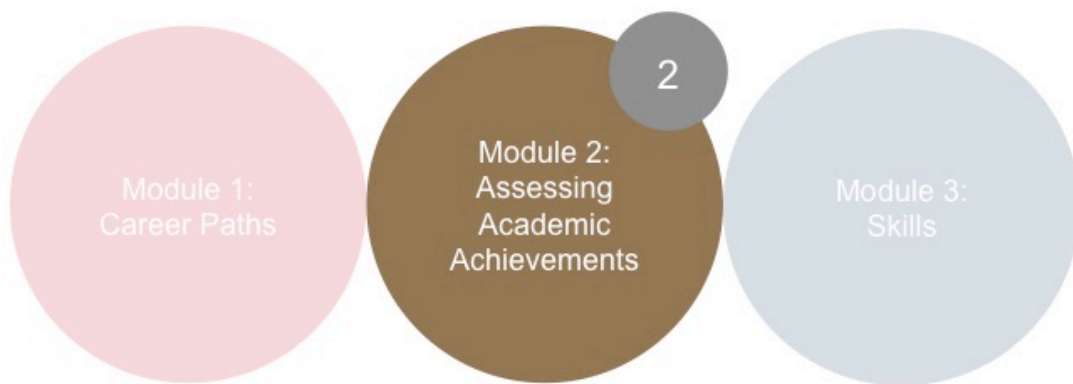


Slide 1

Gender Bias in Appointment Procedures: Gender Bias in the Assessment of Academic Careers



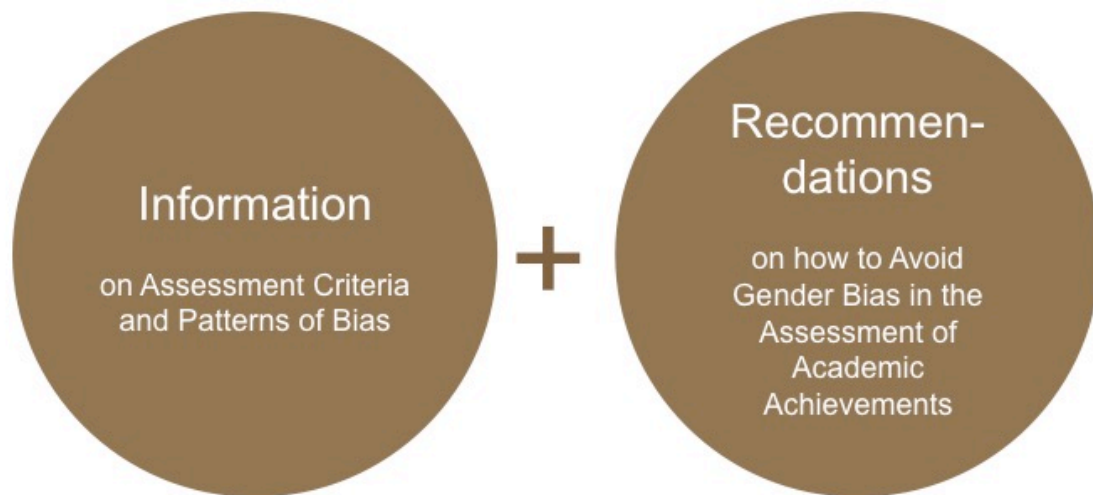
Welcome to the second module of the online tutorial “Gender Bias in Appointment Procedures”. The focus in this section will be on gender bias as it may occur during the assessment of academic achievements.

Slide 2

Contents

- ① Introduction
- ② Factors in Assessing Academic Achievements
 - Ideal Career Path
 - Gender-Related Stereotypes
 - Personal Impression
- ③ Effects in Individual Stages of the Appointment Procedure
- ④ Recommendations

What to Expect



Just like the assessment of curricula vitae (see module 1), the evaluation of academic achievements is vulnerable to gender bias as well. Gender bias is bound to occur whenever criteria employed to evaluate a candidate's achievements and capabilities in teaching and research are obfuscated by preconceptions about a candidate's fitness for the post – based, for instance, on the applicant's gender.

Gender bias, which goes hand in hand with such preconceptions, happens intuitively. Based on research done in this field, however, a series of recommendations can be offered with which you as a member of an appointment commission may counteract possible gender bias.

Module 2 provides information on the different viewpoints from which the topic of “assessing achievements” is approached in scientific literature. It also demonstrates how gender bias may occur during the assessment of an applicant's achievements and her/his fitness for the post. Finally, we introduce approaches with which to avoid gender bias in the evaluation of academic achievements.

Slide 4

Assessing Achievements: The Linchpin of Every Appointment Procedure



Appointment Committee Determines Criteria and their Individual Weighting:

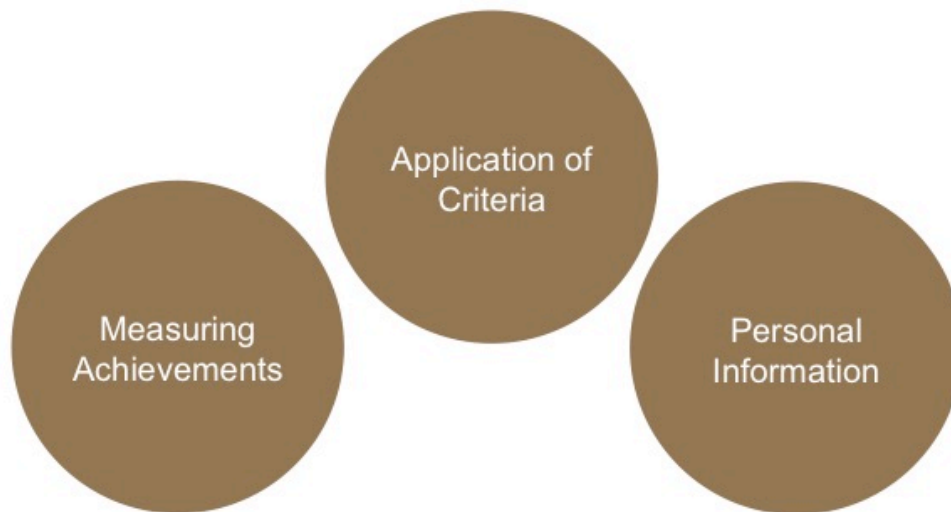
- Criteria Often Applied in Quantitative Terms, e.g. Publications or Third-Party Funds
- Personal Factors Figure Only Marginally

Assessing academic achievements is the linchpin of every appointment procedure as the principle of merit plays a constitutive role in academia. In appointment procedures, applicants are compared on the grounds of achievements, ability and potential. The appointment commission at the outset determines assessment parameters and criteria, which are to be used, as well as their individual weighting.

Research achievements are generally evaluated in quantitative terms, such as the number of publications or the amount of third-party funds acquired. Whether the applicant is suitable for the position is often determined solely on the basis of personal information.

Slide 5

Presence of Gender Bias in three Areas of Achievement Assessment



In the assessment of academic achievements, there are three areas in particular in which women and men are evaluated differently:

- Firstly, in measuring achievements,
- Secondly, in the consistent application of assessment criteria and
- Thirdly, in the handling of an applicant's personal information.

What is more: When assessment criteria relating to a candidate's academic achievements are correlated with criteria pertaining to the person herself or himself, it is particularly the assessment of female applicants that is affected negatively.

Slide 6

Disparities in Achievement Assessments Based on three Factors



Three factors can be identified that produce disparities in the assessment of academic achievements of women and men:

1. Assuming an ideal academic career path with corresponding levels of productivity and achievements,
2. Stereotypical assumptions about women and men in academia and
3. Correlation between impressions of a person and assumptions about their professionalism.

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Assuming an Ideal Career Path puts Women at Disadvantage



When assuming an ideal academic career path, academic achievements of women and men are perceived differently. This can be seen when considering the following three aspects:

- Firstly, publication achievements: As demonstrated in Module 1, women publish differently than men.
- Secondly, third-party funding: Women and men proceed differently when it comes to submitting project proposals. What is more: Men tend to be more successful in project clusters, whereas women have higher success rates with individual projects. Considering these two aspects alone, it has already become apparent that women are at a disadvantage when only quantitative assessment criteria are considered.
- Thirdly, when comparing achievements that have been gathered in numbers only: Here, different support options or hurdles in the careers of women and men are not taken into account adequately.

Slide 8

Male Applicants with Identical Accomplishments Endorsed more Frequently



- 1 Moss-Racusin, C. A., Dovidio, J. F., Brescoll, V. L., Graham, M. J. & Handelsman, J. 2012: Science faculty's subtle gender biases favor male students. In: PNAS, Vol. 109 (41). pp. 16474–16479. At: <http://www.pnas.org/content/109/41/16474.full.pdf> (accessed 24.01.2017).
- 2 Wennerås, C. & Wold, A. 1997. Nepotism and sexism in peer-review. In: Nature, Vol. 6631, pp. 341–343.

M2: Ideal Career Path

Gender Bias in Appointment Procedures: Assessing Achievements

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Studies on the assessment of achievements have identified another aspect in which vast differences between women and men become apparent. As an example, we have singled out an ongoing investigation that is building on a well-known study on this topic.

This study shows that the male gender of an applicant is advantageous when aptitude for an academic leadership position is considered. In the study, fictive applications for a laboratory manager position were sent to 127 professors from research-intensive universities. The application material – curriculum vitae and academic accomplishments – was identical in each case, except for the male or female name randomly assigned to the candidates. The result: The allegedly male candidate for the laboratory manager position was not only rated higher, but also offered a better starting salary by the participants.

- 1 Moss-Racusin, C. A., Dovidio, J. F., Brescoll, V. L., Graham, M. J. & Handelsman, J. 2012: Science faculty's subtle gender biases favor male students. In: PNAS, Vol. 109 (41). pp. 16474–16479. At: <http://www.pnas.org/content/109/41/16474.full.pdf> (accessed 24.01.2017).
- 2 Wennerås, C. & Wold, A. 1997. Nepotism and sexism in peer-review. In: Nature, Vol. 6631, pp. 341–343.

Slide 9

Women and Men Deal Differently with own Achievements



Cameron, E. Z., White, A. M. & Gray, M. E. 2016: Solving the Productivity and Impact Puzzle. Do Men Outperform Women, or are Metrics Biased? In: Bioscience, Vol. 66 (3), pp. 245–252. At: <http://bioscience.oxfordjournals.org/content/early/2016/01/05/biosci.biv173.full> (accessed 24.01.2017).

M2: Ideal Career Path

Gender Bias in Appointment Procedures: Assessing Achievements

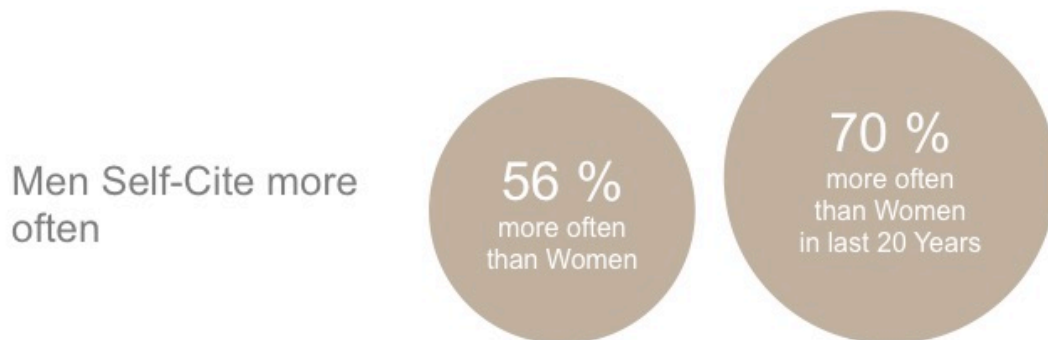
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Women and men themselves play a part in creating a distorted image of their research achievements, too. In publishing, for instance, how one handles one's own research accomplishments has a direct effect on publication output.

An analysis of publication patterns of women and men within the field of ecology at US universities revealed that “sexual dimorphism in self citation lead[s] to higher h-index scores for men despite lower citations per paper” compared to their female colleagues. Career absences by women for family reasons only widen this gap further. When leaving aside self-citation and career absences, however, the academic performance of women and men is on par.

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Using Citations as Measure of Success Impacts Women Negatively



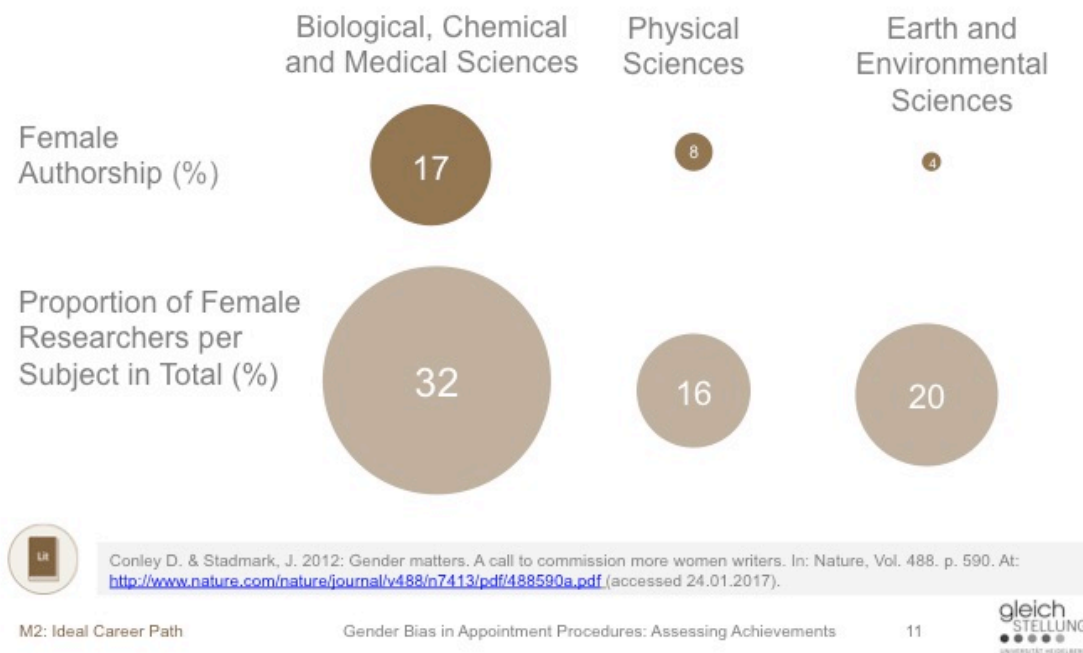
King, M. M., Bergstrom, C. T., Correll, Sh. J., Jacquet, J. & West, J. D. 2016: Men set their own cites high: Gender and self-citation across fields and over time. Working paper, submitted on 30 Jun 2016. At: <https://arxiv.org/abs/1607.00376> (accessed 24.01.2017).

That self-citation rates are, indeed, higher in men is shown in another study by US researchers. After analysing 1.5 million papers, they concluded that men self-cite 56% more often than women; looking at the last twenty years alone, the margin even increases to 70%. Although the number of women at universities is steadily increasing, this gap has remained the same over the last 50 years.

To conclude: Since citations traditionally function as key indicators of success, this has a negative impact on the academic visibility of women and their career opportunities.

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Ratio of Female Authors to Female Researchers in Subject Field





A comparison of the percentage of women who publish in academic journals to the percentage of women in the respective academic discipline is also quite revealing.

A study in *Nature*, for instance, shows the following: Between 2010 and 2011, women authored 17 % of articles in the biological and chemical sciences (including medical sciences), 8 % in physical sciences and 4 % in Earth and environmental sciences. The researchers then compared this data to the number of women who were employed in each of these disciplines at US universities in 2006: 32 % in the biological and chemical sciences, 16 % in the physical sciences, and 20 % in Earth and environmental sciences.

One possible explanation for this discrepancy is the invitation policy of journals, which more frequently ask established male researchers for contributions.

Slide 12

Women and Men Almost Equally Successful in Acquiring Third-Party Funds

	ERC Starting Grants	DFG Individual Funding
	10,0 %	34,8 %
	13,0 %	36,1 %



- 1 ERC Annual Report 2015. At: https://erc.europa.eu/sites/default/files/publication/files/erc_annual_report_2015.pdf (accessed 24.01.2017).
- 2 DFG: "Monitoring Equal Opportunity 2016" report. At: http://www.dfg.de/download/pdf/foerderung/grundlagen_dfg_foerderung/chancengleichheit/chancengleichheits_monitoring_2016.pdf (accessed 27.04.2017).



Third-party funds that have been acquired are another important measuring factor in the assessment of academic achievements. The success of women and men in acquiring grants is oftentimes measured in quantitative terms only – a surprising circumstance given that women's and men's success rates are at present only marginally different, as research has shown. The data available from the annual report of the European Research Council and the "Monitoring Equal Opportunity" report of the Deutsche Forschungsgesellschaft (DFG) suggest that male applicants are not significantly more successful in acquiring third-party funds than their female colleagues. An analysis of success rates of researchers in acquiring ERC Starting Funds in 2015 shows a success rate of 10 % for women compared to 13 % for men.

In its "Monitoring Equal Opportunity 2016" report the DFG presents a similar picture for the year 2015: Funding quotas for female and male researchers differ only marginally with slightly higher numbers for male researchers. Regarding individual funding, the funding quotas for new applications in 2015 amount to a total of 34.8 % for female researchers and 36.1% for male researchers.

- 1 ERC-Jahresbericht 2015. At: https://erc.europa.eu/sites/default/files/publication/files/erc_annual_report_2015.pdf (accessed 24.01.2017).
- 2 DFG: Chancengleichheits-Monitoring. At: http://www.dfg.de/download/pdf/foerderung/grundlagen_dfg_foerderung/chancengleichheit/chancengleichheits_monitoring_2016.pdf (accessed 27.04.2017).

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Women with Successful Applications Receive less Funding

		
Grants Awarded	72,0 %	28,0 %
Funds Received	78,5 %	21,5 %



- 1 Head, M. G., Fitchett, J. R. & Cooke, M. K. 2013: Differences in research funding for women scientists: a systematic comparison of UK investments in global infectious disease research during 1997–2010. In: BMJ Open 2013, Vol. 3 (12). At: <http://bmjopen.bmj.com/content/3/12/e003362.full> (accessed 24.01.2017).
- 2 Pohlhaus, J. R. et al 2011: Sex Differences in Application, Success, and Funding Rates for NIH Extramural Programs. In: Acad Med. 2011. Vol. 86 (6). pp. 759–767. At: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3379556/pdf/nihms285671.pdf> (accessed 27.04.2017).

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Gender Bias in Appointment Procedures: Assessing Achievements

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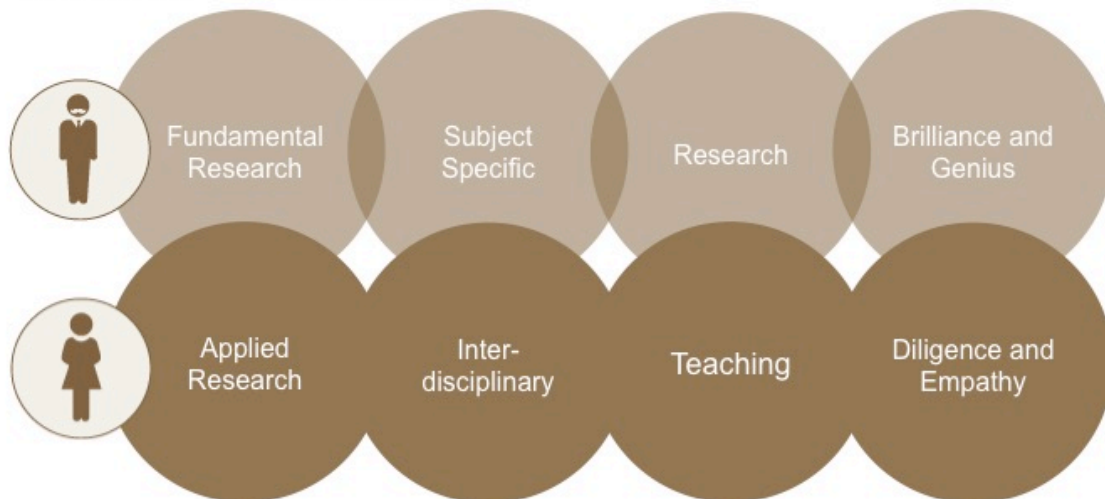
When taking a closer look at individual subject areas, however, quotas still diverge. In addition, differences can also be detected in the actual sums that are being allocated.

Researchers who investigated funding awards to UK institutions for infectious disease research from 1997 to 2010 concluded that there are "consistent differences in funding received by women and men": When their applications are successful women receive less funding than their male colleagues. The picture in numbers: In the just over 6000 cases that were included in the study, 72 % of the grants were awarded to men and 28 % were awarded to women. Of the 2.274 billion GBP granted in total, men received 78.5 % (1.786 million GBP) and women received 21.5 % (488 million GBP). That women with successful applications receive less funds is also confirmed in an analysis of grants awarded by the US National Institutes of Health.

- 1 Head, M. G., Fitchett, J. R. & Cooke, M. K. 2013: Differences in research funding for women scientists: a systematic comparison of UK investments in global infectious disease research during 1997–2010. In: BMJ Open 2013, Vol. 3 (12). At: <http://bmjopen.bmj.com/content/3/12/e003362.full> (accessed 24.01.2017).
- 2 Pohlhaus, J. R. et al 2011: Sex Differences in Application, Success, and Funding Rates for NIH Extramural Programs. In: Acad Med. 2011. Vol. 86 (6). S. 759–767. At: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3379556/pdf/nihms285671.pdf> (accessed 27.04.2017).

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Gender Stereotypes about Women and Men in Academia



1 Rees, T. 2011: The Gendered Construction of Scientific Excellence. *Interdisciplinary Science Reviews*. Vol. 36 (2). pp. 133–145. At: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1895431 (accessed 24.01.2017).
2 Leslie, S.-J., Cimpian, A., Meyer, M. & Freeland, E. 2015. Science. Expectations of brilliance underlie gender distributions across academic disciplines. In: *Science*. Vol. 347 (6219). 16. January 2015. pp. 262–265.

M2: Gender Stereotypes Gender Bias in Appointment Procedures: Assessing Achievements 14

Gender stereotypes – that is, preconceptions about women and men as researchers – are another typical source for gender bias in the assessment of academic achievements. Some of these stereotypes are:

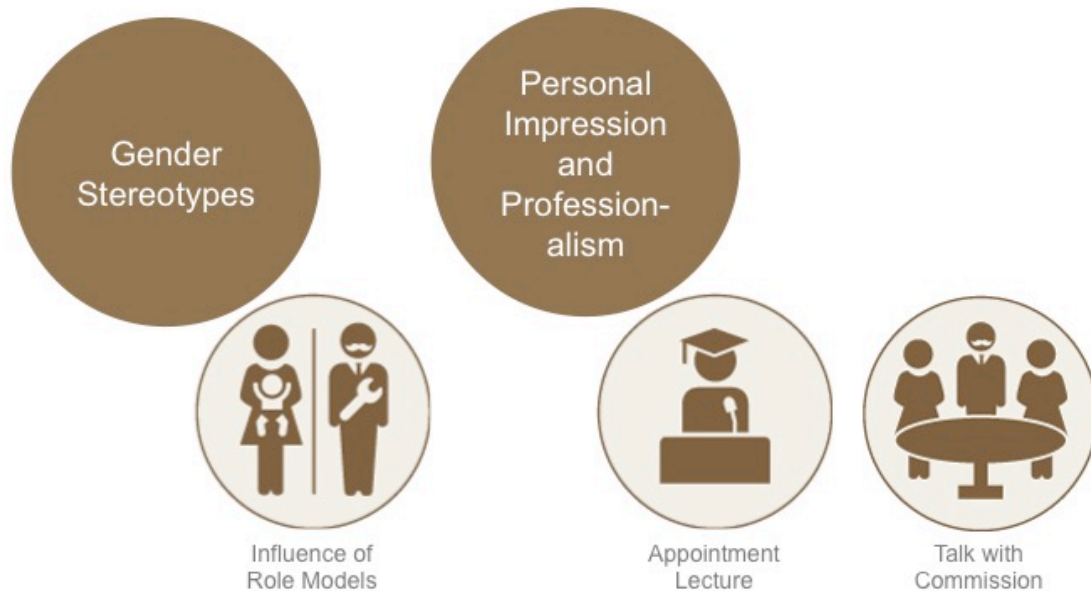
- Men prefer fundamental research, women favour applied research.
- Women prefer interdisciplinary work, whereas men tend to work subject-specifically.
- Women favour teaching over research.

The results of a recent study are revealing: Researchers have shown that expectations of brilliance and genius are tied to specific academic disciplines. Since these attributes are usually assigned to men, the number of male researchers in these disciplines is higher. Qualities such as diligence or empathy are expected in other academic disciplines, which are more readily associated with women.

1 Rees, T. 2011: The Gendered Construction of Scientific Excellence. *Interdisciplinary Science Reviews*. Vol. 36 (2). pp. 133–145. At: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1895431 (accessed 24.01.2017).
2 Leslie, S.-J., Cimpian, A., Meyer, M. & Freeland, E. 2015. Science. Expectations of brilliance underlie gender distributions across academic disciplines. In: *Science*. Vol. 347 (6219). 16. Januar 2015. pp. 262–265.

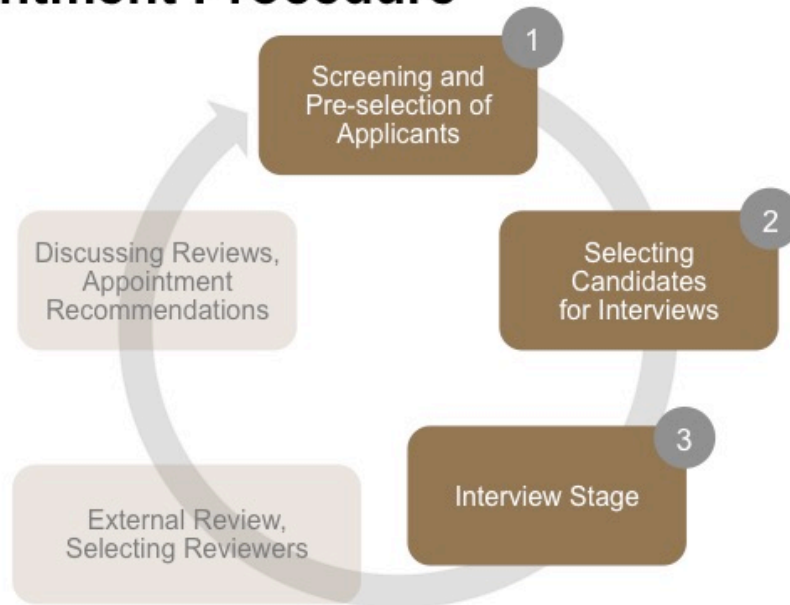
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Personal Impression is Associated with Professionalism



Just how strongly gender influences the assessment process is documented in numerous studies. Here, it is especially gender stereotypes and roles that take effect. When observing a person's demeanour and the manner in which they present themselves, assumptions about typical behaviour in women and men are activated. Similarly, the demeanour and self-presentation of applicants is read against assumptions about typical behaviour of women and men in professional settings. This mechanism is particularly notable when it comes to the appointment lecture and conversations between the applicant and the appointment commission.

Effects in Individual Stages of the Appointment Procedure



Up to this point we have shown that preconceptions about ideal career paths and the effects of gender stereotypes have a discernible influence on the assessment of an applicant's academic achievements. In the following, we will consider the ways in which gender bias impacts different stages of the appointment procedure.

Stage 1: Screening and pre-selection of applicants – Gender bias may manifest itself during the first discussion of applicants if, for instance, it is not academic achievement that is being examined, but the applicant's age, life circumstances or publication behaviour.

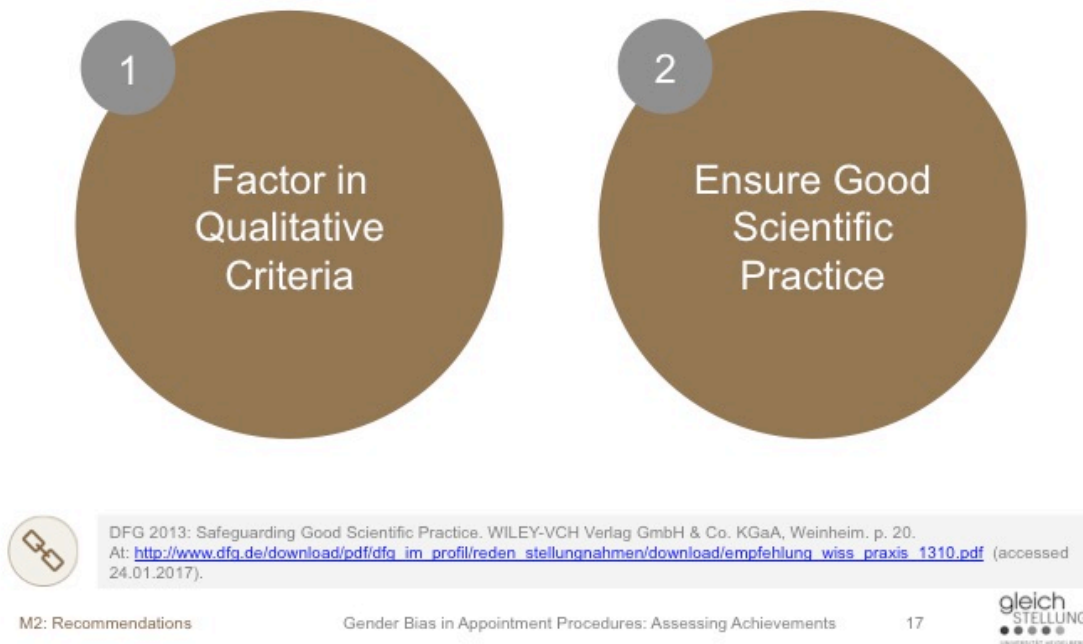
Stage 2: Selecting candidates for interviews – While shortlisting candidates for interviews, stereotypical assumptions about the academic vita of researchers can take effect.

Stage 3: Interview stage – In evaluating interviews, there is a risk of a gender bias effect, if conclusions about an applicant's professionalism are drawn from her/his demeanour during the interview.

To conclude this module, we will introduce four examples of good practice with which to counteract gender bias in the assessment of academic achievements.

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Recommendations



Recommendation 1: Factor in qualitative criteria

Differentiating between quantitative and qualitative criteria can counteract gender bias in the assessment of achievements. Setting a good example in its funding selections, the DFG advises against the exclusive use of quantitative criteria in assessments – doing so would only create pressure to mass-produce results, while preventing the development of suitable standards for the evaluation of high-quality research.

Recommendation 2: Ensure good scientific practice

Taking into consideration qualitative criteria also means factoring in the following aspects:

- The contribution to advancement within the field
- The evaluation of innovation and creativity
- The usefulness of results for society at large
- The usefulness of results with regard to practical application.

Recommendations

3 Consider Individual Circumstances of Life

4 Raise Awareness of Gender Bias

- 1 DFG: Allgemeine Informationen zum Umgang mit Diversity in der Antragsstellung. At: http://www.dfg.de/foerderung/grundlagen_rahmenbedingungen/diversity_wissenschaft/diversity_allg/index.html (accessed 24.01.2017).
- 2 DFG 2013: Sicherung guter wissenschaftlicher Praxis. WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim. S. 22. At: http://www.dfg.de/download/pdf/dfg_im_profil/reden_stellungnahmen/download/empfehlung_wiss_praxis_1310.pdf (accessed 24.01.2017).

M2: Recommendations Gender Bias in Appointment Procedures: Assessing Achievements 18

Recommendation 3: Consider individual circumstances of life

To ensure a fair and transparent assessment of academic achievements, it is advisable to consider – next to indicators such as publications and third-party funds – the applicant's personal circumstances, i.e. unavoidable delays and their effects. A detailed account can be found in module 1.

Recommendation 4: Raise awareness of gender bias among members of the appointment commission

Being aware of possible gender bias is still the best strategy to prevent it. Advanced trainings about gender bias help participants to deal with gender stereotypes in a self-reflective manner. In addition, the insights thus gained are also directly applied in daily life at the university. In order to reflect on selective and gender-specific perception, it is important to raise awareness of this issue among the members of appointment commissions by means of training sessions. Unwitting or implicit gender bias, after all, is even harder to detect than obvious and explicit discrimination.

- 1 DFG: Allgemeine Informationen zum Umgang mit Diversity in der Antragsstellung. At: http://www.dfg.de/foerderung/grundlagen_rahmenbedingungen/diversity_wissenschaft/diversity_allg/index.html (accessed 24.01.2017).
- 2 DFG 2013: Sicherung guter wissenschaftlicher Praxis. WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim. p. 22. At: http://www.dfg.de/download/pdf/dfg_im_profil/reden_stellungnahmen/download/empfehlung_wiss_praxis_1310.pdf (accessed 24.01.2017).

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Equal Opportunities Office of Heidelberg University
gleichstellungsbuero@uni-heidelberg.de
www.uni-heidelberg.de/gleichstellungsbeauftragte

Editorial Staff

Lina Girdziute
Charlotte von Knobelsdorff
Agnes Speck
Andrea Steinmann
Carmen Waiblinger

Realisation

Ute Heeger

June 2017

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We appreciate your taking the time to consider the issue of gender bias in the appointment procedure. Hopefully, we have broadened your knowledge about this important topic and were able to provide you with tools to counteract gender bias and its effects in appointment procedures. Do not hesitate to address any of the above topics in your commission work whenever relevant.