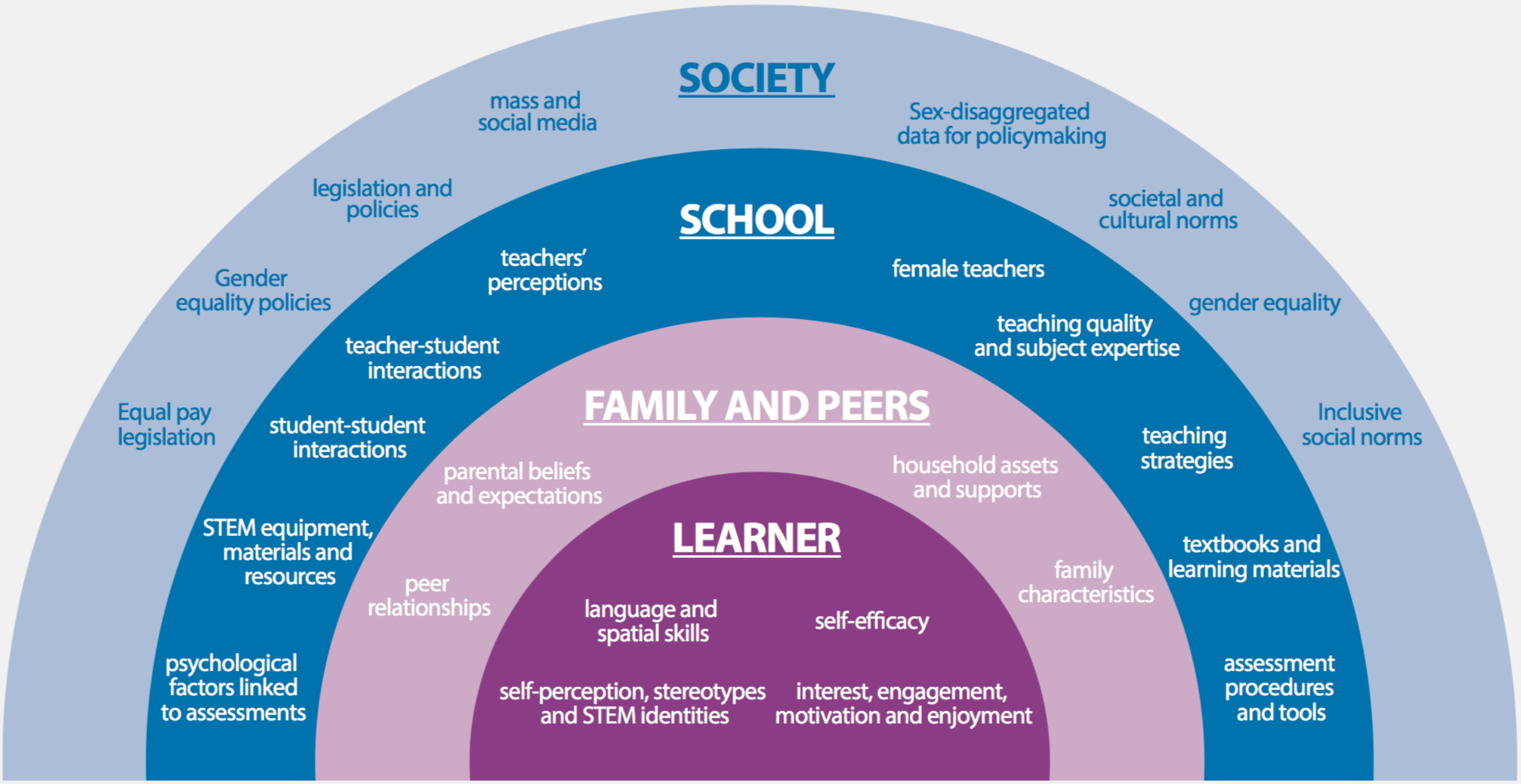


Figure 36: Ecological framework of factors influencing girls' and women's participation, achievement and progression in STEM studies

what may help a girl to go for science?

* importance of role model to look at science like a place open to women also. They can be teachers, professors, scientists invited by media...

* being supported by teachers from primary school to university

* having parents who does not have lower expectations of girls' ability in mathematics and who does not place less value in girls' participation in science and mathematics. Parents with traditional expectations of gender roles reinforce gendered behaviours and attitudes in children and can reinforce negative stereotypes about gender and ability in STEM.

* being convinced that it will offer good conditions for living.

actions dedicated to undergraduate female students

actions dedicated to undergraduate female students

Conferences for Undergraduate Women in Physics (CUWiP)

APS Conferences for Undergraduate Women in Physics (CUWiP) are three-day regional conferences for undergraduate physics majors.

2019

The 2019 conferences will be held Friday, January 18 through Sunday afternoon, January 20, 2019.

- University of Massachusetts, Amherst
- The College of New Jersey
- College of William and Mary
- The University of Alabama, Tuscaloosa
- Utah State University
- University of California, Santa Barbara
- Texas A&M University - Corpus Christi
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Department of Physics

UNIVERSITY OF OXFORD

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IOP Institute of Physics

Women in University Physics Departments

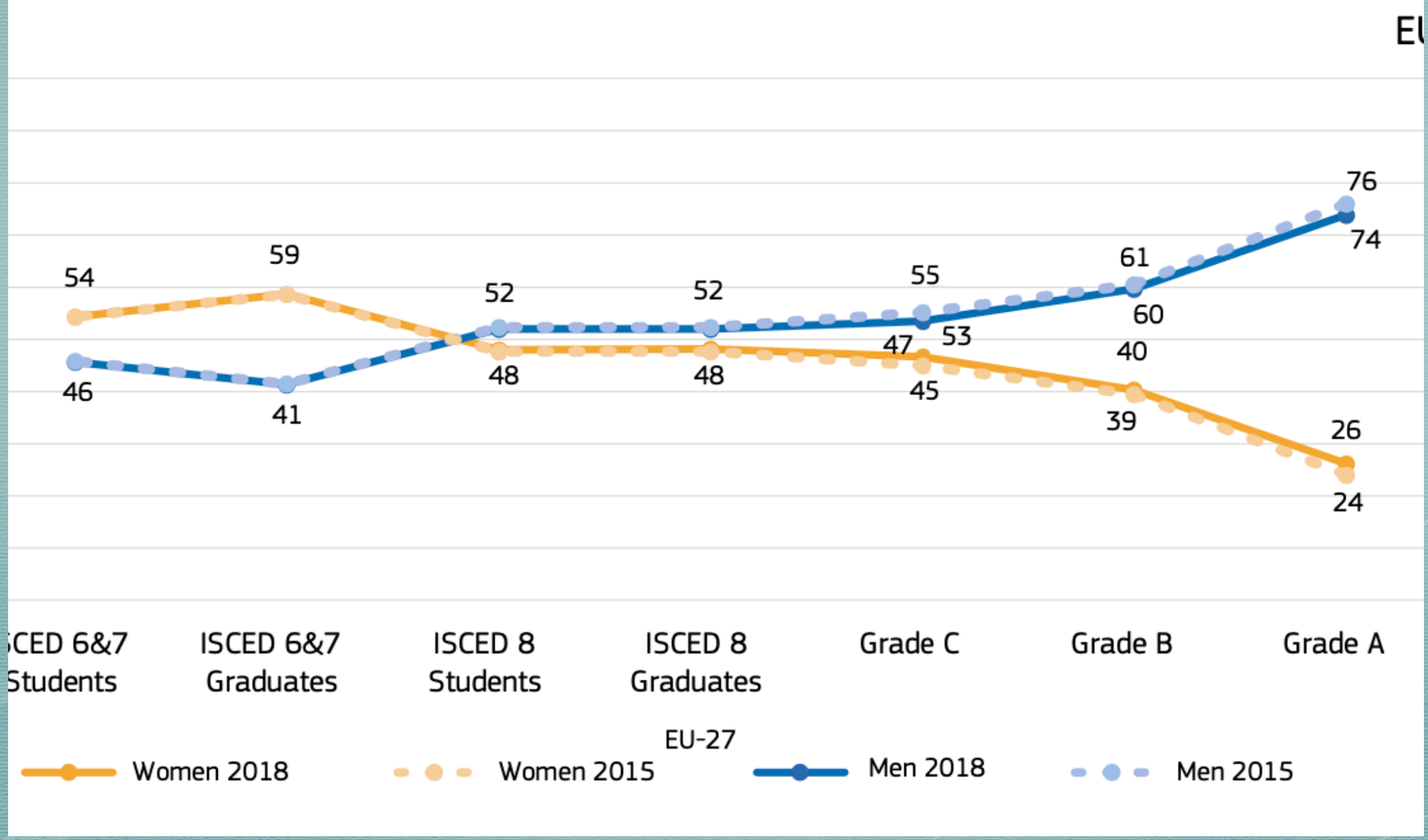
IUPAP

International Union of Pure and Applied Physics

data for Europe : She Figures 2021

The share of women among academic staff declined steeply as they advanced to higher positions, with little improvement since 2015.

6.1 Proportion (%) of men and women in a typical academic career, students and acad staff, EU-27 & EU-28, 2015-2018



quelles perspectives de carrière?

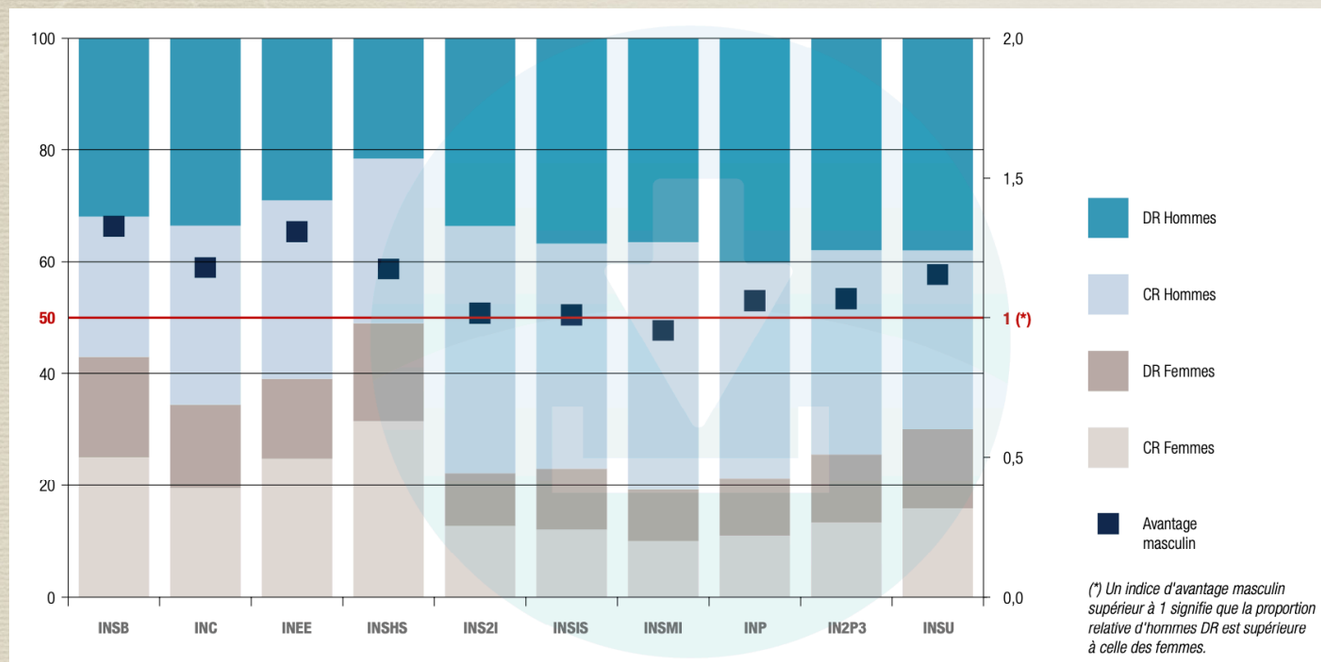
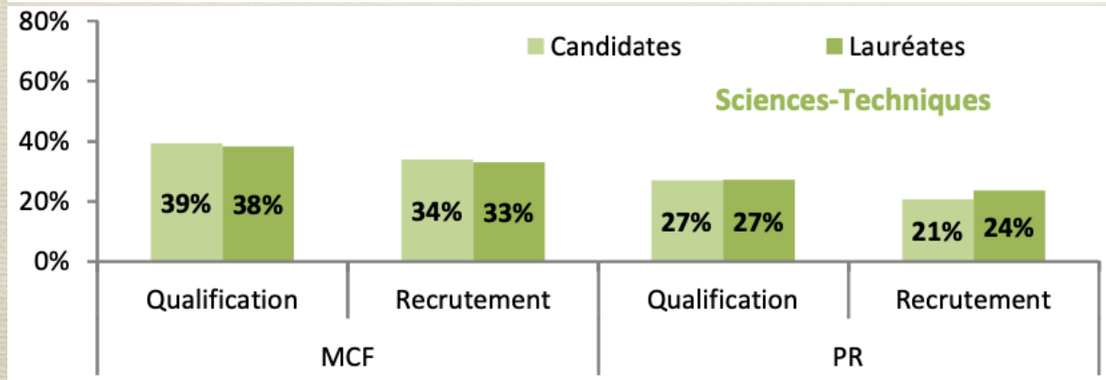
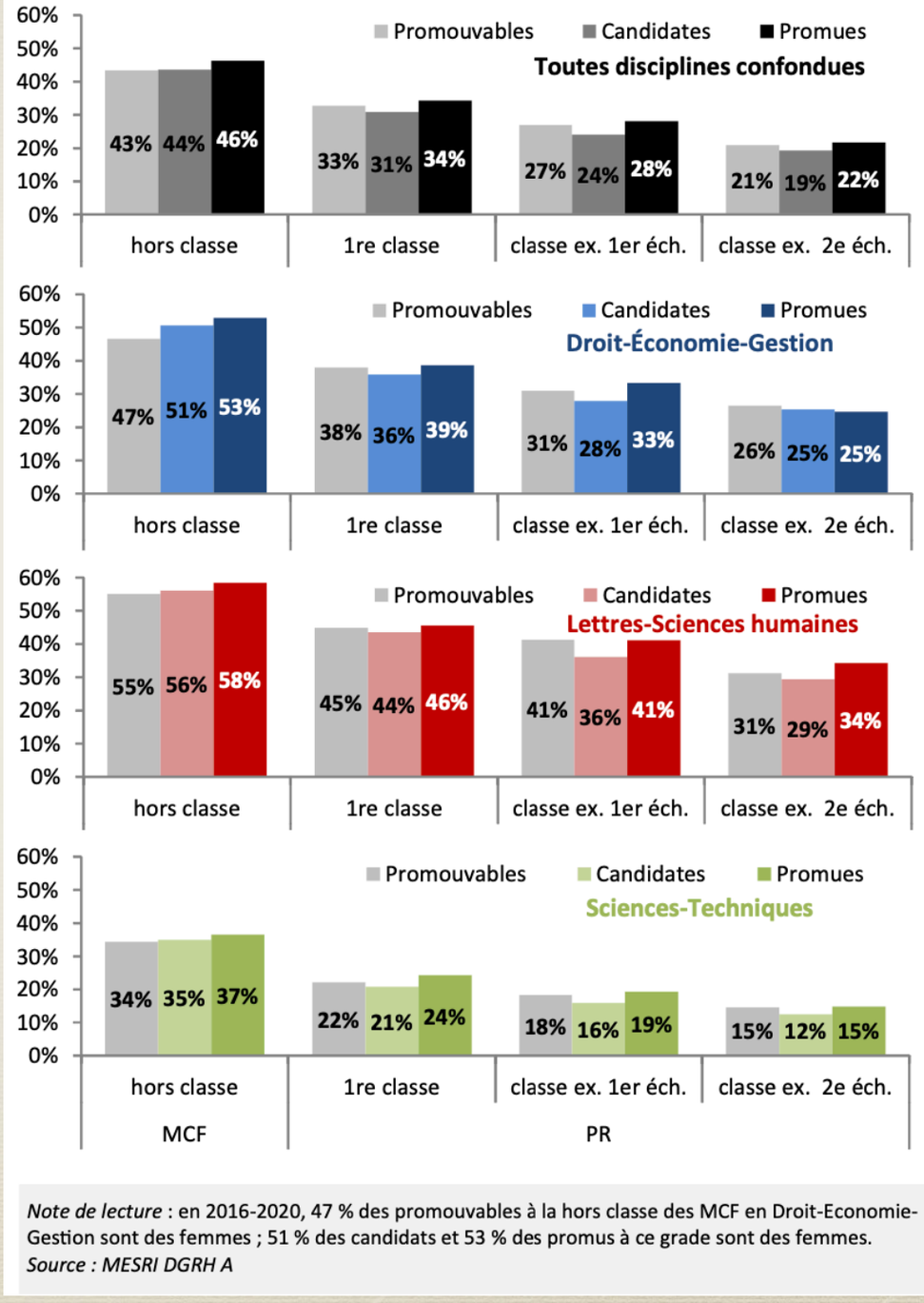


Fig. 18 – Proportion de femmes et d'hommes par corps et avantage masculin par institut

④ Proportion de femmes candidates et lauréates à la qualification et au recrutement dans les corps des MCF et des PR sur la période 2016-2020



③ Proportion de femmes universitaires promouvables, candidates et promues à l'avancement de grade sur la période 2016-2020



Note de lecture : en 2016-2020, 47 % des promouvables à la hors classe des MCF en Droit-Economie-Gestion sont des femmes ; 51 % des candidats et 53 % des promus à ce grade sont des femmes.
Source : MESRI DGRH A

a research case on the French national committees that hire and promote for CNRS

nature human behaviour

ARTICLES

https://doi.org/10.1038/s41562-019-0686-3

Committees with implicit biases promote fewer women when they do not believe gender bias exists

Isabelle Régner[1*], Catherine Thinus-Blanc[1], Agnès Netter[2], Toni Schmader[3,5] and Pascal Huguet[4,5*]

Whether gender bias contributes to women's under-representation in scientific fields is still controversial. Past research is limited by relying on explicit questionnaire ratings in mock-hiring scenarios, thereby ignoring the potential role of implicit gender bias in the real world. We examine the interactive effect of explicit and implicit gender biases on promotion decisions made by scientific evaluation committees representing the whole scientific spectrum in the course of an annual nationwide competition for elite research positions. Findings reveal that committees with strong implicit gender biases promoted fewer women at year 2 (when committees were not reminded of the study) relative to year 1 (when the study was announced) if those committees did not explicitly believe that external barriers hold women back. When committees believed that women face external barriers, implicit biases did not predict selecting more men over women. This finding highlights the importance of educating evaluative committees about gender biases.

[1]Laboratoire de Psychologie Cognitive, Aix Marseille Univ, CNRS, Marseille, France. [2]Institut National des Hautes Etudes de la Sécurité et de la Justice, CNRS, Paris, France. [3]University of British Columbia, Vancouver, British Columbia, Canada. [4]Laboratoire de Psychologie Sociale et Cognitive, Université Clermont Auvergne, CNRS, Clermont-Ferrand, France. [5]These authors contributed equally: Toni Schmader, Pascal Huguet.
*e-mail: isabelle.regner@univ-amu.fr; pascal.huguet@uca.fr

but what happens if women stay in science after all?

NSERC CRSNG Chair for Women in Science and Engineering BC and Yukon Region

WWEST Westcoast Women in Engineering, Science & Technology

Unconscious Bias

Unconscious bias refers to the assumptions and conclusions we jump to without thinking.[1]

An example might be assuming that an older person walking with a child is their grandparent. These biases do not indicate hostility towards certain groups; they reflect how the individual has been socialized.

Several studies demonstrate the impact unconscious bias can have on the hiring process, particularly for women.

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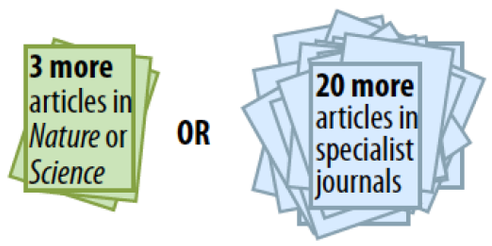
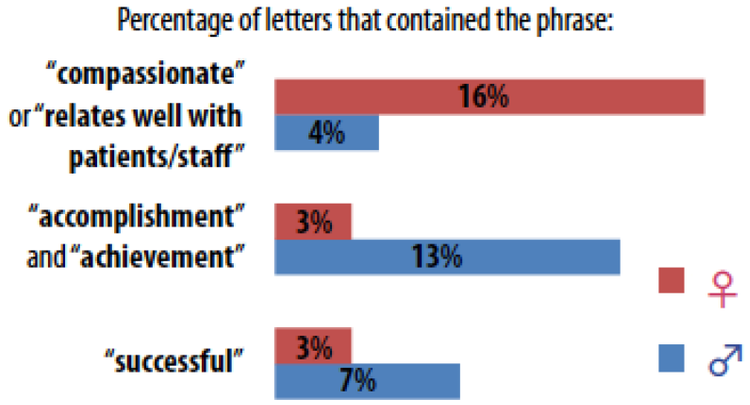
To be seen as equally "**competent**" by reviewers, female researchers need to publish:



than male applicants when applying for a medical fellowship.[5]

Reference letters for female medical faculty were **shorter**, more **vague**, and placed **less emphasis on research** than those for males.[6]



The average letter length for women was **227** words, compared to **253** words for men.[6]

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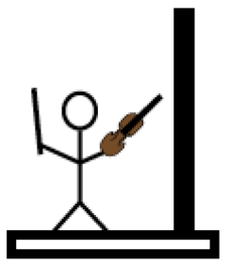
To be seen as equally "**competent**" by reviewers, female researchers need to publish:

3 more articles in *Nature* or *Science*

OR

20 more articles in specialist journals

than male applicants when applying for a medical fellowship.[5]



Women are **50%** more likely to advance in an orchestra audition if they **can't be seen**.[3]

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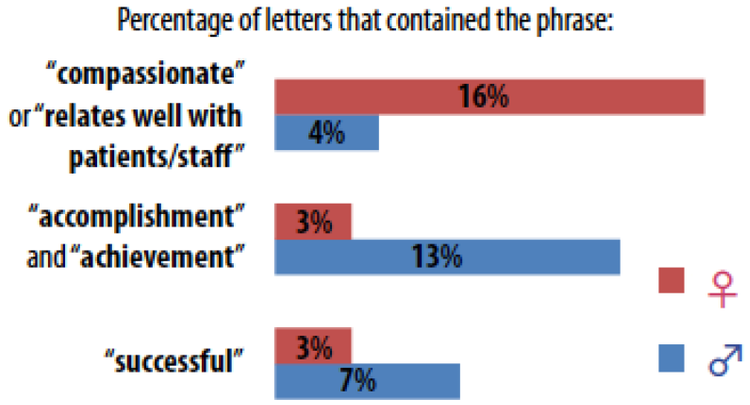

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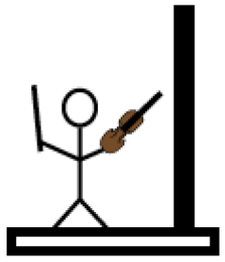

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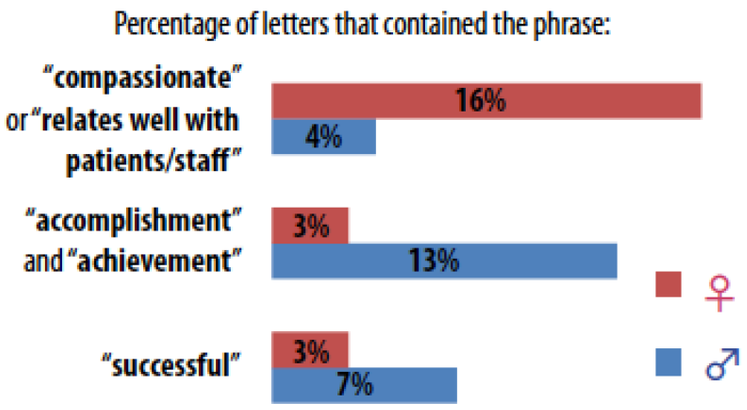

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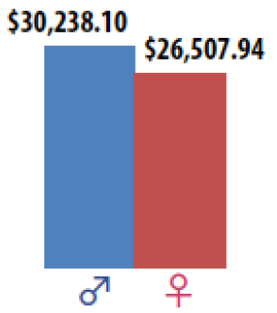
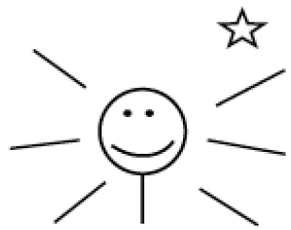
US science professors were asked to evaluate a CV for a **lab manager**: [2]

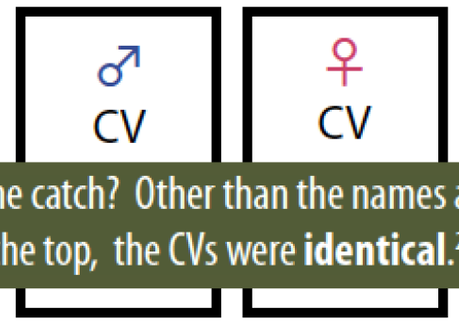


The male candidate was offered a **higher salary**...

... more **mentorship**



... and was rated more "**competent**" and "**hireable**."



The catch? Other than the names at the top, the CVs were **identical**.[2]

but what happens if women stay in science after all?

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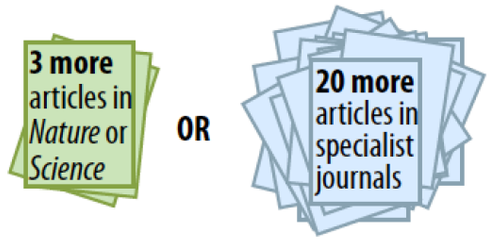

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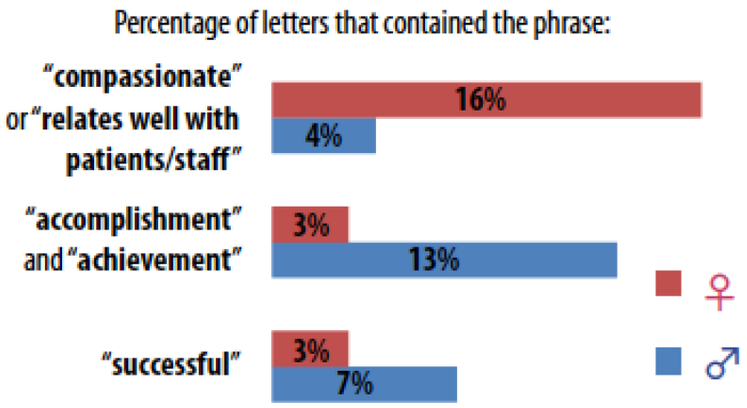

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These biases may not be intentional but their impact is severe. The effects of unconscious bias will not be overcome by maintaining our current efforts to recruit and retain more women.[2]

To reduce unconscious bias in hiring, committees and individuals need to be educated about its existence and effects in academia and industry.

Online tools such as the Harvard Implicit Association Test can help identify an individual's unconscious biases. Sharing research and becoming aware of your organisation's hiring tendencies can also help reduce unconscious discrimination.

a lot of initiatives by several institutions...are they efficient?

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European Research Council
Scientific Council

Established by the European Commission

ERC Scientific Council

Gender equality plan

2014 – 2020

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SCIENCE EUROPE

PRACTICAL GUIDE TO

IMPROVING GENDER EQUALITY IN RESEARCH ORGANISATIONS

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LEAGUE OF EUROPEAN RESEARCH UNIVERSITIES

• University of Amsterdam • Universitat de Barcelona • University of Cambridge • University of Copenhagen • Trinity College Dublin
• University of Edinburgh • University of Freiburg • Université de Genève • Universität Heidelberg • University of Helsinki
• Universiteit Leiden • KU Leuven • Imperial College London • University College London • Lund University • University of Milan
• Ludwig-Maximilians-Universität München • University of Oxford • Sorbonne University • Université Paris-Sud
• University of Strasbourg • Utrecht University • University of Zurich

L E
R U

PUSHING
THE FRONTIERS
OF INNOVATIVE
RESEARCH

Implicit bias in academia:

A challenge to the meritocratic principle and to women's careers – And what to do about it

a lot of initiatives by learned society...are they efficient?

Société Française de Physique

mentoring for female physicist

Charter for Gender Fairness at Conferences

IOP Institute of Physics

project JUNO rewards physics departments, schools, institutes... that can demonstrate they have taken action to address gender equality in physics and to encourage better practice for all staff.

IUPAP International Union of Pure and Applied Physics

gathers every year Women in Physics group and committee of many national scientific organisations (47 countries were represented in 2017 in Birmingham)

Is a research lab a place where women feel confortable?

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* a research institute works on implicit rules made by men all over the years

Is a research lab a place where women feel confortable?

* a research institute works on implicit rules made by men all over the years
* in case of sexual harassment, this place can turn into hell

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* a research institute works on implicit rules made by men all over the years
* in case of sexual harassment, this place can turn into hell

LUNDS UNIVERSITET

What does Gender have to do with Science – and Physics in particular?

Tomas Brage
Professor and Director of Education in Physics
Lund university, Sweden

- 4 of 14 women avoid being alone with some people at their work.
- 5 of 14 women have some experience of sexual harassment at work.
- 5 of 14 have experiences of sexual harassment at conferences.

Lundborg and Schönning, investigation of PhD-students situation at the Physics Department, Uppsala 2006

What can you do?

* Create a safe and inclusive learning environment. This concerns professors and advisers but also male students.
* Promote positive representation of women in STEM.
* Young Women in Science, be proud of what you already achieved and accept to be a role-model for girls you meet : go back to your (junior) high-school and let them know that if you made it, it is possible!
* Young WiS, look for a mentor for yourself.
* M-WiS, Challenge discriminatory social and cultural norms and practices
* Group leaders, promote and facilitate collaboration and partnerships among men and women in science.
* Group leaders, take care of supporting the young women of your group as much as the young men.

Let’s meet in 10 years and have a look at the improvements…

extras

Science-Metrix

Collaboration between men and women in science

A bibliometric analysis of scientific activity by gender and co-authorship between men and women

SciTS Conference 2017 – Clearwater Beach, FL – June 13, 2017

Session: Gender and Diversity in Teams

this study shows that :

Men prefer to collaborate with men and women with women

this study shows that :

Men prefer to collaborate with men and women with women

* this is one of the demonstrated cause for the glass ceiling effect, together with preferential attachment and the existence of a minority.

* demonstrated by Claire Mathieu and colleagues, (CNRS, ENS computer science)

* they also demonstrated that if one of these three criteria is absent, the glass ceiling is broken!

An exemple of dedicated action :

UNIVERSITY OF SASKATCHEWAN
College of
Arts and Science
ARTSANDSCIENCE.USASK.CA

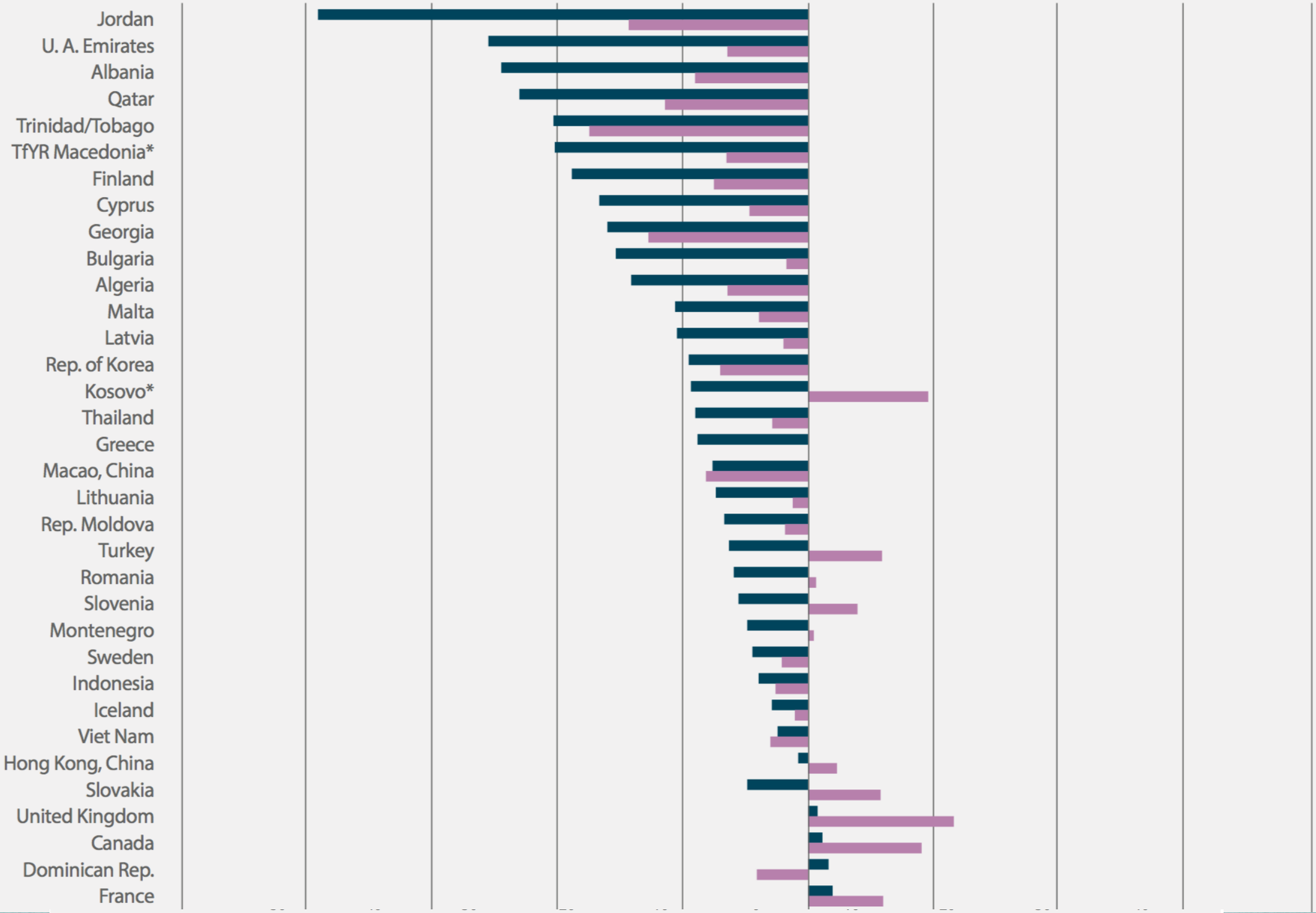
Department of Physics & Engineering Physics

Tenure Track Faculty Member, Atmospheric and Climate Physics

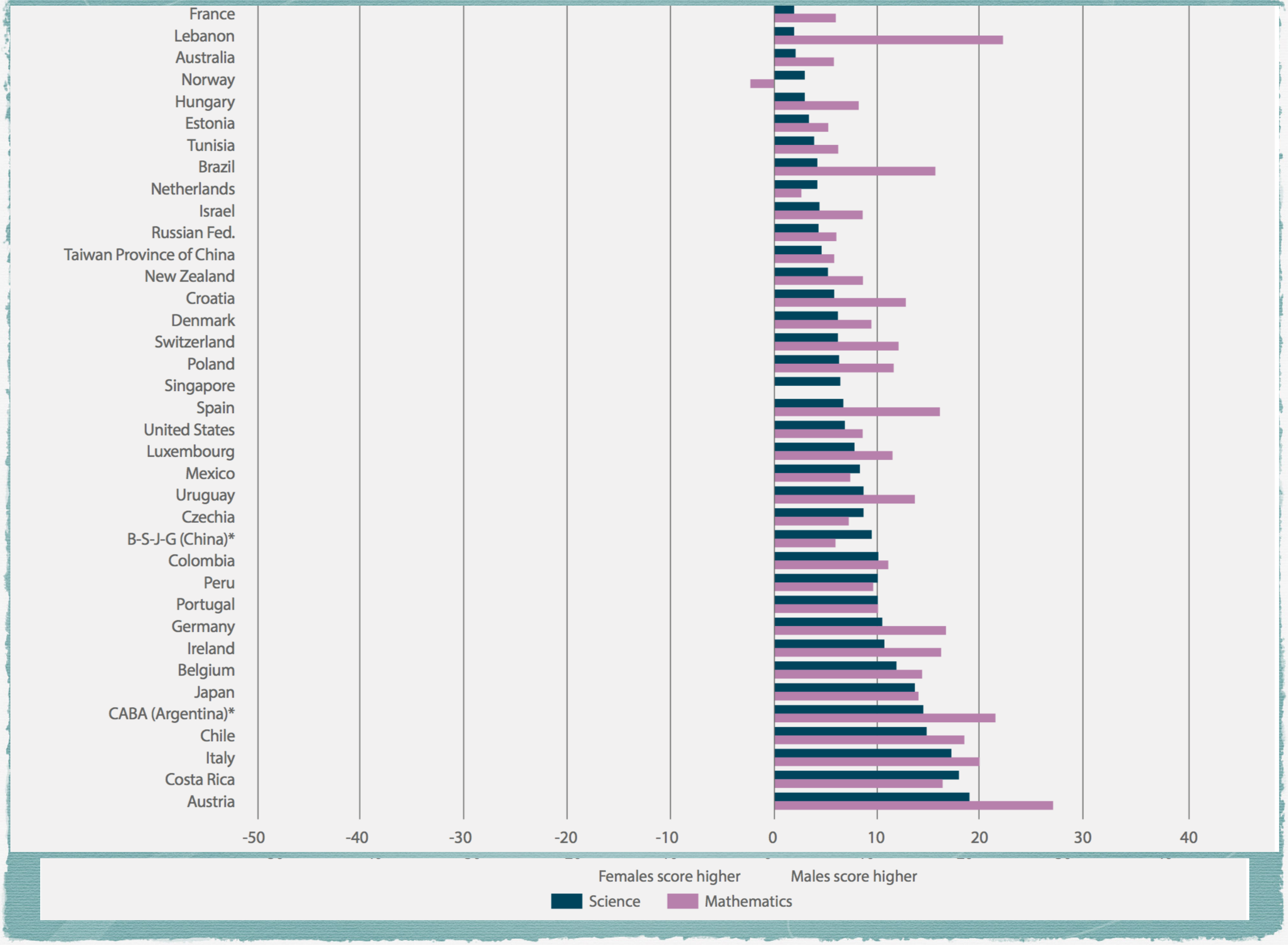
The Department of Physics and Engineering Physics, University of Saskatchewan, is actively seeking applications from qualified female candidates for a full-time tenure-track faculty position in Atmospheric and Climate Physics at the rank of Assistant Professor commencing 1 July 2019. The search process will be guided by the strong commitment of the University of Saskatchewan, College of Arts and Science, and Department of Physics and Engineering Physics to academic excellence and employment equity.

The successful candidate would conduct atmospheric and climate physics research with a focus on

Figure 19: Distribution of score difference in science and mathematics achievement among 15-year-old girls and boys



Boys outperform girls in about 60% of countries in both science and mathematics, 15-year-olds.
*Note: References to Kosovo shall be understood to be in the context of the UN Security Council resolution 1244 (1999). B-S-J-G (China): Beijing-Shanghai-Jiangsu-Guangdong (China).
70 countries and dependent territories: TfYR Macedonia refers to The former Yugoslav Republic of Macedonia. CABA (Argentina) stands for Ciudad Autonoma de Buenos Aires (Buenos Aires, Argentina)
Data source: PISA 2015[17]


France
Lebanon
Australia
Norway
Hungary
Estonia
Tunisia
Brazil
Netherlands
Israel
Russian Fed.
Taiwan Province of China
New Zealand
Croatia
Denmark
Switzerland
Poland
Singapore
Spain
United States
Luxembourg
Mexico
Uruguay
Czechia
B-S-J-G (China)*
Colombia
Peru
Portugal
Germany
Ireland
Belgium
Japan
CABA (Argentina)*
Chile
Italy
Costa Rica
Austria
-50
-40
-30
-20
-10
0
10
20
30
40
Females score higher
Males score higher
Science
Mathematics

CATALYST
WORKPLACES THAT WORK FOR WOMEN

Australia

In Australia, Women Hold Fewer Senior Faculty Positions Than Men[1]

In 2016, Australian women held fewer academic positions than men at the senior lecturer level and above, but more than half of all lecturer and below-lecturer positions.[2]

- Women held 44.7% of Senior Lecturer faculty positions and just 31.7% of Above Senior Lecturer faculty positions.[3]
- Women held 53.2% of Lecturer faculty positions and 53.3% of Below Lecturer faculty positons.[4]

Canada

Women's Representation Among Faculty Is on the Rise in Canada[5]

Women were 40.2% of full-time academic teaching staff at Canadian universities in 2016-2017, an increase from 37.6% in 2010–2011.[6]

Men Professors Earn More Than Women Professors on Average[7]

In 2014, women full-time permanent university professors in Canada earned an average of $90,123.[8]

- This is 86.4% of what male university professors earned.[9]

Women Academics in the UK Are Paid Less Than Men[15]

In 2015–2016, women on academic contracts earned, on average, 12% less than their male counterparts in the United Kingdom.[16]

India

Slightly More Than a Quarter of Professors in Indian Academia Are Women[17]

In 2015–2016, Indian women held 25.8% of Professor and equivalent faculty positions, 34.8% of Reader and Associate Professor faculty positions, and 39.3% of Lecturer/Assistant Professor faculty positions.[18]

Japan

Parity Has Been Reached at Junior Colleges, but Universities Lag Behind[19]

In 2016, women represented over half (52.2%) of full-time junior college teachers in Japan, **but just 23.7% of full-time university teachers**.[20]

CATALYST
WORKPLACES THAT WORK FOR WOMEN

United States

Women Are Less Likely Than Men to Achieve Tenure[21]

While women held nearly half (48.9%) of all tenure-track positions in 2015, they held just 38.4% of tenured positions.[22]

Women were more likely to be found in lower-ranking academic positions.[23]

- While women represent over half (51.5%) of Assistant Professors and are near parity (44.9%) among Associate Professors, **they accounted for less than a third (32.4%) of Professors in 2015**.[24]
- Women held over half (57.0%) of all instructor positions, among the lowest ranking positions in academia.[25]
- 22.1% of women faculty are in non-tenure-track positions, compared to 16.8% of men faculty.[26]

Women of Color Are Underrepresented in Academia[27]

Asian women held 4.9% of tenure-track positions and 3.0% of tenured positions.
Black women held 3.6% of tenure-track positions and 2.3% of tenured positions.
Latinas held 2.7% of tenure-track positions and 2.4% of tenured positions.

Mothers in Academia Often Face a "Baby Penalty"[28]

In the sciences, married women with children are 35% less likely than married men with children to attain tenure-track positions after completing their PhDs.[29]

Men Outearn Women at All Faculty Levels[30]

At all categories of institutions, full professors who are women earned on average $98,524 a year compared to $104,493 for their male colleagues in 2016–2017. That's 94.3% of what men earned.[31]

More Women Are Becoming College Presidents, but Progress Remains Slow[32]

From 1986 to 2016 the number of women college and university presidents jumped from 10% to 30%, a 200% increase.[33]