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EXPLORING GENDER DIFFERENCES IN ENTREPRENEURIAL SKILLS OF UNDER GRADUATION STUDENTS IN SELECTED GOVERNMENT FIRST GRADE COLLEGES OF KARNATAKA

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ABSTRACT

Gender has emerged as an important dimension in entrepreneurship research influencing access to opportunities, resources and skill development. But, the level of women participation in entrepreneurship in India remains comparatively low as reflected by Global Entrepreneurship Monitor Report (2022) NITI Aayog Report (2023). The study, in this backdrop intends to examine whether entrepreneurial skills differ significantly based on gender among under graduation students, focusing on risk-taking ability, leadership skills, creativity and innovation. Primary data have been collected using a structured questionnaire with 14 Likert-scale items from final-year BA, BCom and BSc students in selected Government First Grade Colleges across Tumakuru, Davanagere and Chikkaballapura districts for a sample size of 140. The study employed an independent samples Welch's t-test to analyse gender differences, while Hedges' g was used to measure effect sizes and Holm's correction was applied to adjust p-values for more robust statistical inference. The study findings reveal significant gender differences across all three mentioned dimensions, with large effect sizes indicating a substantial gap in entrepreneurial competencies. The study underscores the need for targeted interventions to enhance women's entrepreneurial skills and promote balanced as well as inclusive entrepreneurial development among female students in particular.

Keywords: Creativity and Innovation, Entrepreneurial Skills, Gender, Risk, Taking Ability, Leadership Skills

INTRODUCTION

Entrepreneurship plays a crucial role in promoting economic growth, employment generation and innovation, particularly in emerging economies like India. In recent years, the country has witnessed a rapid expansion of its entrepreneurial ecosystem, supported by favourable government policies, improved access to banking and financial resources and a growing culture of creativity and innovation which have encouraged individuals from diverse socio-economic backgrounds to engage in entrepreneurial activities and contribute to the nation's economic development. To succeed in such dynamic environments, entrepreneurs must possess a set of specialized competencies in the form of entrepreneurial skills such as risk-taking ability, leadership, creativity, decision-making and networking which play a critical role in determining entrepreneurial success and have therefore attracted significant attention in both academic research and policy discourse.

Traditionally, entrepreneurship in India has been perceived as a male-dominated domain due to socio-cultural norms, limited mobility and restricted access to financial and institutional support for women. However, over the past decade, there has been a

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noticeable increase in women participation in entrepreneurial activities driven by improved education, digital inclusion and targeted policy initiatives promoting women empowerment.

Despite these advancements, the level of women participation in entrepreneurship in India remains comparatively low. Available statistics present a nuanced picture depending on the measurement criteria. Studies indicate that women constitute approximately 13%-14% of total entrepreneurs in India, reflecting a significant under representation in entrepreneurial activity. [1] At the enterprise level, women own around 20% of businesses while their share in the Micro, Small and Medium Enterprises (MSME) sector is estimated at about 22% as highlighted in recent national economic reports. [2] In the startup ecosystem which represents high-growth and innovation-driven ventures, women participation is even lower, with only 9%-14% of start-up founders being women[3] which is an indication that although women are increasingly entering entrepreneurship, their presence remains limited particularly in high-growth and scalable ventures.

REVIEW OF LITERATURE

Krishna and Agrawal (2026) found that educational support positively shapes entrepreneurial attitude, subjective norms and perceived behavioural control, though the strength of these relationships varies by gender and cultural context. Overall, the study shows that entrepreneurial intentions are shaped by cultural and gender differences, highlighting the need for context-specific and inclusive entrepreneurship education policies.

Behr and Xi (2026) Identifies four major challenges- institutional barriers, financial constraints, human capital gaps and social and cultural norms. By using World Bank data, the authors suggest to reduce these barriers through increased women participation in entrepreneurship and labour participation. It concludes that creating a supportive and enabling environment is essential for women to succeed in entrepreneurship.

Puente Pacheco (2025) examines the role of gender in entrepreneurship education and its influence on business success and investigates gender-specific patterns of participation in entrepreneurship education programmes and their impact on business growth. Results reveal that significant gender-based differences in access to entrepreneurship education programmes demonstrate a positive relationship between educational participation and business success with varying effects between male and female entrepreneurs.

Moraes et al. (2024) analyse gender-based differences in the influence of entrepreneurial characteristics on entrepreneurial intention among students in technological colleges in a developing country. The findings reveal significant gender differences in the determinants of entrepreneurial intention and suggest that entrepreneurial intentions are shaped by distinct entrepreneurial characteristics across genders.

Chaker and Elyetim. (2024) examine how gender, prior work experience, social work affiliation and family role models influence the development of entrepreneurial skills among students and the findings show that prior work experience and social work significantly enhance certain entrepreneurial competencies, while men demonstrate slightly higher development in some skills compared to women.

Santos-Jaén et al. (2022) concentrated on gender differences in entrepreneurial competencies and entrepreneurial self-efficacy among middle school students participating in an entrepreneurship education programme. Although entrepreneurship is often perceived as a male-dominated domain, research suggests that girls demonstrate strong competencies such as collaboration, creativity and practical planning as critical predictors of entrepreneurial success.

The OECD Report (2021) focuses on the effectiveness of women entrepreneurship policies, emphasizing both targeted initiatives and the need to make mainstream policies more gender-inclusive. Drawing on insights from global experts, including contributions from the Global Women's Entrepreneurship Policy Research Project, it underscores that challenges were intensified by COVID-19 pandemic and calls for more effective, gender-sensitive policy design and implementation.

noted that a proportion of female entrepreneurs remains significantly lower than that of males. The study develops and tests a conceptual model examining the relationships among entrepreneurial potential, gender and entrepreneurial intention. The results indicate limited mean differences between genders, with males reporting higher entrepreneurial intention, perceived behavioural control and subjective norms, while females exhibited stronger business-related motives.

Olaniyi and Lameed (2012) observed gender differences in the acquisition of entrepreneurial skills among entrepreneurial students and findings revealed that informal institutional factors such as parental education, socio-economic status and religious influence have a significant impact on students' acquisition of entrepreneurial skills. The study also found that marketing-related values influencing the choice of entrepreneurial skills were not significantly associated with gender.

[1] Global Entrepreneurship Monitor Report 2022; NITI Aayog Report, 2023

[2] Economic Survey of India, 2024–25

[3] (NASSCOM Report 2023; Tracxn *Women Entrepreneurs in India Report* 2023).

RESEARCH GAP

After reviewing relevant literature on gender and entrepreneurial skills, significant gaps do remain exist and it is essential to understand gender-based differences in entrepreneurial skill acquisition and role of higher education institutions to address this gap and promote entrepreneurial skills among female students. From in this perspective current study attempt to fill this gap and bridge these differences, thereby ensuring the balanced and orderly development of entrepreneurial skills among male and female students.

RESEARCH PROBLEM AND ITS SIGNIFICANCE

The global entrepreneurial landscape remains characterized by a persistent gender gap, where men continue to represent a larger proportion of business owners and funding recipients. Global Entrepreneurship Monitor indicates that while female startup rates increased by four percentage points between 2021 and 2023, for every ten men initiating a startup, only about eight women do the same. [4] This gap widens significantly in long-term business sustainability, with men accounting for nearly 67% of established business owners globally, while women are disproportionately concentrated in smaller-scale "solopreneurship" or micro-enterprises, often in traditional sectors like handicrafts and retail. [5] Gender disparity is most severe in high-growth finance, women are 28% less likely than their male co-founders to receive venture capital for subsequent ventures and even when funded, they raise approximately 53% less capital.[6]

In this context, it is essential to understand the underlying reasons for gender inequalities and the low participation of women in entrepreneurial activities. Accordingly, the present study examines gender differences in entrepreneurial skills among male and female students, with specific emphasis on risk-taking ability, leadership, creativity and innovation skills.

RESEARCH OBJECTIVES

- To understand the level of Risk-Taking Ability among male and female under graduation students
- To examine gender differences in Leadership Skills among under graduation students
- To analyse whether Creativity and Innovation do differ based on gender

RESEARCH HYPOTHESES

Hypothesis 1:

H0: There is no significant difference in Risk-Taking Ability of male and female under graduation students

H1: There is a significant difference in Risk-Taking Ability between male and female under graduation students

Hypothesis 2:

H0: There is no significant difference in Leadership Skill of male and female under graduation students

H1: There is a significant difference in Leadership Skill of male and female under graduation students

Hypothesis 3

H0: There is no significant difference in Creativity and Innovation of male and female under graduation students

H1: There is a significant difference in Creativity and Innovation of male and female under graduation students

TYPE OF RESEARCH

The study adopts an explanatory research design to not only identify the existence of gender-based differences in entrepreneurial skills but also to examine the relationships between gender and the key variables considered. Furthermore, it seeks to propose suitable measures to address these differences and promote the balanced and systematic development of entrepreneurial skills across genders.

[4] Alexeeva-Alexeev et al., 2025.

[5] Agrawal et al., 2023; MoSPI, 2025

[6] Hebert et al., 2024.

SCOPE OF THE STUDY

The study considers three Urban Government First Grade Colleges from Tumakuru, Davanagere and Chikkaballapura districts and were randomly selected as sample institutions, ensuring that each college has more than 10 years of establishment and offering B.Com, B.A and B.Sc programmes to a diverse student population intended to understand the gender based differences in entrepreneurial skills among final year undergraduate male and female students of sample colleges.

SAMPLE DESIGN

Researcher has used convenience sampling method for drawing a sample of 140 respondents from three government first-grade colleges as specified in the scope with 70 male and 70 female students. A total of 49, 52 and 39 respondents from GFGC Davangere, Doddaballapur and Tumkur are respectively considered as sample respondents for the research purpose.

SOURCES OF DATA AND SURVEY INSTRUMENT

Primary data were collected using a structured student questionnaire from selected students of sample colleges and Secondary data from relevant books, reports, research journals and websites to support and supplement the primary findings. A total of 14 Likert based questions were designed for the questionnaire asking the respondents to rank their importance of agreement on a scale of 1 to 4 with 1 'Strongly Disagree' and 4 as 'Agree'.

STATISTICAL ANALYSIS

The study utilized descriptive statistical techniques with the percentage method applied to analyse demographic characteristics of respondents and employed an independent samples Welch's t-test to examine gender-based differences in entrepreneurial attributes between male and female students, Welch's t-test was selected as it is robust to unequal sample sizes and heterogeneity of variances. In addition to statistical significance testing, Hedges' g was calculated to assess the magnitude of gender differences by estimating effect sizes, p-values were adjusted using Holm's correction method, thereby ensuring more reliable and conservative statistical inferences.

Table 1

Table 1 Key Entrepreneurial Skill Factors and Their Measurement Indicators

Factor	Item/Indicators
	• Handle uncertainty in business situations
Risk-Taking Ability	• Comfortable making decisions even when outcomes are unclear
	• Willing to invest time or money in a business idea despite risks
	• Failure as a learning opportunity rather than a loss
	• Willing to take risks to start a new venture
	• Motivate others to achieve common goals
Leadership Skill	• Feel confident leading a team
	• Delegate tasks effectively among team members
	• Take responsibility for team outcomes
	• Resolve conflicts within a group
	• Generate new ideas for products or services
Creativity and Innovation	• Enjoy finding innovative solutions to problems
	• Think differently from others while solving problems
	• Often suggest new ways of doing things
	• Combine existing ideas to create something new

Source Student Questionnaire

The survey conducted through structured questionnaire with 140 responses were recorded and the data have been analysed and presented as under.

DESCRIPTIVE STATISTICS
Table 2

Table 2 Demographic Profiles of Respondents

Demographic Feature	Particulars	Responses	Percentage
Gender	Male	70	50
	Female	70	50
	Others	--	--
	Total	140	100
Age	18-20	64	45.71
	20-22	76	54.29
	Total	140	100
Academic Stream	Commerce	54	38.57
	Arts	48	34.28
	Science	38	27.14
	Total	140	100
Academic Programme	B. Com	54	38.57
	B. A	48	34.28
	BSc	38	27.14
	Total	140	100
Occupation (Father)	Agriculture	84	60
	Employee	38	27.14
	Self employed	18	12.86
	Total	140	100
	Home Maker	114	81.4
	Agriculture	26	18.56
Occupation (Mother)	Business	-	-
	Others (Specify)	-	-
	Total	140	100
Family Background	Agriculture	112	80
	Business	28	20
	Total	140	100

Source Survey Data

Demographic data reveals that regarding gender representation 50% respondents are male, more than 50% are under 20-22 years, nearly 39% are from commerce stream, 60% respondents fathers are into agriculture, more than 80% respondent's mothers are home makers and only 20% of respondent families have business background.

Table 3

Table 3 Gender-wise Comparison of Entrepreneurial Attributes Using Welch's t-test

Scale	n_male	mean_male	sd_male	n_female	mean_female	sd_female	welch_t	p_value	hedges_g_m_minus	p_value_holm
Risk_mean	90	3.937	0.104	50	1.448	0.425	40.746	0	9.284	0
Lead_mean	90	3.839	0.159	50	1.098	0.265	66.711	0	13.42	0

Creativity_mean	90	3.806	0.157	49	1.715	0.51	27.977	0	6.351	0

(**Source:** Results of Welch's t-test)

Figure 1

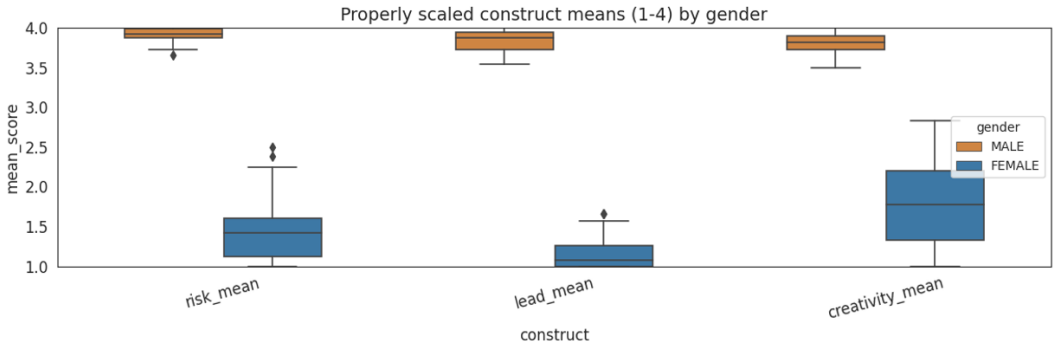

Figure 1 Gender-wise Comparison of Entrepreneurial Attributes
Source Results of Welch's t-test

Across all constructs-Risk-taking, leadership, creativity and innovation and the combined overall score the differences are statistically significant (p-values essentially 0 even after Holm correction). Directionally, the mean scores are higher for Male than Female for every construct in this computed scoring. Effect sizes (Hedges' g) are also very large, suggesting that the difference is not just statistically significant but also practically huge given the way these scores were computed.

HYPOTHESES TESTING

Hypothesis 1:

H0: There is no significant difference in Risk-Taking Ability of male and female under graduation students

H1: There is a significant difference in Risk-Taking Ability between male and female under graduation students

For Risk_mean (risk-taking ability), Table 3 shows that male students have a mean score of approximately 3.94 on a 1–4 scale, indicating strong agreement with risk-taking items, whereas female students have a mean score of about 1.45, reflecting responses closer to disagree or neutral. This substantial difference suggests that male students exhibit significantly higher risk-taking ability compared to female students. The independent samples Welch's t-test confirms that this difference is statistically significant ($p < 0.001$), with a very large effect size (Hedges' $g = 9.284$). Hence, the null hypothesis (H_{01}), which assumes no significant gender difference in risk-taking ability, is rejected.

Hypothesis 2:

H0: There is no significant difference in Leadership Skill of male and female under graduation students

H1: There is a significant difference in Leadership Skill of male and female under graduation students.

Table 3 presenting mean scores on the leadership dimension (measured on a 1–4 scale) indicate a substantial gender difference. Male students have a mean score of approximately 3.84, whereas female students have a mean score of about 1.10, representing an even larger gap than that observed for risk-taking ability. The results of the independent samples Welch's t-test reveal a very large t-statistic with a p-value close to zero ($p < 0.001$), confirming that the difference in average leadership scores between male and female students is statistically significant. Overall, the findings indicate that male students demonstrate significantly higher leadership ability compared to female students.

Hypothesis 3

H0: There is no significant difference in Creativity and Innovation of male and female under graduation students

H1: There is a significant difference in Creativity and Innovation of male and female under graduation students

The group mean scores for the creativity and innovation dimension, measured on a 1–4 scale, reveal a clear gender difference. Male students report a mean score of approximately 3.81, clustering around the "Agree" to "Strongly Agree" categories, whereas female students have a mean score of about 1.72, indicating responses closer to "Neutral" or "Disagree." The independent samples Welch's t-test indicates that this difference is statistically significant, with a p-value close to zero ($p < 0.001$). In addition to statistical significance, the effect size measured by Hedges' g is very large, suggesting that the observed difference is also practically meaningful.

Overall, the results indicate that male students demonstrate significantly higher creativity and innovation scores than female students.

MAJOR OBSERVATIONS

Data analysis reveals a substantial gender disparity in key entrepreneurial skills, with men significantly outperforming women across all three dimensions—risk-taking, leadership ability and creativity. The gap is most pronounced in leadership, followed by risk-taking, while creativity shows a comparatively moderate difference. The very high effect sizes and statistically significant results indicate that these differences are not marginal but structurally strong. This suggests that women may face limitations in developing critical entrepreneurial competencies, particularly in areas requiring decision-making under uncertainty and leadership roles. Therefore, targeted interventions focusing on enhancing women's confidence, leadership exposure and risk-taking capacities are essential to bridge this gap and promote inclusive entrepreneurial development.

SUGGESTIONS

- **Strengthening Risk-Taking Ability**

Enhancing women's risk-taking ability in entrepreneurship requires a practical and supportive approach that builds both competence and confidence, achieved through simulation-based training such as business games and startup labs, along with financial literacy and risk management workshops organised by higher education institutions to support informed decision-making.

- **Enhancing Leadership Skills**

To strengthen women leadership abilities in entrepreneurship, it is essential to provide structured opportunities for skill development and exposure. Leadership programmes arranged by higher education institutions focusing on communication, negotiation and team management can build core competencies. Also encouraging participation in women-led projects, clubs and startup teams enhances practical experience and role model sessions with successful women entrepreneurs can inspire by demonstrating achievable pathways to success.

- **Improvement Creativity and Innovation**

Design thinking and innovation workshops can build structured problem-solving skills, while participation in hackathons, idea competitions and incubation centres fosters practical exposure and an innovative mindset. Interdisciplinary learning environments encourage diverse perspectives, and problem-based learning further strengthens critical thinking and the ability to develop effective real-world solutions, the higher education institutions need to focus on these aspects.

- **Networking and Institutional Support from Higher Education Institutions**

Higher education institutions can play a key role by establishing women-focused entrepreneurship cells or incubation centres, offering internships with startups and women-led enterprises and integrating entrepreneurship education into the curriculum with practical exposure. In addition, facilitating industry interaction programmes, networking events, supporting participation in entrepreneurship summits and workshops and fostering peer learning communities among women students can significantly enhance exposure, collaboration and entrepreneurial growth.

CONCLUSION

Bridging the gender gap in entrepreneurial skills is essential for achieving inclusive and sustainable economic development. The existing disparities in risk-taking, leadership, creativity and confidence highlight the need for targeted and systematic interventions. By fostering skill development through practical training, mentorship, institutional support and exposure opportunities, women can be empowered to overcome structural and societal barriers. Creating an enabling ecosystem that nurtures their potential will not only enhance individual entrepreneurial capabilities but also contribute to broader economic growth, innovation and social progress.

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