



Submission to Women in STEM National Strategy

About the Early- and Mid-Career Researcher Forum of the Australian Academy of Science

The Australian Academy of Science Early- and Mid-Career Researcher Forum (The EMCR Forum) is the national voice of Australia's emerging scientists, representing researchers who are up to 15 years post-PhD (or other research higher degree), irrespective of their professional appointment. Our membership is comprised of over 3,500 individuals employed in science, technology, engineering and mathematics (STEM) research positions in academia, industry and government.

The EMCR Forum engages with early- and mid-career researchers (EMCRs) from around Australia and advises the Australian Academy of Science on issues relevant to EMCRs, to help inform policy recommendations to government and to support EMCR professional development and networking activities.

The EMCR Forum liaises with other national organisations to positively contribute to both Australia's scientific research and the future careers of emerging research experts. The EMCR Forum is a long-term advocate for gender equity and more broadly for diversity across all areas of the STEM sector.

Introduction

Early- and Mid-Career Researchers (EMCRs) are disproportionately affected by the biases that currently exist in the STEM sector. A variety of factors intersect in this time period of a researcher's career such as career instability due to short term contracts, intense competition for grant funding, a lack of female role models and mentors in senior positions and the choice to start a family, which collectively result in large numbers of women leaving research and, in some cases the entire STEM sector.

The systemic biases that currently exist are inefficiencies across the entire STEM sector, which result in barriers preventing the full participation of women in STEM careers. The EMCR Forum takes the position that systems and changes made to counteract these inefficiencies will likely not only ensure the full participation of women and gender diverse individuals in the STEM sector, but also benefit men in the sector, by creating a more diverse workforce, enabling greater flexibility in work, greater work life balance and more acceptance of taking on caring responsibilities.

We strongly encourage the Government to take an intersectional approach to the National Strategy to ensure that issues impacting on women in STEM who are also members of a minority group - for example Indigenous women - are addressed within the new strategy. Furthermore, we encourage the Government to strive for transformative change with its

National Strategy and recognise that broad cultural changes required to enable the participation of women in STEM can, if applied judiciously, also positively impact the broader inclusiveness of STEM and society as a whole.

Responses to consultation questions

1. Do you think the identified issues affecting women and girls in STEM education and careers are correct? Are there other key issues that have not been identified?

The issues identified in the discussion paper are important contributing issues that affect the full participation of girls and women in STEM careers. Based on ongoing conversations with EMCRs we recommend that the following issues also be considered.

While systemic and individual biases as well as gendered stereotypes all contribute to the poor relative assessment of women in STEM, the current definitions of merit used during assessment processes also contribute. Many criteria currently used have gendered expectations associated with them, that is men fitting these criteria are viewed positively within society, whereas as women displaying the same traits are viewed negatively. For example, women who are direct in conversation can be seen as aggressive and hostile while men displaying the same behaviour may be viewed as assertive. Similar attitudes are present with regards to the vigorous self-promotion required in grant and job applications.

EMCRs frequently report that they are encouraged to undertake a variety of activities alongside their research, including outreach activities, service on committees, and organisation of conferences. However, these activities are not adequately included in assessments for promotion, grant funding applications or job interviews. The data shows that these activities are more frequently undertaken by women. For example, women are the primary drivers of Science in Australia Gender Equity (SAGE) self-assessment teams within institutions. Anecdotal evidence also suggests that the type of committees that women are invited to participate in tend to focus more on pastoral care (e.g. Wellbeing Representative) and there is the expectation that women take on more of these pastoral roles compared to men. Importantly when it comes to relative assessment of service commitments undertaken by men and women, those in which women are involved are judged to carry less weight in promotions applications than those men are invited to.

Many assessment processes do not adequately allow for 'relative to opportunity' assessments or appropriately consider the impact of career interruptions or ongoing caring responsibilities. **These assessments should be clearly defined with standard metrics and normalised as part of application processes**, that is all applicants should be asked to address these questions. In some current processes applicants are required to ask for exemptions or to individually seek out mechanisms to describe factors that have impacted their career progression. Normalising relative to opportunity assessments would benefit people of all genders and contribute to the required cultural change.

The Government has the opportunity to positively impact on these systems particularly as they relate to funding research. Addressing systemic biases in the funding systems will not only facilitate retaining more women in the STEM academic sector, it will also **send clear**

messages to that sector that their internal practises in assessment and promotion of individuals should also reflect these practices.

2. What role can Government best play in addressing the issues of gender inequity in STEM fields?

The EMCR Forum encourage **the Government to act as an exemplar in the gender equity space**. Whilst it is important for the Government to support targeted initiatives to tackle gender inequity, its greatest impact will be in influencing the broad societal changes that are required in order for targeted initiatives to succeed long term. These broad societal changes are essential in increasing women's participation in STEM but will also enable women to participate more fully across all sectors of the Australian workforce and at all levels of employment.

The EMCR Forum encourages the Government to consider:

- Becoming an employer of choice for women and gender diverse individuals. This applies not only to research within state and federal public sector agencies and departments, but also throughout Government and our elected representatives. A key issue is finding mechanisms to ensure women reach leadership positions and remain supported within STEM and non-STEM Government departments.
- Issues around the affordability and equity in provision of childcare. Solutions in this area should encapsulate thinking further than early childhood, including after school care, holiday care, and appropriate options for secondary school aged children.
- Workplace arrangements that enable and normalize other types of caring responsibilities, including but not limited to caring for family members or friends with a disability, mental illness, long term illness or affected by age-related frailty.
- Levers that influence men to take on greater caring responsibilities, including cultural change that normalises and allows men to take parental leave and work part time.
- Flexible working solutions should be framed as a benefit for all genders and part time work not de-valued.
- The importance of role models, mentors and sponsors of all genders and how Government can encourage these.

Another very important role for Government is to ensure that Government funding for research is equitably distributed and that funding bodies are functioning to best practice standards with respect to equity in their processes. We encourage the Government to explore new policy frameworks within the Australian Research Council, the National Health and Medical Research Council and other research funding bodies which ensure this equity is in place. Significantly, these funding bodies are very powerful stakeholders in the academic sector and have a role to play in positively influencing the culture and practices of the academic sector.

- For Fellowship funding we recommend that following assessment of fundability, the successful applications are divided by gender and then equal numbers of Fellowships are funded for each gender.
- The NHMRC should be encouraged to evaluate the impact of recent changes to their grant programs on the success rates of women and adjust their approach if warranted.

- Funding bodies should investigate the best mechanism to ensure that equity is achieved in programs where teams of researchers are funded, noting that quotas in this framework may result in unintended consequences.
3. What role should the science and research community, along with industry, play in addressing these issues?

There is a large role for the science and research community to play in partnership with Government in addressing gender equity issues. We particularly encourage employers of EMCRs to examine their practices with respect to gender equity. We look forward to actively contributing ideas to the Decadal Plan for Women in STEM to inform best practice in this area.

4. Are current initiatives focusing on the right areas? What existing initiatives do you think are particularly effective at encouraging greater participation of women and girls STEM education and careers (including those managed or funded by Government, and those led by the science, education and industry sectors)?

Many existing initiatives focus on encouraging girls to study STEM subjects and join the STEM workforce. It should be recognised that the value of these initiatives is limited to areas such as engineering, physics, mathematics, and information technology where women are under-represented in student populations. There are many other STEM areas where female representation in student numbers equals or even exceeds males. It is important across all discipline areas that **initiatives focus on retention of women in STEM careers and on ensuring their equitable promotion.**

5. What gaps exist in current efforts that the Government could address?

There are not a lot of initiatives that are currently focussed on affecting cultural change. The Science in Australia Gender Equity (SAGE) pilot is enabling universities and other research institutions to examine their practices and identify particular areas where they can specifically improve. This type of initiative has the potential to affect cultural change across institutions and more broadly. However, it currently places a substantial burden on institutions to undertake self-reporting, one that falls mostly on women.

The Government has an opportunity with the National Strategy to take a holistic view of the current programs and ensure that administrative burdens are minimised and effort is focussed. Programs with similar aims could be streamlined or their assessment processes aligned such that accreditation under one system also fulfils requirements under other systems as appropriate. **The initiatives that Government sponsors should be based on clear evidence of effectiveness and accompanied by robust and transparent evaluation programs.**

Studies show that women are significantly disadvantaged in the workplace in terms of recruitment and promotion due to unconscious bias, particularly in STEM disciplines. Training programs to increase awareness of unconscious bias can assist in addressing this issue. We recommend that the Government investigate mechanisms to mandate this type of training as part of workplace inductions, similar to workplace health and safety requirements.

6. Is there anything else the department should consider in developing the Strategy?

We encourage the department to use **intersectionality as a guiding principle** to underpin the National Strategy. This should involve consultation with a wide range of minority advocates as the process proceeds and the EMCR Forum would be happy to assist from an EMCR perspective. A focus on intersectionality will mitigate against an outcome where privileged women are supported under the National Strategy and marginalised women and gender minorities are further disadvantaged. Furthermore, the National Strategy should be **explicitly inclusive of individuals who have non-binary gender identities**.

Many recent Government initiatives have emphasised the importance of mobility between areas (Government, academia, private enterprise) within the research-innovation sector in order to achieve economic success. EMCRs have been encouraged to envisage their future careers with this mobility in mind and many are actively pursuing this type of career already. It is therefore important that the National Strategy for Women in STEM encompasses initiatives to address all areas and types of employers within the sector. It is particularly important for Government to consider how it might influence private enterprises to pursue initiatives that promote gender equity.

The department should ensure unrealistic targets on women's participation are not set, as this can have the unintended consequence of significant burden being placed on existing women in the sector. Therefore, programs that aim to increase participation need to include initiatives that ensure this burden is equitably spread or not placed only on women. For example, the drive for greater equity in conference speakers can result in conference fatigue amongst high profile women in disciplines that currently have low female participation rates. The STEMOnline project funded through the 2018 Women in STEM and Entrepreneurship grant program has the potential to counteract this risk by promoting a broader collection of women across STEM disciplines.

Conclusion

As the voice of Australia's future science leaders, the EMCR Forum provides an existing mechanism for the department to engage with and support women EMCRs in STEM. We strongly encourage the **department to develop and strengthen partnerships with the EMCR Forum and other representative and advocacy groups**.