

Women in Research and Development

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Abstract

The world is progressing by leaps and bounds when it comes to women coming to the forefront and proving their mettle in diverse fields like space research, politics, bureaucracy, business administration, literature, science and arts. Gone are the days when the woman was confined to the four walls of the house, and her role was limited to family and child care. It feels great to see that the women have finally found the light at the end of their centuries-long journey through the dark tunnel of anonymousness. It's an indisputable fact that the acclamation and stature that the women have been receiving in the past few decades is something that they deserved long back.

However, in the field of research and development, the odds aren't still in their favor. The gender-biases here are so deep-rooted that we've still not been able to overcome that. The reasons for the underrepresentation of women are manifold: lack of programs to recruit women scientists, and the absence of mentoring programs within institutions to provide professional support, lack of career re-entry programs to encourage women scientists to resume their careers after taking a break to start a family, etc. This paper analyses all these situations in detail and suggests possible measures. Despite the efforts of certain private and government organizations slight increase in the inclusion of women in technology companies has been witnessed in recent years, but the representation is still very disappointing, particularly in leadership roles.

Keywords- *Women, Research, Development, Representation, Statistics, Gender inequality, Participation, Opportunities*

INTRODUCTION

In the Indian context, the participation of women in research and development has witnessed significant growth. This growth is often contributed to the high aspiration of women regarding their career and their parental support for the same. Unfortunately, a huge fraction of

girls is required to attend their native universities that are close to their homes as their folks can't send their daughters to strange towns, not for the purpose of education. The sort of treatment that is meted out to the girls with respect to their career is hugely dependent on their class and the academic standing of their parents. Today 53.5% of young

ladies below 30 have University degrees. Finally, something is feasible with diligence and determination. The multitudes of laurels that the girls are bringing are important reminders that the gender scenario of faculties, colleges, offices, courts, police stations, hospitals, hotels, and business institutions needs to be altered. The ladies are out there, carving a niche for themselves, conquering the world. Although there's no organized women's movement in the country as of now, the success of women in various fields is astonishing.

Just 28 percent of total researchers in R&D are women, according to UNESCO's global statistics. There is no denying the fact that there are still significant gender differences between men and women scientists in terms of pay and their level of responsibilities. The work designated to the female scientists is mainly in government and academic institutions. On the other hand, their male colleagues are more involved in the private sector, where they are at an edge in terms of pay and opportunities (UNESCO Institute for Statistics, 2015). Additionally, women scientists are still marginalized with restricted leadership opportunities in the lower strata of authority and decision-making. Female scientists are mostly lecturers and assistant researchers, and very few are professors, while they are never research directors or lead investigators in major studies at academic institutions.

Reason of Under-Representation of Women

Departments of universities and research institutes are mostly headed by men, who often hold important positions of responsibility in the hierarchy. Persistent gender inequalities and ingrained prejudices within these organizations

create an often difficult work climate for women scientists. Besides, the lack of programs to hire women scientists combined with an uncertain career path and the lack of formal mentoring services to provide professional support continue to make it difficult to attract and retain women scientists in this field.

Lack of gender-friendly policy mechanisms, such as offering workplace childcare facilities or lack of career re-entry services to enable women scientists to restart their careers after breaks to start a family, lead to women scientists leaving the science profession and eventually widening the gender gap in health research. It is compounded by the lack of gender-sensitive recruitment strategies to ensure women can succeed in their careers. These strategies not only deter others from pursuing long-term careers in science but also lead to women leaving the field to pursue other professional ventures. Individual factors also affect women's decision to pursue research careers. Lack of career resources, such as mentors, networks, and incentives for professional growth, along with social norms, such as raising a family over career pursuance, discourages many from attempting a future in research.

Why is Gender Diversity Important?

The question is, why would companies devote themselves to including more and more women in their organizations? Achieving the right balance of gender diversity will play a key role in changing companies, fostering creativity in the workforce, and even empowering the next generation to play a major role in the future of technology is involved. The media also put promotions into technology professions to draw more women into technology-based careers "more women for women's sake"

(Rojas 2015). Improving technical gender diversity, however, is not just the new CSR initiative; it is a strategy for providing more skilled and efficient workers with better business outcomes.

According to the CIO article by Barbara Annis (Gender Intelligence Expert), not only do you save money and minimize employee turnover, but you also boost brand value when you have women leaders in your organizations. Research shows that women bring important insights and strategies to the cycle of producing ideas, which leads to simplified approaches to complex issues. Like Google, the participation of more women in technical roles should increase, especially because a case study by McKinsey shows that 12 trillion dollars could be added to GDP by 2025 by simply advancing women's equality (Holly Grogan 2016).

In 2009, USA Today contrasted the stock performance of thirteen Fortune 500 companies with female CEOs with the stocks of the overall S&P 500 companies and found that the companies with women leaders were better off with an average of 50%, while the S&P 500 was around 25%. Similarly, The Economic Times in India also conducted a similar analysis of the BSE 30 companies of India in 2009 and concluded that the companies with women promoter CEOs had done better in the last five years' annual growth rate than the BSE 30 as a whole. According to the Gallup Report 2014, a survey of more than 800 business units spanning two distinct sectors- retail and hospitality - shows that gender-diverse businesses have a higher financial output than those dominated by only single-gender.

As in the retail sector, gender-based companies had comparable revenues on average 14% higher,

and in hospitality, 19% higher than the overall quarterly net profit.

ACTIONS TO PROMOTE WOMEN'S PARTICIPATION IN R&D

Recognizing the problems that are faced by women, attempts are being made to promote their participation in research. Internationally, Resolution 2011/17 of the United Nations Economic and Social Council on Science and Technology (S&T) supports the role of women and girls pursuing careers in science through education, training, and S&T. Many agencies of the United Nations have undertaken unique initiatives to help women in science, including implementing projects and mechanisms that actively encourage their participation and leadership in science.

Although it has been widely acknowledged and established the fact that the number of females in research across the world has increased from the late 1990s, the under-representation of female researchers and inventors in upper positions of the administrative hierarchy continues. Hence, there still exists a lot of room for reforms and improvements that can be brought at all levels to achieve the equality we seek with respect to gender. It is extremely significant to be outspoken about what needs to be done to retain and further increase the representation of females in research and development and bolster their career development path.

1. Government initiatives
2. Transparency in the recruitment process
3. Training and education of girls
4. Engaging leadership opportunities at Universities
5. Role-models and mentoring

6. Work-life balance

Indian Women Participation in R&D

According to a Report by National Task Force on women in science report, out of the total Indian workforce engaged in Research and Development, only 15% of them are women, in contrast to the world average of 30%. The Research and Development Statistics 2017-18, collated by the Department of Science and Technology (DST), does not paint a favorable picture for women in science. It was concluded in the report that the engagements of women in extramural R&D projects have gone down from 33 percent in 2013-14 to 29 percent in 2014-15. For the men, it had increased from 67 percent in 2013-14 to 71 percent in 2014-15.

In the year 2000, the Department of Science and Technology (DST) launched exclusive schemes to bolster women to take up a career in Research and Development (R&D) in Science and Technology (S&T). DST has launched the DISHA Program for Women in Science to tackle these issues and has made a concerted effort not only to promote the re-entry of these women into mainstream science by offering them opportunities to pursue R&D, take up ventures with distinct societal effect and explore a career in the field of intellectual property.

In the year 2014, DST reorganized the programs focused on women under one umbrella called “KIRAN (Knowledge Involvement in Research Advancement through Nurturing).” Via KIRAN, DST tackles not only numerous issues related to women scientists (unemployment, break-in jobs, relocation, etc.) but also provides opportunities in science communication, research, technology, entrepreneurship, development/demonstration,

and self-employment. Besides that, Consolidation of University Research for Innovation and Excellence in women universities (CURIE) is another section of KIRAN that focuses on the development of state-of-the-art infrastructure for multitudes of women to benefit from it by improving their S&T knowledge and skill set to make a fulfilling career in this domain besides promoting research culture in such institutions.

CONCLUSION

While the population of women who opt for a technology career has seen a growing increase in recent decades, women's representation in senior positions remains a challenging task. One of the key reasons for women's under-representation in senior roles in technology is the question of women's retention after a certain time of life, as they are going the family way. As has been found in the above-cited researches, there are tremendous benefits of having gender diversity directly related to the bottom lines within the company, and hence it is vital to retain female workers to build a balanced mix of women and men in the technology workforce. The absence of role models and mentors is one of the main reasons why companies have struggled to attract women in the fields of technology. The corporate workplace climate needs to be improved by making it more women-friendly and providing them with a healthy workplace.

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