A Practical Guide to Address

GENDER BIAS
IN ACADEMIA
AND RESEARCH

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Technology and Innovation

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A Practical Guide to Address
Gender Bias in Academia and Research

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FOREWORD

The publication in 1997 of the article by Weneras and Wold entitled "Sexism and Nepotism in Peer Review" in the prestigious journal *Nature* marked a turning point for the significant body of scientific literature on gender bias in science and technology that we have today. This article measured the extent of gender bias in the evaluation of candidates to early career positions in the Swedish Academy of Medicine: women had to have up to 2.5 more merits than men to obtain similar evaluations.

In these two decades, empirical evidence measuring gender bias in the evaluation of merit has been found in case studies in at least Spain and the US. In Spain, the *White Paper on the Situation of Women and Men in Spanish Research* published by the Ministry of Research and Innovation in 2011 shows that men were 2.4 times more likely than women to be promoted to full professors *ceteris paribus,* that is, controlling by age, time since Ph.D., field, and academic productivity measured in number of peer-reviewed articles and dissertations directed. Male evaluators in this study were significantly more likely to promote male candidates than women evaluators.

In the US, Moss-Racusin et al. measured the extent to which men were more likely to be hired and better paid, at equal merits, in their article "Faculty's Subtle Gender Biases Favor Male Students" published in 2012 in the *Proceedings of the National Academy of Sciences of the United States of America.* A similar result was found by Steinpreis et al. in 1999 in their article "The Impact of Gender on the Review of the Curricula Vitae of Job Applicants and Tenure Candidates: A

National Empirical Study". In these two cases, unlike in the Spanish case, evaluators both men and women were significantly more likely to hire male candidates. These are just some examples of a very significant body of empirical evidence showing gender bias in the evaluation of merit in scientific fields.

This body of literature has also examined how gender bias operates. Basic issues relate to the impact of gender stereotypes and gender roles. For example, characteristics associated with leadership are viewed as incongruent with women's gender roles, often resulting in double standards and double binds for women who face prejudice in leadership evaluations. Women who display assertiveness may be perceived as competent, but unpleasant, while professional women who are perceived as more feminine maybe judged as less likely to be competent professionals. Other examples include how images of engineers are persistently masculine; how mothers are viewed as less competent than women who are not mothers, while men who are fathers are not penalized for, and often benefit from, being a parent; how reliance on networks and other informal mechanisms for all kinds of appointments such as committees, speaking engagements, expert advice etc., disproportionately favor men.

Some research points to the behaviors that gender stereotypes trigger in women. For instance, stereotype threat undermines performance, and gender expectations and beliefs influence career choices, making women less likely to opt for engineering fields. There is ample evidence of how women who are reminded of negative

stereotypes concerning their math or spatial abilities tend to under perform on math and geometrical drawing tests. Research also has shown how men tend to rate their mathematical competence more highly than do women of equal measured ability. Self-rated competence, in turn, has a direct effect on career choices impacting female vocations in STEM fields. Bias has also been found on letters of recommendation; on student evaluations of professors; on staff negotiations for salary and resources; on attribution of teaching loads and "office housekeeping work" within departments.

Gender bias reaches daily seemingly unimportant issues such as the handling of meetings: men tend to use more speaking time; women's ideas and suggestions tend not to be given equal attention, while the same idea when expressed by a man is listened to; women are interrupted more often; they are given more often "secretarial" or logistical work (office housework); they are often addressed by their first names while men are addressed by their last names. Finally, the important and serious issue of sexual and psychological harassment needs to be brought into the open, publicly discussed and addressed.

This practical guide provides faculty and decision makers in universities with tools that will help them identify and address gender bias. It is written in a simple, accessible way. It is also intentionally brief, selective, and easy to use. Its purpose is mainly pedagogical because raising awareness on these issues is still a very basic needed initiative, particularly in technological institutions.

A *Practical Guide to Address Gender Bias in Academia and Research* is the third toolkit produced within the context of the COST policy driven network *Gender, Science, Technology and Environment*, genderSTE. genderSTE is a multistake holder platform involving researchers and decision makers from 40 countries committed to promoting a fairer representation of women and men in scientific and engineering fields. The other two toolkits that we have produced address how to promote structural change in institutions, *Cultural and Institutional Change Guidelines. Strategy and Recommendations*, and how to integrate gender dimensions in industrial innovation, *EU Guidelines for Gender Responsive Business and Innovation*.

We hope this collection of guidelines will be useful to researchers, engineers and decision makers wishing to address gender concerns in public and private universities, research centers and corporations.

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GUIDELINES FOR
FACULTY
AND
RESEARCHERS

As faculty members and researchers, you have probably experienced some gender-biased situations at some point in your career. While subtle and frequently unvoiced, gender bias is present in the uneven number of men and women who do research.

Added to unequal hiring or promotion, there is also an imbalance in the fields male and female scientists work. The truth is gender bias can shape stereotypes and gender roles as much as the normative standards of science. That is why the implementation of a gender-responsible science and technology may add value to research by ensuring excellence and quality in outcomes and enhancing sustainability. It may also be useful for society by making research more responsive to social needs. Finally, it may also contribute to business by developing new ideas, patents, and technology.

This toolkit seeks to provide faculty and researchers with practical tools to detect conscious and unconscious sex and gender bias and to take action in their field of expertise and work environment.

1. Stereotypes and gender bias

> **Have you ever felt that a certain behavior is expected from you only because you are a woman?**

> **Has your feminine appearance embarrassed you at work?**

> **Have you ever noticed men and women in research and academia are not perceived and valued equally?**

> **Have you ever noticed that men take/are given more time to speak at meetings?**
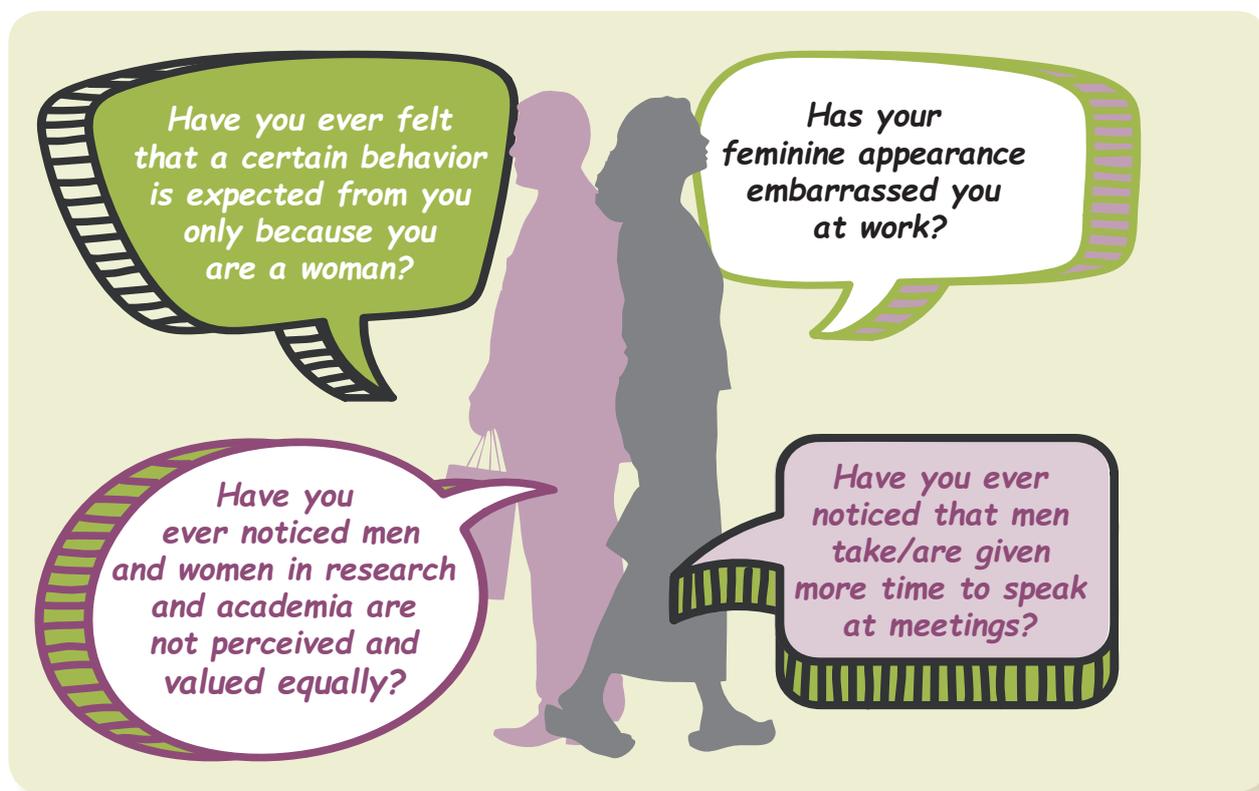
STEP 1: DETECTING BIAS

These subtle attitudes and expectations are some of the ways gender bias is present both inside and outside academia and research communities and they may influence women's and men's careers, especially in science and technology. These forces influence women at multiple junctures in their academic and career journeys.

Pattern identification is the first step for change, so take some time to reflect on the following situations:

• Early on, girls receive less encouragement than boys to pursue STEM studies. Later, those women who persevere in technology fields report feeling a **lack of support and encouragement**, particularly in terms of leadership opportunities.

• Characteristics associated with leadership are viewed as **incongruent with women's gender roles.** Also, women who display assertiveness may be perceived as competent, but unpleasant.

• Often, women have to **provide more evidence of competence than men** to be seen as equally competent. Also, women's mistakes may be remembered for a long time, while men's are soon forgotten.

• The **office housework** is mostly done by women.

• Science environments and social representations of scientists are **persistently masculine** despite the increase of women scientists.

• Being a good mother and a good worker are **seen as incompatible**. Furthermore, mothers are often discriminated against non-mothers whereas men who are fathers sometimes receive additional academic benefits independently of their academic track record.

Most of these attitudes belong to the social representation realm, so they are difficult to identify. Studies indicate that women tend to apply gendered patterns of self-selection into certain career pathways and once in the labour force, they may also face prejudice in recruitment and evaluations. As a consequence, women's performance may be affected by the fear of conforming to negative stereotypes too. This is called the stereotype threat.

STEP 2: TAKING ACTION

It takes time and effort, but there are ways to block and overcome these situations. Of course, this gigantic enterprise cannot be undertaken by an individual, on the contrary, it is advisable to collaborate with peers to introduce little but meaningful changes in the working routine.

If you are a woman, the following suggestions may help you block and overcome some of the previously mentioned situations:

• **Don't be shy and share your experience** in research or academia at any public and social event you may be invited to speak. It is very valuable for present and future generations to acknowledge the presence of women in science.

• Share with your female and male colleagues your feelings and reactions as a result of a particular gender biased situation you have experienced or detected. Being **familiar with the existence of stereotypes** will help to detect and prevent subsequent events more easily.

• To **be more assertive**, try to make direct eye contact and direct statements. Consider sharing your views with your colleagues beforehand to ensure a positive reception when displaying assertiveness. Try to address your male and female audience equally. Use a mix of "masculine" and "feminine" traits to be assertive and approachable.

• If someone is undercutting you, **call it out**, find common ground and propose mutual support.

• **Praise other women success** in public and have them praise yours.

• **Say "Yes"** to one or two pieces of office housework, then **say "No"** to the rest and provide alternatives for the rest. You can also **ask for help** bringing others on board to share office housework.

• Be explicit about **your career goals** and choices.

• **Evaluate** your working environment **and suggest** ways of improving it implementing areas for social interaction and occasional children-friendly spaces.

These are only a few actions that may be tested in order to promote a fairer and more equal work environment. Teaming up, finding common ground and proposing mutual support are key strategies to transform personal affronts into collective challenges.

WANT TO KNOW MORE?

You may find more specific information in the following references:

• Banchefsky, Sarah, et al. (2016): "But You Don't Look Like A Scientist!: Women Scientists with Feminine Appearance are Deemed Less Likely to be Scientists." *Sex Roles*: 1-15.

• Nosek, Brian A., et al. (2009): "National differences in gender–science stereotypes predict national sex differences in science and math achievement." *Proceedings of the National Academy of Sciences* 106.26: 10593-10597.

• Vinkenburg, Claartje J., et al. (2011): "An exploration of stereotypical beliefs about leadership styles: Is transformational leadership a route to women's promotion?." *The Leadership Quarterly* 22.1: 10-21.

• West, Jevin D., et al. (2013): "The role of gender in scholarly authorship." *PloS* one 8.7: e66212.

2. Hiring, promotion and evaluation

Have you or any of your female colleagues postponed maternity or limited childbearing in favor of an academic career?

Do you work in a sex-balance team?

In your area of expertise, is prestige linked to gender?

Do your male and female colleagues share similar responsabilities?

Are men and women evaluated equally?
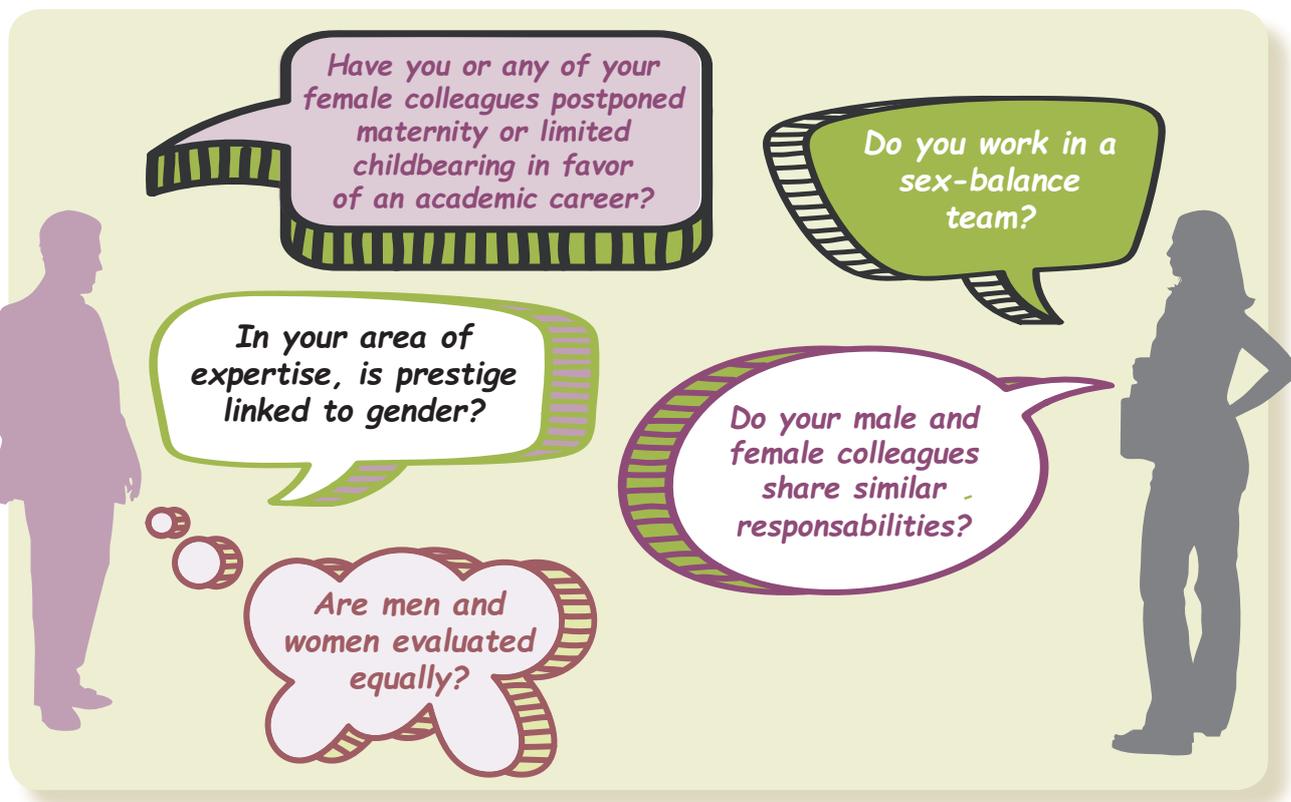
STEP 1: **DETECTING BIAS**

These questions help us reflect on what elements are at stake when decisions are taken and how their outcomes may affect differently men and women's careers in research and academia.

There is evidence that women graduate more and with better results than men but the higher in the academic ladder, the lower the number of female scientists. Diverse factors contribute to the unbalanced presence of women in research and academia.

How to detect the signs?

• In a hiring, promotion or evaluation session, male candidates are judged on their potential, while **women are judged strictly on what they already have accomplished**.

• When women behave in dominant and assertive ways in interviews, they are **seen as unlikeable**.

• Women also may get **polarized evaluations** from students or peers: women who are superstars get high evaluations while women whose work is merely excellent tend to get sharply lower evaluations than similarly situated men.

• In promotions, evaluators may place more value on attitudes such as decisiveness rather than collaboration, thus **associating men and masculinity with leadership**.

• When female workers become mothers, evaluations of their **competence suffer** for it. In contrast, when working men become fathers their competence is not compromised, but sometimes it is overvalued.

• Board composition for recruitment or promotion is f**ormed by persons of only or mostly one gender.**

If you have taken part in this sort of situations or witnessed similar ones, you should acknowledge an existing gender bias in the academic and research career against women. As a result, academia and research are male dominated environments in need of fairer and more inclusive procedures at all levels.

STEP 2: **TAKING ACTION**

As a member of the academic and research community, you can play an active role for change. It is important that you analyse the scope of your actions and consider to what extent you may make a difference.

The following situations may inspire you to counterbalance the detected bias:

• Demand **consistency, publicity and clarity of criteria** in hiring and promotion processes.

• **Analyse the composition of your team** and try to achieve a sex balanced workforce when the opportunity arises, for instance, when obtaining funds for a project.

• **Volunteer as a mentor to younger women** who want to pursue a career in research and academia. Team building is essential!

• When citing your colleagues in your scientific work, try to make their names explicit so that **women scientists are more visible** and get their due credit.

• **Block undue criticism** of women's (and men's) personalities.

• **Propose women's names** to be members of evaluating and other committees, and as candidates to prizes.

WANT TO KNOW MORE?

Feel free to review the following sources. They may give you more ideas!

• Brouns, Margo (2004): "Gender and the assessment of scientific quality." *Gender and Excellence in the Making* 14: 147.

• Kulis, Stephen, Diane Sicotte, and Shawn Collins (2002): "More than a pipeline problem: Labour supply constraints and gender stratification across academic science disciplines." *Research in Higher Education* 43.6: 657-691.

• Reuben, Ernesto, Paola Sapienza, and Luigi Zingales (2014): "How stereotypes impair women's careers in science." *Proceedings of the National Academy of Sciences* 111.12: 4403-4408.

• Rossiter, Margaret W. (1993): "The Matthew Matilda effect in science." *Social studies of science* 23.2: 325-341.

3. Family and work-life balance

STEP 1: **DETECTING BIAS**

Gender roles interfere more with women's career than with men's, placing them at a disadvantage in research and academia. In dual-career academic couples, men tend to privilege their career. Given that the tenure clock generally coincides with the biological clock, women faculty face particularly difficult timing decisions regarding this balance.

What is more, faculty often attempt to minimize the negative consequences associated with parental obligations.

Consider the following cases:

• It is not well considered for **men to take parental leave.**

• In your department **parental leave is only taken by women** and sometimes it is not fully taken despite law protection.

• It is women faculty who normally **work from home** when the kids are sick.

• Male faculty take **credit for their child-rearing responsibilities** while women don't.

• **Reduced or part-time work is not actively supported** in research and academia.

• When female faculty have children they become **less mobile** than their male counterparts.

These are only some signs of a recurrent imbalance between work, family life and community involvement. As a result, men's and especially women's personal lives are under stress. Also, due to frequent travel and relocation requirements in science, women are placed at a disadvantage.

STEP 2: **TAKING ACTION**

As partnering and child-rearing are natural processes in human life, action needs to be taken in order to block and overcome gender bias.

Examine the following suggestions:

• Contact your institution's equality office and **get familiar with the legal policies** regarding parenthood and dual-career academic couples. In their absence, fill a request to the competent body.

• Discuss with your supervisor and colleagues **strategies to balance** family and work responsibilities.

• **Suggest and disseminate** other institutions' policies regarding partnering and family issues.

• When appropriate, request a deferral of a personnel review to **accommodate family needs** in accordance with campus policies.

WANT TO KNOW MORE?

The following references may illuminate you with further study cases and solutions:

• Correll, Shelley J., and Stephen Benard (2007): "Getting a job: Is there a motherhood penalty? 1." *American journal of sociology* 112.5: 1297-1339.

• Gaio Santos, Gina, and Carlos Cabral-Cardoso (2008): "Work-family culture in academia: a gendered view of work-family conflict and coping strategies." *Gender in Management: An International Journal* 23.6: 442-457.

• Mason, Mary Ann, and Marc Goulden (2004): "Marriage and baby blues: Redefining gender equity in the academy." *The Annals of the American Academy of Political and Social Science* 596.1: 86-103.

• Schiebinger, Londa, and Shannon K. Gilmartin (2010): "Housework is an academic issue." *Academe* 96.1: 39-44.

4. Harassment

Have you ever felt abused by gestures, words or behaviours in your workplace?

Have you been involved in situations of verbal or modal mistreatment on a colleague?

STEP 1: **DETECTING BIAS**

In academia, gender biased harassment has been bookmarked in the forms of:

- **sexual harassment**

- **harassment on the grounds of sex**

- **psychological harassment**

These three forms of abusive conducts do not only undermine the dignity of a person but they may also create a hostile working environment for one or more people. In its extreme forms, sexual proposals are made explicit in exchange of certain working decisions.

Frequently, these forms of harassment go unnoticed or are taken for granted as socially accepted forms of behavior.

Consider the following signs:

a) Sexual harassment:

o   Gestures, looks or physical contact that are intimidating and uneasy.

o   Compromising or repeated sexual advancements.

o   Leave notes, send emails, messages or letters of sexual nature which are offensive and intimidating.

b) Harassment on the grounds of sex:

o Systematically ignore women's contributions, their work, knowledge, expertise or skill, by the fact of being women.

o Discrediting, taunts or offensive comments of a sexist nature by the fact of being a woman.

o Treat women on maternity/breastfeeding leave differently than other leave-takers.

o Deny or discourage from taking legally protected maternity/breastfeeding leave.

o Penalization, discrimination or mockeries for taking maternity/breastfeeding leave, reduced working hours or stop the clock.

c) Psychological harassment:

o Purposefully excluding or ignoring someone from meetings, discussions or decisions.

o Continuous unreasonable or non-constructive critiques.

o Assuming credit for work that is not their own.

o Willfully omitting or giving incorrect information.

o Assigning workloads in disproportionate ways, so that they become impossible to achieve and/or affect research productivity.

STEP 2: **TAKING ACTION**

If you have suffered or witnessed a harassment case, immediate action needs to be taken. Take your time to consider the following suggestions:

• **Write a personal list of issues which describe that incident** or continuous behaviour. Include details such as the date, place and name of people who were witnesses or may be aware of the situation.

• **Do not answer any message**, email or comments on social networks. Instead, **save them and show them** when you inform about your experience in order to support your defence.

• **Tell your experience** to a reliable person. Talk to your line manager, the person in charge of your programme or your professor. Also inform about your situation to the people in charge of dealing with harassment issues in the University.

• If you feel capable, face the harasser. In a strong, firm tone of voice and with serious face, tell the person to stop and point out exactly what behaviour needs to stop. **Let the harasser know that he has crossed the line**. If you find it hard to discuss the matter face to face, write a letter to the harasser describing the way you are experiencing the situation.

• **Find out** if others where you work or study had **similar experiences**. It is quite usual that the same person harasses several people.

WANT TO KNOW MORE?

• Sánchez de Madariaga, I., Novella, I., and García-Maroto, P. (2014): *Guidelines for the prevention of sexual harassment, harassment on grounds of sex and psychological harassment.* Universidad Politécnica de Madrid, Madrid. Available: https://triggerprojectupm.wordpress.com

• Hirigoyen, Marie-France, and Núria Pujol Valls (2001): *El acoso moral en el trabajo: Distinguir lo verdadero de lo falso.*

• Huerta, Marisela, et al. (2006): "Sex and power in the academy: Modeling sexual harassment in the lives of college women." *Personality and Social Psychology Bulletin* 32.5: 616-628.

• O'Connell, Colleen E., and Karen Korabik (2000): "Sexual harassment: The relationship of personal vulnerability, work context, perpetrator status, and type of harassment to outcomes." *Journal of Vocational Behavior* 56: 299-329.

• Piñuel, Iñaki (2014). *Por si acaso te acosan: 100 cosas que debes saber para salir del mobbing.*

GUIDELINES FOR
DECISION-MAKERS

Decision-making bodies have an essential role in detecting and overcoming gender bias at a structural level. To undertake this task, a preliminary analysis must be conducted.

If you have ticked one or more boxes, it means that there is gender imbalance at your institution and that action should be taken from an integrated perspective.

As department chair or dean, it is your responsibility and obligation to be knowledgeable about policies and practices that combat gender bias. It is also your duty to promote and support any measure that enhances equality within the academic community. Their implementation should be progressive in order to sensitize and mobilize different actors through tailored, multi-level and inter-related interventions. To address all these issues, suggestions for action have been grouped in four distinctive blocks.

TICK THE BOXES THAT BEST MATCH THE SITUATION OF YOUR INSTITUTION:

- ☐ **Research teams and intrinsic organization show gender imbalance, especially in STEM fields.**

- ☐ **The composition of decision-making bodies does not reach the 40% participation of the under-represented sex.**

- ☐ **The research and innovation contents carried out at your institution do not integrate sex/gender analysis.**

1. Awareness raising and training

STEP 1: **DETECTING BIAS**

Research shows that lack of awareness on gender bias is a common salient feature among faculty and governing bodies in scientific and research institutions.

These are some common beliefs among faculty and decision-making bodies:

- **Women** scientists and researchers **put family before** work.

- **Men** faculty and researchers **are more devoted and hard-workers** than their female counterparts.

- **Men like science** and engineering fields, while **women prefer arts.**

- **Women are not interested in decision making positions**.

STEP 2: **TAKING ACTION**

Context-sensitive implementation is essential. Due to the diversity of areas where intervention is required, a first step is to raise awareness among the faculty and the managing bodies so that gender becomes a familiar and pivotal issue that needs to be integrated in all areas.

Here you will find some useful ideas that other institutions have already put into practice:

• Allocate **funding for the creation of a specific unit** for the implementation of gender policies.

• Promote the **inclusion of the gender dimension in curricula and research** activities.

• Implement practices to **increase women's visibility**, voice and recognition.

• Organize periodic **training modules** for university employees and managers.

• **Host international conferences** on gender and research.

• Ensure the **support of top and medium managers** through direct engagement in equality actions.

• Establish an annual **Gender Equality Prize**.

• Establish targets on **balanced representation** to promote gender equality in all bodies and research positions.

• Collect and publish **gender segregated statistics** in both internal and external resources (annual reports, press releases, etc.).

• **Report and disseminate** success and innovations.

• Ensure there is **external evaluation** of the delivery of strategic objectives, priorities and specific indicators and the success of the measures introduced, their sustainability and potential risks.

Gender inequality is rooted in culture and values. Therefore, awareness raising and training for the academic community demand a long-term intervention tailored to the particular circumstances.

WANT TO KNOW MORE?

The more you read about gender bias the more you will be able to detect it and take action. These are some suggested readings:

• Barker, L., Mancha, C., Ashcraft, C. (2014): What is the Impact of Gender Diversity on Technology Business Performance? *Research Summary. National Center for Women & Information Technology*. 1-7.

• Cacace, Marina, et al. (2015): Structural Transformation to Achieve Gender Equality in Science-Guidelines. Milano: Stages.

• Moss-Racusin, Corinne A., et al. (2014): "Scientific diversity interventions." *Science* 343.6171: 615-616.

• Schiebinger, Londa L., ed. (2014): Women and Gender in Science and Technology: Critical Concepts in Historical Studies. Routledge.

2. Recruiment, promotion and evaluation

STEP 1: **DETECTING BIAS**

Stereotypes often associate men with having more competence, especially in male-dominated fields like science, technology, sales, leadership and military or police work. These stereotypes lead evaluators to scrutinize women's performance more, which can cause them to judge women as less competent than equally performing men. How to identify gender bias in assessing performance and potential?

Consider the following examples:

• M**ale applicants receive better reports** than female candidates with identical resumes. Scientists may be significantly less likely to agree to mentor, offer jobs, or recommend equal salaries to a female candidate.

• **Agentic leadership qualities** such as decisiveness **are more valued over collaborative qualities** such as consensus building.

• Promotion committees **hinder women's access to top positions**. A Spanish study of 2011 shows that for every man participating in an evaluation committee, a woman candidate has 14% less chances to be promoted to professorship.

• This same study also shows that **men are 2,5 times more likely to become**

professors than women with equal merit. Furthermore, a man with children has a 4 times greater chance of being promoted to professor than a woman with similar circumstances.

• **Women's evaluation reviews receive more negative comments** about their communication style than their male counterparts. Leniency is given to male teams' errors while a higher level of scrutiny is applied to mixed or female teams.

• **Results obtained by a woman are criticized** for not proving that she had gotten the results on her own.

Have you ever noticed that the bar is often higher for women? In fact, a hidden result of this malpractice is that the same level of performance can be rated lower for someone who doesn't fit the stereotype of success in a given field than for someone who does. So women may have their accomplishments unconsciously downplayed or overlooked, even when they meet the same standards as their male counterparts.

This trade-off between success and likeability creates a double-bind for women. This bias often surfaces in the way women are described, both in passing and in performance reviews.

STEP 2: **TAKING ACTION**

As decision-makers, it is essential to be aware of these entrenched cultural ideas and detect them. Implementation of measures that ensure more transparent and objective procedures is essential to select and retain the most qualified and capable men and women researchers.

Here you may find some useful ideas:

• Formulate research **vacancies appealing to both male and female applicants**. Ensure that gender neutral language is used in the ad.

• Ensure **transparent procedures** and establish criteria in advance.

• Develop **agreed-upon and written policies or guidelines** for vetting requests for partner hiring.

• **Block undue criticism** of women's (and men's) personalities.

• Use a **Family Friendly Package** as a major recruitment tool.

• Allocate a **supervisor for young(er) researchers** within each department to ensure integration.

• Negotiate proposals of **new transparent rules and procedures** for appointing/electing members of the high-level boards and commissions.

• Create more flexible requirements concerning international mobility as a qualification criteria.

• Evaluate the candidates' top 3–5 publications/outputs, with no time limits.

WANT TO KNOW MORE?

Find out more ways to overcome gender inequality:

• Hill, Catherine, Christianne Corbett, and Andresse St Rose (2010): Why so few? Women in Science, Technology, Engineering, and Mathematics. *American Association of University Women*, Washington.

• Lavaque-Manty, Danielle, and Abigail Stewart (2008): "A very scholarly intervention: Recruiting women faculty in science and engineering." *Gendered innovations in science and engineering*: 165-181.

• European Commission, Widmer, M. (chair) (2008): *Mapping the Maze: Getting more women to the top in research.* European Commission, Brussels. Available: http://ec.europa. eu/research/science-society/document_library/pdf_06/mapping-the-maze-getting-more-women-to-the-top-in-research_en.pdf

• European Commission, Sánchez de Madariaga, I. (chair). *Structural Change in Research Institutions: Enhancing excellence, gender equality and efficiency in research and innovation.* European Commission, Brussels, 2011. Spanish edition: *Cambio estructural de las instituciones científicas. Promover la excelencia, la igualdad de género y la eficiencia en la investigación y la innovación,* Ministerio de Ciencia e Innovación, Madrid, 2011. Available: http:// www.idi.mineco.gob.es/stfls/MICINN/Ministerio/FICHEROS/UMYC/Cambio_estructural_ instituciones_cientificas.pdf

• Sánchez de Madariaga, I., de la Rica, S., and Dolado, J.J (coord.) (2012): *Libro blanco: Situación de las mujeres en la ciencia española*. Ministerio de Ciencia e Innovación, Madrid. Available: http://www.idi.mineco.gob.es/stfls/MICINN/Ministerio/FICHEROS/UMYC/LibroBlanco-Interactivo.pdf

• Sandström, Ulf, and Martin Hällsten (2008): "Persistent nepotism in peer-review." *Scientometrics* 74.2: 175-189.

• Singer, Maxine (2006): "Beyond bias and barriers." *Science* 314.5801: 893-893.

• Wenneras, Christine, and Agnes Wold (2001): "Nepotism and sexism in peer-review." *Women, Science, and Technology*: 46-52.

3. Family and work-life balance

STEP 1: **DETECTING BIAS**

Reconciliation of work and family life is a difficult task also in academia and research as the personal and social realms intertwine and cannot be detached from work. Gender plays a relevant role in it all.

You may have noticed some of the following situations:

• In dual-career couples, **men tend to hold a higher academic status** than women.

• The percentage of faculty and managerial **staff working part-time is higher among women**.

• The proportion of **tenure-track staff with children is lower among female workers**.

• Some **responsibilities are not given to part-time workers**.

• There is a **higher proportion of single and unmarried women** among tenured professors.

In the end, it all comes to reconciliation of work and family life. One way to increase the proportion of tenured women is to adapt the pipeline model by bolstering institutional work–family policies.

STEP 2: **TAKING ACTION**

Departmental leaders can ensure that making use of work–family policies does not negatively affect tenure decisions. For that, global work redesign and not individual accommodations needs to be tailored. This should be implemented at a team level with pilot programs so that changes may be monitored and evaluation is effectively measured.

Take for instance your department and review how, when and where your collective work is being done. Then think of how that model may be redesigned to improve both the working processes and the workers' lives.

Consider the following measures:

• Implement **policies for flexible work arrangements** such as stop the clock and tenure clock extension, active service with modified duties and part-time tenure-track appointment.

• **Create a Family Friendly Package** flexible enough to include provision of maternity leave cover, health care, childcare services, housing, and college tuition, assistance with household labour and child or elderly care.

• Suggest policies that attempt to **increase male parental leave**.

• Develop **agreed-upon and written policies or guidelines** for vetting requests for partner hiring.

• Establish a financial **support programme** to cover additional expenses (i.e. family expenses) related **to research stays abroad.**

• Ensure that **service requests are shared among men and women faculty** in a fair and equitable fashion.

WANT TO KNOW MORE?

• Ahmad, Seher (2016). "Family or Future in the Academy?." R*eview of Educational Research* , February 2016

• Frasch, Karie, et. al. (2007): Creating a Family Friendly Department: Chairs and Deans Toolkit. UC Faculty Family Friendly Edge. Available: http://ucfamilyedge.berkeley.edu

• Mayer, Audrey L., and Päivi M. Tikka. (2008): "Family-friendly policies and gender bias in academia." *Journal of Higher Education Policy and Management* 30.4: 363-374.

• Schiebinger, Londa, Andrea Davies Henderson, Shannon K. Gilmartin (2008): Dual-Academic Couples: What Universities Need to Know. Stanford: Clayman Institute for Gender Research.

• Ward, Kelly, and Lisa Wolf-Wendel (2012): Academic motherhood: How faculty manage work and family. Rutgers University Press.

4. Harassment

STEP 1: **DETECTING BIAS**

It is not easy to detect harassment in academia. But, there are some signs that may help you identify potential psychological, on grounds of sex and sexual harassment situations.

Consider these examples:

- A faculty member is **persistently excluded, undermined or intimidated** by his/her superior.

- There are **rumours** of a faculty member's misbehaviour but **no actual complaints.**

- You have received **informal complaints** from a faculty member **about mistreatment** from his/her superior.

- Fraught with doubt, recriminations, silence, suspicion, blame and/or exoneration often follow somebody's complaint.

- A worker has **left his/her workplace** after a complaint has been filed.

It is sometimes very difficult to know if harassment is happening at the workplace. Many studies acknowledge that there is a "fine line" between strong management and bullying.

The most important component of any workplace prevention program is management commitment, which is best communicated in a written policy.

Since bullying is a form of violence in the workplace, decision-makers may wish to handle a comprehensive policy that covers a range of incidents, from bullying and harassment to physical violence.

STEP 2: TAKING ACTION

When you encounter a harassment situation, you have the legal responsibility of dealing with it. Harassment cases at workplaces and academia are better addressed from senior positions and the example given by managers is essential to eradicate this malpractice. Therefore, you must always be respectful with students and colleagues and show a zero-tolerance policy towards harassment.

Here you may find some useful suggestions:

• Promote the creation of a **legal framework and internal protocols** at your Centre or University.

• **Identify/Appoint the people responsible for dealing with harassment** issues within the institution.

• In the event of a harassment situation, immediately initiate a **thorough investigation**. Make sure the whole process is **strictly confidential**.

• Organize s**eparate and discreet meetings** with the parties. Then **report the entire process**, including the meeting and, if appropriate, inform about the situation to your line manager or the people in charge of dealing with harassment issues in the institution.

• **Undertake the actions established** by the law and the institution and impose the appropriate sanctions.

• **Include harassment in the agenda** of the department or section you are in charge of.

• Establish **clear rules** among your subordinates and **provide information** about harassment (training, dissemination materials, resources, etc.).

• Organize university **training on harassment.**

WANT TO KNOW MORE?

To learn more about harassment and how to react, consult the following sources:

• Sánchez de Madariaga, I., Novella, I. and García-Maroto, P. (2014): *Guidelines for the prevention of sexual harassment, harassment on grounds of sex and psychological harassment.* Universidad Politécnica de Madrid, Madrid. Available: https://triggerprojectupm.wordpress.com/

• Gutiérrez y Muhs, Gabriella, et al. (2012): *Presumed incompetent: The intersections of race and class for women in academia.*

• *Human Rights and Respectful Workplace Office. A Toolkit for Addressing Workplace Harassment.* Vancouver Island University.

• Muhonen, Tuija (2016): "Exploring gender harassment among university teachers and researchers." *Journal of Applied Research in Higher Education* 8.1: 131-142.

• Stamarski, Cailin S., and Leanne S. Son Hing (2015): "Gender inequalities in the workplace: the effects of organizational structures, processes, practices, and decision makers' sexism." *Frontiers in psychology* 6.

• Williams, Joan C., Katherine W. Phillips, and Erika V. Hall (2016): "Tools for change: Boosting the retention of women in the STEM pipeline". *Journal of Research in Gender Studies* 6.1: 11-15.

ABOUT genderSTE

genderSTE is a network of policy makers and experts committed to promoting a fairer representation of women and better integration of gender analysis in research and innovation. We disseminate state of the art know-how on structural change of institutions and on methods for gendered analysis in research. We aim at advancing the state of knowledge in the specific fields of: cities, transport, energy, climate and industrial innovation. Our members represent government bodies, research organizations, universities, non-profits, and private companies from 40 countries, in Europe and beyond, as well as international organizations including the European Commission.

genderSTE focuses on:

STRUCTURAL CHANGE OF INSTITUTIONS

Women make up 60% of university graduates in Europe but only 20% of full professors. This is a loss of talent that neither European research nor the economy can afford. The percentage of women in the higher levels is not increasing at the same speed as the number of women with the age and the qualifications to reach them. We will not have the best research if more than half of European university graduates are not granted a "level playing field". It is also an unfair situation, which challenges European legislation on equal opportunities.

INTEGRATING GENDER IN RESEARCH

Sex and gender analysis adds value to society and the economy by making research more responsive to social needs and by developing new ideas and patents addressing a broad and diverse user base. It helps in reducing sex and gender bias that can lead to omissions and distortions. Excellent research considers the potential biological sex and social gender elements. Not including the sex/gender dimension into the methodology, content, and impact of research can lead to poor research and missed opportunities.

CITIES AND GENDER

The gendering of everyday lives is experienced at all spatial scales. Access to employment, good housing, shops, green space and essential services such as health care and education has an impact on health, wellbeing and life chances. Gender differences are highlighted in responsibilities for caring, public services, safety and mobility. Gender sensitive planning and urban design can help to reduce the impacts of differences. Safety, housing, gendering of *big data*, participation, and decision making, are some key areas for research and action.

TRANSPORT AND GENDER

Women and men have persistent different transportation needs, behaviors and levels of access to services and infrastructure. Women walk more, use more public transportation and are more sensitive to safety concerns. There is a disadvantage in terms of access to transportation that negatively affects women's professional development and personal wellbeing. The participation of women is very low in the transportation sector, which has an impact on how transport systems are understood and designed.

ENERGY, CLIMATE AND GENDER

While there is growing evidence that gender is a significant dimension in the energy sector and in both the consumption causes and impacts of climate change, this research is still relatively meagre, not well known, recognized, widely available, or used within policy and industrial processes. This body of research needs to address a number of issues for future enquiry: to better incorporate intersectionality and context; to integrate focuses on adaptation and mitigation; balance big data with lived experience; gender dimensions of green jobs.

GENDER AND INNOVATION IN INDUSTRY

Based on better education, higher work income, and societal influence, the emerging buying power (womenomics) is a strong, global business trend – not yet discovered or addressed adequately by many industrial companies. As technology is predominantly developed by men, gender knowledge and a focus on female preferences in relation to tech-innovation and development of new products is mandatory – it is a prerequisite for excellence in research and innovation. There is a need to go beyond stereotypical feminization of products – so called "pinking". If research institutions and industry want to create valuable and sustainable research results and technologies for people (the market), it is recommended to include women at all stages of the research and innovation process.

UNESCO

United Nations
Educational, Scientific and
Cultural Organization

uniTwin

POLITÉCNICA

INTERNATIONAL
CAMPUS OF
EXCELLENCE

UNESCO Chair on
Gender Equality Policies in Science,
Technology and Innovation

OUR OBJECTIVES:

* To promote the participation and leadership of women in science, technology and innovation, by supporting structural changes in organizations.

* To advance the integration of gender perspectives in research and education in technological areas.

OUR ACTIVITIES

06 SUPPORT FOR PROFESSIONAL WOMEN

01 RESEARCH

02 DISSEMINATION, ADVOCACY AND ENGAGEMENT

03 CONSULTANCY & TECHNICAL ASSISTANCE

04 EDUCATION & TRAINING

05 STRATEGIC EXPERT ADVICE

Fields of Action

- industrial design
- engineering
- urban planning
- housing
- STEM
- architecture
- service and policy design
- transportation
- international cooperation
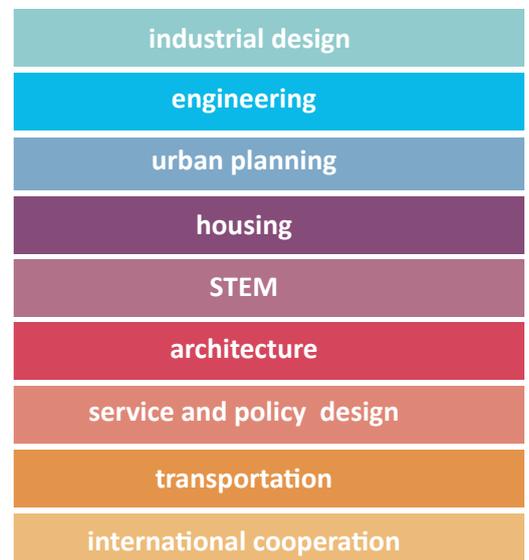
RESEARCH
We provide support at all stages of the process of integrating gender perspectives in curricula at undergraduate, postgraduate and lifelong learning programmes, including courses addressed to decision-makers.

DISSEMINATION, ADVOCACY AND ENGAGEMENT
We promote the sharing of knowledge among high-level, internationally-recognized research staff around the world, and with public and private organizations, engaging stakeholders and supporting advocacy for policy change.

CONSULTANCY & TECHNICAL ASSISTANCE
We provide specialized technical assistance to public and private organizations geared to build institutional capacity for effective gender mainstreaming.

EDUCATION AND TRAINING
We promote, develop, execute and provide support for gender analysis in research, development and innovation, integrating sophisticated methods for gender analysis.

STRATEGIC EXPERT ADVICE
We provide strategic, customized expert advice to public and private organizations for gender mainstreaming their policies, plans, programs and projects, maximizing impact and ensuring effective implementation.

FOR PROFESSIONAL WOMEN...
If you are a woman wishing to develop your fullest potential in the professional fields of engineering, urban planning, housing, transportation, architecture, or STEM, you can reach us for mentoring, advice and support.

NOTES

genderSTE
Science, Technology, Environment

genderSTE is a policy-driven targeted network funded by COST

cost
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

COST is supported by the EU RTD Framework Programme