WOMEN IN INDIAN ENTREPRENEURSHIP AND INNOVATION; ISSUES & CHALLENGES

Dr. Nidhi Tyagi[*]
Ms. Hema Pancholi[**]
Mr. Amit Kumar[***]

Abstract

In the present scenario women are dominating the field of innovation, technology, science and entrepreneurship but even today there exists a significant gap before females can achieve parity with men. The present paper attempts to trace the historical role of women in entrepreneurship through review literature survey and the challenges to female participation in the field of innovation in STEM (Science, Technology, Engineering and Mathematics) fields in India in the emerging economic scenario. In the present study the survey revolves around a round table discussion with the recognized and distinguished women academicians, entrepreneurs and scientists as well with respect to the barriers and challenges to the participation of women in the field of Indian entrepreneurship and innovation and the ways in which it could be facilitated.

Keywords: *Entrepreneurship, Innovation, Science, Technology, Women Entrepreneurship, Gender, Commercialization.*

INTRODUCTION:

In the present scenario when it comes to the development and progress of entrepreneurship and innovation the role of gender becomes prominent. Most of the studies have applied gender based lens to study the innovative measures

*Associate Professor, Department of Humanities and Social Sciences, Graphic Era (Deemed to be University), Dehradun, Uttarakhand, India

** Research Scholar, Department of Humanities and Social Sciences, Graphic Era (Deemed to be University), Dehradun, Uttarakhand

***Assistant Professor, Law College Dehradun, Uttaranchal University, Dehradun, Uttarakhand, India, 248007

taken from the end of females for instance, filing of patents. However, most of the striking findings of the study on the topic reflects a number of initiatives taken by the women with respect to innovation and entrepreneurship but still there exists a wide gap when it comes to parity with men in the same field. Report on women innovation suggests that females will not be able to reach parity with men when it comes to filing the patent till 2092. Hence, there is a need to understand the reasons behind these disparities and the influence of these disparities on women in general and society at large. At the same the study delineates the possible solution to the problem.

The study is more important in advanced contemporary society where the majority of the dominant fields be it innovation, technology, entrepreneurship, science and many other fields are exclusively being dominated by women as a current initiative taken the Indian Government. The paper proposes to review the literature and then proceed with the panel discussion on related topic and issues in the context of Indian society.

The lower is the participation of women in innovation and technology the larger it has socio-economic implications. Studies reflect that around 90% of the women spend an additional income attained on human resources for the families only. Health, education, nutrition are in all included in and this ratio is very low as compared to men. If the proportion of women be more in entrepreneurship and as innovators it will directly impact the families, communities and society at large positively.

The second immediate and direct influence is that of the creation of job. Survey conducted by Global Entrepreneurship monitor in 2012 indicated that in totality 126 million women are either starting a new business or running the same. Whereas 98 million of them are running an established business. Out of these 112 million of women entrepreneurs employed one or two people while 12 million of them expects to hire up to six people in the next forthcoming years which clearly indicates a total of 72 million jobs. Thus, gender disparity in innovation and entrepreneurship represents lost prosperity and developmental growth. Countries facing larger proportion of gender gaps in labor force participation incurs a wide loss of income i.e. around 30% of GDP per capita. It is for this reason that reducing the gender gap and encouraging female entrepreneurship are essential for the economic growth and development of the nation thereby reducing the proportion of poverty in any country.[1] With

[1]T. Tambunan, "Women entrepreneurship in Asian Developing Countries: Their Development and Main Constraints" Journal of Development and Agricultural Economics 27-40 (2009)

the help of these entrepreneurial activities women not only create vocations for themselves but generating employment for others as well thereby producing income for the sustenance of their families and communities. By generating employment women not only gain economic autonomy but they are serving the markets with valuable services and products as well. They simultaneously reduce the level of social exclusion and contribute in the economic prosperity.

As the discussion revolves around women in the field of innovation, it is necessary to take into consideration the barriers faced by women entrepreneurs which limits their entrepreneurial potential .Some of the prominent factors include a) Issues pertaining to gender-based cultural constraints specifically in the countries like India b) lack of access to capital c) lack of knowledge regarding the resources d) In developing economies lack of education e) No knowledge of markets e) lack of knowledge regarding business and no technical knowledge f) dearth of knowledge regarding communication and technology, be it internet or social media.

OBJECTIVES OF THE SYUDY:

1. To explore the case studies related to women innovation and entrepreneurship.
2. To understand the ways in which the entrepreneurship results in growth and success of the enterprise.
3. To throw light on the barriers faced by women in the field of innovation and entrepreneurship.

HISTORICAL PERSPECTIVE: It was the pioneering work of Danish Ester the Economist that brought to light the role of women in economic growth and development who for the first time conducted an evidence-based studies on the impact of the development projects on the women from diverse societies finding that the females in the third world are all excluded from the benefitsof these advanced technologically delicate programs. Historical data has been mined through several studies with a view to examine the economic activities and entrepreneurial activities of female in previous times across various economies of the world.

As per the description of historical data a major barrier to women entrepreneurs had been that they were not having the legal rights on their property and on their own earnings and thus they were unable to participate in trade or enter in business agreements without the prior permission of their husband. Until the adoption of married woman's Property act in 19th century in United States and United Kingdom that they don't have any right to inherit

property or control over their earnings. Simultaneously she faced external barriers too including lack of access to training, lack ofaccess to education including negative stereotypes and cultural restrictions against the participation of women in commercial sector.

However, women in the era of 18th and 19th century in Latin America, Europe, United States, United Kingdom were active in some of the spheres like holding patents, share, operating business etc.[2] Some of these activities were exclusively feminine for example, 19th century Corset Industry observed women not merely as consumers but manufacturers and inventors as well. Women patented their innovations in this realm and utilized them as the foundation stone of flourishing businesses. The female patent holders of the era were somewhere motivated by the market incentives just like their present day counterparts. So far as the analysis of United States in 19th century is concerned with respect to women innovation, data highlighted that more than 500 number of females were patented with more than one discovery and many of them gained income out of these discoveries. A crucial contribution to this level of activity came from the emergence of property laws protecting the individual property rights of females. States which incorporated property laws saw a higher proportion of patents which clearly indicated that legal reform has the capacity to boost the participation of women in innovation and discoveries. Adding to the same, the family firms had been a crucial source of encouraging commercial activity in women permitting them to yield a far better influence than actually have been possible.

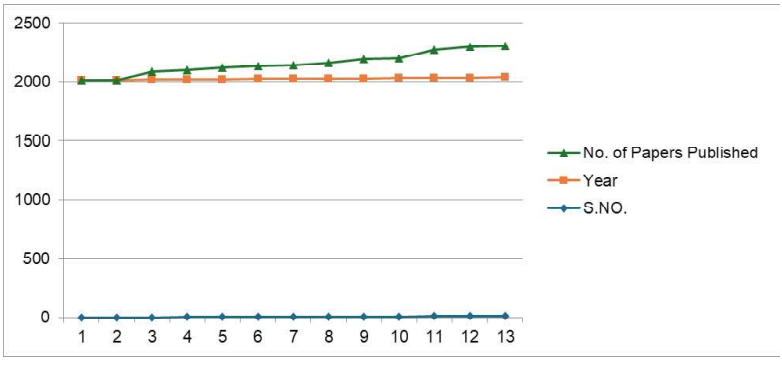
Research Methodology: An Inductive approach has been used in the study. Case study approach has been utilized as a research strategy. Research on women innovators and entrepreneurship is documented through case studies. Case study is method of choice in the study when the phenomenon is not much distinguishable from its very context and its very complex to decontextualize the enterprises without seeking voluble information. It is for this reason that case study methodology has been utilized in this study The second reason is to understand the viewpoint of indigenous people and for the purpose qualitative tools including interview and group discussions are more feasible than the actual surveys. The women entrepreneurship ventures which are in the initial stage of its development should be documented for the purpose so that one could establish the relationship for the qualitative studies. The

[2]Womenable, "Innovation and Women's Entrepreneurship: An Exploration of Current Knowledge to United Nations" *Conference on Trade and Development* (2010).

study also takes into account the number of papers published in Scopus Database, Web of Science and Reputed Journals from the Year 2014 t0 2022

Table No.01

S.NO.	Year	No. of Papers Published
1	2012	67
2	2013	83
3	2014	100
4	2015	111
5	2016	115
6	2017	131
7	2018	165
8	2019	170
9	2020	237
10	2021	260
11	2022	266
12	2023	265



Source: Trends of Publication

CASE STUDIES:

1. Deepanvita Chttopadhyay: CEO and Chairperson of IKP Knowledge park. She has been the first to develop life science and for the first time laying the foundation of developing innovative and sustainable knowledge cluster on the basis of public and private partnership model.

What are the career options for females in the field of entrepreneurship and innovation

Today a large number of women are working in multinational organizations and various other corporations who are simultaneously working on innovation programs but the number of women entrepreneurs in the field of technology is comparatively lesser. She further said that out of total number of 100 entrepreneurs funded by them, merely 07 are females, out of 400 interactions, only of 20 were women.

Are there incentives for Innovation.

On being asked it was stated that she was not sure whether there are such policies or not. But certainly she had her own observances; however there is an incubator for women in Chennai but at the same time, they focus more on low hanging fruits that is their emphasis is more on lower technology instead of focusing on high level of technological innovation and entrepreneurship. She further stated that she saw many working women who took a break from their career with a view to take training in IPR and in drafting of patents. Technology Information, Forecasting and Assessment Council (TIFAC) which has been established by Government of India aimed to set directions foe technological advancement in India has become one of the most crucial organizations.

2. Case Studies: Soft Toys creation by Phoenix

Ayoung and enthusiastic women from Chorward, Saurahastra from the country itself had a hobby of making toys in the beginning, later on it transformed into the skill of puppet making but then she converted these skills into a business. For her business does not aim at maximization of profit rather she wants to do something for society as well through women education, art and empowerment. With her innovations' she converted the idea into a business, became entrepreneur and provided job to others. The case study also assumes that with alterations in demand conditions like technology, demography, cultural as well as political institutional frameworks create certain opportunities which are not obvious to all but are exploited because only some particular individuals have the opportunity to discover these specific opportunities. There is thus a need to unleash the power of women entrepreneurship with a view to make the society and economy sustainable. But this a great irony that the traditional measures of development of economy and performance of business do not at all capture the real transformational benefits of the change inducing

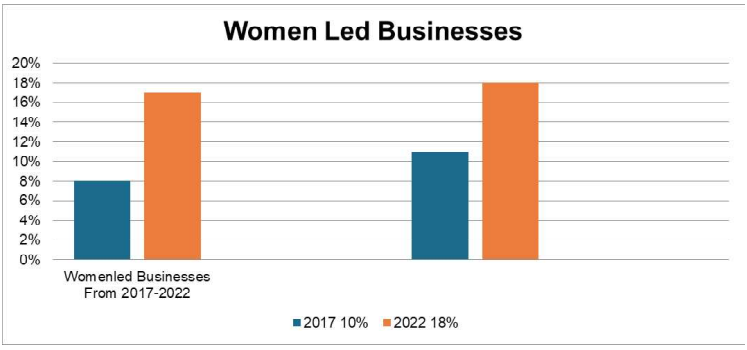
enterprises. It is to be noted that innovation is higher in growth-oriented firms where the owner's motivation and intent plays a key role in firms innovation behavior. In the present case study it was the motivation and intent which gave the success and growth to women entrepreneur.

3. Creation of Rinki from a housewife to a business woman

This is the case history of a women who not only sustained her familial but societal norms too and made her aspirations convert into reality. Rinku Lakdawala who is from a Gujrati family has five siblings is from a very modest financial background who always tried to update herself in terms of education, technology and manufacturing practices. She started her business as a dress designer from her husband's garage. In the beginning she had only hand embroidery work but later on diversified it into machinery wok as well. At present her unit consists of 7 automated machines. However, there is a cut throat competition in the field because of her continues investment in manpower and technology she is able to attain great heights. In the advanced society creativity, innovation as well as the design of product has become the key to success. Without proper market segmentation and focused orientation on profit-oriented market it is difficult to attain the success results. Thus, facing all these challenges Rinku became the most popular women entrepreneur of Surat, Gujarat. In the year 2012, she was awarded with Savani Women Entrepreneur Award. As a woman she explored new avenues of economic participation. She has proved that women are capable enough to be a successful women entrepreneur as men are.

Table No. 02: Businesses led by Women Increasing in India; Startups fueling India's Growth

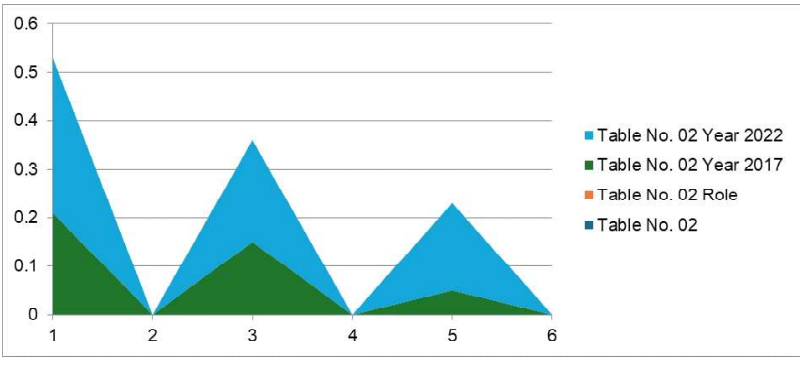
Women led Businesses From 2017-2022	2017	2022
	10%	18 %
	8 %	17 %
	11 %	18 %



Source: Businesses led by Women Increasing in India; Startups fueling India's Growth from 2017- 2022

Table No. 03: Women in Senior Role in Start- ups

Women in Senior Roles in Start- Ups	Role	Year 2017	Year 2022
	Women Managers	21%	32%
	Women Directors	15%	21%
	Women Founder CEO	5%	18%



Source: Women in Senior Role in Start- up

Women Innovators at Global Level:

4. Case Study of Cristina Junquieria: Cristina Junquieria, the cofounder of Nubank is a woman entrepreneur in finetech space. However, she was from Engineering background but she herself paved the way for management consulting and acquired the job of credit card portfolio at one of the recognized banks of Brazil. With a view to bring about a revolutionary change in the economic field. She introduced an eco-friendly app which provided digital financial services to more than 53 million of people in Latin America. This bank is one of the biggest banks of the world providing digital baking platform

to the public. Her contribution in the finetech industry as a women entrepreneur has been recognized by Fortunes 40. In most of the finetechmagines she is being recognized as the strongest start- up founders in Latin America.[3]

5. Case Study of Diane Von Furstenburg: Dian is a fashion designer, a social worker. A philanthropist and a chairman of the company. In the year 1974, Von designed a dress which became an epitome of women empowerment and later on became a global trend. She is recognized as a leader who has empowered women and supported women leaders throughout the globe. In the year 2010, she laid the foundation of DVF awards to provide the grants to women who have been the personification of women empowerment, leadership and strength. She was the one who chaired the session of Fashion Designers of America from year 2006 to year 2019. In the year 2005, she was awarded the Lifetime achievement award in the year 2016 she was awarded the Swarovski Award for bringing about positive change. Presently she is associated with Ellis Island Foundation.

6. Case Study of Annabelle Huang: Huang has been a student at High School STEM in China to having her honors in Math's from Carnegie University. Today she is a leading figure in block chain. In the year 2018. She took a leap of faith in the world of crypto currency with a viewpoint to transform the finance with the help of block chain technology.[4] At present she is the managing partner at Amber group which is one of the leading global digital asset platforms having 12 offices operation 24/7 in 06 continents. Huang has been a prominent speaker at Dubai block chainsummit, TOKEN2049 London, Yahoo finance and Coindesk. At a global level she is the mentor of Female Entrepreneurs Incubators who mobilizes women to be a part of crypto currency industry.

Barriers faced by Women Innovators and Entrepreneurs:

1. Barrier of Technological Advancement: Participation of women in labor-force is comparatively very low. Active participation of women in labor market and employment reflects women's contribution and level of economic activity. It indicates pool of percentage of women

[3]Candida G. Brush and Sarah Y. Cooper, "Female Entrepreneurship and Economic Development: An International Perspective" *Entrepreneurship and Regional Development* 1-6 (2012).

[4]Anju Malhotra, Sidney Schuler, and Carol Boender, "Measuring Women's Empowerment as a Variable in International Development" *Gender and Development Group of the World Bank* 81-88 (2002).

laborers to potentially turn into an innovation.[5] Not only in India, but across the globe the participation of women in workforce is too less. The global female labor participation rate is merely 48.5% in the year 2018, and in case of men it reached to 75%. Most of the women when work is very less likely to be in a position which could lend them to any kind of innovation. In most of the developing countries women often to entrepreneurship not out of choice but it is conditional that is to support their families as an additional source of their earning and income. It is this type of pattern which will influence the performance of females in business else in developing countries there are is more probability for them to uphill climb in making their innovative potential more successful and viable.

2. **Lack of Childhood exposure to Businesses**: The possibilities of children becoming inventors vary with particular characteristics like birth, race, gender and socio- economic class as well. It is the lack of exposure to the field of innovation which clearly explains the fact that why the talented children from lower income groups, minorities, females have a lesser chance to become inventors and innovators. All these lost contributors might have given valuable contribution had they been introduced to innovation earlier.[6] At the same time if females be exposed to inventions and innovations, the problem of gender gap in the concerned area would have halved to till date.
3. **Representation of Women in Science, Technology, Engineering and Mathematics is too Low:** The representation of women in STEM is very low which is one of the key reasons behind gender disparity in the field of innovation as well as patenting. It is a well-known fact that as the STEM degrees increases the proportion of patenting increases as well. Women are under- represented in such fields and study which are rich in innovation. It is for this reason that a major pool of women who could turn to innovation are turned down which makes the gap wider.[7] Today women outnumber men

[5]U. Premalatha, "An Empirical Study of the impact of Training and Development on Women Entrepreneurs in Karnataka" The IUP Journal of Soft Skills 44-59 (2010)

[6]N. P. Singh, P. Sehgal, M. Tinani, and Sengupta, "Successful Women Entrepreneurs – Their Identity, Expectations and Problems: An Exploratory Research Study" *Research Report Serial Two, NIESBUD/MDI Collaboration* , New Delhi (2011).

[7]A.A. Jahanshahi, & B.K. Pitamber, "Issues and Challenges for Women Entrepreneurs in Global Scene, with Special Reference to India" Australian Journal of Basic and Applied Sciences 4347-4356 (2018)

so far as UG Degree and PG is concerned but there are very few women for whom areas like innovation matters. Number of females in scientific fields is still at tertiary level that is just 30- 47 percent and most of them are under- represented in computer science, engineering and manufacturing. Report by OECD reflects that the career path of most of the females diverged immediately after the age group of 15. i.e. though women aspire to start career as an innovator and scientist at the age of 15 but only 20 percent of the total aspirants out of 100 graduated in ICT fields.

4. Rigid Socio- cultural norms, sexism and open discrimination a barrier in the success of women:

   a) Women who are solo in the team are often isolated.

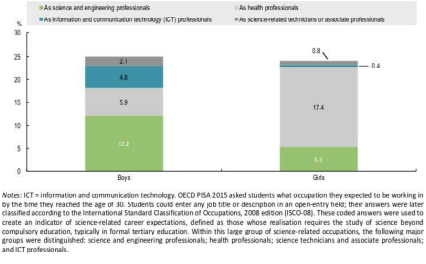
   b) It is the macho culture, rigid social norms which hinders STEM based careers.

   c) The expectations of gender resulting from gender roles of females related to reproduction and domestic jobs significantly effects the progression of women.[8]

   d) Bias in giving promotion or hiring the employees.

   e) Lesser contacts with industry.

   f) Lack of access to public funding



Notes: ICT = information and communication technology. OECD PISA 2015 asked students what occupation they expected to be working in by the time they reached the age of 30. Students could enter any job title or description in an open-entry field; their answers were later classified according to the International Standard Classification of Occupations, 2008 edition (ISCO-08). These coded answers were used to create an indicator of science-related career expectations, defined as those whose realisation requires the study of science beyond compulsory education, typically in formal tertiary education. Within this large group of science-related occupations, the following major groups were distinguished: science and engineering professionals; health professionals; science technicians and associate professionals; and ICT professionals.

Source: OECD. 2018. Empowering Women in the Digital Age.

Policies Framed in India:

- Start Up India Program; The program was initiated in February 2016 and by the end of the period it became the biggest start- up program across the globe which provides academic industry partnership, incentives and funding support. In order to build a strong ecosystem

[8]K. Surti, & D. Sarupriya, "Psychological Factors Affecting Women Entrepreneurs: Some Findings" Indian Journal of Social Work I 287-295 (2005)

a corpus fund of 10,000 has already been embarked with a view to nurturing start ups and innovation. For women led start ups around 10% of the funds are reserved. These reservations act as a catalyst to create a hostile environment for start – ups and innovation to flourish.

- Economic Empowerment of Women Enterprises & Start- ups by Women in association with German Based Development Authority: The initiative is taken by Ministry of Skill Development and Entrepreneurs which provides different accelerating programs for the women entrepreneurs who aims at starting business at small scale.
- Cluster Development Program for micro level enterprises: The Ministry of MSME (Ministry of Micro, Small and Medium Enterprises) of Government of India has initiated cluster development approach is a planned strategy to enhance the productivity as well as capacity building in the country at small and micro level enterprises. It comprises of cluster of enterprises located at differential geographical regions for the purpose of producing complementary , similar products which can easily connected with a common physical infrastructure facilities which can help in addressing the common challenges. The main motive of the scheme is to support the sustainability, demand and growth of MSE's by bringing into focus the common issues related to skills, technology, market access etc.[9] It also includes creation of self- help groups, consortia, setting up of faculty centers. In all the programs women Owned enterprises is given consideration.
- Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE): The main aim of this scheme is to make collateral free credit to the small enterprises. The new and existing enterprises both are covered under this scheme. The scheme provides around 200 lakh credit facilities to the borrowers provided they provide credit facilities without the guarantee of third party. For small enterprises the guarantee cover is of 80% for all the small enterprises. If there is any default the claim is settled down by the trust which is up-to 75% of the amount in the default of the credit facility extended by lending an amount of 200 lakh.

[9]R. Vishwanathan, "Opportunities and Challenges for Women in Business" *India Together* 1-9 (2001).

- Exhibition for Women under Promotional Package for Small Enterprises with a view to marketing support: In order to encourage women entrepreneurs to have active participation in International Exhibitions, there are some provisions including business and economic class fare for one female representative and a shipping cost of up to 1500 is reimbursed at the same time.

Recommendations:

1. Increase to the access of critical resources especially funding.
2. Those socio- cultural issues should be addressed which inhibits the innovative potential of women.
3. Activities like teaching, collaborations and networking should be promoted**.**
4. Women rights should be enforced especially in developing countries.
5. More of gender neutral policies should also be framed.
6. National policies should be framed to promote women innovators and entrepreneurs.
7. Women should be motivated to pursue their careers in STEM.

The research in totality provides useful insights for policymakers, stakeholders and practitioners helping them to take informed decisions and identify the gap areas where we are still lagging behind.