Gender bias at Department of Political Science: Problem diagnosis and recommendations

Report by the Gender Diversity Advisory Panel

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The Gender Diversity Advisory Panel's assignment, members and work

Late summer 2021, head of department Peter Munk Christiansen formed a local gender diversity advisory panel consisting of:

- Professor Jens Blom-Hansen
- Associate Professor Lise Degn
- Assistant Professor Mathilde Cecchini
- Assistant Professor Viki Lyngby Pedersen
- Professor Lasse Lindekilde
- Professor Vibeke Lehmann Nielsen (chair)

This report, combined with the PowerPoint Presentation "Gender Imbalance at Department of Political Science: Invitation to Discussion and Idea Development", summarizes the group's work and recommendations.

The panel's assignment was to discuss and recommend, based on documented knowledge, specific and realistic ways in which the Department can improve gender[1] diversity.

The panel decided early on that it would obtain the documented knowledge on which its discussions and recommendations via the following two methods (see Appendix 1 for a more detailed description):

1. An interview study to analyze the motivating and demotivating factors for women and men in relation to starting, staying on and working in a research and teaching position at the Department of Political Science.
2. A literature review to provide insight into the evidence for gender equality initiatives in academia.

The purpose of sub-study 1 was to identify specific problems at the Department and narrow down the targets of the panel's recommendations. The aim of sub-study 2 was to find inspiration for effective initiatives.

As stated, the panel's terms of reference called for *specific* as well as *realistic* recommendations. The panel finds that realism in management initiatives is contingent on, among other things, how management prioritizes the problem– i.e., management's commitment, allocation of time and resources – and implementation individual initiatives. Therefore, panel has chosen

[1] The panel operates with a binary – genetic – definition of gender but acknowledges that not everyone identifies with such a definition. Furthermore, it is worth noting that a gender diversity perspective is not the only relevant diversity aspect at the Department, but it is the perspective the panel has been instructed to apply.

to interpret realism broadly and deliberately does not limit its recommendations to initiatives that will only be implemented at department level. We also recommend initiatives that require the management to work for changes in administrative practices and rules at faculty, university and possibly national level.

The justification for this is that vertical gender segregation in the labor market – and thus at the Department – is caused by a complex interplay of factors at many levels (society, faculty, department, section and individual). It therefore makes sense that the management also directs its initiatives towards multiple levels and not only at the department.

Finally, we want to mention that the panel's work does not entail an exhaustive list of the Department's challenges in recruiting and retaining female academic staff, and therefore our recommendations do not cover all challenges. For example, the methods chosen do not allow us to identify a regular challenge for the Department, namely that it is often more difficult to recruit younger female researchers than younger male researchers if this requires moving from another country or even from another part of Denmark.

Gender imbalance at the Department of Political Science

As shown in Table 1, the Department has a predominance of male staff in all academic categories. Moreover, the phenomenon of *the leaking pipeline*, i.e. the higher the position category, the greater the gender imbalance, is also found at the Department.

It is also worth noting that:

1. the imbalance is not a new phenomenon
2. the predominance of men at the entry to VIP positions – i.e., at PhD level – has increased from 2014 to 2022
3. the predominance of men increases significantly from PhD level to postdoc level where recruitment is more informal, and where research project owners have a large say in the final decision to hire
4. the gender distribution among assistant professors is equal in 2021
5. the gender imbalance has continued in a period when the total number of VIPs has grown considerably

Moreover, the Department exceeds comparable BSS departments in terms of gender imbalance, despite a relatively equal gender composition in the student body over the past more than 20 years. There are thus no indications that the Department's gender imbalance will rectify itself anytime soon.

Table 1. Gender representation in academic position categories*, **, * at Department of Political Science, 2011-2022**

		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021	
		K	M	K	M	K	M	K	M	K	M	K	M	K	M	K	M	K	M	K	M	K	M
Ph.d.	Antal	13	17	16	15	16	16	19	20	17	26	17	26	22	29	16	28	20	34	20	34	20	33
	%	43%	57%	52%	48%	50%	50%	49%	51%	40%	60%	40%	60%	43%	57%	36%	64%	37%	63%	37%	63%	38%	62%
Postdoc	Antal	0	1		3	1	2	3	5	4	6	6	7	6	5	1	7	3	12	5	15	4	27
	%	0%	100%	0%	100%	33%	67%	38%	63%	40%	60%	46%	54%	55%	45%	13%	88%	20%	80%	25%	75%	13%	87%
Adjunkt	Antal	4	10	4	7	4	8	4	14	9	14	8	14	6	15	5	18	6	15	8	13	9	9
	%	29%	71%	36%	64%	33%	67%	22%	78%	39%	61%	36%	64%	29%	71%	22%	78%	29%	71%	38%	62%	50%	50%
Lektor	Antal	9	28	6	31	6	29	8	26	9	31	10	26	12	30	12	29	12	28	12	33	12	30
	%	24%	76%	16%	84%	17%	83%	24%	76%	23%	78%	28%	72%	29%	71%	29%	71%	30%	70%	27%	73%	29%	71%
Prof. MSO	Antal	0	3	3	2	3	2	2	2	2	2												
	%	0%	100%	60%	40%	60%	40%	50%	50%	50%	50%												
Prof.	Antal	0	14	0	13	0	11	1	16	1	17	3	22	3	23	3	22	5	26	6	26	6	26
	%	0%	100%	0%	100%	0%	100%	6%	94%	6%	94%	12%	88%	12%	88%	12%	88%	16%	84%	19%	81%	19%	81%
I alt	Antal	26	73	29	71	30	68	37	83	42	96	44	95	49	102	37	104	46	115	51	121	51	125
	%	26%	74%	29%	71%	31%	69%	31%	69%	30%	70%	32%	68%	32%	68%	26%	74%	29%	71%	30%	70%	29%	71%

* Adjunkt = assistant professor; lektor = associate professor

** The Data is based on the number of heads and not full-time equivalents. The stock data stems from AUHRA, except PhD data which is from Research Planner and thus counts all enrolled PhD student (i.e. all employees and non-employees (4 + 4 Part A, as well as employees elsewhere than AU)).

*** Associate professor includes both associate professor and senior researcher.

The gender imbalance varies among the Department's sections, but even at this level, the general picture is that the women are – and have been for many years – in the minority, especially in the tenured positions.

According to the literature, gender imbalance in academia is generally caused by a mix of the following three factors:

1. Relatively fewer women than men apply for positions (recruitment challenges)
2. Relatively more women are eliminated in hiring rounds (unconscious selection bias and implicit bias in qualification requirements)
3. Relative more women actively leave academia (retention challenges)

As shown in Table 2, there are significantly fewer female than male applicants for all academic positions. Table 3 shows that selection bias based on gender is not present in the assessment work; rather, a small majority of female applicants compared to men are declared qualified. In other words, there is no indication that female applicants are systematically eliminated in the assessment of their qualifications. However, these numbers do not say anything about possible biases in the final two steps before employment, namely (1) who among the qualified is offered the position, and (2) who among the candidates accepts the position.

We should add that actively leaving academia (item 3 above) also includes situations where potential applicants deep down would have liked to stay in academia but decided not to because they estimate that chances of getting the position as minimal.

Table 2: Number of applicants for academic positions* at the Department of Political Science. Sum of 2019-2022***. Distributed by gender**

				Percent	
Applicants 2019-2022	Women	Men	Total	Women	Men
Associate Professor	53	188	241	22	78
Assistant Professor	165	389	554	30	70
Postdoc	171	323	494	35	65
PhD****	239	437	676	35	65

* Professors are excluded because there was only one special posting (professor of health management) in the period.

** Data for 2019 is uncertain because HR changed to a new recruitment system in 2019 and already posted position were finalized in the old system.

*** Until August 19, 2022.

**** Data for PhD only contains applicants who applied via postings. In cases of full external funding, it is possible to apply without postings, but that only applies to a few persons per year.

Table 3: Number of applicants deemed qualified for positions* at the Department of Political Science. Sum of 2019-2022***. Distributed by gender**

				Percent	
Qualified applicants 2019-2022	Women	Men	Total	Women	Men
Associate Professor	15	43	58	26	74
Assistant Professor	155	357	512	30	70
Postdoc	146	260	406	36	64
PhD****	204	362	566	36	64

* Professors are excluded because there was only one special posting (professor of health management) in the period.

** Data for 2019 is uncertain because HR changed to a new recruitment system in 2019 and already posted position were finalized in the old system.

*** Until August 19, 2022.

**** Data for PhD only contains applicants who applied via postings. In cases of full external funding, it is possible to apply without postings, but that only applies to a few persons per year.

In terms of well-being as a researcher and teacher at the Department, Tables 4 and 5 (from the 2021 APV) show that women on close to all parameters report slightly lower well-being than men. The differences are minor but systematic. It is especially worth noting that women to a lesser extent than men experience that their team – regardless of gender – offers equal opportunities for interesting tasks, promotion, managerial responsibility, career development etc. Overall, however, well-being is good among both women and men.

Tables 4 and 5: Excerpts from the Department's APV 2021

GENDER	Male	Female	Total
I'm generally happy with my job	4.3	4.3	4.3
I feel motivated and engaged in my work	4.4	4.3	4.3
I would like to be employed at Aarhus University in a year's time	4.4	4.3	4.4
I would recommend Aarhus University as a place to work	4.4	4.2	4.3
I generally feel comfortable at work	4.4	4.3	4.3
I'm happy with my job prospects	3.4	3.4	3.4
My tasks are meaningful	4.5	4.3	4.4
I know what is expected of me as an employee	4.2	4.0	4.1
I receive information on important decisions, changes, plans for the future and the like	3.8	3.6	3.7
I have an appropriate level of influence on my work	4.4	4.3	4.4
I feel sufficiently recognised for the work I do	3.8	3.6	3.7
I feel that I am part of a community at my workplace	4.0	3.8	3.9
I generally don't feel lonely in connection with my work	3.8	3.6	3.8
There is an appropriate balance between my tasks and the time available for performing them	3.4	3.2	3.3
I'm able to perform my work to a standard that I'm satisfied with	4.1	3.8	4.0
My work/life balance is generally appropriate	3.6	3.5	3.6

<3.0 <3.5 <4.0 <4.5 ≥4.5

GENDER	Male	Female	Total
My day-to-day management gives me sufficient help in prioritising my tasks	3.9	3.5	3.7
My day-to-day management provides sufficient feedback on my work	3.8	3.6	3.7
My day-to-day management acts as a good sounding board on issues of an academic/professional nature	3.9	3.8	3.9
My day-to-day management makes the necessary decisions, even if they can be unpleasant	4.1	3.8	4.0
My day-to-day management communicates overall strategies and targets in a way which makes them meaningful in my day-to-day work	3.9	3.5	3.7
My day-to-day management communicates and acts uniformly and coherently in everyday working life	4.1	4.0	4.0
I'm confident in the senior management team's ability to manage Aarhus University	3.6	3.7	3.6
At Aarhus University, employees are free to express criticism	3.9	3.7	3.8
In my department, I feel that we are good at including colleagues with different backgrounds	3.6	3.5	3.6
I generally feel that work is continuously being done to improve the psychological work environment at my department/school	3.8	3.5	3.7
I generally feel that work is continuously being done to improve the physical work environment at my department/school	3.7	3.6	3.7
I feel sufficiently informed about the background for the decisions made by the faculty management team	3.4	3.4	3.4
I feel sufficiently informed about the background for the decisions made by the management team	3.9	3.8	3.8

<3.0 <3.5 <4.0 <4.5 ≥4.5

The following five arguments highlight why the gender imbalance in the academic staff and well-being are problematic:

1. Optimizing the resource pool: A department has an interest in having access to the largest possible share of the qualified resource pool. This does not occur if more women than men are eliminated or self-select out.
2. Diversity effects: A department has an interest in achieving diversity effects, which arise when difference competences and interests are represented in the organization and because diversity in itself ensures dynamics and change.
3. Representativity as a norm: It is considered a value that a university department reflects the gender distribution in society.
4. Rights argument: Women and men have equal right to – and should therefore have equal opportunities for – an academic career, and a public university has a moral and political responsibility to ensure that.
5. The Departments reputation: Since society and the university management regularly focus on the gender balance at university departments, not engaging in the problem would damage the Department's reputation.

Arguments 3 and 4 are normative, while the rest are strategic-rational. The arguments are not mutually excluding.

According to the interviews conducted in sub-study 1, almost all female and male employees, current as well as former, find the gender imbalance at the Department problematic. The imbalance is perceived as problematic in relation to general gender equality, the organizational culture, society's exploitation of talent, the diversity in research. The interviewees thus seem to express a mandate that the Department prioritizes the problem and its resolution.

However, the interviews also reveal a gender differences in how the gender imbalance and related problems are perceived. For the men, it is acknowledged but abstract, whereas many of the women experience it as a real aspect of their work life, at the coffee machine and the lunch

table, in teaching, around the meeting tables, in counseling situation, in assessment work, during conferences, at project presentations and at section meetings. Almost constantly, the female VIPs are underrepresented – and the women are conscious of it.

In their considerations about gender imbalance and gender issues at the Department, the interviewed (especially young) women mention more often than the men other female employees' specific experiences. The women see female colleagues' individual bad experiences and injustices as instances of general gender-related problems. Often, the same incidents are mentioned, but the incidents become fueled because when they occur, they hit a form of "accumulated frustration" in the female employees.

Several women feel that the Department's leadership and those they see as prominent at the Department do not take gender imbalance and gender discrimination in academia seriously. The leadership et al. say that they care about it and take it seriously, but they do nothing about it in practice. Moreover, the structural nature of the problem is ignored. The women talk about a certain understanding among men who are seen as prominent that basically says: I (us prominent VIPs) are not gender biased, ergo we don't have a problem (any longer)."

As we will discuss below, such an understanding represents a person-oriented approach to the problem of gender imbalance in academia, according to which we simply have to fix both men's and women's preferences and thought patterns to solve the gender imbalance. This approach cannot stand alone (see next section). According to the interviewed women, this understanding is often combined with "and besides, world-class research is the Department's primary task." Several women interpret this as a claim that the initiatives the Department can launch against more structural causes of gender imbalance will hurt the quality of the research.

The Panel sees the combination of "accumulated frustration" and the experience of a lacking sincere engagement in the issues as a problematic cocktail. It is therefore our hope that our work and recommendations will contribute to the implementation of a series of initiatives.

The correlation between a gender-political point of departure and choice of policy instrument

As demonstrated by sub-study 2 (Appendix 2), studies indicate that there is a correlation between the organizational decision makers' understanding of gender imbalance and the types of initiatives they launch to improve the gender balance in their organization (see Figure 1).

Figure 1: Correlation between gender-political point of departure and choice of policy instrument (from Wynn 2020)

	Individualistic	Societal	Organizational (org)
Sources of inequality	Individual men and/ or women	The broader society	Org processes
Gender differences	Men and women are fundamentally different (internalized)	Boys and girls are socialized differently by the larger society (cultural)	Men and women are treated differently by the organization (structural)
Target of change	Individuals should try not to be biased	The broader culture must be changed	The org is responsible for mitigating bias
Change efforts	Mentorship, development, & training programs	Outreach beyond the company	Changing hiring / promotion procedures
Ownership of change	Change agents	None	Organization

If decision makers in the organization are of the understanding that men and women basically are different, they often use change initiatives that focus on individual development, e.g., mentor programs, diversity training, that aims to strengthen the individual researcher's career and/or check unconscious bias. Either the individual (most often the women) has to be fixed to match academia and its demands, and/or all members of an organization have to be trained to see each others' differences in a positive light. If, in contrast, the decision makers think that inequality is caused by structural conditions in the organization, the responsibility for rectifying this inequality is placed with the organization itself, and relevant initiatives could include recruitment/hiring (e.g., minimum one woman in the hiring committee, stop the clock policy, affirmative action). Finally, an understanding that gender imbalance is a result of deeply rooted gender norms in society will place the responsibility for change outside the organization.

As mentioned in Appendix 2, Danish universities traditionally address equal opportunity problems at the personal level. However, there is very little evidence that this approach – in itself – has any major effect on gender imbalance; especially initiatives that aim to fix the women to match academia. This is perhaps not that surprising considering that a self-selection and selection process has already taken place on the road to a career as researcher and teacher, i.e., a PhD stipend, and those who make it to the entry level in academia are already relatively homogenous on many academic and personal parameters. This argument is supported by the fact that we do not encounter major gender differences in our interview material in terms of whether the interviewees feel that they have the competences and personality traits that are required for a job as researcher and teacher.

We will get back to the question whether the Department, via its organizational culture and the way it talks about it to the outside world, contributes to a gender-biased self-selection/selection process especially among potential female academic employees.

However, it is worth noting that the large number of analyses and studies of the causes of the vertically and horizontally gender-divided labor market combined paint a both/and rather than an either/or picture of whether the causes of gender bias are found at the level of the individual, the organization or society (Borchorst, 1984; Preston, 1999). Therefore, the best solution seems to be to view the gender-divided labor market – including the vertical gender imbalance at the Department – as a complex interplay between factors at all three levels.

It is important for the Panel to point out that research and teaching at a department like Political Science requires diversity of knowledge, research interests and competences at the organization level and specialized ditto at the individual level. Research and teaching would stagnate and become very narrow if everyone had the same interests and studied them in the same way. It is imperative for a strong research institution to attract, recognize and retain a diversity of competent, specialized individuals. In other words, the ideal is **an organization that recognizes and promotes research diversity and is based on inclusive professional communities.**

Results of the interview study

In this section, we will report the main results from the interview study in the form of a local problem diagnosis in terms of recruiting and retaining female academic staff. Since we did not interview potential – external – applicants for positions at assistant professor, associate professor and professor level, we discuss problems regarding recruitment based on data from the student assistants and to a lesser extent on data from former/current staff. The consequence is that we primarily discuss recruitment challenges related to the entry into an academic career, namely the PhD level. We are aware, of course, that the Department also faces challenges attracting external female applicants to the other levels.

As mentioned in Appendix 1, we paraphrase statements from the interviews in order to preserve the interviewees' anonymity.

Recruitment challenges:

Interesting but demanding job … but the benefits disappear as you climb the career ladder and in connection with family life

Across gender, the student assistants have an image of the Department as a good workplace where you thrive and have fund with your colleagues, and where you are good at giving each other constructive feedback.

They see the actual job as academic researcher and teacher as having many attractive elements like flexibility in your day, academic freedom and immersion, opportunities for stays abroad, participation in conferences, opportunities for interesting fieldwork, etc.

However, they also see it as a demanding job and a demanding work place. It is always about how good you are. Competition for positions is hard, which means an uncertain future. The workload is perceived as massive, the stress level as high, and you have to teach many different subjects.

They especially think that once you are on the other side of your PhD, you no longer have time to sit around and enjoy your research. Furthermore, they see the immediate benefits like stays abroad, conferences, fieldwork and "being in an academically immersed workflow" as incompatible with family life. Many of the good opportunities in the job are lost if you want to have children. The latter is a concern that primarily the female student assistants express.

It's best if someone picks you

It is a common idea among the student assistants, and across gender, that it is best if someone picks you to apply for a PhD. You can't just apply. As a minimum, you have to have someone from the academic staff read and comment on your application. But the best thing is if an academic employee takes you under their wing and has, if not included you in a major research project, then at least has guided you in all stages of writing the application.

A PhD stipend locks your career path

Across gender, the student assistants have a clear idea – and concern – that a PhD stipend does not contribute positively to a career outside academia. If you do not want to continue or does get an opportunity to continue a career as academic researcher after the PhD, the years are wasted.

A career as academic researcher is more an ongoing self-development project than a contribution to society

We see a tendency in the interviews – and in academic staffers' conversations with talented especially female students – that a career as academic researchers is seen partly as a job that is disconnected from "reality", partly as an individual project with focus on what "I" can do, and how "I" can develop academic and personal competences, instead of how group projects and the Department as a whole can be improved and succeed. These aspects are seen as discouraging.

According to the students, the story about the career as academic researcher is it is a unique opportunity to develop personally and do exactly the kind of research you want. The focus is on *you* becoming something special, not on you delivering something to society in the form of research results like educating the future workforce.

The Department of Political Science in Aarhus has a reputation as an explicit knowledge hierarchy

Both student assistants and externally recruited staffers state in their interviews that the Department is known for an explicit knowledge hierarchy, especially in terms of method. Interesting knowledge relies on causal inference based on quantitative data. Anything else is perhaps intriguing, but it is not real knowledge.

This reputation deters potential applicants from applying. It is widely claimed that it discourages women more than men, but we cannot conclude anything based on our data.

Retention challenges

Retention challenges are another cause of gender imbalance in academia – and at the Department. As mentioned, the core of retention challenges is that relatively more women are eliminated in the application rounds, and that relatively more female employees actively – and more or less voluntarily – leave academia. Although there is little indication that women are eliminated in the assessment process at the Department, significantly fewer women are hired, especially in postdoc positions.

Two factors cause retention challenges: the women are less keen to continue an academic career at the Department, and/or they refrain from applying because they anticipate not getting the position. The first cause is about job satisfaction, i.e., taking pleasure in one's job and in working at the Department; the second cause is about equal conditions for qualifying. As we point out below, however, the two factors are connected.

As far as job satisfaction, our interviews reveal many positive aspects of being an academic researcher the Department that are broadly shared across gender. Basically, former and current employees find the Department a wonderful place to work socially and collegially. They mention nice, funny, interesting and caring colleagues, whom many describe as "friends". In terms of the professional aspect of the organization, the Department is perceived – again across gender – as having high professional standards and professionally dedicated staff who are very willing to give feedback on papers, ideas and applications.

The tasks (research and teaching) are seen as meaningful, and combined with the opportunity to develop competences and achieve knowledge, good colleagues and the flexibility in terms of work hours and job content, they are essential motivators for both female and male staff.

Admin support (especially at the Department) is seen as professional and top level. Finally, the interviewees overall express satisfaction with the management.

The interviews also reveal several concerns regarding job satisfaction. We focus on demotivating gender-biased aspects, as we expect them to shed light on the Department's challenges in

retaining women. However, we also discuss the experience of a massive work pressure, a concern that is not gender biased but is related to whether an employee has small children). We include this concern, partly because it is very prominent in the interviews, partly because the data indicates a tendency that the consequences of the workload are different for female and male employees.

Concern #1: Women's experience of marginalization

All the interviewed women convey a fundamental experience of academic marginalization; some also social marginalization.

Almost all interviewed women, but almost none of the men, talk about a fundamental experience of being "on the fringes" of the Department's academic communities, and they see the Department as characterized by very strong research teams. The women feel that they a recognized as persons rather than for their professionalism. According to the data, this has the following consequences:

1. The women feel that they also – and more than the men – have to perform in other arenas besides the purely academic in order to achieve recognition and inclusion, e.g., teaching, administration/management and for the social cohesion of the organization.
2. The women find that they are invited to join fewer academic collaborations (co-authoring, project applications etc.), and if they are invited, it is more often with other women than with men.
3. The women experience more academic isolation than men.
4. It is a major contributing factor in women's decision to leave the Department.

In addition to academic marginalization, some women experience social marginalization. The women talk about closed social male environments (soccer, Friday beers, dinners, celebrations etc.) in sections and research groups where women are not invited even though they belong to those sections/research groups. The women see social marginalization as especially problematic because they also experience that academic collaborations are born in and borne by informal relations.

Concern #2: Explicit knowledge hierarchy and narrow conception of "a good researcher"

Many of the interviewees – including current and former female and some former male employees – mention that they experience a narrow and explicit knowledge hierarchy at the Department. In terms of topics and especially methods, some things are quite clearly better and "more proper research" than others. Some have literally been told that they things they work on are not political science. "Mainstream political science" is thus a frequently mentioned concept at the Department, and it is considered a quality to work mainstream. Others experience a lack of recognition that causal inference based on quantitative data is not the only way to

obtain socially relevant knowledge and insights. It is quite remarkable that there are male employees in the data material who are unaware and uncomprehending of the phenomenon of knowledge hierarchy.

Furthermore, interviewees – again mainly women – describe how demotivating this narrow conception of a good academic researcher is. Publication in top journals and winning – large – grants are celebrated, rewarded and recognized disproportionately at the Department compared to, e.g., being a good teacher, a popular supervisor, being in dialogue with practice and/or contributing to awareness of or solutions to societal problems – or simply being a wonderful colleague who once again "takes one for the team."

The collective experience is that several important elements of being a good academic research – also for the Department – in reality are given less priority.

Concern #3: Unpleasant feedback culture at section meetings

Almost all interviewees positively acknowledged that the academic staff is very willing to give feedback on papers, ideas and applications. However, some of them – especially women – find the tone of the feedback at section meetings hard, unpleasant and demotivating, and that feedback is not targeted at the research question or the type of knowledge the paper/project aims to provide.

Their impression is, partly, that the point of the feedback is more to show how smart you are than to improve colleagues' work; partly that the feedback is used intentionally or unintentionally to cement the mentioned knowledge hierarchy (regarding methods and topics) instead of commenting on the research ambition of the paper/project.

In addition, many of the interviewees, especially young women, experience a widespread norm at the Department that if you cannot take criticism in a specific way, you cannot work here. In other words, the unpleasant tone in the criticism is something they have to learn to live with if they want an academic position at the Department.

Concern #4: The informal hiring procedures for externally funded positions and establishment of research collaborations

In recent years, the Department has landed several externally funded, including some very big, research projects that imply temporary short- and long-term positions. The Department may co-finance some of these positions if the person who is hired performs an agreed amount of teaching.

The hiring procedures for these positions – especially the short-term positions (e.g., 6 months) – appear very informal and murky. Especially the female interviewees found it demotivating that the positions are filled based on existing social and professional relations rather than based on a broader screening of possible candidates in the organization. In addition, it is a

complete mystery what determines how much co-financing the Department offers and thus the length of employment.

The female interviewees express the same frustration about the way teams are established around research applications/projects. Again, informal relations seem to be the point of departure rather than a professional determination of relevant resources and competences in the organization.

For female employees, procedures that are informal and furthermore based on existing relations only add to the professional marginalization mentioned earlier.

The Panel is concerned that the effects of the so-called "old boy network" *may* increase the gender imbalance since the Department has more male employees and thus potentially more male employees with external grants to which they recruit more men than women based on informal social relations. This is very clear in the skewed gender balance among assistant professors and postdocs.

Concern #5: The public utility of our work is unclear

More female and male interviewees say that they often experience that their academic work is not important for anyone. They are not motivated to the same extent as men by contributing to an abstract research agenda. The demotivating aspect increases when some – especially young – women also experience that their teaching is not recognized and rewarded as much as research, and that methodically strong but relatively nerdy/narrow publications and interests are rewarded.

Concern #6: Uncertainty about what management is actually doing about gender discrimination and gender imbalance

Especially the young female interviewees generally find that management does not prioritize and seriously address individual cases of gender discrimination or the gender imbalance at the Department specifically.

Individual cases are subject to rules about confidentiality, which makes it difficult for management to communicate action on these cases broadly to the organization, but the Panel finds that there is a need for a form of communication in these cases. Likewise, the Panel sees a need to be more explicit about the actual initiatives that management has already informally launched, e.g., search committees to identify qualified women in connection with open positions, female representation in assessment and hiring committees etc.

Concern #7: Work pressure combined with high expectations

Finally, the massive work pressure is, as discussed, something both women and men experience, but they draw different consequences of it. Our data shows that having small children or not determines how the work pressure affects you.

The interviews show that mainly employees with small children suffer under the work pressure, and the pressure is especially hard because it is typically employees in temporary positions who have small children. Due to the competitive pressure and the career structure in academia, you cannot put your career on hold while you have small children, which several interviewees mention is possible in other career jobs, e.g., special consultant and departmental manager.

They find that the work pressure is big because they have perform on multiple research parameters, but the increasing ambitions have been placed on the individual employees and have not changed, e.g., the K-norm. In light of the ambitions for teaching, the teaching norm is so high that many employees fear "landing on 0 in the K bank".

They experience a culture at the Department that expects you to work hard, and you have to work hard to be here, regardless of your life situation.

Another manifestation of the work pressure is that many experience an expectation from the teaching system and sometimes direct pressure from especially supervisors and project owners to work during parental leave, e.g., revise and resubmit articles, respond to survey and interview guides for joint projects, grade exams, plan teaching etc. The expectation is that you just do it or take advantage of the possibilities of flexible parental leave. Flexible parental leave is valued by both female and male employees, but especially many women interpret the way it is communicated as almost a demand and unwarranted interference in a decision that belongs in their private lives.

While women and men, as mentioned, experience work pressure and expectations in more or less the same way, the data shows a tendency towards gender differences in terms of how they process the work pressure and how they seek to combine it with small children in practice. The interviewed women reflect on and worry more than men do that many work hours and great mental focus at work may turn out to be "a bad investment" and cause major life risks, such as divorce, childlessness, your children's psychosocial wellbeing, your own health, loss of other identities than "the researcher". As a consequence, women have more considerations about and are less discouraged by an alternative to a career as academic researcher than men.

The data also shows that men and women with small children tend to handle the work pressure in different ways. The women seem to explicitly prioritize the children over work and often sit down to work again when the children are asleep. The men attempt to get some work done when they are at home with sick children, are on paternity leave and have picked up children from daycare, and then again when the children a asleep.

Some also experience that the work pressure, particularly in combination with small children, undermines some of the joys of working, especially "being in an academically immersed workflow" and "access to nice, fun and interesting colleagues." A large number of tasks crowd out the time for research, and when the tasks are done, there is not much time left before you have to pick up the children. Finally, you simply no longer have time to be social during work hours.

We should also mention in parentheses, that several interviewees experience mixed signals from management about work-life balance. They say that they are about it but also expect you to perform on all parameters and be flexible when it is time to plan the Department's courses. They experience that the staff development interview focuses on what you as an employee delivers/should deliver in the form of articles, applications, student evaluations etc. instead of on the employee's wellbeing and development.

Summary

The Panel identifies two factors that explain the Department's challenges in recruiting and retaining female academic staff: Work pressure and high expectations combined with mechanisms in the organizational culture that marginalize women, primarily because of informal establishment of research collaborations.

The women experience being sidelined by research teams and see male colleagues being invited as co-authors, to join data teams, develop good ideas together, being included in grant applications and having their employment extended on project funding. Women with small children experience having fewer work hours available than the men with whom they compete for positions, and they worry about life risks due to spending so many hours and mental energy on work. These aspects combined may seem like an insurmountable hurdle, and many women anticipate that they will not get the job anyway and it is not worth it.

Likewise, the work pressure and its anticipated incompatibility with family life is also a factor that stop especially talented female students from choosing a career as academic researcher.

Finally, the Department faces the challenge that women eliminated to a greater extent in the hiring decision, especially for postdoc positions, which are more narrowly described, and project owners have more influence. The Panel finds that the concerns regarding informal hiring procedures in externally funded positions (concern #4), pronounced knowledge hierarchy and a narrow conception of "a good researcher" (concern #2), and the women's experience of marginalization (concern #1) are related to this. When informal social relations play a role, AND women are invited into those relations less often, the result is gender bias. The gender bias is reinforced if the hiring committee ultimately finds that the best of the qualified applicants is the researcher with the most publications, preferably in certain mainstream journals, AND women are included in mainstream less often.

Results of the literature review

The overall results of the literature review are listed in Appendix 2.

An important overall conclusion of the literature review is that there is a lack of solid impact studies of initiatives targeting the structural as well as the individual level, and the existing studies tell us more about what does not work than about what does work on gender balance.

However, our study concludes that the greatest effect is found in initiatives that implement change at the structural rather than at the individual level.

There is no solid documentation that initiatives at the individual level actually increase the number of female employees. Awareness raising initiatives (teaching and discussion) is generally effective in impeding individual employees' implicit biases about women, but we lack robust quantitative evidence that they have a direct effect on the gender balance.

Individual-oriented mentoring is received positively by employees and strengthens individual factors like competence awareness, productivity, network etc. (Kalpazidou Schmidt & Faber 2016; Beech et al. 2013; Ehrich et al. 2004). This may be an effective tool if the goal is to improve wellbeing and individual career development for female researchers, but we lack documentation that the positive effect on these factors contribute directly to gender equality at the structural level. In other words, we lack quantitative long-term studies that measure the long-term results of mentor initiatives.

Initiatives that aim to create structural change (i.e., affirmative action, hiring/recruitment and WLB/family-friendly initiatives) have mixed effects. Studies of WLB/family-friendly initiatives like stop the clock find limited evidence of positive effects and a few negative effects in terms of gender balance.

The picture is different for initiatives linked to the hiring/recruitment process (e.g., explicit encouragement of both women and men to apply, search committees, use of equity advisors to monitor and influence the process) as well as affirmative action, which is one of the most evidence-based initiatives according to the identified articles. All studies that focus on improving women's opportunities in the recruitment/hiring process conclude that they initiatives may yield positive effects (although we need more data to draw broader conclusions). Finally, the effects of affirmative action are among the best documented. All studies find that financial incentives or quotas have a direct effect on the gender balance.

Strong commitment by management contributes to successful implementation (cf. Pitts 2007; Timmers et al. 2010; Kellough & Naff 2004), and it is important to consider the best way to make this commitment clear to the staff.

As mentioned by Nielsen (2016), Danish universities traditionally address gender equality at the individual level, which reflects an individualistic conception of gender differences (cf. Wynn 2020). However, our literature review indicates that the individualistic ideology (cf. Wynn 2020) or "fixing the woman" approach (cf. Nielsen 2016) should be replaced by an organizational ideology that places the responsibility and the driving force of change with the organization.

Recommendations

Based on the above problem diagnosis, the identified concerns and the results of the literature review, the Panel recommends that the Department's management implement the following initiatives. We have aimed to highlight whether the recommendations are targeted at individuals in the organization, i.e., the way we think and act as individuals in the organization, or at structural conditions in the organization, i.e., working conditions, procedures and rules that frame our individual thought patterns and actions. The recommendations are divided into the following categories: Management's commitment and transparency (Table 6), change of aspects of culture and norms and the Department (Table 7), working conditions (Table 8), affirmative action (Table 9).

In addition to the specific initiatives, the Panel recommends the following:

1. The Department's management reacts to our report/recommendations and prioritizes the recommendations.
2. The staff discuss the Panel's analysis and recommendations and develop ideas.

Our recommendations focus on new initiatives, but we recommend that the Department continues existing initiatives like a search committee with focus on women and female representation in assessment and hiring committees.

Table 6: Recommendations re management's commitment and transparency

Recommendation	Cause of challenge	Concerns (argument)
Management prepares an annual gender diversity report that describes self-define goals and defines new goals	Structural factors at the Department	Concern #6: Lacking transparency about what management is actually doing in relation to gender discrimination and imbalance. Concern ¤4: The informal hiring procedures for externally funded positions and establishment of research collaborations
Gender distribution among applicants, number of qualified applicants and those who are hired in connection with applications		
Management becomes more transparent regarding hiring procedure and criteria, and about who is included in the hiring committee		
Management prepares an annual account of temporary short-term employments including gender		
Formal appointment of an equity advisor, cf. page 8, Appendix 2		
Management and seniors become more aware of encouraging women to apply for posted positions at all levels	Individuals in the organization	Student assistants: It's best if someone picks you. Partially: The women anticipate poor changes due to concern #1: Women's experience of marginalization and concern #7: Work pressure combined with high expectations.
More transparency and clarity regarding the principles for assignment of offices	Structural factors at the Department	Concern #1: Women's experience of marginalization

Table 7: Recommendations re change of aspects of culture and norms at the Department

Recommendation	Cause of challenge	Concerns (argument)
Launch a process to develop a shared codex for recognition and constructive feedback	Individuals in the organization	Concern #2: Explicit knowledge hierarchy and narrow conception of "a good researcher" Concern #3: Unpleasant feedback culture at section meetings Concern #1: Women's experience of marginalization Student assistants and external: Political Science in Aarhus is known for an explicit knowledge hierarchy
Launch a process in sections and at the Department in general regarding knowledge hierarchy and the need for diversity in research topics and methods		
Rename the designation "general political science"		
Make it clear that you can be a good academic research, also for the Department, in many ways		
Make research director course mandatory for all permanent academic staff and make sure that they have specific focus on handling friendships/social relations and professional responsibility	Individuals in the organization	Concern #1: Women experience marginalization
Establish a formal forum for presentation of ideas in relation to research applications with representation of seniors across sections and gender	Individuals in the organization Individuals in the organization	Concern #1: Women experience marginalization Partially: Concern #4: The information hiring procedures for externally funded positions and establishment of research collaborations
Seniors actively include juniors in project applications (peer-to-peer training)		
Focus on creating a narrative about an academic researcher's contribution to society and thus tone down the narrative of a career as academic researcher as a self-development project, e.g., by critically assessing how the Department communicates on its webpage and at PhD info meetings	Individuals in the organization	Concern #5: The public utility of our work is unclear. Student assistants: A career as academic researcher is more an ongoing self-development project than a contribution to society Student assistants: A PhD stipend locks your career path

Table 8: Recommendations re working conditions

Recommendation	Cause of challenge	Concerns (argument)
Option of part-time employment in VIP positions	Structural factors at the Department	Concern #7: Work pressure combined with high expectations Student assistants: Interesting but demanding job … but the benefits disappear as you climb the career ladder and in connection with family life
Reduced K for parents with small children	Structural factors at the Department	
Allocation of catch-up time after parental leave (percentage-wise based on the amount of used leave)	Structural factors at the Department	

Table 9: Recommendations re affirmative action for female VIPs

Recommendation	Cause of challenge	Concerns (argument)
Increase the Department's activity in the Inge Lehmann program, e.g. by organizing and info and idea workshop for female VIPs	Structural factors at the Department	Concern #1: Women's experience of marginalization
Earmark parts of small grants to projects that include female researchers		
Management works for research funds earmarked for female researchers at university and national level		

The Panel is quite certain that the above recommendations will establish the Department as an organization that recognizes and promotes diversity and that is capable of creating strong professional inclusive communities and thus strengthen its ability to recruit and retain female academic staff.

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Appendix 1: Method and data of the two sub-studies

Sub-study 1: Interview study

As mentioned, the Panel has conducted an interview study in order to analyze which motivating/demotivating factors women and men see in terms of starting, continuing and functioning in a position as researcher at the Department of Political Science. The purpose of the study was to generate locally anchored information about how future, current and former employees assess the job as researcher and teacher at the Department, including work environment and gender diversity.

The interviews were conducted among the following three groups:

1. Male and female student assistants in different courses at the Department. The interview was conducted as a focus group interview. All student assistants were invited. Two men and two women participated. The interview was conducted by Matilde Cecchini and Lasse Lindekilde.
2. Former academic staff from the Department. Five men and seven women. It was a requirement that the interviewees had actively chosen to leave the Department within the past 10 years, i.e., they had not been eliminated in a hiring round. The interviewees left the Department from temporary as well as permanent positions. The interviews were mainly conducted as individual physical interviews, but a few were conducted online.
3. Current female and male employees at the Department. Six women and six men. All job categories are represented for both genders. The interviews were conducted as individual physical interviews.

The selection of both former and current academic staff was based on lists from HR. For the groups of former and current staff, interviewees of both Danish and non-Danish background were included, and an interview guide was prepared in both Danish and English.

To ensure anonymity and confidentiality in the individual interviews and thus data validity, the interviews were conducted by an experienced external interviewer (a male research assistant from VIVE with broad experience in qualitative interviews). In addition, the following procedure was established:

- Only two panel members prepared the list of possible interviewees and thus knew which staff members were initially selected for interview.
- If a respondent declined to participate, a replacement was found. The two panel members were not informed about who accepted/declined to participated, but were informed about gender and position category in order to find a suitable replacement.
- Student assistants from CFA transcribed the interviews and their duty of confidentiality was emphasized.

- Before the audio files were handed over to the student assistants, the interviewer from VIVE had edited the start of the audio file to erase any information about name and position. This was done to minimize the chance that the student assistants could identify the interviewee and that the panel members recognized people in the individual interviews.
- Interviews conducted in English were translated to Danish after transcription (by a language editor at the Department). This further minimized the panel members' possibilities of identification.
- The panel members observed confidentiality once they received the transcribed interviews.

Finally, we promised the interviewees that the final report would *not* analyze and repeat interview material via, e.g., displays and quotes.

Of course, the procedures do not guarantee 100 percent anonymity in relation to the panel members and therefore do not ensure a totally free interview situation (if that is possible). There is thus a risk that experiences and perceptions are not communicated with a certain filter. However, both the interviewer and the panel find that the majority of interviewees were quite candid.

A fundamental methodological challenge in studies of gender differences based on self-reported data is that norms and interests may function was filters or catalysts for what the interviewee talks about. Specifically in this study, it is worth pondering whether the men, due to norms of masculinity, under-reported frustrations, whereas the women saw the interview as an opportunity to "unload". The interviewees were aware beforehand that the occasion was gender imbalance at the Department of Political Science. We cannot test whether such a bias is present in the data, but it is a challenge we have to keep in mind when we analyze data and identify and discuss possible gender differences.

Overall, the data material consists of 600+ pages of transcribed interviews. The Panel analyzed the data in the following way: First, each panel member read one individual interview and the focus group interview with the student assistants. The interviews were distributed so that the first reading overall covered interviews with male respectively female and former respectively current employees. The purpose of the first reading was to identify interesting topics, which the panel subsequently focused on in the overall material. The first reading led to some, though not major, changes in the list of topics of analysis that were defined in the interview guide.

To use our resources efficiently, each interview was read by two panel members, and they filled out a table based on the topics identified above. The focus group interviews of student assistants were read by all panel members. Once the tables for all interviews were filled out, the panel convened to discuss findings from and interpretations of the material.

Table A1: Topics in the interview guides:

Student assistants	Former employees	Current employees
Perceptions about – life as a PhD student – work environment/collegiate spirit at the Department – competition among staff at the Department – freedom, flexibility and autonomy among PhD students Pros and cons re applying for a PhD at the Department	Road into academia/Department of Political Science Experience of working at the Department – most motivating/demotivating – professional integration/exclusion – social integration/exclusion – recognition – hierarchies – work-life balance – impression of the management Road away from the Department – What prompted the decision? – What were the pros of stopping/leaving? – What were the cons of stopping/leaving – Was it a tough decision? Why/why not? – Could something have made you stay? Current work situation at the Department Interviewee's opinion about/ experience of diversity/gender equality at the Department	Road into academia/Department of Political Science Experience of working at the Department – most motivating/demotivating – professional integration/exclusion – social integration/exclusion – recognition – hierarchies – work-life balance – impression of the management Experience of the process of applying for promotion at the Department. Interviewee's opinion about/ experience of diversity/gender equality at the Department

Based on the above procedure, resource considerations and the fact that anonymity of the interviewees prevents us from quoting from the interviews, the report does not provide documentation. The reliability of the interpretation of data and identification of patterns rests solely on the panel members' collective competences and integrity.

Sub-study 2: Literature review

Sub-study 2 consisted of a literature review that aimed to map which gender equality initiatives are effective in terms of

1. increasing recruitment of female academic staff
2. retaining fame academic staff

Amalie Due Svendsen and Lise Degn, CFA were responsible for sub-study 2.

The study focused on the effect of specific equality initiatives, not on analyses of barriers/underlying factors of gender imbalance. In other words, the selected articles/reports had to be *empirical* effect evaluation studies.

The first part of the search process was exploratory through searches in three major databases: Web of Science, Scopus and Google Scholar. Keywords were refined throughout the process as the literature searched introduced new relevant concepts in gender equality approaches. Examples of search strings are listed below.

The second part of the search consulted the reference lists from the included studies for further contributions to the mapping of the area.

The individual studies were screened for compliance with two inclusion criteria:

1. empirically founded impact study
2. academia as empirical setting

The initial search included a third criterion: investigation of initiatives at department level. However, this criterion was rejected since there are relatively few studies with this specific focus. The literature review thus includes impact studies at different organizational levels in academia. In order to identify studies, specific methodological inclusion criteria were not applied (see Appendix 2). Instead, the methodological foundation and possible weaknesses of each study were reported.

Thirty studies were identified, which can be categorized in six groups based on the focus of the initiatives: (1) mentoring, (2) recruitment/hiring, (3) awareness raising, (4) affirmative action, (5) work-life balance, (6) other initiatives.

Appendix 2: Evidence-based initiatives to improve the gender balance in academia

Literature review

By Amalie Due Svendsen and Lise Degn

Introduction: Trends in Scandinavian academia

According to a comparative study by Nielsen (2016), Denmark general exhibits a low prioritization of equality in education compared to its neighbors. This is primarily reflected in the fact that gender equality issues are much less visible in Danish education legislation compared to Norwegian and Swedish legislation, which is much clearer about the responsibility of universities to work for gender equality. This is also reflected at departmental level, where the largest Danish universities, KU and AU, have the lowest proportion of action plans in this area compared to their neighboring countries (Nielsen 2016).

Nielsen (2016) argues that there is a positive correlation between a systemic prioritization of gender issues and the number of female researchers at universities. The study shows that the universities of Oslo and Uppsala, which have the highest proportion of female senior researchers, also show the greatest efforts to comply with institutional commitments in this area. In comparison, Danish universities have the lowest proportion of female senior researchers and the lowest proportion of action plans to promote gender balance. This correlation is further supported by Pitts (2007), who observes that systematic gender equality strategies at organizational level promote the representation of women at the higher levels of the hierarchy.

Specific strategies to promote gender balance also vary across the three national contexts. Norway and Sweden are generally taking action within two approaches, respectively "creating equal opportunities" and "revising equal opportunities", both of which (albeit in different ways) address gender inequality as a structural problem requiring structural change (Nielsen 2016). Denmark, by contrast, focuses more on measures within a "fixing the women" approach, which explains inequality as a result of individual factors, such as women's level of ambition or motivations. Thus, the Danish approach focuses more on changes at the individual level rather than at the structural level (Nielsen 2016).

According to Nielsen (2016), the existing literature shows that the structural approaches to inequality used in Norway and Sweden have some effect in counteracting inequality in organizations. This may explain why Norwegian and Swedish universities have a more equal gender distribution than Danish universities. However, it is difficult to separate the effect of gender equality plans from other factors, such as the fact that a higher proportion of female staff may

also increase the focus and priority given to gender equality work, which in turn leads to more female staff.

This literature review aims to provide insight into the evidence in the field of gender equality initiatives in the university world, including structural as well as individual approaches, with a view to presenting evidence-based recommendations for concrete initiatives to improve gender balance at the Department of Political Science at Aarhus University. The selected articles describe empirical studies investigating the impact of concrete gender balance initiatives. Thus, the literature review does not include studies that examine the barriers/factors underlying gender imbalance.

The literature review is structured as follows. First, the methodology and search strategy are briefly explained. Next, the different groups of interventions are reviewed, with a focus on whether the studies find an effect of these interventions. This is followed by a presentation of key findings from studies examining the impact of gender equality interventions in other parts of the labor market. Finally, the ideological beliefs associated with the choice of gender equality measures are discussed, and conclusions are presented based on the findings of the literature review.

Method

The first part of the search process was exploratory through searches in three major databases: Web of Science, Scopus and Google Scholar. Keywords were refined throughout the process as the literature searched introduced new relevant concepts in gender equality approaches. Examples of search strings are listed below:

"Women in research" or "women in academia" and

- **effects**
- **preferential treatment**
- **quotas**
- **affirmative action**
- **selection**
- **recruitment**
- **hiring**
- **mentoring**
- **work-life balance**
- **diversity training**
- **awareness-raising**
- **networking**
- **work environment**
- **recruitment**
- **management**
- **accountability**
- **stop the clock**
- **tenure track**
- **gender equality initiative(s)**
- **gender equality measure(s)**

In the second part of the search, the literature lists of included studies were consulted for further contributions to the mapping of the field.

The individual studies were screened in terms of whether they met two inclusion criteria: 1) the study had to be an empirically based impact study, and 2) the empirical setting had to be academia. The initial search included a third inclusion criterion: the study had to examine interventions at the departmental level. However, this criterion was rejected as there are relatively few studies with this specific focus. Therefore, the literature review includes impact studies dealing with different organizational levels in academia.

The search identified thirty studies, which can be divided into six groups according to the focus of the initatives: (1) mentoring, (2) recruitment/employment, (3) awareness raising, (4) affirmative action, (5) work-life balance, (6) other interventions (see Table 1 in the Appendix for an overview). It is important to stress that this classification is analytical and that the groups overlap. For example, awareness raising overlaps with several groups, as several interventions (e.g. mentoring or other training of staff) aim to raise awareness of the structural barriers that prevent gender balance. Table 2 in the Appendix provides an overview of the studies' focus, study questions, methodology, key findings and limitations.

Mentoring

The majority (15) of the identified studies deal with mentoring schemes, i.e., schemes that provide researchers with social/professional support and coaching in their career development. The nature of the interventions varies: some focus on mentoring schemes for both genders (Sambunjak et al. 2006), others focus on schemes targeting women or even female-to-female mentoring (Palmer & Jones 2019), and one study focuses on group mentoring (McCormack & West 2006). Furthermore, five literature reviews examine the evidence on the impact of such interventions on (women's) career development (House et al. 2021; Sambunjak et al. 2006; Ehrich et al. 2004; Beech et al. 2013; Shen et al. 2022).

Overall, the identified studies present a positive picture of mentoring: the schemes are generally popular and participants report several beneficial effects in terms of both well-being and academic success. More specifically, the studies highlight that mentees benefit in terms of:

- career development, skills awareness, navigating the research environment and networking (Kalpazidou Schmidt & Faber 2016).
- collegial community and networking (Ehrich et al. 2004)
- personal development, career guidance, career choice and productivity (e.g. number of publications and success in obtaining grants) (Sambunjak et al. 2006)
- retention and productivity (Beech et al. 2013)
- promotion and retention of junior staff (Shen et al. 2022)
- support with work-life balance issues, support with process leading up to permanent employment (Palmer & Jones 2019)

- increased awareness of the structural conditions at the university,[2] strengthened sense of belonging and networking, increased self-confidence (McCormack & West 2006)
- increased awareness of gendered structures at university, exchange of experiences, personal development (Eliasson et al. 2000)
- retention, increased income in terms of funds, promotion, enhanced self-perception as an academic (Gardiner 2007)
- strengthened self-perception in terms of own competences (Laver et al. 2018)
- increased critical awareness of structural issues, strengthened navigation in a gendered context (Grada et al. 2015)
- support of individual career development (Müller et al. 2011; Devos et al. 2003).

As shown above, most of the studies focus on individual-level effects. However, Kalpazidou Schmidt & Faber (2006) stress that there are also positive effects at the institutional level, as the mentoring effects can contribute to a strengthened research environment that is successful in appealing to young female researchers. Thus, the individual effects may lead to broader effects at the institutional level.

The studies on mentoring schemes are mostly qualitative and rely in most cases on participants' self-reporting of their experience of the scheme and its effects. Therefore, there is a lack of studies examining the direct impact of mentoring schemes on gender balance and career advancement. This is also highlighted in the literature reviews by House et al. (2021) and Sambunjak et al. (2006), who acknowledge that participants generally experience these schemes as rewarding, but point out that robust evidence in this area is lacking.

A few studies evaluate the impact of mentoring schemes based on quantitative data. For example, the literature review by Beech et al. (2013) highlights that mentoring programs in medicine have immediate positive effects on both productivity (measured by the number of grant applications, publications and scientific presentations) and retention. Further, results from a 10-year longitudinal study showed that a mentoring scheme had a positive effect on participants' career advancement as 11 out of 12 had advanced to associate professor. However, this finding is based on a very small sample. The follow-up was only conducted with 12 of the original 30 mentees, leaving some uncertainty about the actual impact of the mentoring scheme. In general, Beech et al. (2013) point out that the available evaluations (here focusing on medicine) are insufficient due to the small number of participants.

Another quantitative study (Timmers, Willemsen & Tijdens 2010) examines whether the implementation of gender equality policies at 14 Dutch universities promotes the participation of

[2] There is some overlap between the categories *mentoring schemes/networking* and *education/awareness raising* as awareness raising is reported as an effect of participation in mentoring schemes.

women in academia. Each university was ranked according to its implementation of gender equality measures (mentoring, leadership training, tenure tracks, affirmative action, etc.), after which it was measured whether there was a correlation between the university's ranking and the proportion of women in the institutions. The conclusion is a significant correlation: the more measures implemented, the thinner the glass ceiling for women. However, it must be pointed out that Timmers et al. (2010) have certain methodological pitfalls. First, a control group is not used, and second, the ranking system shows the university as a whole, even though the measures may not be implemented evenly across departments.

It is worth noting that while the studies are generally positive about the effects of mentoring schemes, there are some challenges associated with them. For example, the literature review by Ehrich et al. (2004) highlights that factors such as a lack of professional expertise among mentors and/or personality mismatches can reduce the benefits of mentoring. Furthermore, both Sambunjak et al. (2006) and Shen et al. (2022) point out that women may have difficulties in finding a mentor. Finally, the ubiquitous problem that mentoring arrangements are resource-intensive both in terms of time and money must be highlighted (Ehrich et al. 2004; Beech et al. 2013).

Based on the above, we can conclude that mentoring is a frequently studied approach in gender equality research in academia. However, there is a preponderance of qualitative studies dealing with participants' perceptions of the schemes rather than more objective measures such as advancement, retention, productivity and gender distribution. Thus, it is difficult to assess whether the self-reported career-enhancing and well-being effects are also reflected quantitatively in an increase in the number of female researchers.

Recruitment/hiring

Unconscious biases in recruitment and hiring processes are often attributed to the imbalance of female and male employees in academia. Nielsen (2021) points out that at Aarhus University certain tendencies in the recruitment processes are at odds with the meritocratic principle. This is illustrated by, among other things, the extensive use of informal hiring processes: from 2004 to 2013, 19 percent of newly hired associate professors and professors were hired through informal procedures (Nielsen 2021). According to Nielsen, these trends contribute to the gender imbalance at universities, as women are less likely to be hired through informal hiring processes than men (Ståhle 2014 in Nielsen 2021). Despite the importance of practices related to the hiring process, it was only possible to identify four studies that address actions to create more gender equality in the selection of candidates in academia. The following briefly presents the four studies and their findings.

Gibson and Dyer (2017) examined the Juno project, which aimed to promote the representation of women in the physics profession. The project introduced six principles to achieve this,

including a principle that recruitment and selection processes should encourage both women and men to apply for positions at all academic levels. It is concluded that the principles are associated with visibly more women in the research environment, but this depends on a subjective evaluation by department heads. Thus, it is not well documented whether the implementation of these measures has had a real impact.

Smith et al. (2015) more systematically and methodically examined the effects of an intervention on a STEM faculty at Montana State University that focused on improving search committee skills for a broader graduate search. In addition, it sought to increase committee independence by discouraging unintended biases in the decision-making process. This approach had an impact, as more women were shortlisted and interviewed by telephone in the participant group than in the control group. Specifically, nine women in the participant group were offered tenure track positions, while only two women in the control group were offered the same. Unlike the majority of studies identified, the research design here included both the participant group and the control group, indicating some methodological strength. However, the approach was only used in 23 graduate searches.

Similarly, Stepan-Norris and Kerrissey (2016) examined the impact of a program (ADVANCE) that aimed to promote female participation, female hiring, and female retention on a University of California campus. ADVANCE included several interventions, but particular emphasis is placed on interventions related to the recruitment/hiring process. So-called equity advisors were tasked with monitoring and influencing the process in three phases: 1) job postings were screened for bias by an advisor, 2) the committee was required to report on the gender and ethnicity of can-do candidates when shortlisting candidates, 3) where the search committee was required to report on the characteristics of the final candidate and justify the rationale behind the final selection. Advisors had the opportunity to intervene at all three stages if they found the processes affected by bias. Through T-test and regression analysis, Stepan-Norris and Kerrissey (2016) show that the campus in question had a higher proportion of female employees and hired more women under the ADVANCE program compared to other campuses at the University of California.[3] However, the campus was no more successful in retaining female employees than the other campuses.

Stewart et al. (2004) found similar positive effects in their evaluation of a gender equity intervention at a science and technology faculty at the University of Michigan. Here, a committee was set up to improve the selection process through peer training. The training consisted of a series of presentations that raised awareness of unconscious biases about women and men in

[3] It should be noted that this is the impact of the total number of actions under the ADVANCE program (including mentoring, awareness raising, etc.), not just the impact of the action on recruitment processes

academia. This approach had a more indirect character than the approach described in Stepan-Norris and Kerissey (2016), which showed a more direct or "hands-on" approach to the issue of bias. The results of the early effects of this intervention showed a significant increase in the number of female hires during the first year of the intervention. However, the authors acknowledge that it is difficult to isolate the link, as the increase in female employment may also be the result of a general increase in awareness of this issue.

In general, the four studies present positive results for interventions in selection and recruitment processes, but it must be stressed that these are minor studies focusing on a limited/local context. Therefore, there is a need for more comprehensive studies on gender equality interventions in recruitment/hiring processes.

Awareness raising

This section presents the results of the few studies that examine the effects of interventions to raise awareness of gender bias in academia.

The three identified studies by Carnes et al. (2015), Girod et al. (2016) and Jackson et al. (2014) all focus on awareness-raising interventions in the form of diversity or anti-bias education sessions lasting between twenty minutes and two and a half hours. By comparing pre- and post-intervention surveys, they all found positive effects of the interventions. Jackson et al. (2014), focusing on implicit bias towards women in STEM, found significantly increased positive implicit associations post-intervention among men in the intervention group versus men in the control group. Women's positive implicit associations did not increase, which is explained by the fact that they already had more positive implicit associations before the intervention. Similarly, Girod et al. (2016) conclude that an awareness-raising intervention was successful in changing perceptions of bias among medical school faculty members. However, they found no change in explicit bias after the intervention. Finally, also Carnes et al. (2015) conclude that intervention faculty at the University of Wisconsin-Madison showed increased bias awareness after the intervention as well as an increase in self-reported equality-promoting actions.

Thus, all studies conclude positive effects of the interventions. Awareness-raising approaches inhibit implicit bias, but evidence is lacking on whether increased bias awareness is reflected in the gender balance of departments in terms of more female staff.

Affirmative action

Measures that use affirmative action to accelerate the process towards a more equal gender distribution are often the subject of debate and controversy. However, relatively few studies examine the impact of such approaches in academia. Our literature review only identified four such studies.

Peterson (2011) examined the effects of a so-called "gender mix policy" that sought to address structural inequalities in higher education in Sweden by including both men and women in positions at all levels. The target was a minimum of 40 percent of each gender. The policy thereby established gender as an important factor to be taken into account in the recruitment process and that gender balance is an end in itself. Peterson (2011) finds that the implementation of a gender balance policy has been the main explanatory factor in increasing the number of female top managers in Swedish institutions, but at the same time points out that this approach has failed to address the structural and cultural barriers that redress gender gaps when these have been challenged.

Through two case studies, Bührer et al. (2020) evaluate the effects of two flagship language frameworks designed to contribute to a more balanced gender distribution in academia in Germany. The "Women Professorship Program" provides increased funding to higher education institutions for hiring women in permanent positions (up to three professorships in five years), and the "Pact for Research and Innovation", which targets German RPOs (Research Performing Organizations), receives financial support if they meet certain commitments (e.g., increasing the number of women in research teams and leadership positions). The results indicate that the programs contributed to a higher proportion of female researchers in the institutions and had a positive impact on the publication and citation rates of female staff.

In a longitudinal study (2001-2017) from South Korea, Park (2020) examines whether the introduction of gender quotas at entry-level leads to an increased representation of women in academia. The quantitative data shows that the representation of women increases at several levels in the position hierarchy due to quotas, but not in the top administrative positions (e.g. dean). Unlike the majority of identified studies, Park (2020), as mentioned, examines the long-term effects of a specific measure, which gives the study a certain robustness.

Müller et al.'s (2011) meta-study of gender equality interventions in academia also looks at the impact of affirmative action in terms of grants and fellowships targeting female researchers. The studies generally show that these initiatives have a positive effect on reaching the next qualification level. However, there is no evidence of effects at organizational level in departments and universities. The reason may be that fixed-term positions generated by fellowships and grants are less likely to lead to permanent positions. They therefore conclude that measures such as financial support for the creation of specific posts are more effective in achieving structural change.

Logically, the four identified studies conclude that affirmative action has a positive effect on gender balance in academia. If institutions are required to adopt quotas or if they are given substantial financial incentives, this will naturally increase the proportion of female staff. The meta-study by Müller et al. (2011) points out that the barriers to the implementation of such

measures lie largely in the negative perceptions of this approach; several studies find that this type of affirmative action conflicts with a strong perception of academia as an objective and meritocratic system. This perception is also true at Aarhus University. Nielsen (2021) observes that AU has a strongly institutionalized view that merit and qualifications are the key factors in the recruitment process. Paradoxically, several experimental studies by Castilla and Bernard (2010) show that organizations that explicitly express such ideals are more affected by unconscious biases in decision-making.

Work-life balance

Our literature review only identified five studies that examine the impact of initiatives addressing work-life balance in researchers' careers.

Müller et al. (2011) present a meta-study of the effects of local, regional and national initiatives on gender balance in academia. In discussing initiatives targeting work-life balance, they find that, despite the strong focus on this area in terms of women's career advancement, relatively few studies have been conducted on specific initiatives. The few studies in this area conclude that family-friendly initiatives are effective tools in the gender equality process, but that such initiatives are not enough to reduce publication pressure. Finally, it is stressed that more research is needed to investigate how such measures affect female and male researchers differently and to what extent they can contribute to women's advancement and generally increase the proportion of women in academia.

In an impact study from 2018, Antecol et al. examined the effect of implementing tenure clock-stopping policies in 50 economics departments at US universities. Such policies gave assistant professors the option to freeze their tenure clock for (typically) one year per newborn child (though no more than twice). The authors measured the extent to which assistant professors who made use of this measure obtained tenure and the impact of the measure on their research productivity. The study was divided into two tracks, one in which the intervention targeted women only, and one in which the intervention was gender-neutral. Surprisingly, the study showed that the gender-neutral implementation achieved the opposite of its objective: after implementation, women's tenure rates decreased by 19 percentage points, while men's tenure rates increased by 17 percentage points. The reason for this difference, according to the authors, is that more men published in top-5 journals after implementation, while this was not the case for women. However, it is pointed out that there is no evidence that this intervention reduced the number of women who obtained tenure. Similarly, there was no evidence that the intervention targeting women had either positive or negative effects on women's tenure or publications. Thus, there were no immediate positive measurable effects associated with the intervention, but it must be pointed out that other objectives (e.g. obtaining funding) might have yielded different results.

Feeney et al. (2014) conducted a survey study of the effects of several family-friendly interventions at US universities. The dependent variable, "faculty productivity", was operationalized as journal publications and teaching load, while the independent variable counted seven family-friendly interventions.[4] The authors found that these measures (overall) affected the productivity of female and male researchers differently: Women increased their publication productivity but were not affected in terms of the number of publications. In contrast, men's publication productivity was almost unchanged, while it had a negative effect on teaching load. Consistent with Antecol et al. (2018), the authors generally found that the specific measure "stop tenure clock policies" did not have significant effects on either women's or men's academic productivity.

Stop the clock policies are also the focus of Manchester et al.'s (2010) quantitative study, which examines whether there is a relationship between stop the clock policies and career development (with a particular focus on advancement and gender). The study is based on data for tenure track faculty members hired in the years 1998-2002 at a major US research institution, where 53 of the faculty members chose to take advantage of this measure. Manchester et al. (2010) find an insignificant relationship between the use of stop the clock and the probability of promotion, which may indicate that the measure works as intended. However, they find that researchers who use stop the clock for family reasons are more likely to experience a gap between normal salary and actual salary; this was not the case for researchers who used the measure for reasons other than family.[5] This could indicate that the use of stop the clock in the context of family reasons gives rise to an unintended bias in salary allocation.

In 2017, Villablanca et al. conducted an evaluation of an intervention aimed at increasing awareness and use of family-friendly policies at a medical school in the US. More specifically, they focused on the intervention's impact on female employees, including women's career advancement. Data consisted of survey results on researchers' awareness of the intervention, the outcomes of researchers' attempts at career advancement, and the number of resignations and new hires. The survey showed an overall increase in awareness of the family-friendly approach, however there was an overall decrease in the number of promotions (for both men and women). This could be a result of promotion schemes and the increased use of tenure clock extensions.

Based on the five studies identified, it must be concluded that there is limited evidence for the positive effects of family-friendly measures such as stop the clock. Furthermore, several of the

[4] Spousal hiring policy, stop tenure clock policy, maternity leave, paternity leave, adoption leave, parental leave, on-site child care (Feeney et al. 2014).
[5] More women than men took advantage of this measure for family reasons (Manchester et al. 2010).

studies suggest potentially negative effects associated with the use of these measures, such as decreases in promotions or merit (Villablanca et al. 2017; Antecol et al. 2018) or pay disadvantages (Manchester et al. 2010).

Other initiatives

This section briefly describes the two studies identified that mention interventions that fall outside the five established categories.

In the comprehensive study of gender equality interventions at fourteen Dutch universities, Timmers, Willemsen and Tijdens (2010) examine the impact of different categories of interventions. The category "cultural perspective" focuses on the responsibility and support of managers and decision-makers for gender equality initiatives at the university. This may include accountability measures that hold management responsible for supporting the gender equality policy, or initiatives to include at least one woman on the hiring committee. The quantitative analysis shows that initiatives in the cultural perspective correlate positively and significantly with the proportion of female professors. However, the results show a negative correlation between the cultural perspective and the proportion of female PhD students, with the plausible justification that the gender distribution among students and PhD students is influenced by factors other than the university's gender initiatives. Against this background, Timmers et al. (2010) conclude that cultural perspective interventions have been effective in some areas.

Latimer et al. (2014) represent the only study to focus on group dynamics and the work environment. In eight STEM departments at West Virginia University, a model was introduced that aimed to promote inclusive decision-making and democratic communication, ultimately creating a more positive environment for women. A pre- and post-intervention survey showed that attitudes towards hiring, retaining and promoting women were more positive after the intervention. In addition, there were positive effects in terms of cooperation and collegiality in the departments. It should be noted that the survey is based on a relatively small sample, with only 24% of respondents being women, and it cannot be concluded that the change in attitudes observed translates into direct effects on gender balance.

Key studies on the effects of gender equality interventions in other contexts

While this literature review focuses on impact studies in an academic context, it is relevant to complement with findings from key studies of similar gender equality approaches in a broader context. It is fair to assume that many barriers to women's advancement and employment have similarities across workplaces/work environments, and that there is some transferability to a university context. The following findings from impact studies in other contexts will broaden the foundation of the Panel's final recommendations.

With regard to awareness-raising measures, the few studies identified and presented above show immediately positive results: education and awareness raising inhibit implicit bias. However, these conclusions may be misleading, as increased awareness does not necessarily result in a higher proportion of women in academia. Studies of gender distribution in companies point out that awareness raising in the form of so-called diversity training does not work as intended, even though US companies and organizations have a long tradition of investing considerable resources in this type of initiative. This is illustrated, for example, in a longitudinal study by Kalev, Dobbin and Kelly (2006), which examined whether the implementation of different types of programs (including diversity training) in 708 US companies had a positive effect on the proportion of women and other minorities in management. It concluded that diversity training and diversity assessments were the least effective tools for increasing the proportion of women and ethnic minorities at management level. Thus, Kalev et al. (2006) support Liza Reisel's claim that awareness raising is ineffective in the fight for gender equality (Researcher Forum).[6]

However, it should be highlighted that Kalev et al. (2006) find that other types of interventions, e.g. mentoring and networking, have a greater effect on gender balance. However, the most effective programs are associated with measures that seek to establish organizational responsibility for promoting diversity in the workplace, such as affirmative action plans, diversity committees and diversity managers. Through such initiatives, management and specialized working groups are made responsible for monitoring progress in gender balance. Timmers et al. (2010) also find that accountability measures are the most effective. Further, in a federal agency context, Kellough and Naff (2004) find that diversity programs are more effective if management expresses support and endorsement. Thus, management attitude is an essential factor in trying to bring about change in organizations.

Similarly, in a 2007 study, Pitts discusses what factors are essential for the successful implementation of diversity programs in public administration in the US. Based on an extensive literature review, it concludes that the following are important for effective implementation and minimizing white male backlash:

1. "The more resources devoted to diversity management programs, the more likely they are to be fully implemented" (p. 1581).
2. "The more specific the components of the program, the more likely it is to be fully implemented" (p. 1582).

[6] We have contacted Liza Reisel to obtain published material to support her claims in *ForskerForum* (No. 2/2022), but in vain.

3. “There should be a causal theory in place that makes an obvious link between the components of the program and the goals it seeks to achieve” (p. 1582).
4. “Communication related to the program should be clear, consistent, frequently repeated, and articulated from credible sources” (p. 1583).
5. “While the program should be implemented from the top down, supported should be garnered from all levels of the organization during the formulation stage” (p. 1583).

Thus, Pitts (2007) also stresses that management commitment and visibility is an essential factor that should be considered in the implementation of any kind of initiative.

Discussion

When we look at the categories of action presented above, it becomes clear that there is a difference between whether they operate at the individual or the structural level. Measures such as mentoring and awareness raising relate to change at the individual level, while measures such as affirmative action, employment measures and family-friendly/WLB measures operate at the structural level. The choice of interventions thus reflects policy-makers' general beliefs about the causes of inequality and thus which strategies are relevant to address it.

This point is also illustrated by Wynn (2020), who, in a case study of a tech company in Silicon Valley, examined the ideologies behind management's understanding of gender inequality and how they shaped their efforts to bring about change in the workplace. Wynn found that, overall, managers positioned themselves in relation to three idealtypical ideologies that correlated with particular types of action (see Figure A1). If the starting point was a belief that men and women are fundamentally different, it included an assumption that change is created through individual development. Thus, the choice of interventions could fall on mentoring program, diversity training or other means to enhance the career of the individual researcher and/or to inhibit the unconscious bias of individuals. If, on the other hand, there was an understanding that the cause of inequality stemmed from the structural conditions within the organization, the responsibility for addressing this inequality was placed with the organization itself, and relevant actions could therefore address recruitment/staffing. However, Wynn (2020) emphasizes that managers often tend to mix elements from the different ideologies.

As mentioned by Nielsen (2016), Danish universities have a tradition of addressing gender equality issues at the individual level, reflecting an individualistic understanding of gender differences (cf. Wynn 2020). However, our literature review suggests that there is a lack of solid evidence that this type of approach actually increases the number of female employees. Awareness raising is generally effective in inhibiting individual employees' implicit bias about women, but robust quantitative evidence that it has a direct effect on gender balance is lacking.

Figure A1: Individualistic, societal, and organizational change ideologies

	Individualistic	Societal	Organizational (org)
Sources of inequality	Individual men and/ or women	The broader society	Org processes
Gender differences	Men and women are fundamentally different (internalized)	Boys and girls are socialized differently by the larger society (cultural)	Men and women are treated differently by the organization (structural)
Target of change	Individuals should try not to be biased	The broader culture must be changed	The org is responsible for mitigating bias
Change efforts	Mentorship, development, & training programs	Outreach beyond the company	Changing hiring / promotion procedures
Ownership of change	Change agents	None	Organization

Source: Wynn (2020).

Similarly, individual-focused mentoring is positively received by employees and strengthens individual factors like competence awareness, productivity, networking etc. (Kalpazidou Schmidt & Faber 2016; Beech et al 2013; Ehrich et al 2004). It can therefore be an effective tool if the aim is to enhance well-being and individual career development of female researchers, but there is no evidence that the positive impact on these factors directly contributes to gender equality at the structural level. We need longitudinal quantitative studies that can measure the long-term outcomes of mentoring interventions, which according to Nielsen (2016) are likely to take longer to show their impact compared to more direct interventions such as affirmative action.

Interventions that seek to bring about structural change (i.e., affirmative action, recruitment/retention, and WLB/family-friendly interventions) show mixed results in terms of impact. Studies of WLB/family-friendly interventions such as stop the clock find limited evidence of positive effects and some negative effects. However, initiatives linked to the recruitment process and positive discrimination are considered the most evidence-based interventions according to the articles we identified. The studies that focus on creating better opportunities for women in the recruitment/employment process all conclude that there may be positive effects associated with these (although a larger data base is needed to draw broader conclusions). Finally, positive action is (not surprisingly) the group of interventions with the best-documented impact. All studies find that financial incentives or quotas have a direct effect on the gender balance.

We can thus conclude that the greatest impact is found in measures that initiate change at the structural rather than the individual level (especially affirmative action and recruitment/hiring). This requires a change of direction away from the individualist ideology (cf. Wynn 2020) or the fixing-the-women approach (cf. Nielsen 2016) towards the organizational ideology that places the responsibility and drive for change with the organization. Furthermore, the literature shows that strong management commitment facilitates successful implementation (cf. Pitts 2007; Timmers et al. 2010; Kellough & Naff 2004), and it should therefore be considered how, for example, management commitment is best made visible to employees.

Literature

Impact studies in an academic context

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Appendix

Table 1: Literature reviewed (focus)

Studie	Mentoring	Recruitment/ hiring	Awareness raising	Affirmative action	Work-life balance	Other initiatives
Antecol, Bedard, K., & Stearns, J. (2018).					X	
Beech, B. M., Calles-Escandon, J., Hairston, K. G., Langdon, M. S. E., Latham-Sadler, B. A., & Bell, R. A. (2013).	X					
Bührer, S., Kalpazidou Schmidt, E., Palmén, R., & Reidl, S. (2020).				X		
Carnes, M., Devine, P. G., Manwell, L. B., Byars-Winston, A., Fine, E., Ford, C. E., ... & Sheridan, J. (2015).			X			
Ehrich, L. C., Hansford, B., & Tennent, L. (2004).	X					
Eliasson, M., Berggren, H., & Bondestam, F. (2000).						
Feeney, Bernal, M., & Bowman, L. (2014).					X	
Devos, A., McLean, J., & O'Hara, P. (2003).	X					
Gardiner, M., Tiggemann, M., Kearns, H., & Marshall, K. (2007).	X					
Gibson, V., & Dyer, J. (2017, July).		X				
Girod, S., Fassiotto, M., Grewal, D., Ku, M. C., Sriram, N., Nosek, B. A., & Valantine, H. (2016).			X			
Gráda, A. O., Laoire, C. N., Linehan, C., Boylan, G., & Connolly, L. (2015).	X					
House, A., Dracup, N., Burkinshaw, P., Ward, V., & Bryant, L. D. (2021).	X					
Jackson, S. M., Hillard, A. L., & Schneider, T. R. (2014).			X			
Kalpazidou Schmidt, E., & Faber, S. T. (2016).	X					
Latimer, M., Jackson, K., Dilks, L., Nolan, J., & Tower, L. (2014).						X (group dynamic)

Laver, K. E., Prichard, I. J., Cations, M., Osenk, I., Govin, K., & Coveney, J. D. (2018).	X					
Manchester, Leslie, L. M., & Kramer, A. (2010).					X	
McCormack, C., & West, D. (2006).	X					
Müller, Jörg C. Collado, A. González, R. Palmén (2011).	X			X	X	
Palmer, E. M., & Jones, S. J. (2019).	X					
Park, S. (2020, March).				X		
Peterson, H. (2011).				X		
Sambunjak, D., Straus, S. E., & Marušić, A. (2006).	X					
Shen, M. R., Tzioumis, E., Andersen, E., Wouk, K., McCall, R., Li, W., ... & Malloy, E. (2022).	X					
Smith, J. L., Handley, I. M., Zale, A. V., Rushing, S., & Potvin, M. A. (2015).		X				
Stepan-Norris, J., & Kerrissey, J. (2016).	X	X				
Stewart, A. J., La Vaque-Manty, D., & Malley, J. E. (2004).		X				
Timmers, T. M., Willemsen, T. M., & Tijdens, K. G. (2010).	X					X (cultural perspective, e.g. accountability-measures)
Villablanca, A. C., Li, Y., Beckett, L. A., & Howell, L. P. (2017).					X	

Table 2: Literature reviewed

Authors	RQ	Empirical setting/data	Initiatives	Findings	Limitations
Antecol, Bedard, K., & Stearns, J. (2018).	Examines the impact of tenure clock stopping policies in relation to. professional and publication performance at 50 economics departments at US universities	1980-2005 Measures whether assistant professors obtained tenure and their research activity Examines the impact of both female-only and gender-neutral tenure clock stopping policies (typically tenure clock is frozen for one year per newborn child, max. twice)	Work-life balance Tenure clock stopping policies	"the adoption of gender-neutral tenure clock stopping policies substantially reduced female tenure rates while substantially increasing male tenure rates. However, these policies do not reduce the probability that either men or women eventually earn tenure in the profession." "We also find no consistent evidence that women are either hurt or helped by clock stopping policies that only apply to women."	"we do not observe actual tenure decisions, only outcomes. Some people who would have been granted tenure leave at or before the tenure decision. We observe only actual promotions to tenured positions, which usually occur when individuals are promoted from assistant to associate professor"
Beech, B. M., Calles-Escandon, J., Hairston, K. G., Langdon, M. S. E., Latham-Sadler, B. A., & Bell, R. A. (2013).	Systematic review. Examines the impact of mentoring programs designed to support the academic advancement of underrepresented minorities (in academic medicine)	18 articles (describing 13 programs) were chosen. Most of the articles evaluated the initiative based on the number of grant applications and satisfaction with the content of the program	Mentoring schemes "The stated goals of the programs were to address numerous barriers disproportionately experienced by URM faculty, including competing academic demands, the historic lack of institutional support and diversity, and the challenge of identifying qualified and interested senior faculty members in specified areas of research"	Identifiable barriers: time-restricted funding insufficient evaluation due to few participants considerable time commitment by mentor needed problems addressing underrepresented minorities' institutional challenges Impact: general satisfaction with program early positive effects in terms of faculty retention and productivity	Generally too few studies that document the impact of mentoring schemes

				A longitudinal study showed effects on career advancement	
Bührer, S., Kalpazidou Schmidt, E., Palmén, R., & Reidl, S. (2020).	Presents an evaluation framework for studying the effects of equality initiatives Evaluation of two programs intended to strengthen women in research Examines the effects of the programs based on the number of women in leading positions and whether an increased number of female managers affects publication patterns.	Two case studies Germany	Affirmative action Two flagship programs ”Women Professorship Programme” targeted at institutions of higer education. Increases funding for hiring of women in permanent positions. ”Pact for Research and Innovation” targeted at German RPOs – institutions receive financial support if they live up to certain requirements (e.g. increase the number of women in research teams and leading positions)	”the findings suggest that the flagship programs have contributed not only to higher shares of women researchers but also to improved female publication and citation rates.” ”The cases presented above show that, not least due to the two large national GE interventions, the role of women academics in the German publication landscape has changed significantly over the past 15 years and there has been a clear increase in the number of (co-)publications by female authors. Furthermore, although the overall number of women has also increased signifcicantly since the introduction of the flagship promotional programs of the “Women Professorship Programme” and “Pact for Research and Innovation”, it has not risen to the same extent as women’s participation in scientifc publications. Thus, we can show that GE progams may have broad positive effects on science as well”	Challenging to conduct direct impact study; many influencing factors

Carnes, M., Devine, P. G., Manwell, L. B., Byars-Winston, A., Fine, E., Ford, C. E., ... & Sheridan, J. (2015). Effect of an intervention to break the gender bias habit for faculty at one institution: a cluster randomized, controlled trial. *Academic medicine: journal of the Association of American Medical Colleges*, *90*(2), 221.	Examines the effect of a gender bias-inhibiting intervention at University of Wisconsin-Madison	92 departments at University of Wisconsin-Madison "pair-matched, single-blind, cluster-randomized, controlled study" Pre- and post-intervention survey measured gender bias awareness + implicit gender bias + worklife survey	"Awareness-raising" Intervention = 2.5-hour workshop	"Linear mixed-effects models showed significantly greater changes post-intervention for faculty in experimental vs. control departments on several outcome measures, including self-efficacy to engage in gender equity promoting behaviors (P = .013). When ≥ 25% of a department's faculty attended the workshop (26 of 46 departments), significant increases in self-reported action to promote gender equity occurred at 3 months (P = .007). Post-intervention, faculty in experimental departments expressed greater perceptions of fit (P = .024), valuing of their research (P = .019), and comfort in raising personal and professional conflicts (P = .025)."	
Ehrich, L. C., Hansford, B., & Tennent, L. (2004)	Literature review Examines the effect of mentoring	Includes studies that reported original findings and that focused on use of mentoring in either an educational context, business context or medical context (from the mid-1980s to 2000) Data coded for positive and problematic effects of mentoring for mentor, mentee and organization	Mentoring schemes	Re the studies in an educational context: 35.8% of the studies reported only positive effects of mentoring 2.5% reported only problematic effects 82.4 % reported positive effects for mentees.	Predominantly deals with studies from English-speaking countries Time frame: more contemporary studies may have been overlooked

				Most common mentor effect: collegiality and network (21% of the studies) Most common mentee effect: 42.1 % of the studies reported positive effects like support, empathy, encouragement, counseling and friendship 35.8% of the studies showed positive effects like help with teaching strategies, content, resources, classroom planning and discipline 32.1% of the studies showed positive effects like contact and discussions with others Among the reported problems for both mentors and mentees are: lack of time and professional expertise and/or personality mismatch	
Eliasson, M., Berggren, H., & Bondestam, F. (2000).	Studies the effect of a mentoring scheme for women at Uppsala University	Qualitative case study 14 academic women + mentors (10 from science or medicine, the rest from social science or law) Surveys, observations and interviews	Mentoring schemes	”The most important functions of the mentor regarding career development as perceived by protegees were "Supporter", and "Expert", and among psychosocial roles, "Advisor" and "Discussion partner", while "Parent" was the least desired function.” ”They learned more about what it is to be a woman in the University of Uppsala, a role about which many had	Context-specific

				not reflected, and gained a sufficient number of new insights to pass on to younger women." "The mentors also had favourable impressions of the project, but only eight mentors out of fourteen wished to continue after eighteen months--if the protegee so desired. Some were surprised to find that the experience was demanding both in terms of time and of emotions, but they still conveyed support and commitment to their protegees."	
Feeney, Bernal, M., & Bowman, L. (2014).	"Are formal university-level family-friendly policies related to work outcomes for academic scientists? Do formal university-level family-friendly policies differently shape academic productivity for men and women academic scientists?"	Hierarchic multi-level analysis (organizational level and individual level) Survey (1598 respondents at American universities – 6 different research fields) Dependent variable: faculty productivity operationalized as "journal publications" and "teaching loads" Independent variable: Spousal hiring policy; stop tenure clock policy; maternity leave; paternity leave; adoption leave; parental leave; on-site child care	Work-life balance	"The hierarchical multilevel analysis indicates that generous family-leave policies, on-site childcare, and spousal hiring policies differently affect women and men academic scientists" "we find that more generous leave policies increase publication outcomes for women, but are not significantly related to teaching outcomes. For men, we find that increased leave policies are not significantly related to journal publications but are negatively related to teaching loads."	More important variables, such as children's age, management, unions, etc., are not included in the model

				"there is not a significant relationship between the presence of a formal policy for stopping or delaying the tenure clock and academic productivity, for men or women." "on-site childcare will increase productivity for women and men faculty, respectively. For women, on-site childcare is not significantly related to journal publication rates but is significantly related to an increase in teaching loads. In comparison, men who work at universities with on-site daycare report publishing more journal articles than men at universities without on-site daycare."	
Devos, A., McLean, J., & O'Hara, P. (2003). - lack full access	To what extent has the program increased the understanding of the challenges female researchers face? To what extent has the program fostered institutional changes?	Qualitative Participant evaluations (+40 participants)	Mentoring schemes WomenResearch21 (developed to support and encourage female academics at the start of their career) "Each cycle of the programme runs for twelve months and includes seminars, informal support and networking, a research project, and the opportunity to work with a research adviser."	"Participant evaluations of the first two years indicate the programme has been very successful in supporting the development of most participants." "Our success in regard to the second aim of contributing to institutional change is less clear."	

Gardiner, M., Tiggemann, M., Kearns, H., & Marshall, K. (2007).	Evaluation of the effect of mentoring schemes for junior women in academia (effects for women and for the university)	Longitudinal study + control group 22 women in treatment group Measures: Objective career outcomes Subjective career outcomes Perceptions of mentoring	Mentoring scheme (started in 1998) targeted at women at the start of their career) Goals of mentoring scheme: 1) improve the women's performance, 2) increase the number of women in middle and senior positions	Mentees were more likely to stay at the university, received higher income in terms of funding, achieved higher degrees of promotion and had a more positive self-image as academics	Australian context – transferability?
Gibson & Dyer (2017)	Brief resume of the Juno project developed by Institute of Physics (IoP) in the UK Juno aims for inclusion of women in the physics environment	UK 16 physics departments Within physics academia	Recruitment/hiring Juno-principles: 1) A robust organizational framework to deliver equal opportunities and rewards. 2) Recruitment and selection processes and procedures that encourage men and women to apply for academic positions at all levels. 3) Departmental structures and systems that support and encourage career development and promotion of all personnel and enable men and women to advance and continue in their careers. 4) Departmental organization, structure, management arrangements and culture that are open, inclusive and transparent and encourage participation by all staff.	Juno had an effect (more women in the physics environment), but difficult to say whether the effect is long-term.	

			5) Flexible approaches and arrangements that enable individuals, at all career and life stages, to optimize their contribution to their department and institution. 6) An environment where professional behavior is embedded in the culture and behavior of the department. In addition, an award for overachievement of principles: the "Juno Award".		
Girod, S., Fassiotto, M., Grewal, D., Ku, M. C., Sriram, N., Nosek, B. A., & Valantine, H. (2016).	Examines the effect of an intervention that aims to reduce implici bias that favors men as leaders (both among men and women)	281 faculty participated Area: Academic medicine "The pre- and post-assessments consisted of the following: (1) a survey measuring general perceptions of bias, (2) an assessment of measures of explicit attitudes related to gender and leadership, and (3) a version of the Implicit Association Test (IAT) measuring the association between gender and leadership."	Awareness raising Intervention = 20 minutes' education about implicit bias and coping strategies	"Results indicated that the intervention significantly changed all faculty members' perceptions of bias ($P < .05$ across all eight measures). Although, as expected, explicit biases did not change following the intervention, the intervention did have a small but significant positive effect on the implicit biases surrounding women and leadership of all participants regardless of age or gender ($P = .008$)."	"we acknowledge the possibility that observed changes on the perceptions of bias survey do not reflect a genuine improvement in individual perceptions of biases but, rather, that the presentation was effective in conveying the information we had compiled."
Grada, Laoire, Linehan, Boylan & Connolly (2015)	Efficiency of different types of equality interventions in academia	Ireland. Builds on the "Trough the Glass Ceiling" project, which is an action-research case study conducted at an Irish (UCC) in	Mentoring scheme Initiatives that … support women (individual)	Actions that support women in their careers have the potential to achieve a degree of transformation at individual, cultural and structural levels when such actions are designed with an understanding	Builds on data from only one academic institution. Did not work with the male colleague or leading seniors.

	How we understanding (re)production of and the potential transformation of gender relations in academia	2010-2012. Examined the glass ceiling effect.	At the same time, the gender structure in society and academia is challenged (structural) Because structures are incorporated in individuals Introduce participants to respectively Professional Development Programme + Mentoring Programme	of how individuals incorporate the gendered social structures/values that exist and are reproduced in society and academia. => Interventions in the form of support for women are most effective when their implementation takes into account that women can play a key role in changing the structure (developing critical gender awareness). Positive feedback from women re. mentoring program + increased critical awareness of issues in the socio-cultural context + made it easier to navigate in a gendered context	
House, Dracup, Burkinshaw, Ward & Bryant (2021)	Is there evidence, published since a previous comprehensive review published in 2006, on whether organized mentoring schemes reduce gender inequalities in academia in medicine?	Based on 32 studies since 2006, selected if they were found relevant to the topic: Should define Mentoring scheme as 1), 2) and 3). Should be in academia in medicine. Should be from later than 2006.	Mentoring scheme Defined as (1) a formally organized intervention involving a supportive relationship between a mentor, defined as a more senior/experienced person and a mentee defined as a more junior/inexperienced person; (2) the mentoring intervention involved academic career support; (3) the mentoring relationship was out-	Findings are at the individual level, e.g. satisfaction, well-being, career progression. Mentoring scheme is popular among many who receive it. However, no robust evidence of effectiveness in reducing gender inequalities.	Only in medical academia. Many of the studies used in the article did not focus on specific gender. Several of the studies have a weak research design. Different definitions/operationalizations of "mentoring scheme" in the studies used. Only publications/studies in English were used.

			side management or performance monitoring and was defined by contact over time.		
Jackson, S. M., Hillard, A. L., & Schneider, T. R. (2014).	Evaluates the effect of diversity training on both female and male researchers' implicit and explicit attitudes towards women in STEM.	Quantitative study 234 US STEM faculty (153 men + 58 women) Intervention group and control group Measured explicit and implicit attitudes/assumptions about women in STEM pre- and post-intervention	Awareness raising Intervention = 30 minutes' diversity training	"After diversity training, men had a significant increase in personal, positive implicit associations toward women in STEM. Comparatively, women had more positive initial implicit associations, which did not change, whereas men's scores had room to improve. Personal associations for men in the experimental group did improve significantly, whereas there was no change for men in the control group, indicating a positive effect of the diversity training"	No evidence of any long-term effects or whether this change has an impact on the proportion of women in STEM. Note: very limited intervention (only half an hour presentation)
Latimer, M., Jackson, K., Dilks, L., Nolan, J., & Tower, L. (2014).	RQ: "Can an intervention that does not directly target gender bias in fact produce significant change in existing gendered processes?" Impact of the intervention on the group's attitude towards change and sense of group agency RQ2: "In addition, does the departmental intervention decrease the level of dependence and conflict between	8 STEM departments at West Virginia University Intervention was evaluated through survey - qualitatively Examined level of "departmental change in the collective properties of a group" Pre- and post-survey comparison Respondents: 76% men, 24% women	Group dynamic intervention To create a more positive environment for women (supporting behavior that promotes gender equality) Introduce a model that promotes inclusive decision-making and good (democratic) communication Indirect approach: no direct focus on unconscious bias etc. But more overall focus on group dynamics	"In general, our results indicate that our department facilitation had a positive impact on the general attitudes toward hiring, retaining, and promoting women faculty as well as collegiality and cooperation among faculty."	Small sample – all groups at the same university (US context) (smaller share of the sample are women)

	and increase the levels of co-operation and reliance among faculty members?"		Intervention at departmental level - 8 hours spread over several meetings. The intervention was introduced at department meetings. Included "identification of three actions from Vision 2020 to focus the work, brainstorming about the ideal department, a Stop-Start-Continue exercise to get the faculty to think individually about how to achieve the actions, group processing of these results to identify themes, semi-anonymous prioritization of themes by individual faculty, processing and further development of the Strategic Plan using the template we provided, feedback on draft plans, and development of final plans."		
Laver, K. E., Prichard, I. J., Cations, M., Osenk, I., Govin, K., & Coveney, J. D. (2018)	Systematic review of interventions that support women's career progression in academia	Review of 18 studies (majority in medicine)	Mentoring schemes, education, professional development and/or networking programs (all programs required women to sign up and dedicate time to the program)	Generally low quality of studies. All studies reported a positive effect on at least one indicator - mainly in terms of improving self-perceived competence or satisfaction with the program	Studies of low quality

Manchester, Leslie, L. M., & Kramer, A. (2010).	Examining the link between stop-the-clock policies and career development (with specific focus on advancement and pay) In addition, it examines whether outcomes of STC policies vary by gender and reason for choosing STC	Quantitative study Data set with tenure track faculty members hired between 1998 and 2002 (53 who used STC)	Work-life balance ”Stop the clock”-policies	”We find an insignificant relationship between STC use and promotion probability, yet we also find a significant, persistent wage penalty associated with STC use for family reasons, but not for nonfamily reasons. One interpretation of these results is that STC policies accomplish their intended goal. However, the differential effect of STC use by reason for use suggests an alternate explanation—that this policy may introduce bias into salary allocations. We also find that women are more likely than men to use STC for family reasons…”	“One limitation of the present work is our inability to address endogeneity surrounding STC policy use. Conditional on eligibility, an individual’s decision to use the policy may be affected by his or her probability of promotion.”
McCormack & West (2006)	Examesthe effects of a group mentoring program for university women	Case study (1999-2003) University of Canberra 122 women (103 participants and 19 facilitators) - "academic and general staff women" Surveys, focus group, evaluations	Mentoring scheme ”The Women’s Group Mentoring Program”	”Benefits of program participation reported by the women included an increased knowledge and understanding of the university structure and governance; acquisition of work-related knowledge and skills; a sense of belonging and connectedness through networks of relationships; and increased confidence and self-efficacy.” ”The experiences of the women in the program highlight that a university-wide fa-	The authors point out that these effects could perhaps also be achieved in a one-to-one mentoring relationship, but this was not possible at the university in question (too few senior women compared to junior women). Case study - context specific (transferability may be limited)

				cilitated group mentoring program could develop the theoretical ('knowing why'), practical ('knowing how') and strategic knowledge ('knowing whom') needed by women to facilitate career enhancement."	
Müller, J., Castaño, C., Gonzalez, A., & Palmen, R. (2011).	Based on EU project report Meta-analysis of gender and science research in Europe Analyzes national, local and regional initiatives to achieve gender balance in research (1980-2008)	Review of 1296 abstracts in Gender and Science Database + in-depth analysis of selected texts	Mentoring schemes, work-life balance and affirmative action Career training and development Qualification Stipends, Scholarships and Positions Networking and Mentoring Measures for Work-life Balance	Evidence that the following initiatives are beneficial for women's individual career advancement: "development and training seminars, mentoring or qualification stipends" (however, evidence on their impact at the structural level is lacking) Initiatives tailored to specific disciplines are more effective than generic initiatives "Top-level involvement" and "institutional commitment" re initiatives are crucial for impact "Equality officers are important for the success of research and education institutions in addressing gender issues Ambiguous effects on the use of new management tools such as targets and incentives in European universities	

				Quotas and affirmative action are generally poorly received in academia (by women as well as men) "Single-sex education measures (e.g. girls-only workshop camps) have a positive impact and are well received by participating women (although evidence on the structural impact is limited)	
Palmer & Jones (2019)	”(a) What roles do tenured women faculty or administrators perceive mentoring relationships and programs have in the successful attainment of tenure for women? (b) What recommendations do tenured women faculty or administrators have for mentoring relationships?”	Qualitative study Semi-structured interviews 6 female mentees with 6 female mentors (Southwestern USA) Based on Kram's (1983) mentor role theory, which divides four mentor phases into two general groups: 1) career developmental functions, 2) psychosocial functions	Mentoring scheme woman-to-woman	”A majority of the participants identified that their relationships with their mentors or mentees moved back and forth between personal and professional issues of concern specific to women.” ”Woman–woman mentoring relationships provide an avenue to help women learn how to move between their personal and professional responsibilities seamlessly, a concept that can help counter the ongoing life balance issues so often attached to women faculty members and provide a complete mentoring experience” ”Participants shared that having a woman mentor who had been through the isolating tenure process provides an	Small sample All from same university

				environment of support and understanding." "The characteristics of a woman–woman support system include a level of honesty women are often unable to have with their men professional colleagues."	
Park, S. (2020, March).	Examines whether gender quotas lead to an increased representation of women in faculty positions (examines several nine-levels in the position hierarchy)	Longtudinal study from South Korea (2001-2017) Quantitative study Dependent variable: percentage of women in faculty positions	Affirmative action	"gender quotas have a positive effect on female faculty representation at all levels of tenured and tenure-track professorship but not for leadership and higher administrative positions such as Dean, Provost, and President. The findings suggest that uniformly implemented gender quotas focusing on entry-level faculty may not be sufficient to improve gender inequality in higher levels of the academic hierarchy."	South Korean context - transferability?
Peterson, H. (2011).	RQ: "1. to what extent have women gained access to senior management positions in higher education in Sweden since 1990?; and 2. to what degree have formal regulations and gender equality policies of a more informal character influenced women's	Sweden 1990-2010. Mixed data: Statistical data + qualitative interviews with 22 women in managerial positions	Affirmative action Gender mixing policy (focus on actions at structural level): • Include both men and women in positions, groups, teams, so that there is min. 40% of each gender. • Informal + "a way of thinking" that is institutionalized.	The implementation of a gender mix policy has been successful in increasing the relative number of female top managers. BUT the gender mix policy has failed to address structural and cultural barriers that redress gender gaps when they have been challenged.	Only 22 women interviewed to explain 2) and 3)

	entrance into these senior management positions?” 1) Show the increase in the proportion of women in leadership roles in Sweden's academia. 2) Explain the main factor that is causing this: Gender mixing policy. 3) A critical assessment of how successful gender mixing policies are in promoting gender equality on a structural level.				
Sambunjak D, Straus SE, Marusić A. (2006)	”To systematically review the evidence about the prevalence of mentorship and its relationship to career development.” Med students.	Systematic review of 42 articles on the effect of mentoring on academic advancement	Mentoring schemes	Women find it harder to find mentors than men ”Mentorship was reported to have an important influence on personal development, career guidance, career choice, and research productivity, including publication and grant success.” There is a lack of evidence to support these views	34 of 42 articles depended on self-report surveys and small sample sizes → lack of evidence in the field
Shen, M. R., Tzioumis, E., Andersen, E., Wouk, K., McCall, R., Li, W., Girdler, S., & Malloy, E. (2021)	”The purpose of this review was to summarize the qualitative and quantitative evidence of the impact of mentoring on women's career outcomes and to inform future interven-	Systematic review of 91 studies (65 quant and 26 qual)	Mentoring schemes	”Women perceived mentorship to be more valuable to their career development yet were more likely to report having no mentor” “Quantitative data also revealed that mentoring posi-	Majority of cross-sectional studies; low rates; smalle samples

	tions to support the promotion and retention of women in academic medicine."			tively affected academic promotion and retention for junior faculty " "we identified consistent relationships between mentoring and research productivity, promotion, barriers to career advancement, career satisfaction, and network building."	
Smith, Handley, I. M., Zale, A. V., Rushing, S., & Potvin, M. A. (2015).	The impact of a search committee improvement intervention at a STEM faculty	The intervention used for 23 bachelor applications at the STEM faculty atMontana State University Treatment group vs. control group	Recruitment/hiring Improvement of the search committee "Three-step faculty search intervention": 1) improve search committee competences (concrete strategies for a broad candidate search); 2) increase committee independence (better control over unintended biases in the decision-making process); 3) increase connectedness in the search process (by connecting the search committee with a faculty member for support through the search process + connecting job candidates with an independent faculty member for a confidential interview)	The intervention had an impact: more women were short-listed and interviewed by telephone in the intervention group than in the control group. 9 women in the intervention group were offered tenure track positions. Only 2 women in the control group were offered the same	Small sample
Stepan-Norris, J., & Kerrissey, J. (2016).	Examining the impact of the ADVANCE programme on the representation of women at a US university	University of California, Irvine (1993-2009) The representation of women on the intervention campus is	Recruitment/hiring; mentoring scheme ADVANCE Program	The UCI had a higher proportion of female staff and employed more women under the ADVANCE program but	Small sample Examines several actions, but few are described in depth

		compared to 7 other University of California campuses Case Study T-test and regression analysis 3 dependent variables: percent female employees, percent female hires, percent female resignations	Objective: to reduce inequalities by improving recruitment, retention and progression The program works through equity advisors who provide: Monitoring hiring for fair treatment of women; mentoring programs; promoting equal pay; strengthening the work environment; workshops In recruitment: ADVANCE ensures transparency and fair treatment through three forms linked to three stages of the process: 1) job advertisement (to be reviewed by an advisor); 2) search committee to report on gender and ethnicity of short-listed candidates; 3) search committee to report on final short-listed candidates, final candidate's characteristics and rationale for committee's decision. Advisors have the opportunity to intervene at all three stages.	was no more successful in retaining women.	Impact is the aggregate effect of all interventions (recruitment or mentoring effects cannot be isolated)
Stewart, A. J., La Vaque-Manty, D., & Malley, J. E. (2004).	Evaluatesthe early effects of an equity intervention at the University of Michigan: "the creation of a faculty committee designed to improve the recruitment and hiring of female faculty members through peer education"		Recruitment/hiring Committee focused on improving the recruitment process (for female applicants) Committee gave presentations raising awareness of bias about men and women in science	"Note the marked, and statistically significant, increase in the proportion of women hired during the 1st year of STRIDE'S activity on campus" "One hiring cycle after the committee's creation, the authors found (a) reports of	Difficult to isolate the correlation. The increase in the number of female employees may also be influenced by a general increase in the focus on the issue (e.g. a report was published in the same year)

	Inisitative: "Science and Technology Recruiting to Improve Diversity and Excellence (STRIDE)" Area: science and engineering			changed practices in some search committees and departments, (b) an increase in the number and proportion of new hires who were women, and (c) a substantial increase in the knowledge and motivation of the members of the recruitment committee with respect to improving the climate for female faculty members."	
Timmers, Willemsen & Tijdens (2010)	"We investigate the efficacy of GE policy measures " RQ: "Do gender equality policy measures lead to improvements in proportion of females in higher job levels?"	The Netherlands. 14 universities. Implemented between 2000 and 2007 Interviews to identify GE policies at individual universities Effect operationalized as "change in the proportion of women among academic staff, all professors, full professors, PhD-students, and students each year between 2000 and 2007" Independent variable: "ranking of the university on the application of policy measures." Second impact measure: Glass Ceiling Index "The higher the value of the GCI, the thicker the glass ceiling, and the more difficult it is for women to move to a higher job level (European Commission 2006)."	Mentoring scheme; accountability Exit interviews (i) (i) Mentoring & coaching (i) Output measures corrected (i) Women's network (i) Training women (i) Incentive for PhDs (i) Women in committee (c) Gender Impact Assessment (c) Expressing responsibility (c) Training for management (c) Round of consultation (c) Adapt job advertisement (s) Bonus for hiring woman (s) Personal chair (s) Preferential treatment (s) Adapt recruitment (s) Target numbers (s) Tenure track (s)	The more policies/measures, the thinner the "glass ceiling" Significant, strong correlation between measures at the cultural level (c) and proportion of female professors	No control UoA is university as a whole although initiatives are implemented partially at departments.

Table 3: Secondary literature

Author	RQ	Empirical setting/data	Initiative	Findings	Limitations
Castilla, & Benard, S. (2010).	Tests the hypothesis of "the paradox of meritocracy": when an organization actively promotes meritocracy, managers in the organization (paradoxically) show greater bias in favor of men	Experimental study (3 studies) "445 participants with managerial experience who were asked to make bonus, promotion, and termination recommendations for several employee profiles. We manipulated both the gender of the employees being evaluated and whether the company's core values emphasized meritocracy in evaluations and compensation."	N/A	"The main finding is consistent across the three studies: when an organization is explicitly presented as meritocratic, individuals in managerial positions favor a male employee over an equally qualified female employee by awarding him a larger monetary reward"	Experimental/"artificial" context - participants had management experience and were asked to play the role of a manager in a large fictional service organization in the US.
Kalev, A., Dobbin, F., & Kelly, E. (2006).	Systematic analysis of the effectiveness of different tools to achieve increased diversity in the workplace	708 private sector companies/organizations (USA) 1971-2002	Mentoring schemes Awareness raising (diversity training) Management responsibility	Diversity training is the least effective tool Moderate effects of mentoring (to reduce social isolation) Establishing management responsibility and commitment (e.g. affirmative action plans, diversity committees and diversity staff) the most efficient tool.	
Kellough, J. E., & Naff, K. C. (2004).	Examines the extent to which US public agencies have implemented diversity management initiatives	Survey to160 agencies	N/A	Large differences in the extent to which public administrations have implemented diversity programs. Management commitment to these initiatives is essential for their development and success	

Nielsen, M. W. (2016).	Comparative study of different approaches to gender imbalance in academia in Norway, Sweden and Denmark	6 Scandinavian universities and their GE activities Study of the policy and regulatory framework in the three countries	N/A (does not look specifically at measures - more general study)	Danish universities have fewest female senior researchers and fewest GE action plans Norway represents the "creating equal opportunities" approach Sweden represents the "revising equal opportunities" approach Denmark represents the "fixing the women" approach	Unclear what role bottom-up networks have in promoting equality Unclear what the long-term effects of GE initiatives are
Nielsen, M. W. (2021).	Book chapter discussing gendered trends in recruitment and selection processes in academia	Discussion of empirical studies and reports (e.g. Ståhle 2014)	N/A – not an impact study	AU has strong meritocratic beliefs, but recruitment processes are not in line with these. AU uses informal recruitment processes extensively, which is problematic for gender balance	
Pitts, D. W. (2007).	Presents guidelines for developing successful diversity management initiatives	Literature review	N/A – not an impact study	Guidelines stress the importance of resources, specificity, articulation and management support, etc.	
Wynn, A. T. (2020).	Examines how leaders' ideologies regarding inequality influence their approach to creating change in the workplace	Case study, Silicon Valley tech company Interviews and observations	N/A – not an impact study	3 ideal-typical ideologies: individualistic, societal, organizational The ideology says something about the leader's beliefs about the cause of inequality, gender differences, goals for change and responsible actors.	