



Biases and Career Paths in Academia

Tomas Brage,

Professor of Physics, University of Lund

Member of

The Steering group of LERU PG EDI,

GENERA Network, and

GenderEX Horizon 2020 project



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Topics of today

- I. Definition of bias?
- II. How do we detect or measure bias?
- III. Systemic bias.
- IV. Bias in career paths – where, when and how?
- V. Bias and academic values.
- VI. Actions against bias.

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What is bias?

Bias is a cognitive process, where the cultural and social context affects a person's decisions, judgement and actions.

It could be a negative effect if it is based on stereotypes, beliefs, prejudices and preconceived notions. It is therefore a threat to meritocracy!

It can lead to micro-aggressions (and worse) and non-events.

It is not only psychology, but also organizational.

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1. Statistics of “success rates” – segregation.
2. “Experiments”
3. Evaluation of processes and organisations.
4. Experiences from observers.

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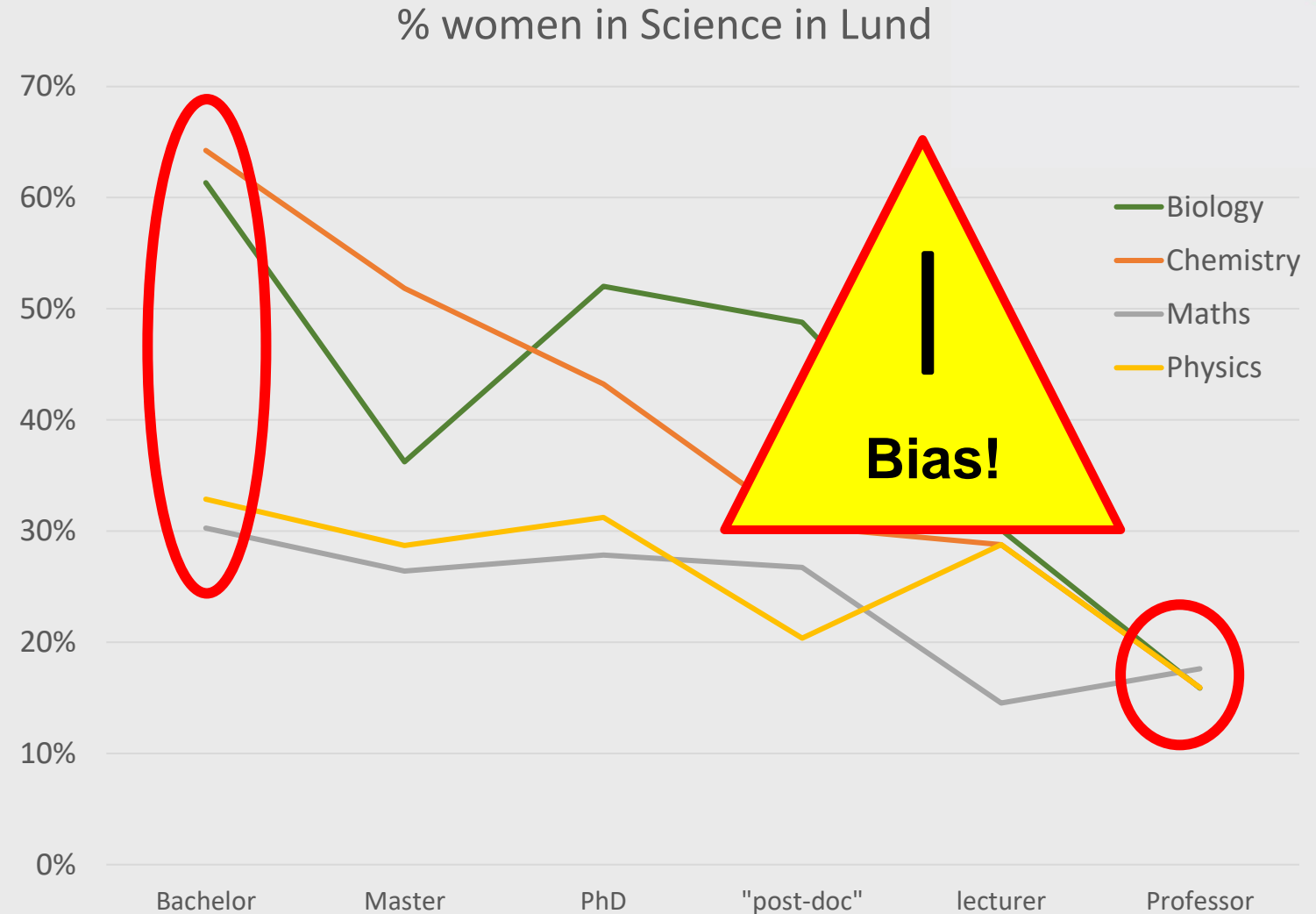
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Evidence of bias: pipeline

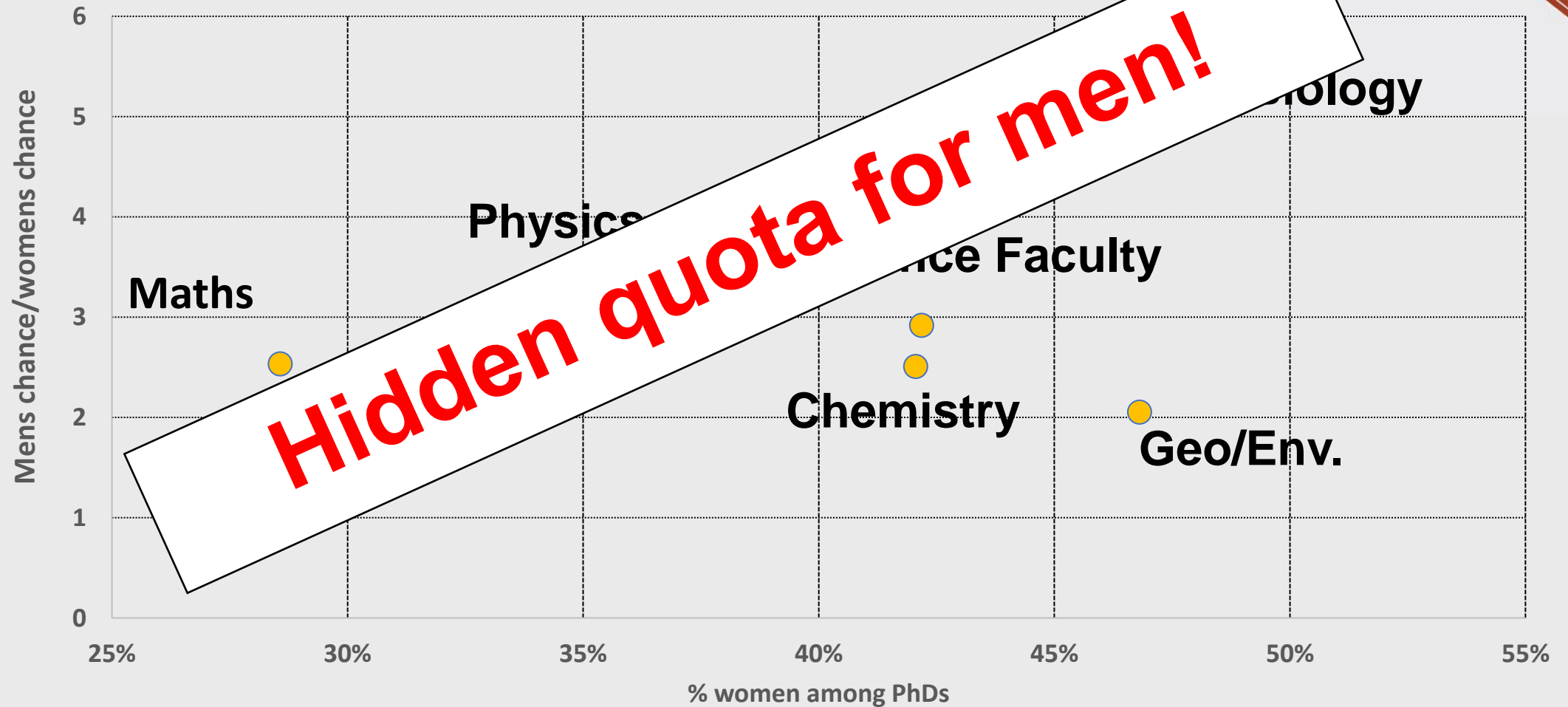
Career paths in a typical Science faculty.

Many different curves – but the same outcome

Weak dependence on input!



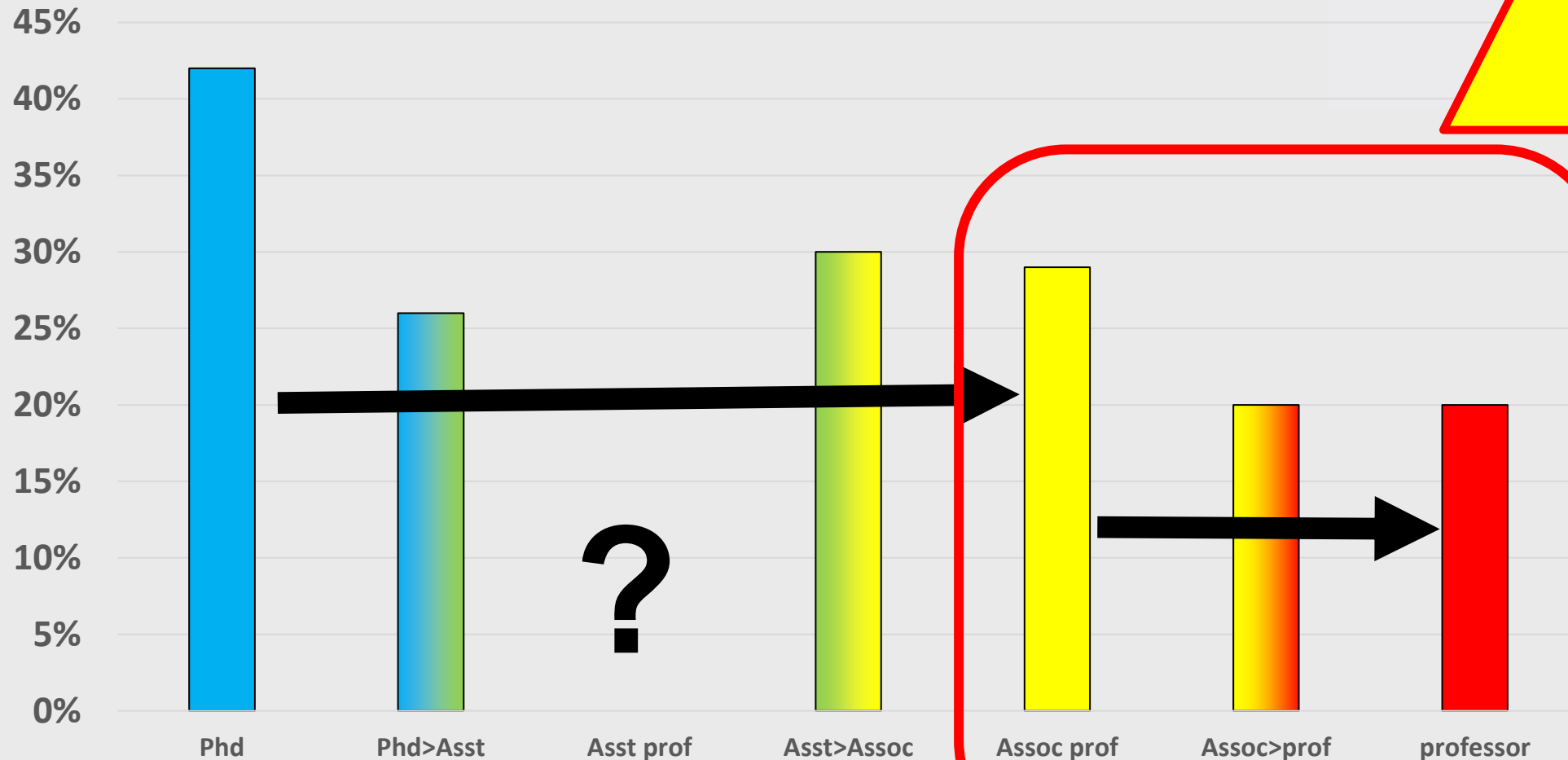
Mens compared to Womens chance to become a Professor



Flexible cascade model

- Science Faculty in Lund

% women



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Bias Experiment.

From Moss-Racusin et al. 2012,
*Science faculty's subtle gender
biases favor male students*,
PNAS **109** 41

Watch it in the movie *Picture a
Scientist* at 47.30 min

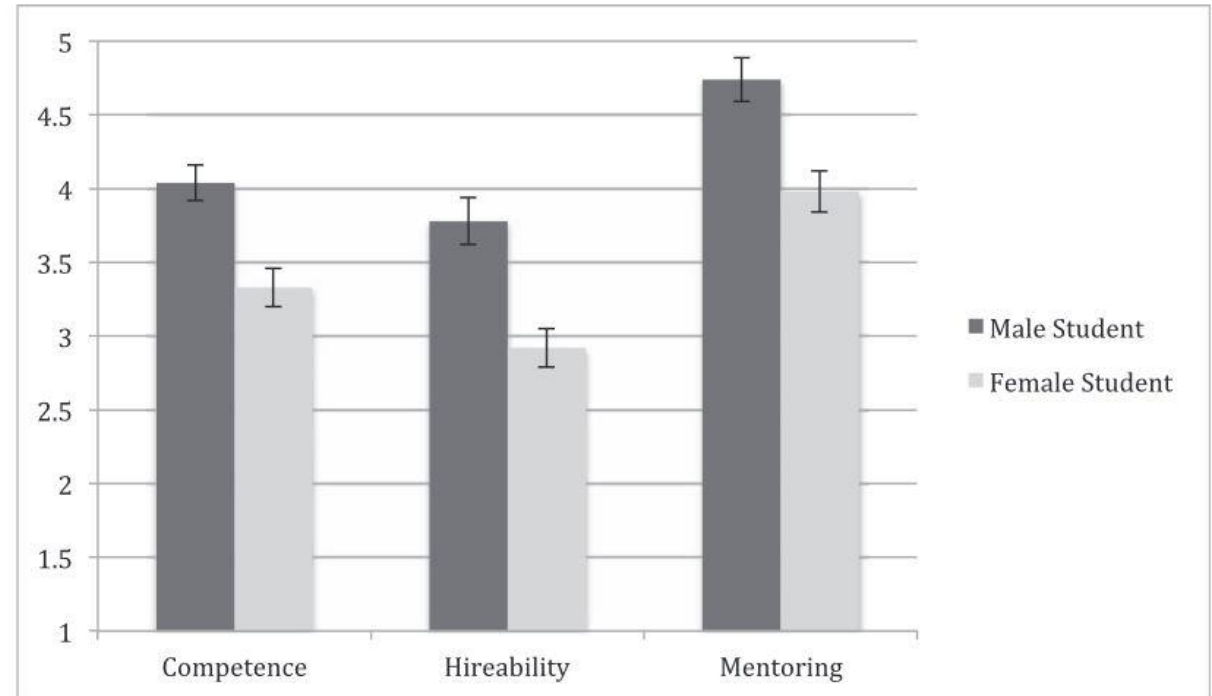


Fig. 1. Competence, hireability, and mentoring by student gender condition (collapsed across faculty gender). All student gender differences are significant ($P < 0.001$). Scales range from 1 to 7, with higher numbers reflecting a greater extent of each variable. Error bars represent SEs. $n_{\text{male student condition}} = 63$, $n_{\text{female student condition}} = 64$.

Bias experiment: The IAT-test

Test of your own bias.

Banaji et al, *Project implicit*,
<https://implicit.harvard.edu>

Watch it in the movie *Picture a Scientist* at 50:30 minutes



Project Implicit®

Bias – other observations

- Receive smaller grant allocations
(Ex: Swedish Research Council 2020)
- Worse evaluations of abstracts for conferences
- Worse student evaluations
- Men 8 times more likely to win awards (?)
- Fewer leadership positions
- Worse letters of recommendations

.....

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3. **Evaluation of processes and organisations.** – we return to this.
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11.4 Observers: Swedish Research Council (VR)

One possible source of information is to introduce observers. Independent persons, observing the processes, meetings, decision-making ..

This was done by the Swedish Research Council (VR) and has been developed and practiced for over two decades.

What did they find?

II.4 first steps towards observers.

Ex: Swedish Research Council

Work against bias in evaluation panels.

Wennerås & Vold 1998 *Nepotism and sexism in peer review*:

- Women had to publish 2.6 times as much as men to receive grants.
 - “Matilda effect”
- Men supported men, women supported men.
- Cognitive bias: Scientific proximity was rewarding.
- Personal/Institutional bias: someone you know, from your institution
 - “Mathew effect”

II.4 Continued observations.

Ageism combined (intersected with) sex:

- Myth of youth – “made all major discoveries before 30” – which fits male life-cycle
- Age is also an advantage for men (experience, invaluable, world leading), but not for women (too old).

II.4 Continued observations.

Later reports (2012, 2016, 2020)

- Different wordings:
 - Male applicants: excellent, respected, a rising star, front figure
 - Female applicants: good, strong, good merits, high novelty
- Questioning women independence from co-authors
 - Supervisors, husbands, relatives, ...
- Leadership: Men trusted, women questioned.

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Not only psychology ...

Systemic recruitment hijacking

- **Decoupling** – say one thing, do another
- **Standardisation** – what is merits?
- **Symbolic boundary work** – referring to stereotypes.

Inspired by:

Nielsen 2015, *Make academic job advertisements fair to all*, Nature **525** 427

And Nielsen in Drew and Canavan 2020, *The Gender-Sensitive University*, Routledge

Systemic bias

1. Decoupling

Saying one thing, doing another e.g.

One says: *“We only look at qualifications and merits – it is all about the best candidate”*

... but one does, e.g.

- Tailor-made advertisements
- Hand-picked experts
- Lack of openness



Systemic bias 2. Standardisation

Pretending there are objective measures e.g.

- What are excellent journals and publishers?
- Point-system with weak justification.
- h-index.
- Quantitative or qualitative criteria.
- Productivity vs production.

See DORA association (sfdora.org)



Systemic bias 3. Symbolic boundary work

Justifying through stereotypes, e.g.

➤ Sexism

- Old sexism: *“Women are not fit to or it is dangerous for them to ...”*
- New sexism: *“Women do not want to”*

➤ Stereotypes e.g.

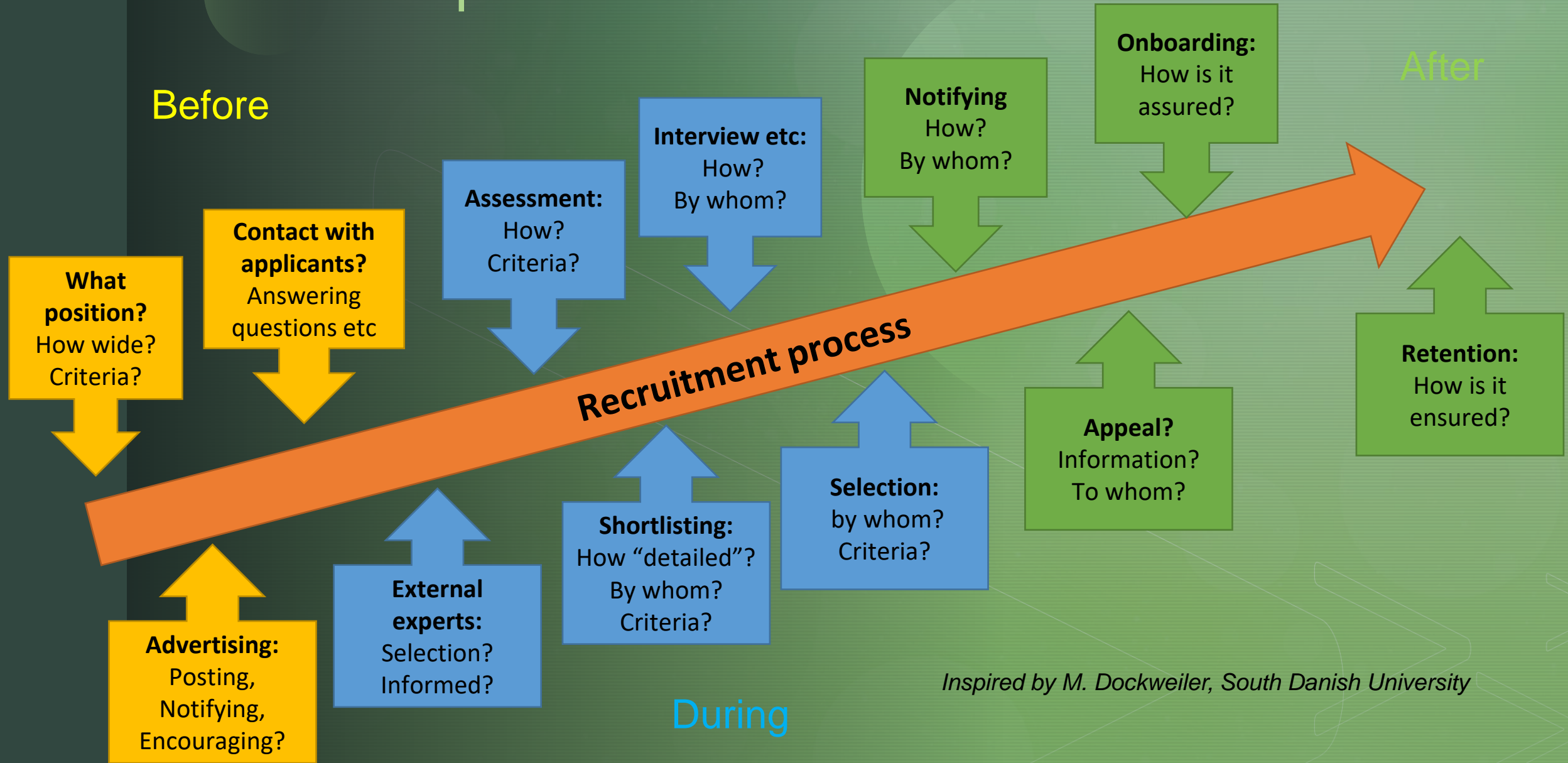
- *“risk-taking”*
- *“caring vs competition”*



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Recruitment processes – a minefield of bias



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Academic values

- Academic freedom
- Meritocracy
- Excellence

Are they threatened? By what?

Sometimes perceived threat from equality and diversity – but it is the opposite!

Bias is an important threat!

Equality and diversity promotes them!

Core values work in academia

– with experiences from Lund University

EDITED BY TOMAS BRAGE AND INGER LÖVKRONA
LUND UNIVERSITY 2016

Bias against academic values

- Academic freedom
 - If you face bias, you are not free in research and teaching.
- Meritocracy
 - Merits are questioned (standardisation bias).
 - Cracy from "kratos" = power, is not distributed fairly (see leaky pipeline)
- Excellence
 - Diversity gives excellence, if correctly managed (needs good leadership!)



Diversity and excellence

A number of recent research:

- Freeman and Huang 2014, *Collaboration: Strength in diversity*, Nature News **513** 305.
- Powell 2018, *These labs are remarkably diverse – here's why they're winning in science*, Nature **558** 19.
- Nielsen et al. 2018, *Making gender diversity work for scientific discovery and innovation*. Nature, human behaviour. **2** 726-734
- Nielsen et al. 2017, *Opinion: Gender diversity leads to better science*, PNRAS **114** 1740

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LERU advice paper on bias – full process

1. **Monitor** career development and assign responsibilities. **Accountability.**
2. **Measures** for countering gender bias
3. Offer gender **bias training**
4. **Recruitment and funding** processes should be monitored. Use **bias observers!**
5. Evaluate the **language** in recommendations etc
6. Eliminate gender **pay gap**
7. Evaluate **quality**; Compensate for **care leave.**
8. Monitor **precarious contracts** and part-time positions.
9. Use **positive actions** against vertical segregation

Implicit bias in academia:

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



Position paper

From LERU PG EDI

On WHY we need to change!



Equality, diversity and inclusion at universities: the power of a systemic approach

LERU position paper
September 2019

<https://www.leru.org/publications/equality-diversity-and-inclusion-at-universities>

Actions for meetings

From Swedish Research Council 2020.

- Observers were essential – followed process and pointed to bias.
- Clear and transparent processes – stick to the criteria and agenda.
- Formalised meetings, down to speaking time and seating.
- No informal discussion in breaks, dinners etc
- Trained panel-members and chairs, with assistants from the council.

Cognitive bias – five strategies

Devine (2012)

1. Stereotype replacement.
 - Recognise stereotypes and try to replace them.
2. Counter-stereotypic imagining.
 - Imagine in detail a person who counteracts the stereotype.
3. Individuation.
 - Make it personal, instead of group-based, by obtaining information about individuals.
4. Perspective taking.
 - Step into someones shoes.
5. Increasing intergroup contact.
 - Engage in positive interaction with your “outgroup”.



Actions for meetings *CERCA*

<https://www.youtube.com/watch?v=g978T58gELo>

LERU – training of UBO

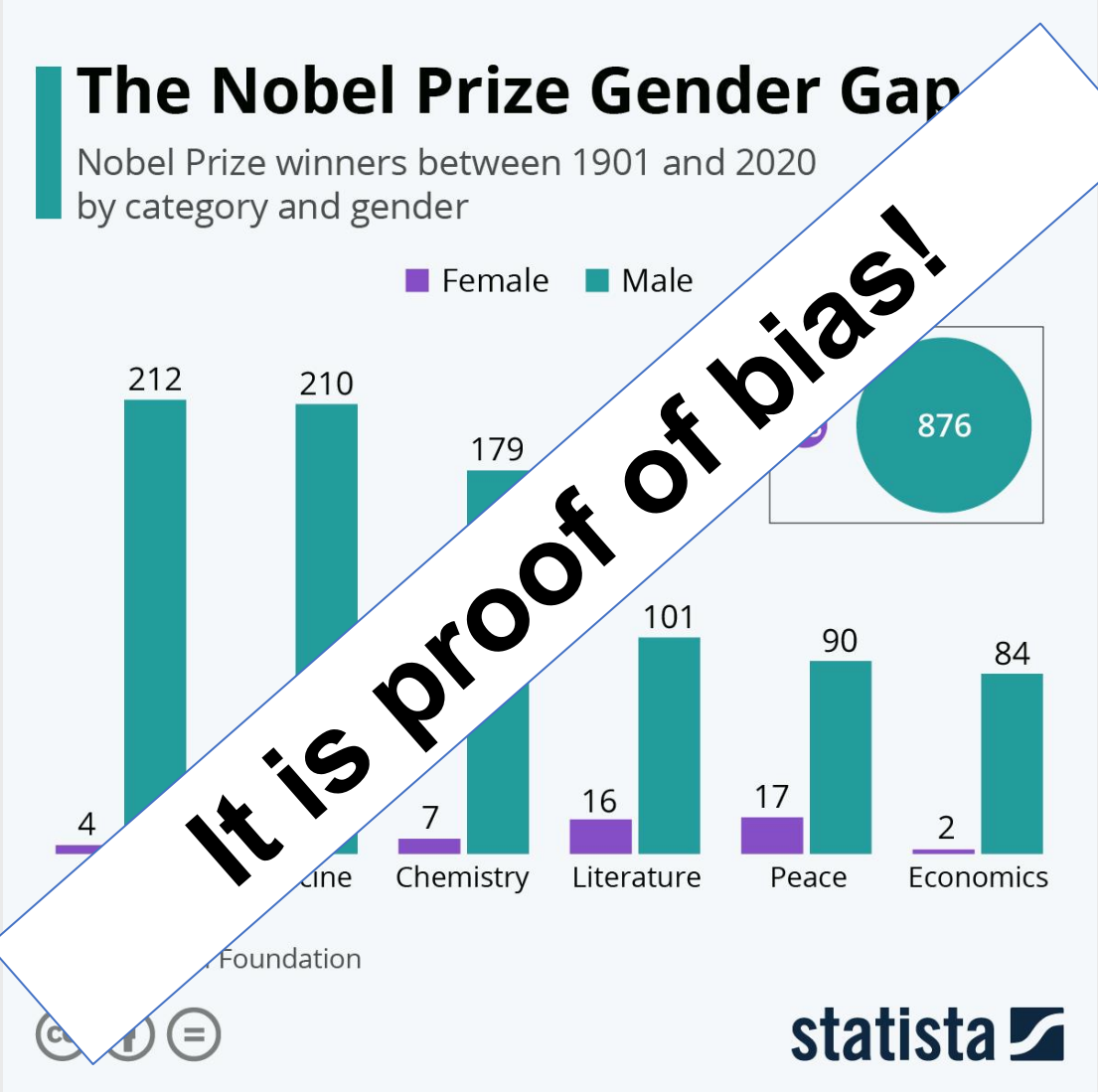
LERU, Lund and Trinity have initiated a training for Bias Observers (UBO).

Four workshops:

1. what is bias,
2. bias in careers,
3. experience of bias in evaluation and language,
4. experiences of UBOs and “what is merits?”.

Creating a network and a tool-kit/good practices list.

Once a year ...

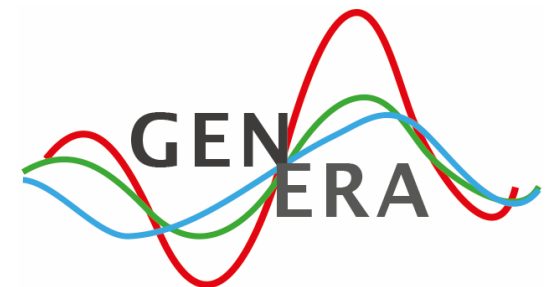


Thank you for the attention!



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References

- Banaji et al, *Project implicit*, <https://implicit.harvard.edu>
- Brage and Lövkrona 2016, *Core values work in academia – with experiences from lund university*, Lund University
- Bernard & Castilla 2010, *The paradox of meritocracy in organizations*. Administrative Science Quarterly, **55**(4), 543-576.
- Conell 2014, *Gender – A World View*, Springer Fachmedien, Wiesbaden
- Devine et al 2012, *Long-term reduction in implicit race bias: A prejudice habit-breaking intervention*, J. of Exp. Soc. Psych. **48** 1267-1278.
- Drew and Canavan 2020, *The Gender-Sensitive University*, Routledge
- Etzkowitz and Ranga 2011, *gender Dynamics in Science and Technology: From the leaking pipe-line to the vanish box*, Brussels Economic Review **54**
- Freeman & Huang 2014, *Collaboration: Strength in diversity*, Nature News **513** 305
- Gonzalves and Danielsson 2020, *Physics Education and Gender: Identity as an Analytic Lens for Research*, Springer.
- Harding 1986, *The Science Question in Feminism*, Cornell
- Harvard project on diverse pipelines: <https://hr.fas.harvard.edu/development-diverse-pipelines>
- Husu 2001, *Sexism, support and survival in academia: Academic women and hidden discrimination in Finland*. Social Psychological Studies 6. Department of Social Psychology, University of Helsinki
- LERU advice papers on Gender: <https://www.leru.org/publications?q=gender>
- MacNell et al 2014, *What's in a Name: Exposing Gender Bias in Student Ratings of Teaching*, Innov High Educ, Springer Verlag.
- Moss-Racusin et al. 2012, *Science faculty's subtle gender biases favor male students*, PNAS **109** 41
- Nielsen 2015, *Make academic job advertisements fair to all*, Nature **525** 427
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- Nielsen et al. 2017, *Opinion: Gender diversity leads to better science*, PNAS **114** 1740
- Stewart and Valiant 2018, *An Inclusive Academy – Achieving Diversity and Excellence*, MIT press.
- Wennerås and Vold 1997, *Nepotism and sexism in peer review*, Nature **387** 341
- VR 2020: Does the Swedish Research Council Have a Gender-equal Assessment Process, <https://www.vr.se/english/just-now/news/news-archive/2020-05-07-does-the-swedish-research-council-have-a-gender-equal-assessment-process.html>