

# Gender and research excellence

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## Women at Ivy League universities in 1970s

- Harvard University going co-ed: merger of Radcliffe and Harvard in 1989 after slow start in 1971
- Princeton – first tenured professor and two assistant female professors in 1968
- Dartmouth College in 1971: alumni strongly opposing to co-education and women in the college:  
“For God’s sake, for Everyone’s sake, Keep the Damned Women out” (Weiss Malkiel, 2016, p. 461)

“Man-to-man competitiveness and companionship’ were key elements of Dartmouth ability to mold men of ‘rare qualities’ and its record of producing leaders” (Weiss Malkiel, 2016, p. 460)

## Princeton: Masculine culture and performance standards

- Prof. Keller, the first tenured female professor at Princeton in 1970s:

“Gender integration is not in the main a matter of admission or entry for the individual only ...It is a matter of a change in the culture of a place – the beliefs, assumptions, standards, and patterns of being and doing that have prevailed heretofore...women students...had but one choice in an institution deeply imprinted with a masculine culture, masculine standards of performance and ambition: Namely adapt, and bend themselves to fit, as well as possible, to the culture already in place. They were actors in an endrocentric play.” (Weiss Malkiel, 2016, p. 231)

How do we understand research excellence?

How is research excellence evaluated?

What gender biases are observed in determining what is research excellence and who is excellent?

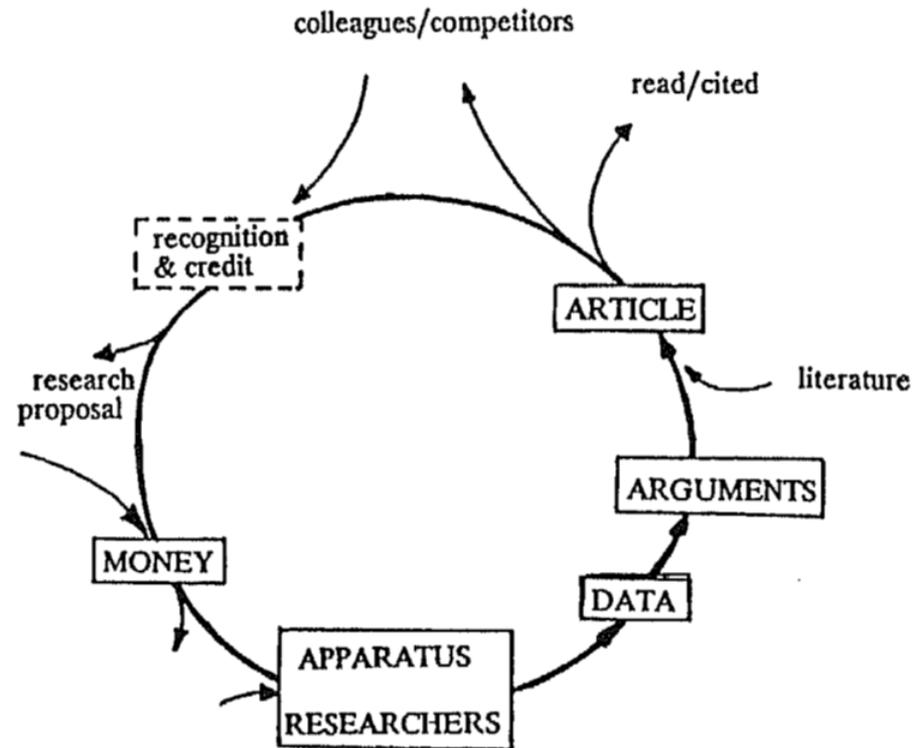
## Research excellence from a positivistic standpoint

- “Scientific excellence is **the ability of a scientist or an institution** to impact on a field of study producing a major change, leading other scientists towards asking new questions and producing new, important and useful contributions to knowledge, using new methodologies. The quality of excellence must be proven by a number of means, (such as publications, citations, funding, and students) and recognized by the peers by the bestowing of various honours, prizes and other awards.” (Addis, 2010)



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## Credibility Cycle in Science



Source: Latour and Woolgar, 1979.

## The threshold of excellence model

- For purely statistical reasons, even if abilities relevant to the production of excellent scientific work are distributed equally among the sexes, a low F/M ratio in the population of scientists produces a low F/M ratio among the “excellent” scholars, implying that the number of “excellent” men, EM, is larger than the number of “excellent” women EW (Addis, 2008).
- The **threshold of excellence** is a standard that is applied to see who is excellent and who is not at any stage.
- The standard applied to men and women is not the same: **the standard applied to women to qualify as excellent is higher. This fact is known in the literature as “double standard”** (Addis, 2010). It is easier to apply a double standard if the standard is fuzzy, i.e., unclear to those in charge of the judgment and unclear to those who should pass the standard.
- **Stereotyping:** if it is customary to find more men than women among excellent scholars, then **masculinity is apt to become a sign of excellence**. The stereotype that men are better than women at doing science is born.

## Excellence as a contested terrain

- Different people may be deemed "excellent" depending on the **opinions of the judges and the criteria they use**. The definition and creation of excellence becomes a contested terrain, and its attribution may well be related **to gender relations in the scientific community and in society at large**. Gender relations include the unequal sharing of resources and of decision power between men and women. (Addis, 2008 p. 25)
- “We challenge the view that the academic world is governed by the normative principle of meritocracy in its allocation of rewards and resources... **academic excellence is an evasive social construct that is inherently gendered.**” (Van der Brink and Benschop, 2011)

## Research excellence from a critical standpoint

- Scientific performance emerges in **social processes of appreciation and recognition and is therefore never free of power relations**; thus, it forms no objective basis for a fair competition to attain rare top-level positions in this social action field (Addis, 2010)
- The critical viewpoint instead sees excellence, as the **result of a set of practices that determine the positioning** each individual scientist reaches within the network and the hierarchy of his or her field. In the critical view, **excellence is a set of practices functional to the governance of the scientific community**, i.e. to the allocation within the scientific community of resources and decision power (Ibid.)
- Excellence **is procedural, not substantive**. Excellence does not exist per se, regardless of the practices that create it. The fact that we can define it does not give it autonomous existence. Hence, we may hope to change the practices in such a way that a feminine scientific excellence, or better, **a different scientific excellence embracing both genders, will begin to emerge and be recognized** (Addis, 2010).

## Evaluation of research excellence

- Traditional way of judging research quality - **peer review**
- **Metrics:** Numbers of publications, citation counts, patents, impact factors of journals, authorships, awards, prizes
- Expansion of performance measurement via bibliometric indicators in HE systems in the past decades (Leisyte and Dee, 2012, Van Raan 2005; Van den Brink, Fruytier, and Thunnissen 2013; Weingart 2005)

## UK Research Excellence Framework example (2014)

- **Research excellence is measured through:**
- **Research outputs (4)** – originality, significance and rigour  
(reduced number of publications for early career researchers, maternity leave or other care responsibilities)
- **Impact of research:** reach and significance
- Competitive, selective exercise, evaluates on a disciplinary basis and awards funding to the institutions (Deem, 2016)
- Aimed to evaluate public value for money invested in universities (McNay 2015)
- Majority of review panel members come from top research institutions (Deem 2016)

## Criteria of excellence in the ERC grants

- **10 publications** as a senior author in major international peer-reviewed multidisciplinary scientific journals, and/or in the leading international peer-reviewed journals and peer-reviewed conferences proceedings of their respective field.
- **Research monographs.** This benchmark is relevant to research fields where publication of monographs is the norm (e.g. humanities and social sciences).
- **Granted patents**
- **Invited presentations** to internationally established conferences and/or international advanced schools
- **Prizes, awards and academy memberships**
- **Scientific leadership potential:** citations

## Judgment via peer review

- Peer review is based on the idea that **the scientific community is best prepared to judge other scientists (peers)**. However, it makes the assumption that the evaluators are free of social prejudices and issue judgments that are totally objective (EC, 2004).



## Bias in peer review

### **Social characteristics of authors/researchers:**

- Prestige
- Affiliation
- Nationality
- Language

### **Social characteristics of peer reviewers:**

- Disciplinary match (cognitive particularism)

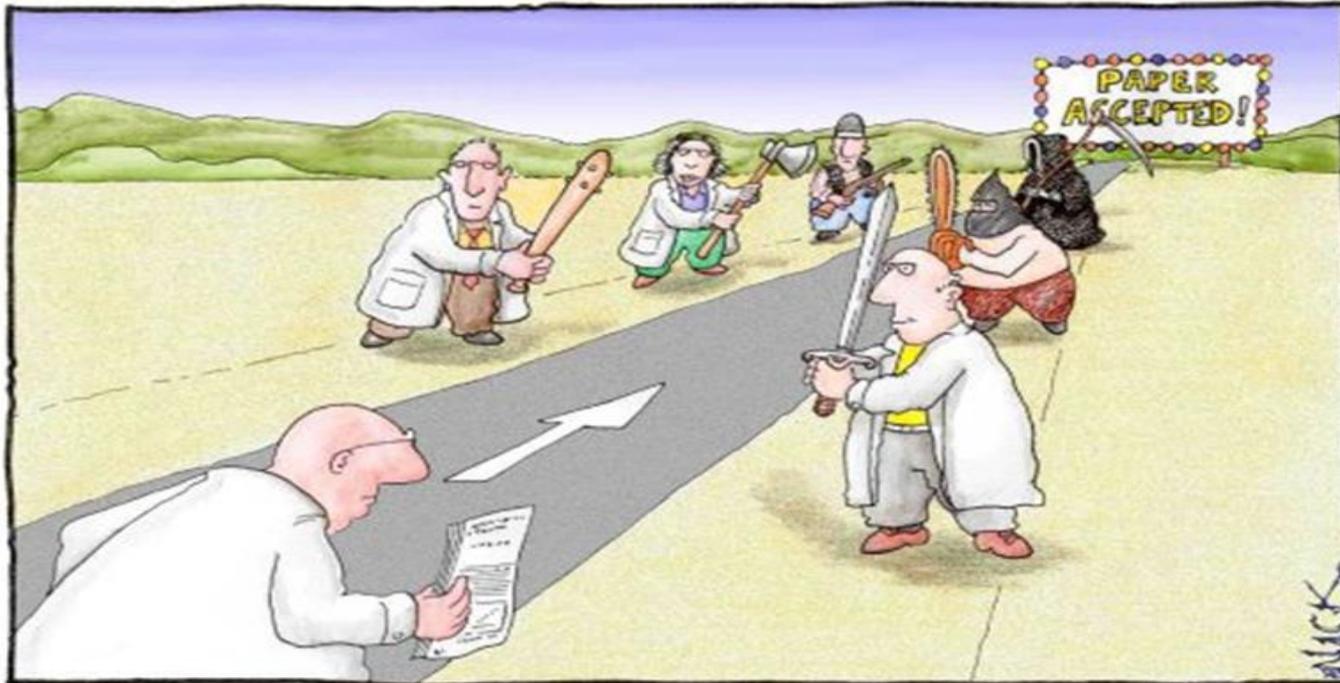
**Composition of the peer review committee or editorial boards** (Lamont, 2009, Van Arensbergen et al. 2014)

### **Peer review content:**

- Conservatism
- Bias regarding interdisciplinarity
- Publication bias (Lee, Sugimoto, Zhang, Cronin 2012, Van Arensbergen 2014, March, Jayasinghe, Bond, 2008)



## Peer review in scientific journals



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

Source: <http://wattsupwiththat.com/2011/04/20/bias-in-the-peer-review-process-a-cautionary-and-personal-account/>

## Gender bias in publications and citations

- Higher ranked journals have less female contributions (e.g. ca 30% of female authors in Nature index journals, Bendels et al. 2018).
- Women are underrepresented in prestigious authorships compared to men. The underrepresentation accentuates in articles with many authors and articles that were published in highest-impact journals (Bendels et al. 2018).
- While a number of studies have found a citation bias in favour of men (e.g. Aksnes et al., 2011; Maliniak et al., 2013; Lariviere et al., 2013), most of the existing research finds women to be equally or in some cases even more cited than men (e.g. Long, 1992, Nielsen, 2016).
- H-index favors number of publications, collaborations and age (which may be problematic for female scientists).

## Peer review in grant proposals

- Definitions of research excellence vary not only between disciplines but also within disciplines and are bound to the academic identities of the evaluators (Lamont 2009, 2012).
- **Evaluation panels do not make the meritocratic judgements-** but they engage in social micro-political process of collective decision-making. **The relationships formed during the panel evaluation as well as past network relationships, epistemological and cultural similarities and differences in their fields and personal idiosyncrasies and temperaments influence the outcome of the evaluation** (Lamont, 2009, p. 246).
- Canadian study shows that females tended to focus on research areas that aren't prioritized by grant funders and get assessed by less experienced reviewers who reject more projects. **Female researchers may be less successful at winning grant funding than their male counterparts with similar experience and qualifications at least in part because of gender bias among reviewers** (Rapaport, 2018).

## Gender bias in bestowing honour

- Men and women perceive men and women differently (Foschi 1989, 2004).
- **Honour is an important component in the production of excellence. Excellent scientists are honoured by their peers; they enter into a network of exchange of honours with their peers.** The position of men and women with respect to honour is different, i.e. honour is a gendered construct (Addis, 2004, 2010; Hearn, 2004).
- When a man competes with another man, the value of gaining reputation and honour is great and if he loses, the value of the loss is relatively small. However, when a man competes with a woman, the value of winning is small, but if he loses, the value of the loss of prestige and honour is extremely large (Addis, 2010).

## Gender bias in selection procedures: homosociability

- Homosociability is the term given to label the sense of comfort that people feel in the presence of others who are like themselves. They accentuate the positive characteristics, and gloss over the negative characteristics of people who remind them of themselves (Burton 1991).
- Management studies shows that a form of homosociability by male employers and employees is often a key issue in the construction and maintenance of the gendered labour market, especially in senior-level jobs (Ibarra 1993, 1995).
- Guetzkow et al. (2003) and Roper (1996) have analyzed homosociability in evaluation of scientific excellence and selection processes. **In scientific evaluation processes, the evaluators prefer candidates and approaches in subjects that are similar to their own.**
- Having higher proportion of women on promotion panels in Spain considerably increased the chances of women being appointed to full professors (Zinovyeva and Bagues, 2011)

## Gender in research leadership

- Stereotypically feminine qualities such as the fostering of cooperation, the propensity towards mentoring and a noncontroversial style of problem-solving are important qualities of leadership besides more masculine qualities such as assertiveness.
- Leadership ability, an important characteristic of the excellent scientist, was considered masculine when men only were in leadership positions. Men are 'competitive' while women are 'submissive', men as 'assertive' and women as 'aggressive' (Marchant et al. 2007).
- As women enter the field of management, on the one hand they learned how to lead like men, and on the other, they produced a re-evaluation of some more "feminine" ways to lead and coordinate; **Leading a scientific project can be considered a specific, highly-specialized managerial ability that can and should be taught to men and women** (Kanter, 1977, Addis, 2010).

## How to deal with biases in the construction of research excellence?

- **Reduce male gatekeeping, eliminate double standards and gender biased judgments of research excellence** - measures to promote women in all disciplines have to move beyond lip service and be **enforced** so that women participate in peer review evaluation processes via membership in editorial, review and other boards and committees
- **Scout actively** for female editors, review committee and evaluation panel chairs and reviewers
- **Nominate** women and elect them for research leadership positions
- **Eliminate** gender bias in procedures, especially in selection and appointment procedures
- **Increase** the **assessors' accountability**; provide **explicit standards** rather than allowing assessors to generate and use their own.

## Conclusions

- Definitions of research excellence depend on epistemological stance and gender awareness
- Biases are found in peer review processes, committee compositions, networking and selection/hiring processes point to the adequacy of the **critical definition of research excellence and the relativity of the meritocratic Mertonian (1973) norm**
- **Peer review is still the main instrument** for determining research excellence, so make sure you influence it!

**Thank you!**  
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