

# EMPOWERING DIVERSITY IN SCIENCE

A keynote address presented

By

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## **Introduction**

Empowerment as a concept, has different definitions and usage depending on the context. I prefer the Wikipedia definition of empowerment which is the degree of autonomy and self-determination in people and in communities. This enables them to represent their interests in a responsible and self-determined way, acting on their own authority. It is the process of becoming stronger and more confident, especially in controlling one's life and claiming one's rights. Empowerment as action refers both to the process of self-empowerment and to professional support of people, which enables them to overcome their sense of powerlessness and lack of influence, and to recognize and use their resources. As a process, empowerment means obtaining basic opportunities for marginalized people, either directly by those people, or through the help of non-marginalized others who share their own access to these opportunities. It also includes actively thwarting attempts to deny those opportunities. Empowerment also includes encouraging, and developing the skills for, self-sufficiency, with a focus on eliminating the future need for charity or welfare in the individuals of the group. Diversity in Science on the other hand, refers to cultivating talent, and promoting the full inclusion of excellence across the social spectrum.

Empowering diversity in science will therefore entail creating an enabling environment for the full inclusion and active participation of talents across the social spectrum in the society. This includes people from backgrounds that are traditionally underrepresented and those from backgrounds that are traditionally well represented, e.g. women, people of colour, white male, people living with disability and other socially marginalized groups.

**Why does it matter? Why should diversity be encouraged? Why do we need to mainstream diversity?**

1. Diversity is critical to excellence

2. Lack of diversity represents a loss of talent - A more representative workforce is more likely to pursue questions and problems that go beyond the narrow slice of humanity that much of science (biomedical science in particular) is currently set up to serve. Widening the focus is essential if publicly funded research is to protect and preserve its mandate to work to improve society. For example, a high proportion of the research that comes out of the Western world uses tissue and blood from white individuals to screen drugs and therapies for a diverse population. Yet it is well known that people from different ethnic groups can have different susceptibility to some diseases. Other examples include studies in body mass index (BMI)
3. Enhancing diversity is key to long-term economic growth and global competitiveness
4. It is the right thing to do — both morally and to help build a sustainable future for research that truly represents society.
5. Leads to more productivity: Studies suggest that a team with a good mix of perspectives is associated with increased productivity.

### **How can we increase diversity in science or how do we empower diversity?**

1. Increase enrolment of the marginalized
2. Incentives like scholarship for girls
3. Career talks
4. Reaching out to under-represented communities, to encourage teenagers who might otherwise not consider science as an option.
5. Even the wording of job advertisements can put people off — candidates from some backgrounds might be less likely to consider themselves ‘outstanding’ or ‘excellent’, and so might not even apply.
6. Diversity efforts should not stop when people are through the door. To retain is as important as to recruit — mentoring and support is essential for all young scientists, and especially so for those who have been marginalized by academic culture.
7. Projects to boost participation are often the passion and work of a few dedicated individuals. More institutions and funders should seek, highlight and support both the actions and the individuals.
8. Pick numerous and different reviewers: the composition of programme committees should be different year after year;
9. Encourage the multiplication of conferences, journals and workshops;

10. Provide funding to more researchers (spread the money more evenly);
11. Mix researchers from different organizations (universities, government, industry);
12. Do not reward researchers who always publish in the same small set of conferences or journals (the same where they often act as reviewers);
13. Mix researchers having different backgrounds.
14. . Researchers need to open up their data and their code. This will ensure that more people can check the facts. It should lead to better science and more diversity.

### **Empowering Gender Diversity in Science – Does Gender Matter?**

Gender here refers to the societal definition of femininity and masculinity, which comes with expected roles, rights and privileges. This results in the unequal valuing of the work of men and women in the society. Despite advances in equality of men and women in the sciences, disparities still remain, and there is certainly more work to be done, particularly in the engineering, computer sciences, mathematics, and physics fields, which are categorized as low participation fields for women. A huge factor in breaking down barriers for women is to recognize bias that results from sexism and then disprove those stereotypes. STEM has been predominantly male-driven, and gender bias continues to be pervasive. Stereotypical mindsets and stigma act as deterrents. To drive home this point I will share this story about Dr. Ben A. Barres as told by Melanie Preston:

On December 27, 2017, the life sciences community lost a pioneer in neurobiology and an advocate for equality in science. Dr. Ben A. Barres passed away at the age of 63. His work focused on the critical role of glia (non-neuronal cells) in the brain and how they interface with neurons to maintain cognitive function.

Equally remarkable was the more personal side of his life. In 1997, Dr. Barbara Barres transitioned from female to male and lived the remainder of his life as Ben Barres. In 2006 in response to several statements blaming gender imbalance in STEM fields on women's innate in-aptitude, Ben wrote a Commentary in Nature that touched on his experience as a female scientist versus how he was treated as a male scientist. Prior to transitioning, he was often dismissed or interrupted but had a completely different experience as a male scientist. Dr. Barres even recounted that he overheard a colleague praising a seminar he gave, and adding that his work was "much better than his sister's". The colleague was unaware that the research was the same and that he was talking about the same person.

Another trend according to D'Cruz (2021) is that women tend to market and promote themselves much lesser as compared to men. There is also the inclination to not highlight their achievements and successes. This is reiterated in an internal report by Hewlett Packard which showed that men apply for a job when they meet only 60% of the qualifications, but women apply only if they meet 100% of them. This prevents women from advancing to more senior roles. Addressal of these challenges can bridge the gender gap and support the retention of women in science.

## **Conclusion**

In conclusion, we need to develop a mindset that diversity is important in science, and especially, inclusive diversity which is a prerequisite for scientific excellence and advancement. Diversity alone will not give us the benefits of scientific discoveries and innovation so efforts should be made to ensure inclusive scientific teams and workplaces. Let's also go beyond diversity in the familiar context of race, religion, sex and embrace *multidisciplinarity* in our research team composition. Let's have team members from the natural, applied and social sciences.

## **References**

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