



A Global Scenario of Women in Science and Technology

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Abstract: Ideally, ratio of women and men should be 1:1, but in practical it is totally nil. There is an absence of state of equilibrium throughout the world. Women's participation is very meager in all areas compared to men especially in science and technology. Focusing on reasons, causes, interventions of women in this area, why they are lagging behind, what are the main circumstances made them to stop for foregoing in different fields. Women participation in science and technology is widely recognized as an economic growth, sustainable development and a driver of innovation. Despite notable progress over recent decades, significant gender disparities persist across various regions, disciplines and career stages in science, technology, engineering, mathematics. Globally, women remain under represented in advanced technology and in emerging technological fields like artificial intelligence, data science and data operators. The research studies experimentally proved through survey reports and statistical data of women in science and technology globally. In the present situation, how far it is possible to overcome the science education of women. The present abstract examines the current global landscape of women in science and technology, highlighting regional trends, persistent obstacles and emerging opportunities. It is not a matter of equity but also a strategic imperative for addressing complex global challenges. Women who aspire to become scientists continue to face numerous challenges both within their families and in society. Deep rooted superstitions, patriarchal mindsets and the misconception that working late hours in laboratories is inappropriate for women remain significant barriers. Women are often underestimated, viewed as incapable of achieving meaningful success, denied equal opportunities and supportive policies. A lack of encouragement from family members, difficulties in balancing personal and professional life at a time, the persistence of child marriages-despite the awareness that education is essential for every girl to become intellectually empowered – further hinder their progress, because of these obstacles, many women are prevented for realizing their potential in scientific fields. Therefore, this abstract highlights the names of a few pioneering women scholars who endured numerous struggles and emerged as trailblazers across the disciplines of science and technology. By presenting them as role models, this work expresses the hope and determination that today generation of girls will draw inspiration and move forward with confidence in the scientific domain.

Keywords: *Emerging technologies, superstitions, underestimated, numerous struggles, trailblazers*

Introduction

Paradoxically, there is a rapid increase of women participation in science since the past 60 years. It has accompanied by an increasing gender differences in both productivity and impact. Gender inequality in academia helped the conversation around the sustainability of women's career in academia. Women in higher education show steady rise but enrolment in top institutions not growing as much.

Gender Bias in Education

Gender biases are severe in India. In a country both women and men are denied the basic right to education, then where is the possibility that women can lead the positions in different areas of education. At least some of the educators come forward to create awareness among public from primary stage by injecting the good seeds of education in their minds. Through this, we can expect a few changes to some extent.

Reasons for Poor Representation:

There are many number of reasons of women's under representation especially socio-cultural and economical. Practice of discouraging girls in India from pursuing secondary education is more common. Marriage is one of the major instrument in rural areas to stop the education of girls. Though they have knowledge and skills, eagerly interested to continue the studies also parents are not allowing them to carry forward in education. A stereo type of mindset has been accumulated that boys are superior to girls in the field of science and technology. There is a general perception in India that girls and boys' scientific capability will differ but the programme for International Student Assessment measured the learning achievement of the 15-year-old from 40 countries show the boys and girls performance at similar levels in science.

Case Studies: In the recent period also, especially in rural areas, the population is more, each family possess four to five children, among them each are allotted to do some work for their financial settlement. In most of the tribal areas, they are refused to send the children to school. This is one of the main drawbacks for the decrease of education of women around the world.

Statistical Data and Survey Reports:

According to National Science Foundation, women comprise 43% of the US workforce for scientists and engineers under 75 years old. 24% female scholars in 127 institutions at National level. 14% of Indian researchers are found in the data. The biggest gap is at undergraduate level, where there are 26,736 females as compared to 96,724 males, similarly in postgraduate level females are 12,819 in a population of 50,201. AISHE data also indicates a shift in preference as increasing number of students opt for science professional programmes. Among 13000 editorship positions on 435 mathematics journals only under 9% of all mathematics editorial positions are held by women are found. The UNESCO institute for statistics updated its global database on research and experimental development with more recent counting level data to monitor progress towards the sustainable development goal on industry, innovation and infrastructure, which includes new data for 45 countries, updated time series data, indicators on the human and financial resources, invested in research and development and share of women researchers.

Stepping Stones: Encouraging girls to raise their voice confidently. Discouraging conventions based on gender. Government of India is trying to empower the women in the field of science and technology by introducing number of schemes in the form of scholarships and other benefits. Science and technology policy 2003 of Indian Government ensures the full and equal opportunities of women everywhere in these fields. It suggests meeting their needs through flexibility in rules and regulations. Moreover, IIT's, CSIR and major higher educational institutions providing monthly income to researchers, abroad opportunities etc., Creating awareness among parents should play a crucial role in the development of women in the field of science and education. To continue higher education of girls the strength of women faculty in universities must also increase, especially the percentage of Ph, D admissions are very less due to many reasons. To overcome this, the government must implement safety and security measures in the laboratories to complete their research work fruitfully.

Achievements of Women: CSIR recognized the outstanding scientific work by the researchers presenting Shanthi Swaroop Bhatnagar award on various areas of basic and applied sciences. Among 520 scientists only 16 are women scientists. Mathematics-2, Physics-1, Chemistry-3, Biology and Medicine-7, Earth science-1, Engineering-2. In the history of Nobel Prize till date, only 51 women scientists were awarded against 853 men, among them 15d women scientists belong to the field of sciences.

Colourful Fragrance of Beautiful Roses: In the present studies, some of the golden illustrations have been considered as a worthwhile fragrance of roses.

Marie Curie: One of the role models and the first Nobel Prize winner in Physics in 1903 for researches on the radiation phenomena and the first woman to receive Nobel Prize and the first person to win second Nobel Prize in 1911.

Asima Chattarjee: She was the first Indian woman to earn a doctorate in Organic Chemistry from the Rajabazar Science College Campus of University of Calcutta. She is known for the development of anti-epileptic drug, Ayush-56 and antimalarial drugs.

Janaki Ammal: She was an Indian Botanist who conducted scientific research in cytogenetics and phytogeography. Her work involves on sugarcane and brinjal. She has collected various medicinal plants also.

Nandini Harinath: She is a rocket scientist at the Indian Space Research Organization and worked as deputy operations director for the Mangalyaan mission.

Anandibai Joshee: She is the first Indian women doctors to learn and practice western medicine. She became the physician-in-charge of the female ward at Albert Edward Hospital in Kolhapur.

Dr. Indira Hinduja: She is an infertility specialist who introduced Gamete Intra Fallopian Transfer and delivered India's first test tube baby.

Darshan Ranganathan: She is famous for her work in the area of bio-organic chemistry such as supramolecular assemblies, molecular design, synthesis of functional hybrid peptides and nanotubes.

Tessy Thomas: She is known as the Missile Lady because of the successful launch of Agni series of missiles. She was the project leader for the Agni-IV and Agni-V missile in DRDO.

Shubha Tole: She has contributed a lot in the field of neuroscience. She discovered a master regulator gene which controls the development of the brain's cortex hippocampus and amygdala and a recipient of Shanti Swaroop Bhatnagar award in 2010.

Kadambini Ganguly: The first woman physicians in India who practiced medicine at a very controversial period of women education, her scientific services are vital to women patients, but her recognition remained under the shadow.

Bibha Chowdhuri: A woman who remained under the back of the screen and has an enormous contribution in cosmic ray physics.

Anna Mani: At that time another geographical science relating to atmosphere who proposed weather instruments for India as a physicist and meteorologist. Due to traditional pattern, she was also overshadowed by her male contemporaries.

Kamala Sohonie: To earn a Ph. D is a dream of every girl educator, the fellow who successfully fulfilled her dream and her contribution on nutritional science and enzyme activity benefitted a lot for the welfare of the society.

Kalpana Chawla: The name always melts at the tip of the tongue of every human being, her contributions towards aerospace engineering is marvelous.

Rajeswari Chattarjee: A masterpiece in the field of microwave and antenna engineering who contributed in defence and communication technology also.

Aditi Pant: The contributions made by her towards marine science and climate research as a first oceanographer who participated in Antarctic expeditions.

Ritu Karidhal: A key mission scientist behind Mangalyaan who inspired many youngsters through her technical leadership and a brain of marvelous ideas.

Shyamala Gopinath: The person who has been treated as a goddess of Lakshmi in strengthening the Indian financial infrastructure system, policy domains, digital financial operation, banking technology in STEM.

Gagandeep Kang: A leading virologist on enteric infections and vaccines had a major public health impact in India.

Manjula reddy: The person who made a lot of contributions towards bacterial cell division and antibiotic resistance still utilizing in medicinal science for different cell growth systems.

Sulochana Gadgil: It's a difficult task to understand Indian climate system and weather prediction, but her work has a significant impact on the atmosphere and agriculture.

Charusita Chakavarthy: An international reputed scientist in molecular and statistical thermodynamics focused on fundamental chemical theory which inspired younger minds.

Nalini Nadkarni: A globally respected pioneer of canopy ecology in which her Indian roots and legacy are emphasized in different STEM techniques.

Chitre Mandakini: As an astrophysicist enormous contributions made to high energy astrophysics and science education in India.

Kamal Ranadive: The research contribution focused on the links between cancer and hormones and played a key role in building scientific institutions for women.

Conclusion

It's the time to wake up the younger minds towards the science and technology to create wonders in the world. Unfortunately, there are very few women in science and technology who could act as role models for the future young female generation. Take a chance to develop an echo system in schools and colleges to encourage girl students towards higher education by involving parents, teachers, administrations, stakeholders, governments both state and central, some of the private organizations to put maximum efforts to develop them. Encourage the secondary girl students through scientific experiments in the class daily so that their wavelength reaches the aptitude. Abolish and eradicate superstitions from the grassroot levels of the mind. Create a healthy and positive energy for their future to cherish like beautiful colourful butterflies. Encourage the institutions for promoting gender equity to narrow down the gender gap. First gender equality must start from home only. Finally conclude with a golden and evergreen sentence **IF WE LOSE WOMEN, WE LOSE LOTS OF CREATIVE MINDS.**

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