

# Mapping Entrepreneurial Competencies of Indian Youth: A Skill Gap Assessment of Undergraduate Students

Geeta Sidharth\*  
Angel Josy Lakra\*\*

## Abstract

*Entrepreneurship skills are vital to economic growth and competitiveness. Evidence suggests that the conversion of high levels of existing entrepreneurial potential among Indian youth into successful entrepreneurship is quite low due to skill gaps and skill mismatches. While prior research has explored entrepreneurship, related skills, and entrepreneurial intent, insufficient attention has been given to identifying essential entrepreneurial competencies from the perspective of young individuals. This study identifies key skills necessary for innovation and value creation in a dynamic business environment. Drawing on empirical data from 305 undergraduate students from Delhi NCR, India, it examines whether these skills are perceived as important by students, assesses their self-reported proficiency, and analyzes the gap between perceived importance and actual expertise to reveal underlying deficiencies. The study also evaluates differences in skill acquisition across demographic and experiential factors, including gender, geographical location, entrepreneurship education, and entrepreneurial engagement, to understand how these factors contribute to the observed gaps. Findings from the Gap analysis and Relative Competence analysis indicate notable deficiencies in critical areas, including financial literacy, legal knowledge, and information technology and cybersecurity. Significant differences in entrepreneurial skill levels are also observed across gender, location, and engagement in entrepreneurial activities. By systematically identifying essential competencies and associated gaps, the study provides practical insights for higher education institutions, educators, trainers, and policymakers to design targeted interventions that strengthen entrepreneurial capabilities among youth and contribute to a more robust entrepreneurship ecosystem.*

**Keywords:** entrepreneurial skills, gap analysis, relative competence analysis, skill development, entrepreneurial ecosystem, higher education institutions.

**How to Cite:** Sidharth, G., & Lakra, A. J. (2026). Mapping entrepreneurial competencies of Indian youth: A skill gap assessment of undergraduate students. *Journal of Management and Entrepreneurship*, 20(2), 30–48.

**DOI:** 10.70906/20262002030048

A  
b  
s  
t  
r  
a  
c  
t

\* Professor, Gargi College, University of Delhi, Delhi, India, Email: geeta.siddharth@gargi.du.ac.in

\*\* Assistant Professor, Sri Venkateswara College, University of Delhi, Delhi, India, Email: angel@svc.ac.in

## 1. Introduction

Entrepreneurship is one of the key drivers of economic growth, social progress, and environmental sustainability in the 21st century (Ministry of Education, 2024). It accelerates economic and social progress by introducing new products, technologies, and services; reallocating resources toward innovative sectors and boosting productivity, resulting in structural changes in the economy; and addressing contemporary societal challenges, such as environmental sustainability and unemployment (Hil et al., 2024). With India aiming for \$5 trillion economy, fostering a culture of entrepreneurship is crucial for creating jobs, reducing unemployment, and promoting innovation (PIB, 2024). Several flagship initiatives by the Government, such as Viksit Bharat, revamped National Education Policy (NEP) 2020, and Startup India, focus on promoting entrepreneurship education and creating an entrepreneurship ecosystem (Kumar et al., 2024). Many Central and State higher education institutions (HEIs) have established separate Entrepreneurship Development Centers for offering entrepreneurship and skill enhancement courses (SECs) to equip their youth to become job creators, innovators, and promoters of a sustainable and inclusive future rather than merely job seekers (Chakraborty, 2023). India needs to prioritize workforce skill development to ensure it is equipped to meet the demands of a rapidly evolving entrepreneurial landscape (Kumar & Meena, 2024). The significant entrepreneurial potential among Indian youth is reportedly not translating effectively into successful ventures, highlighting a notable paradox (Hil et al., 2024). The majority of Indian Youth, instead of being instrumental to the Nation's present and future potential to grow as a developed economy, is underutilized primarily due to skill gaps and skill mismatch (Gagan, 2024). Many aspiring entrepreneurs demonstrate a shortfall in the requisite skills and knowledge to navigate the complex terrain of business ownership (Pal, 2024).

Despite strong government initiatives aiming at youth development, skill enhancement, and reforms in the educational paradigm, gaps in entrepreneurship skills and the associated challenges persist, raising questions about the adequacy of these measures

and the need for further improvements. Existing discussions largely highlight general managerial skill deficits among Indian youth without delineating equally important specific entrepreneurial skill mismatches required for specific corrections, partly attributed to the absence of a comprehensive and standardized framework that clearly defines all important entrepreneurial skills required in today's highly volatile and challenging business environment. In addition, little consideration has been paid to the influence of India's socio-economic, educational, and geographical diversity in these skill deficiencies, rendering uniform solutions not very effective. Addressing these research gaps, this study identifies contemporary entrepreneurship skills and evaluates their acquired expertise to measure both the overall and specific skill deficit among Indian youth. It also examines the influence of demographic factors and entrepreneurship exposure - such as education and entrepreneurship engagement - on overall and specific skills deficit, thereby providing a much-desired empirical understanding of variations in entrepreneurship skills deficiencies.

## 2. Literature Review

Entrepreneurship is 'an individual's ability to turn ideas into action. It includes creativity, innovation, and risk-taking, as well as the ability to plan and manage projects to achieve objectives (European Commission, 2006). Conceptualised differently by researchers, entrepreneurship reflects the adoption of diverse orientations, such as organisational context, performance-based criteria, and the behaviour approach, comprising the cognitive, affective, and behavioural aspects (Audretsch, 2012; Chell, 2013).

Entrepreneurship skills include technical, managerial, entrepreneurial, and personal maturity skills reflecting the capacity to act effectively in organizing and developing a business, with real-life experience and practice (Kutzhanova et al., 2009). Hayton (2015) defines entrepreneurship skills as identifying consumers' needs and technical or market opportunities, and effectively pursuing them. Leon (2017) incorporated emotional and spiritual intelligence, extending entrepreneurial skills conceptualization beyond technical proficiency

and rational problem-solving, collectively fostering innovative value creation. Taking 516 Romanian college students' responses on a 30-item instrument, Bejinaru (2018) recommends five key entrepreneurial skills - complex problem-solving, critical thinking, originality, active learning, and judgment and decision-making. However, it lacked clarity regarding specific items comprising each skill dimension. To simplify the concept and highlight the core skills of entrepreneurship, Prince et al. (2021) described it as "the act of generating and developing an idea for validation" (p. 29), emphasizing it as a participatory and behavioral process centered on actions and interactions. Later, in a study of rural women entrepreneurs in India, Tripathy et al. (2024) developed a multi-dimensional scale encompassing six sub-dimensions: cognitive skills, motivational skills, social and relational skills, management skills, technical skills, and strategic skills. However, using this scale for urban entrepreneurs without substantial modifications may yield unreliable or contextually inappropriate findings, as the socio-cultural norms of rural women differ significantly from those of urban entrepreneurs.

Building upon the fundamental understanding of entrepreneurship, its associated aspects have also been explored by the researchers, such as entrepreneurship education, entrepreneurial intent, entrepreneurship challenges, entrepreneurial mindset, and entrepreneurial thinking (Hazudin et al. 2023; Kamble & Mhaske, 2019; Lingappa et al., 2020; Malik et al., 2023; Patil & Patil, 2024; Pinto et al., 2024; Priyanka & Preeti, 2022; Sun et al., 2023). Focusing specifically on the educational factors shaping entrepreneurial intention (EI), Pandit et al. (2018) provide a broader perspective on EI through their study on college students from various disciplines in India. Diving deeper, Malhotra & Kiran (2023) studied the interplay between individual EI, entrepreneurial competencies, and sustainable growth among engineering students in India. Furthermore, Kapil et al. (2023) suggested that the aspiration to become an entrepreneur is influenced by tailored entrepreneurial curricula, exposure to real-world scenarios, awareness programs, and the entrepreneurial ecosystem. Fubah et al. (2025) conducted a systematic literature review of the

youth entrepreneurship domain and the future research agendas. Based on 77 articles from multiple databases listed in ABS or ABDC Journals, results reveal that entrepreneurship is a fast-growing area of research, with the majority of research conducted in Africa applying quantitative methods and the theory of planned behavior. Most research in the domain covers entrepreneurial motivations, intentions, attitudes, competencies, education, training, innovation, and technology adoption.

Very few researchers have attempted to investigate the entrepreneurial skills amongst Indian youth. Sanitha and Rubert (2020) surveyed 594 educated youth in Kerala to compare their entrepreneurial skills and employability skills. The study reported low entrepreneurial skills in the respondents due to their low risk aptitude. Females showed even lower scores on entrepreneurial skills though the Kerala youth is showing a favourably changing attitude towards entrepreneurship in general. Agarwal & Lakshami (2020) conducted a study among 200 learners of Dr. B.R. Ambedkar Open University and Uttarakhand Open University assessed entrepreneurial awareness and skills within the Open and Distance Learning context; however, its scope was confined to a limited set of broad skill dimensions such as personal, managerial, leadership, communication, and ICT skills. Khiangte and Lalengzama (2024) studied 60 unemployed youth in Mizoram, India for assessing their entrepreneurial skills on personal, communication, negotiation, leadership, and sales skills subdivided in groups based on geographical area, gender, and stream using mean and standard deviations. Results show moderated skill levels among the respondents with no impact of gender on the skill sets. Other existing studies have explored skill gaps within particular industry settings, their emphasis remains on organizational and training deficiencies, with limited attention to defining essential entrepreneurial competencies from the perspective of youth (Kumari & Gupta 2024). Sarkar & Jena (2025) studied the willingness of youth in Assam for entrepreneurship and their support system using secondary data such as surveys, reports, and research studies. Their study revealed that the youth in Assam is not financially literate or creative enough for entrepreneurship with low risk-taking appetite. Research also reported low

accessibility to government support in rural areas to promote entrepreneurship. While these studies provide useful insights into general entrepreneurial orientations, they do not comprehensively identify or standardise the wider range of entrepreneurial competencies required in today's dynamic business environment, nor do they examine detailed, specific skill gaps from the perspective of Indian youth.

Despite substantial scholarly attention to entrepreneurship, entrepreneurship skills, and entrepreneurship intent, limited focus has been placed on identifying critical entrepreneurial competencies/skills from the perspective of young individuals, assessing their acquired level of proficiency in these skills, and examining both the overall and specific skill gaps - particularly within the Indian context. This gap in research underscores the need for a nuanced and context-sensitive inquiry for developing a robust entrepreneurial ecosystem in India. Drawing upon an extensive review of the literature, the present study identifies key entrepreneurial skills required for fostering innovation and value creation in an increasingly dynamic business environment. It further investigates whether the identified entrepreneurship skills are perceived as important by young individuals, evaluates their self-assessed level of expertise in these competencies, and analyzes the discrepancies between the perceived importance and acquired proficiency to uncover underlying deficiencies. Additionally, the study examines variations in entrepreneurial skill acquisition across demographic and experiential factors, including gender, geographical location, entrepreneurship education, and entrepreneurship engagement, in order to determine their contribution to observed skill gaps.

### 3. Materials & Methods

#### 3.1. Research Objectives

1. To identify specific contemporary entrepreneurial skills in today's dynamic business environment.
2. To assess the relative importance of these entrepreneurial skills.
3. To evaluate the level of acquired competencies in these entrepreneurial skills.
4. To determine the extent of skill gaps across specific entrepreneurial competencies among Indian youth.
5. To examine significant differences in the entrepreneurial skill gaps based on gender, geographical location, entrepreneurship education, and entrepreneurship engagement.

#### 3.2. Research Design

The study employs a quantitative research design executed in two stages to address the research objectives. In the first stage, peer-reviewed literature was qualitatively analyzed to identify critical entrepreneurial skills. Research papers published in reputed journals were included in scrutiny if they explicitly examined entrepreneurship skills, competencies, or abilities, and provided clear identification or measurement of specific entrepreneurial competencies. Preferences were given to peer-reviewed works on entrepreneurship skill development contexts relevant to entrepreneurs. This ensured that the selected literature directly informed the identification of contemporary entrepreneurial skills for the study. Self-published papers, online and offline published articles have been excluded from consideration. Resultantly, 78 peer-reviewed research papers were analysed to identify the entrepreneurial skills, leading to the development of an inventory of key competencies classified in five major themes, sub-categorised into 34 key skills.

In the second stage, based on the identified list of critical entrepreneurial skills, a comprehensive questionnaire was designed and executed for quantitatively assessing the perceived importance of these skills among youth, their self-reported level of proficiency, and the gap between the two based on the identified general and specific competencies using quantitative analysis techniques.

#### 3.3. Sample

The quantitative analysis examined undergraduate students from the University of Delhi, India, of



whom 30.2% enrolled in formal entrepreneurship education. The University of Delhi was selected for being a premier Central University, ranked 328 in the QS World University Rankings 2025, and representing students from diverse regions of India. Data were collected through an online questionnaire administered using a purposive sampling approach. A total of 305 valid responses were retained for analysis, comprising 76.4% females and 23.6% males with an average age of approximately 19 years; 81.3% urban population, 30.2% studying entrepreneurship, 38% from business families, and 33.1% planning to pursue a business.

### 3.4. Tools

The listed dynamic skills for a successful contemporary entrepreneurship formed the basis for the Entrepreneurship Skill Index designed and applied in this study to gauge the skill importance and acquired skills scores, facilitating the Gap Analysis. A detailed questionnaire on entrepreneurship skills was prepared, including multiple-choice and open-ended questions on demographics, importance scores of the skills, and acquired competencies. Likert's 5-point scale, where 1 = 'Not at all important' and 5 = 'Extremely important', has been used to gauge responses on the perceived importance of entrepreneurship skills using statements such as How important do you think digital literacy is for a successful career in entrepreneurship? How important do you think risk management is for a successful career in entrepreneurship? The current expertise in entrepreneurship skills is measured using statements such as- How would you rate yourself on digital literacy? How would you rate yourself in risk management? on a 5-point Likert Scale, 1 representing 'Unacceptable (Not at all present)' and 5 representing 'Excellent (Outstanding)'.

### 3.5 Data Analysis

The collected data had been appropriately coded and analyzed using SPSS Version 26 using appropriate descriptive and inferential statistical techniques (Table 2). In addition to summarizing the data, the internal consistencies of the Entrepreneurship Skills Importance (ESI) and Acquired Entrepreneurship Skills (AES) were assessed through Reliability Analysis

using Cronbach's alpha (Table 2). The results indicate that the aggregated skill measures demonstrate acceptable internal consistency (Cronbach's  $\alpha$ ) of 0.98 and 0.98, respectively, for ESI and AES, thereby supporting the reliability of the instrument used in the study. This ensures that the items included in the analysis are suitable for further statistical examination. The tools used for quantitative analysis included frequencies, percentages, mean ( $\bar{X}$ ), standard deviation (SD), standard error of the mean (S.E), margin of error, interval estimation, and Independent sample t-test at 95% level of confidence. Gap Analysis and Relative Competence Analysis are the primary tools to gain insights into entrepreneurship skills gaps.

## 4. Results

### 4.1. Listing Contemporary Entrepreneurship Skills

Conventionally, the entrepreneurs were expected to have managerial skills such as resource mobilisation, fund acquisition, hiring, and human resources management (Chell, 2013). However, blurred geographical boundaries and technological advancements in Industry 4.0 and Industry 5.0 necessitate entrepreneurs being sensitive to cultural factors, global competition, workforce diversity, creativity, effective teamwork, digital communication, and digital literacy (Jardim, 2021). These advancements require widening the scope of entrepreneurial skills and integration of digital and technology-related skills. Though the existing literature identifies various skills as essential for transforming ideas into reality, there is no unanimity on specific entrepreneurial skills required in the contemporary environment. To address the first research objective of enlisting entrepreneurship skills, a detailed analysis of established entrepreneurial skills in 78 peer-reviewed research papers was conducted. Entrepreneurial skills were derived from peer-reviewed research to ensure conceptual validity, scholarly rigor, comprehensiveness, and reliance on empirically and theoretically established competencies. This approach strengthens the academic credibility and robustness of the skill framework used in the study. Table 1 compiles the shortlisted contemporary skills.

**Table 1***Contemporary Entrepreneurship Skills*

| Themes                                        | Entrepreneurial Skills                                 | Author(s)                                                                                                  |
|-----------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Business and Management Skills</b>         | Product and Strategy (Strategic competence)            | Chell (2013); Jardim (2021)                                                                                |
|                                               | Business Management                                    | Agbim (2013); Almahry et al. (2018); Kerrin et al. (2017)                                                  |
|                                               | Fundraising and Finances                               | Abad-Segura & González-Zamar (2019); Ahmad et al. (2019); Cooney & Brophy (2023); Milosevic (2018)         |
|                                               | Marketing and Selling                                  | Ghosh & Anjaneyaswamy (2007); Hills & Hultman (2013); Lam & Harker (2015)                                  |
|                                               | Hiring and Human Resources                             | Dabic et al. (2011); Dal Zotto & Gustafsson (2008)                                                         |
|                                               | Knowledge of Laws and Regulations                      | Braunerhjelm et al. (2015); Henrekson & Stenkula (2010)                                                    |
|                                               | Awareness of Positive Economic & Political Environment | Acs & Szerb (2007); Belitski et al. (2021)                                                                 |
| <b>Interpersonal and Communication Skills</b> | Leadership                                             | Chell (2013); Leon (2017); Jardim (2021); Tripathi et al. (2024)                                           |
|                                               | Teamwork/ Collaboration                                | Leon (2017); Jardim (2021)                                                                                 |
|                                               | Interpersonal Skills                                   | Avkiran (2000); Llorente et al. (2023); Tripathi et al. (2024)                                             |
|                                               | Experiential Learning                                  | Mason & Arshed (2013); Politis & Gabrielsson (2009); Vuong et al. (2016)                                   |
|                                               | Language and Communication                             | Abaci (2022); Leon (2017); Jardim (2021)                                                                   |
|                                               | 360 Degree Feedback                                    | Jain & Ali (2013); Galindo & Mendez (2014); Galindo-Martín & Méndez-Picazo (2020)                          |
| <b>Technological and Ethical Skills</b>       | Digital Literacy                                       | Bayrakdaroğlu & Bayrakdaroğlu (2017); Cheng et al. (2024); Neumeyer et al. (2020); Sariwulan et al. (2020) |
|                                               | AI, Technology, Cybersecurity Literacy                 | Imjai et al. (2024); Martin-Rojas et al. (2013); Vecchiarini & Somià (2023)                                |
|                                               | Research, Data Analysis and Interpretation             | Ghosh & Anjaneyaswamy (2007); Hamburg (2019)                                                               |
|                                               | Problem-solving                                        | Bejinaru (2018); Chell (2013); Jardim (2021); Tripathi et al. (2024)                                       |
|                                               | Innovation/Creativity                                  | Chell (2013); Durnali et al. (2023); Gundry et al. (2014); Jardim (2021)                                   |
|                                               | Ethical Consciousness                                  | Bryant (2009); Mai et al. (2019)                                                                           |
|                                               | Sustainability and Environmental Skills                | Bawakyillenuo & Agbelie (2021); Pascucci et al. (2022); Prabowo et al. (2022)                              |
| <b>Personal Skills</b>                        | Flexibility and Dynamism                               | Chell (2013); Oosterbeek et al. (2010)                                                                     |
|                                               | Risk-taking                                            | Chell (2013); Oosterbeek et al. (2010)                                                                     |
|                                               | Time Management                                        | Lerner et al. (2007); Lévesque & Stephan (2020); McMullen & Dimov (2013)                                   |
|                                               | Optimism                                               | Bernoster et al. (2018); Crane & Crane (2007)                                                              |
|                                               | Resilience                                             | Chell (2013); Fisher et al. (2016); Hartmann et al. (2022); Korber & McNaughton (2018)                     |

|                               |                           |                                                                                                                         |
|-------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------|
|                               | Continuous Learning       | Biney (2021); Franco & Haase (2009); Lans et al. (2004)                                                                 |
|                               | Perseverance              | Salisu et al. (2020); Santos et al. (2020); Urban & Richard (2015); Vuong et al. (2016)                                 |
|                               | Self-efficacy             | Bellò et al. (2018); Chell (2013); Costin et al. (2022); Garaika et al. (2019); Jardim (2021); Oosterbeek et al. (2010) |
|                               | Confidence                | Chell (2013); Costin et al. (2022); Garaika et al. (2019); Kirkwood (2009); Maczulskij & Viinikainen. (2023)            |
| <b>Social and Life Skills</b> | Social Networking         | Chell (2013); Jardim (2021); Oosterbeek et al. (2010)                                                                   |
|                               | Healthy Lifestyle         | Cunha et al. (2020); Shepherd & Patzelt (2015); Volery & Pullich (2010)                                                 |
|                               | Personal Relationships    | Lingappa et al. (2020); Tripathi et al. (2024); Xu et al. (2020)                                                        |
|                               | Psychological well being  | Sánchez-García et al. (2018); Sherman et al. (2016); Shir et al. (2019)                                                 |
|                               | Peer and Social Influence | Gunawan et al. (2023); Qin & Estrin (2015); Eesley & Wang (2017)                                                        |

Source: Compiled by researchers

As the table shows, apart from the conventional hard skills required for managing a business, soft skills have emerged as an important domain in the contemporary era of AI-driven, highly stressful, and dynamic business ventures. Highlighting a similar view, the European Union (2017) also emphasized the necessity of soft skills such as networking, communication, and flexibility for 21st-century entrepreneurs. The above-mentioned entrepreneurial skills served as the basis for further data collection and analysis, the results of which are presented in the next section.

#### 4.2. Entrepreneurship Skills Importance (ESI) & Acquired Entrepreneurship Skills (AES)

Addressing research objectives two and three to quantify ESI and AES, Table 2 shows the mean, standard deviation, standard error of the mean, margin of error, interval estimation, and reliability coefficients of the Entrepreneurial Skills Importance & Acquired Entrepreneurship Skills scores as key variables. The standard error of the mean shows the extent to which a mean may be expected to vary in different samples of the same size randomly selected from the same population, or in simple terms, shows the sampling variability of the mean. The smaller the standard error, the lower the mean variability of the mean in the sampling distribution of means, and the greater confidence one may have in the sample mean as representing the population mean. The margin of error shows the degree to which the estimation of the population mean is accurate. As a rule, at a 95% confidence level, the population mean will be within  $\pm$  two standard error units of the sample mean. The confidence interval represents the range of values between which the population parameter is estimated to lie. Like the margin of error, the confidence interval is also used in conjunction with the confidence level, which, for the present analysis, is fixed at 95%.

**Table 2***Descriptive and Inferential Statistics for Aggregate Skills Scores*

| Aggregate Skill Scores                   | Mean | Standard Deviation | Standard Error | Margin of Error | 95% Confidence Interval |       | Cronbach's Alpha |
|------------------------------------------|------|--------------------|----------------|-----------------|-------------------------|-------|------------------|
|                                          |      |                    |                |                 | Lower                   | Upper |                  |
| Entrepreneurship Skills Importance (ESI) | 4.15 | .694               | .039           | .078            | 4.07                    | 4.23  | 0.98             |
| Acquired Entrepreneurship Skills (AES)   | 2.98 | .910               | .050           | .100            | 2.88                    | 3.08  | 0.98             |

Source: Compiled by authors from the SPSS output

The mean aggregate ESI score on a 5-point scale is 4.15, representing the high importance of these skills assigned by the respondents. However, the overall AES mean is 2.98, which shows only a basic or satisfactory level of the acquired skills by the youth. The 95% confidence limit shows a similar result applying to the population. The population mean of acquired entrepreneurial skills also lies within the range of 2.88 to 3.08.

### 4.3. Gap Analysis and Relative Competence Analysis

The Gap analysis was conducted to measure the entrepreneurship skills/competency gap. The gap for each skill was computed as the difference between the mean perceived importance of entrepreneurship skills and the mean self-reported level of acquired skills, following the approach used by other researchers such as Agut and Grau (2002), Agut et al. (2003), and Lakshminarayanan et al. (2016) for measuring competency gaps. Accordingly, the negative gap value of  $\leq -0.51$  denotes that acquired skills are less than what is required; the adjustment margin value of  $-0.50 \leq \text{value} \leq 0.50$  shows that the acquired skill is on the lower side yet close to the importance associated with it, and positive gap value of  $\geq 0.51$  shows that the level of competency is greater than expected. Hansson (2001) suggested calculating the relative competence in addition to gap analysis to identify the inadequate skills where more training is required to reduce the existing gap. Accordingly, the relative competence was calculated for each skill, where the Relative Competence is expressed as 'Acquired competence/Perceived importance', where Acquired competence refers to the individual's assessment of his/her acquired competence on the skills and Perceived importance refers to the importance that individuals associate with the skills. The score level  $<1$  interprets that the acquired skills are inadequate and more training is required for enhancing such skills (Hansson, 2001, p. 430). Table 4 shows the skill gaps arranged in descending order to present the results effectively.

**Table 3***GAP Analysis*

| Entrepreneurial Skills            | Perceived Importance |                    | Acquired Entrepreneurship Skill |                    | Gap           | Relative Competence |
|-----------------------------------|----------------------|--------------------|---------------------------------|--------------------|---------------|---------------------|
|                                   |                      |                    |                                 |                    | (a-b)         | (b/a)               |
|                                   | Mean<br>(a)          | Standard Deviation | Mean<br>(b)                     | Standard Deviation |               |                     |
| Fundraising and Finances          | 4.26                 | 0.898              | 2.5                             | 1.136              | <b>-1.764</b> | <b>0.59</b>         |
| Knowledge of Laws and Regulations | 4.17                 | 0.861              | 2.59                            | 1.07               | <b>-1.58</b>  | <b>0.62</b>         |



|                                                        |      |       |      |       |               |             |
|--------------------------------------------------------|------|-------|------|-------|---------------|-------------|
| Product and Strategy                                   | 4.18 | 0.915 | 2.64 | 1.046 | <b>-1.541</b> | <b>0.63</b> |
| Marketing and Selling                                  | 4.27 | 0.866 | 2.8  | 1.173 | <b>-1.466</b> | <b>0.66</b> |
| Hiring and Human Resources                             | 4.14 | 0.813 | 2.71 | 1.196 | <b>-1.433</b> | <b>0.65</b> |
| Business Management / Administration                   | 4.22 | 0.908 | 2.81 | 1.116 | <b>-1.41</b>  | <b>0.67</b> |
| AI, Technology, Cybersecurity                          | 4.17 | 0.902 | 2.83 | 1.176 | <b>-1.338</b> | <b>0.68</b> |
| Data Analysis and Interpretation                       | 4.16 | 0.884 | 2.83 | 1.147 | <b>-1.338</b> | <b>0.68</b> |
| 360 Degree Feedback                                    | 4.07 | 0.904 | 2.79 | 1.21  | <b>-1.279</b> | <b>0.69</b> |
| Research                                               | 4.25 | 0.857 | 3.02 | 1.185 | <b>-1.226</b> | <b>0.71</b> |
| Risk Management                                        | 4.23 | 0.872 | 3    | 1.167 | <b>-1.226</b> | <b>0.71</b> |
| Experiential Learning                                  | 4    | 0.9   | 2.79 | 1.145 | <b>-1.21</b>  | <b>0.7</b>  |
| Vocational Training/Skills                             | 4    | 0.892 | 2.81 | 1.117 | <b>-1.19</b>  | <b>0.7</b>  |
| Problem Solving and Innovation                         | 4.35 | 0.862 | 3.17 | 1.128 | <b>-1.184</b> | <b>0.73</b> |
| Social Networking                                      | 4.25 | 0.854 | 3.09 | 1.152 | <b>-1.167</b> | <b>0.73</b> |
| Leadership, Teamwork and Interpersonal Skills          | 4.4  | 0.785 | 3.25 | 1.128 | <b>-1.157</b> | <b>0.74</b> |
| Effective Time-management                              | 4.31 | 0.869 | 3.17 | 1.18  | <b>-1.144</b> | <b>0.74</b> |
| Digital Literacy                                       | 4.13 | 0.885 | 3.02 | 1.113 | <b>-1.111</b> | <b>0.73</b> |
| Healthy Lifestyle (Nutrition, Sleep, Exercise)         | 4.11 | 0.917 | 3.04 | 1.154 | <b>-1.072</b> | <b>0.74</b> |
| Awareness of Positive Economic & Political Environment | 4.14 | 0.907 | 3.08 | 1.207 | <b>-1.056</b> | <b>0.74</b> |
| Ethical Consciousness                                  | 3.99 | 0.916 | 2.98 | 1.181 | <b>-1.01</b>  | <b>0.75</b> |
| Flexibility and Dynamism                               | 4.07 | 0.945 | 3.06 | 1.199 | <b>-1.01</b>  | <b>0.75</b> |
| Language and Communication                             | 4.22 | 0.837 | 3.24 | 1.093 | <b>-0.987</b> | <b>0.77</b> |
| Sustainability and Environmental Skills                | 4.04 | 0.897 | 3.07 | 1.178 | <b>-0.974</b> | <b>0.76</b> |
| Self-efficacy and Confidence                           | 4.26 | 0.877 | 3.29 | 1.187 | <b>-0.967</b> | <b>0.77</b> |
| Optimism and Resilience                                | 4.12 | 0.9   | 3.16 | 1.196 | <b>-0.961</b> | <b>0.77</b> |
| Perseverance                                           | 4.12 | 0.9   | 3.22 | 1.192 | <b>-0.905</b> | <b>0.78</b> |
| Personal Relationships and Psychological Wellbeing     | 4.01 | 0.935 | 3.16 | 1.189 | <b>-0.843</b> | <b>0.79</b> |
| Continuous Learning Aptitude                           | 4.13 | 0.906 | 3.3  | 1.23  | <b>-0.836</b> | <b>0.8</b>  |
| Peer and Social Influence                              | 3.89 | 0.955 | 3.13 | 1.141 | <b>-0.757</b> | <b>0.8</b>  |

Source: Compiled by authors from the SPSS output

Results show an acute negative gap value for all the entrepreneurial skills among participants, representing that all the acquired skills are less than the required level. Additionally, the relative competence on all the specific skills was also <1, which suggests that more training is required in all the mentioned skills. The analysis facilitated the identification of critical skill gaps that necessitate focused attention and requisite remedial action plans. The gap analysis highlighted higher gaps in the Fundraising and Finances skills, followed by Knowledge of Laws and Regulations, Product and Strategy, and Marketing and Selling.

#### 4.4 Significant Differences in the Aggregate and Specific Skill Gaps

The independent-samples t-test has been applied to compare the aggregate scores of ESI and AES and to identify significant differences in specific skill gaps by gender, geographical location, entrepreneurship education, and entrepreneurship engagement at the 95% confidence level. Table 4 presents the results of the test.

**Table 4**

*Significant Differences in Aggregate Skill Scores and Specific Skill Gaps*

| Variable                                      | Gender  |       |                | Location |       |                | Entrepreneurship Education |      |         | Entrepreneurship Engagement |      |                |
|-----------------------------------------------|---------|-------|----------------|----------|-------|----------------|----------------------------|------|---------|-----------------------------|------|----------------|
|                                               | Females | Males |                | Urban    | Rural |                | No                         | Yes  |         | No                          | Yes  |                |
| Aggregate Skill Scores                        |         |       |                |          |       |                |                            |      |         |                             |      |                |
| Specific Skill Gaps                           | Mean    | Mean  | T-value        | Mean     | Mean  | T-value        | Mean                       | Mean | T-Value | Mean                        | Mean | T-Value        |
| Entrepreneurship Skill Importance (ESI)       | 4.22    | 3.96  | <b>-2.755*</b> | 4.14     | 4.21  | -0.604         | 4.17                       | 4.12 | 0.442   | 4.18                        | 4.12 | 0.746          |
| Acquired Entrepreneurship Skill (AES)         | 3.13    | 2.94  | 1.51           | 3        | 2.91  | 0.663          | 2.99                       | 2.96 | 0.305   | 2.89                        | 3.09 | <b>-2.119*</b> |
| Product and Strategy                          | 1.67    | 1.11  | <b>-3.393*</b> | 1.52     | 1.25  | -0.488         | 1.54                       | 1.54 | -0.023  | 1.68                        | 1.39 | <b>1.975*</b>  |
| Business Management/ Administration           | 1.5     | 1.13  | <b>-2.071*</b> | 1.35     | 1.35  | -1.606         | 1.5                        | 1.21 | 1.744   | 1.68                        | 1.12 | <b>3.699*</b>  |
| Fund Raising/Finances                         | 1.87    | 1.43  | <b>-2.397*</b> | 1.73     | 1.35  | -0.804         | 1.78                       | 1.72 | 0.392   | 1.89                        | 1.62 | 1.756          |
| Marketing and Selling                         | 1.54    | 1.24  | -1.617         | 1.38     | 1.39  | -2.299         | 1.51                       | 1.36 | 0.888   | 1.59                        | 1.32 | 1.708          |
| Hiring and Human Resources                    | 1.49    | 1.24  | -1.47          | 1.39     | 1.31  | -1.28          | 1.45                       | 1.4  | 0.27    | 1.61                        | 1.23 | <b>2.556*</b>  |
| Knowledge of Laws and Regulations             | 1.73    | 1.1   | <b>-3.856*</b> | 1.56     | 1.26  | -0.699         | 1.55                       | 1.64 | -0.562  | 1.64                        | 1.51 | 0.935          |
| Leadership, Teamwork and Interpersonal Skills | 1.22    | 0.96  | -1.625         | 1.13     | 1.21  | -0.865         | 1.15                       | 1.18 | -0.263  | 1.28                        | 1.02 | 1.914          |
| Vocational Training/Skills                    | 1.29    | 0.88  | <b>-2.364*</b> | 1.14     | 1.31  | -1.485         | 1.2                        | 1.17 | 0.143   | 1.43                        | 0.92 | <b>3.452*</b>  |
| Experiential Learning                         | 1.34    | 0.78  | <b>-3.181*</b> | 1.18     | 1.33  | -0.772         | 1.19                       | 1.26 | -0.437  | 1.33                        | 1.08 | 1.669          |
| Language and Communication                    | 1.07    | 0.72  | <b>-2.119*</b> | 0.92     | 1.18  | <b>-2.028*</b> | 1                          | 0.95 | 0.388   | 1.09                        | 0.88 | 1.517          |
| Digital Literacy                              | 1.27    | 1.07  | <b>-4.066*</b> | 1.07     | 1.29  | -1.096         | 1.18                       | 0.95 | 1.475   | 1.33                        | 0.88 | <b>3.071*</b>  |
| AI, Technology, Cybersecurity                 | 1.54    | 0.69  | <b>-4.708*</b> | 1.3      | 1.37  | -0.937         | 1.34                       | 1.34 | 0.006   | 1.53                        | 1.13 | <b>2.527*</b>  |
| Data Analysis and Interpretation              | 1.49    | 0.85  | <b>-3.716*</b> | 1.33     | 1.32  | -0.084         | 1.26                       | 1.51 | -1.523  | 1.39                        | 1.28 | 0.785          |
| Research                                      | 1.35    | 0.82  | <b>-3.075*</b> | 1.18     | 1.32  | -1.368         | 1.2                        | 1.28 | -0.496  | 1.36                        | 1.08 | 1.929          |
| Problem-solving and Innovation                | 1.28    | 0.86  | <b>-2.569*</b> | 1.13     | 1.24  | -1.742         | 1.16                       | 1.23 | -0.416  | 1.3                         | 1.06 | 1.742          |
| 360 Degree Feedback                           | 1.35    | 1.04  | -1.743         | 1.26     | 1.34  | -0.456         | 1.25                       | 1.34 | -0.504  | 1.36                        | 1.19 | 1.162          |
| Ethical Consciousness                         | 1.12    | 0.64  | <b>-2.815*</b> | 0.95     | 1.29  | -1.644         | 0.99                       | 1.07 | -0.491  | 1.11                        | 0.9  | 1.369          |
| Sustainability and Environmental Skills       | 1.07    | 0.65  | <b>-2.392*</b> | 0.94     | 1.29  | -0.95          | 0.98                       | 0.97 | 0.056   | 1.11                        | 0.83 | 1.859          |

|                                                        |      |      |                |      |      |        |      |      |        |      |      |               |
|--------------------------------------------------------|------|------|----------------|------|------|--------|------|------|--------|------|------|---------------|
| Flexibility and Dynamism                               | 1.1  | 0.71 | <b>-2.168*</b> | 0.96 | 1.33 | -1.347 | 1.05 | 0.92 | 0.725  | 1.27 | 0.72 | <b>3.563*</b> |
| Risk Management                                        | 1.36 | 0.79 | <b>-3.082*</b> | 1.22 | 1.39 | -0.117 | 1.28 | 1.11 | 0.972  | 1.43 | 1.01 | <b>2.654*</b> |
| Effective Time Management                              | 1.18 | 1.04 | -0.767         | 1.17 | 1.31 | 0.591  | 1.12 | 1.21 | -0.55  | 1.29 | 0.99 | <b>2.036*</b> |
| Optimism and Resilience                                | 1.07 | 0.61 | <b>-2.652*</b> | 0.92 | 1.26 | -1.165 | 0.96 | 0.97 | -0.06  | 1.08 | 0.83 | 1.718         |
| Continuous Learning Aptitude                           | 0.93 | 0.53 | <b>-2.278*</b> | 0.83 | 1.32 | -0.26  | 0.82 | 0.87 | -0.29  | 0.95 | 0.71 | 1.584         |
| Perseverance                                           | 0.98 | 0.65 | -1.837         | 0.9  | 1.33 | -0.046 | 0.93 | 0.85 | 0.489  | 1.06 | 0.74 | <b>2.086*</b> |
| Self-efficacy and Confidence                           | 1.06 | 0.65 | <b>-2.325*</b> | 0.96 | 1.3  | -0.318 | 0.92 | 1.07 | -0.85  | 1.04 | 0.88 | 1.062         |
| Social Networking                                      | 1.27 | 0.83 | <b>-2.47*</b>  | 1.13 | 1.33 | -1.163 | 1.16 | 1.17 | -0.058 | 1.3  | 1.02 | 1.848         |
| Healthy Lifestyle (Nutrition, sleep, exercise)         | 1.21 | 0.63 | <b>-3.321*</b> | 1.05 | 1.34 | -0.54  | 1.09 | 1.02 | 0.435  | 1.17 | 0.97 | 1.336         |
| Personal Relationships and Psychological Well-being    | 0.91 | 0.64 | -1.521         | 0.87 | 1.31 | 0.679  | 0.8  | 0.93 | -0.811 | 0.89 | 0.79 | 0.631         |
| Peer and Social Influence                              | 0.85 | 0.46 | <b>-2.2*</b>   | 0.77 | 1.32 | 0.24   | 0.77 | 0.74 | 0.157  | 0.78 | 0.74 | 0.243         |
| Awareness of Positive Economic & Political Environment | 1.14 | 0.79 | -1.95          | 1.07 | 1.31 | 0.353  | 1.04 | 1.09 | -0.271 | 1.17 | 0.93 | 1.574         |
| <i>*Significant at 95% level of confidence</i>         |      |      |                |      |      |        |      |      |        |      |      |               |

Source: Compiled by authors from the SPSS

Significant differences in the overall ESI assigned to entrepreneurship skills suggest that females assign higher importance to entrepreneurship skills (Mean = 4.22) compared with males (Mean = 3.96). However, no differences were observed based on location, entrepreneurship education, and engagement. Significant differences in overall AES based on entrepreneurship engagement suggest that youngsters with entrepreneurship involvement demonstrated better-acquired skills relative to others with no such engagement. Interestingly, entrepreneurship education had no impact either on overall ESI or overall AES, reflecting the insufficiency of such courses in developing entrepreneurship skills.

Examining significant differences in specific skill gaps highlighted several important results. Significant differences have been identified based on gender, with higher mean skill gaps noted for females across most dimensions than for males. The most critical skill gaps were identified in AI, Technology, and Cybersecurity, followed by Digital Literacy, Knowledge of Laws and Regulations, Data Analysis and Interpretation, and others. These findings highlight the need for targeted efforts to address gender disparities in skill acquisition, particularly in technology-driven domains, digital literacy, data analysis, and other skills highlighted.

No significant differences in skill gaps were identified between urban and rural populations, except in Language and Communication, suggesting that rural background participants face more challenges in language and communication in comparison to their urban counterparts and need better access to resources or opportunities for developing language and communication skills, highlighting a potential area for targeted interventions in rural regions to bridge this gap.

No significant differences were identified between individuals with and without entrepreneurship education, which suggests that entrepreneurship education has not been sufficiently effective, as both groups exhibit similar deficiencies in entrepreneurship skills, highlighting the need for a critical reassessment of current educational approaches to better align with the skill requirements and expectations of aspiring entrepreneurs. However, entrepreneurship engagement displayed significant strengths in important skills such as Business Management/Administration, Vocational Skills, and Flexibility and Dynamism, among many others. This

underscores the critical role of experiential learning in fostering entrepreneurial capabilities.

## 5. Discussion

The study systematically synthesized insights from peer-reviewed literature to develop an inventory of critical skills that define entrepreneurial effectiveness today. This process enabled the consolidation of diverse entrepreneurial attributes into a structured set of five broad competencies reflecting Business and Management Skills, Interpersonal and Communicational Skills, Technological and Ethical Skills, Personal Skills, and Social and Life Skills dimensions of entrepreneurship subdivided into 34 sub-skills. The relevance of this identified skill set is further substantiated by the empirical findings, wherein participants assigned high importance to many of these competencies, thereby validating their contemporary significance in the entrepreneurial context.

This study contributes to the domain by examining the perceived significance and the acquired levels of entrepreneurial skills to identify existing skill gaps, both overall and across specific dimensions, including gender, geographical location, entrepreneurship education, and engagement in entrepreneurial activities. Although participants assign high importance to the listed entrepreneurial skills, their self-reported level of expertise in these skills remains low. Inferential analysis indicates that this pattern is consistent across the population. Among the skills rated as most important are Leadership, Teamwork and Interpersonal Skills, Problem-solving and Innovation, and Effective Time Management. In contrast, the most acquired skills include continuous learning aptitude, self-efficacy and confidence, and leadership, while knowledge of laws and regulations and fundraising and financial management emerge as the least acquired skills.

The gap analysis of the importance of specific entrepreneurial skills and acquired entrepreneurial skills revealed a notable disparity, which demonstrates that the majority of entrepreneurial skills are inadequate and need the attention of relevant stakeholders for fostering a generation capable of contributing effectively to entrepreneurial ventures and the broader economy. Traditionally,

business schools and educational institutions have disseminated knowledge to entrepreneurs (Gibb, 1997). However, these traditional HEIs are not able to deliver as expected due to their function-oriented pedagogy, which focuses more on the establishment of large enterprises and the transferring of subjective knowledge without giving much consideration to creativity, imagination, risk-taking, and experiential learning (Byun et al., 2018; Higgins et al., 2013). Formal educational courses in business and entrepreneurship have been reported to be of limited success in generating entrepreneurs (Majumdar, 2019; Yang, 2016), making it necessary for HEIs to understand the gaps in the required skills. The findings suggest several targeted measures to address the identified entrepreneurial skill gaps. These include improved communication of support policies and programmes, training of trainers, establishment of incubation centres that support student-led start-ups, mentorship initiatives in collaboration with experienced entrepreneurs, and internship opportunities with start-ups. Such interventions would be most effective when preceded by a systematic assessment of existing skill deficiencies. For Indian Higher Educational Institutions, the results highlight the need to design curricula that more effectively cultivate key entrepreneurial competencies such as leadership, problem-solving and innovation, and effective time management. Particular emphasis should be placed on strengthening knowledge of laws and regulations, as well as fundraising and financial management, which emerged as the least acquired skills among participants. To further strengthen the entrepreneurship ecosystem, higher education institutions, educators, and skill development practitioners may develop targeted training programmes aligned with the critical skills identified in this study. The generally inadequate levels of entrepreneurial skills observed among participants indicate the need for structured training interventions and supportive mechanisms to bridge these gaps. Significant deficiencies were noted in areas related to AI, technology, and cybersecurity, followed by digital literacy, knowledge of laws and regulations, and data analysis and interpretation. These findings also point to the importance of addressing gender disparities in skill acquisition, particularly in technology-driven

domains. Additionally, the analysis of entrepreneurial engagement underscores the importance of experiential learning in developing entrepreneurial capabilities. Greater exposure to practical, real-world contexts can enhance skill acquisition, suggesting the value of facilitating internships with industry experts and start-up ventures to provide hands-on learning and deeper engagement with entrepreneurial processes.

Addressing another research objective relating to specific skill gaps and demographics, the Independent Sample t-test analysis indicates significant variations in skill gaps based on gender, location, entrepreneurship education, and engagement. Specifically, females associate higher importance with overall entrepreneurial skills but demonstrate higher gaps in skills such as AI, Technology, Cybersecurity, and Digital Literacy, in contrast to males. Similar findings were reported by Sanitha and Rubert (2020) on gender disparity in entrepreneurial skills, whereas Khiangte and Lalengzama (2024) found no significant difference on the basis of gender. Further exploration would be required to establish this relationship in a similar population.

Further, urban respondents generally exhibit slightly higher acquired expertise scores than rural counterparts, reflecting better access to resources and opportunities. The results are in conformity with the findings of Khiangte and Lalengzama (2024). Moreover, the significant gap difference in Language and Communication indicates challenges stemming from inadequate educational infrastructure and limited exposure to networking and language refinement that are particularly required for entrepreneurship. Findings from the sample suggest that interventions must be specifically tailored for rural youth, such as development programs to erode language and communication barriers, digital education programs, customized workshops, and soft skills training programs in rural educational institutes.

This study also attempts to examine significant differences in skill gaps on the basis of entrepreneurship education and engagement that were not attempted in previous research. A notable observation is the inadequacy of entrepreneurship education among the participants. No significant

differences were identified in the perceived importance or acquired expertise in entrepreneurial skills - both general and specific - between those who have studied entrepreneurship and those who have not. Entrepreneurship engagement is found to be significant for some crucial skills, reflecting the importance of practical experiential training in developing skills.

## 6. Conclusion

This research aimed to systematically identify contemporary entrepreneurial skills, establishing the importance of different competencies, and empirically quantifying the skill gaps, where the numbers might be used to denote the overall and relative ordering of the specific skill gaps. Since no research is available in the literature to measure the acquired skills and/or skills gap/deficit of the prospective entrepreneurs and no study is being conducted on identifying the generic and specific entrepreneurship skill gaps for offering solutions, this research makes a significant contribution by compiling an index of critical entrepreneurship skills in today's highly dynamic and competitive business environment. Transforming the index into a quantitative questionnaire capable of measuring both overall and specific skill levels enabled empirical analysis and proved effective in quantifying the perceived importance of skills, acquired skills, and the resulting skill gaps. Results indicated a deficiency in all skills among participants, with inferential statistics reflecting a similar trend within the population. Relative ordering highlighted the key skills to be prioritized in skill enhancement programs. Results indicated significant differences based on gender, location, and engagement, whereas entrepreneurship education is ineffective in creating any significant impact on skill gaps. Identifying specific skill gaps that need remedial actions and their relative ordering would also help in prioritizing the gaps to be addressed. It has more practical implications since the identified gaps are not academic, but empirical.

## 7. Limitations and Future Scope

Like any other research paper, this research was also executed under certain limitations that included a non-probability sampling, limited generalizability, a limited geographical area covered, and a single stakeholder. The listing of contemporary skills



is rooted in present literature but might require updating in a changing/volatile environment. Future research may employ advanced statistical validation techniques, such as exploratory factor analysis, to further examine and refine the entrepreneurial skills index. The effectiveness of the gap studies might be improved if the perspectives of all the stakeholders, including planners, educators, HEIs, parents, and trainers, are considered. The economic, social, political, and demographic influences on skills importance, acquired skills, and skills gaps are not undertaken in this research. All these limitations open up the scope for future research in the field.

**Conflict of Interest:** The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Ethical considerations:** This study involved anonymous responses collected through a questionnaire, and no personally identifiable information was gathered. Participation was voluntary, and all participants provided informed consent prior to completing the questionnaire. However, all research procedures adhered to ethical standards for confidentiality and participant rights.

**Consent to participate:** In this study, informed consent was obtained from all participants before data collection. Participants were provided with detailed information regarding the purpose of the research, the voluntary nature of their participation, and their right to withdraw at any stage without any consequences. Additionally, all data were collected and analyzed in a manner that ensures anonymity and confidentiality. No personally identifiable information has been recorded or included in the research findings. The study adheres to ethical guidelines to protect the privacy and rights of all participants.

**Author's contribution:** All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by Angel Josy Lakra. The first draft of the manuscript was written by Angel Josy Lakra. The final draft is edited by both the authors- Prof Geeta Sidharth and Ms Angel Josy Lakra. Both the authors read and approved the final manuscript.

## References

- Abaci, N. I. (2022). Relationship between entrepreneurship perception and communication skill: A structural equation model. *The International Journal of Management Education*, 20(3), 100725.
- Abad-Segura, E., & González-Zamar, M. D. (2019). Effects of financial education and financial literacy on creative entrepreneurship: A worldwide research. *Education Sciences*, 9(3), 238.
- Acs, Z. J., & Szerb, L. (2007). Entrepreneurship, economic growth and public policy. *Small Business Economics*, 28, 109-122.
- Agarwal, M., & Lakshmi, G. (2020). Assessing Entrepreneurial Skills and Awareness among Learners of Open Universities in India-A Study of BRAOU and UOU. *Indian Journal of Open Learning*, 29(1-3), 65-84.
- Agbim, K. C. (2013). The relative contribution of management skills to entrepreneurial success: A survey of small and medium enterprises (SMEs) in the trade sector. *International Organization of Scientific Research Journal of Business and Management*, 7(1), 08-16.
- Agut, S. and Grau, R., (2002). "Managerial Competency Needs and Training Requests: the case of the Spanish Tourist Industry". *Human Resource Development Quarterly*, 13(1), pp. 31-51.
- Agut, S., Grau, R. and Peiro, J. M., (2003). Individual and contextual influences on managerial competency needs. *Journal of Management Development*, 22(10), 906-918.
- Ahmad, N. L., Yusof, R., Ahmad, A. S., & Ismail, R. (2019). The importance of financial literacy towards entrepreneurship intention among university students. *International Journal of Academic Research in Business and Social Sciences*, 9(9), 18-39.
- Almahry, F. F., Sarea, A. M., & Hamdan, A. M. (2018). A review paper on entrepreneurship education and entrepreneurs' skills. *Journal of Entrepreneurship Education*, 21(1), 1-7.
- Audretsch, D. (2012), "Entrepreneurship research", *Management Decision*, 50(5), 755-764.
- Avkiran, N. (2000). Interpersonal skills and emotional maturity influence entrepreneurial style of bank managers. *Personnel Review*, 29(5), 654-675.

- Bawakyillenuo, S., & Agbelie, I. S. K. (2021). Environmental consciousness of entrepreneurs in Ghana: How do entrepreneur types, demographic characteristics and product competitiveness count?. *Sustainability*, 13(16), 9139.
- Bayrakdaroğlu, F., & Bayrakdaroğlu, A. (2017). A comparative analysis regarding the effects of financial literacy and digital literacy on internet entrepreneurship intention. *Journal of Entrepreneurship & Development*, 12(2).
- Bejinaru, R. (2018). Assessing students' entrepreneurial skills needed in the knowledge economy. *Management & Marketing*, 13(3), 1119-1132.
- Belitski, M., Grigore, A. M., & Bratu, A. (2021). Political entrepreneurship: entrepreneurship ecosystem perspective. *International Entrepreneurship and Management Journal*, 17(4), 1973-2004.
- Bellò, B., Mattana, V., & Loi, M. (2018). The power of peers: A new look at the impact of creativity, social context and self-efficacy on entrepreneurial intentions. *International Journal of Entrepreneurial Behavior & Research*, 24(1), 214-233.
- Bernoster, I., Rietveld, C. A., Thurik, A. R., & Torrès, O. (2018). Overconfidence, optimism and entrepreneurship. *Sustainability*, 10(7), 2233.
- Biney, I. K. (2021). Continuing education and employment creation: Investment in entrepreneurship matters. *Community Development*, 52(3), 323-341.
- Braunerhjelm, P., Desai, S., & Eklund, J. E. (2015). Regulation, firm dynamics and entrepreneurship. *European Journal of Law and Economics*, 40, 1-11.
- Bryant, P. (2009). Self-regulation and moral awareness among entrepreneurs. *Journal of Business Venturing*, 24(5), 505-518.
- Byun, C. G., Sung, C. S., Park, J. Y., & Choi, D. S. (2018). A study on the effectiveness of entrepreneurship education programs in higher education institutions: A case study of Korean graduate programs. *Journal of Open Innovation: Technology, Market, and Complexity*, 4(3), 26.
- Chakraborty, K. (2023, July 3). The Role of Entrepreneurship in Economic Development: Driving Innovation and Job Creation. Morris media. <https://www.morismedia.in/blog/the-role-of-entrepreneurship-in-economic-development-driving-innovation-and-job-creation>
- Chell, E. (2013). Review of skill and the entrepreneurial process. *International Journal of Entrepreneurship Behaviour and Research*, 19(1), 6-31.
- Cheng, C., Gao, Q., Ju, K., & Ma, Y. (2024). How digital skills affect farmers' agricultural entrepreneurship? An explanation from factor availability. *Journal of Innovation & Knowledge*, 9(2), 100477.
- Cooney, T. M., & Brophy, M. (2023). Entrepreneurial Competencies in Action: Online Fundraising Initiatives by University Students. *Entrepreneurship Education and Pedagogy*, 6(4), 721-737.
- Costin, Y., O'Brien, M. P., & Hynes, B. (2022). Entrepreneurial education: Maker or breaker in developing students' entrepreneurial confidence, aptitude and self-efficacy? *Industry and Higher Education*, 36(3), 267-278.
- Crane, F. G., & Crane, E. C. (2007). Dispositional optimism and entrepreneurial success. *The Psychologist-Manager Journal*, 10(1), 13-25.
- Cunha, C., Kastenholz, E., & Carneiro, M. J. (2020). Entrepreneurs in rural tourism: Do lifestyle motivations contribute to management practices that enhance sustainable entrepreneurial ecosystems?. *Journal of Hospitality and Tourism Management*, 44, 215-226.
- Dabic, M., Ortiz-De-Urbina-Criado, M., & Romero-Martinez, A. M. (2011). Human resource management in entrepreneurial firms: a literature review. *International Journal of Manpower*, 32(1), 14-33.
- Dal Zotto, C., & Gustafsson, V. (2008). Human resource management as an entrepreneurial tool. *International Handbook of Entrepreneurship and HRM*, 89-110.
- Durnali, M., Orakci, Ş., & Khalili, T. (2023). Fostering creative thinking skills to burst the effect of emotional intelligence on entrepreneurial skills. *Thinking Skills and Creativity*, 47, 101200.
- Eesley, C., & Wang, Y. (2017). Social influence in career choice: Evidence from a randomized field experiment on entrepreneurial mentorship. *Research Policy*, 46(3), 636-650.
- European Commission (2006), Recommendation of the European Parliament and of the Council

- of 18 December 2006 on key competences for lifelong learning (2006/962/EC)
- European Union (2017). Trans-European framework for core personal skills: Soft-Skills for entrepreneurs. Retrieved on October 29, 2024 from <https://ec.europa.eu/programmes/erasmus-plus/project-result-content/99beba40-e707-4be2-be4c-5d6f3b6faa21/R1.2.pdf>
- Fisher, R., Maritz, A., & Lobo, A. (2016). Does individual resilience influence entrepreneurial success. *Academy of Entrepreneurship Journal*, 22(2), 39-53.
- Franco, M., & Haase, H. (2009). Entrepreneurship: an organisational learning approach. *Journal of Small Business and Enterprise Development*, 16(4), 628-641.
- Fubah C. N., Kansheba J. M., Marobhe, M.I., & Mohammadparast Tabas, A. (2025), "Youth entrepreneurship: a systematic literature review of the domain and future research agenda". *Journal of Small Business and Enterprise Development*, 32(2), 496–516.
- Gagan, M. (2024). Viksit Yuva, Viksit Bharat: Fostering the Power of Young Professionals. *Chartered Secretary*. [https://www.icsi.edu/media/webmodules/CSJ/April\\_24/14.pdf](https://www.icsi.edu/media/webmodules/CSJ/April_24/14.pdf)
- Galindo, M. Á., & Méndez, M. T. (2014). Entrepreneurship, economic growth, and innovation: Are feedback effects at work?. *Journal of Business Research*, 67(5), 825-829.
- Galindo-Martín, M. A., & Méndez-Picazo, M. T. (2020). Value Creation, Innovation, and Entrepreneurship: Feedback Effects. In *Analyzing the Relationship Between Innovation, Value Creation, and Entrepreneurship* (pp. 1-20). IGI Global.
- Garaika, G., Margahana, H. M., & Negara, S. T. (2019). Self efficacy, self personality and self confidence on entrepreneurial intention: study on young enterprises. *Journal of Entrepreneurship Education*, 22(1), 1-12.
- Ghosh, J., & Anjaneyaswamy, G. (2007). The Role of Marketing Research for Entrepreneurship. *Ushus Journal of Business Management*, 6(2), 25-37.
- Gibb, A. A. (1997). Small firms' training and competitiveness. Building upon the small business as a learning organisation. *International Small Business Journal*, 15(3), 13-29.
- Gunawan, C. M., Rahmania, L., & Kenang, I. H. (2023). The influence of social influence and peer influence on intention to purchase in e-commerce. *Review of Management and Entrepreneurship*, 7(1), 61-84.
- Gundry, L. K., Ofstein, L. F., & Kickul, J. R. (2014). Seeing around corners: How creativity skills in entrepreneurship education influence innovation in business. *The International Journal of Management Education*, 12(3), 529-538.
- Hamburg, I. (2019). The importance of business research skills in entrepreneurial orientation for digital transformation. *Advances in Social Sciences Research Journal*, 6(10), 403-412.
- Hansson, B., (2001). Competency Models: Are self perception accurate enough?. *Journal of European Industrial Training*, 25(9), 428-441.
- Hartmann, S., Backmann, J., Newman, A., Brykman, K. M., & Pidduck, R. J. (2022). Psychological resilience of entrepreneurs: A review and agenda for future research. *Journal of Small Business Management*, 60(5), 1041-1079.
- Hayton, J. (2015). Leadership and Management Skills in SMEs, Vol. 224, UK Government, London.
- Hazudin, S. F., Zaki, S. M., Soffiq, M., Saripin, F. A. J., Ramayah, T., & Mohamad, N. I. (2023). Sustainable entrepreneurship practices as predictor of micro enterprises performance in rural context: a structural equation modelling approach. *Journal of Sustainability Science and Management*, 18(7), 11-35.
- Henrekson, M., & Stenkula, M. (2010). *Entrepreneurship and public policy* (pp. 595-637). Springer New York.
- Higgins, D., Smith, K., & Mirza, M. (2013). Entrepreneurial education: Reflexive approaches to entrepreneurial learning in practice. *The Journal of Entrepreneurship*, 22(2), 135-160.
- Hil, S., Ionescu-Somers, A., Coduras, A., Guerrero, M., Menipaz, E., Boutaleb, F., Zbierowski, P., Sahasranamam, S. & Shay, J. (2024). GEM 2023/2024 Global Report-25 years and growing.
- Hills, G. E. & Hultman, C. (2013). Entrepreneurial Marketing: Conceptual and Empirical Research Opportunities. *Entrepreneurship Research Journal*, 3(4), 437-448.
- Imjai, N., Nui-Suk, C., Usman, B., Somwethee, P., & Aujirapongpan, S. (2024). The influence of

- AI competency and design thinking skills on innovative entrepreneurial competency: The role of strategic intelligence amongst new age entrepreneurs in Thailand. *International Journal of Information Management Data Insights*, 4(2), 100301.
- Jain, R., & Ali, S. W. (2013). A review of facilitators, barriers and gateways to entrepreneurship: directions for future research. *South Asian Journal of Management*, 20(3), 122.
- Jardim, J. (2021). Entrepreneurial skills to be successful in the global and digital world: Proposal for a frame of reference for entrepreneurial education. *Education Sciences*, 11(7), 356.
- Kamble, S., & Mhaske, A. (2019). Challenges faced by women entrepreneurs in India: A review. *International Journal of Scientific Research and Management*, 7(9), 74–82.
- Kapil, Y., Saxena, N., & Mohan, P. (2023). Factors Promoting the Entrepreneurship Ecosystem in Heis of India and its Impact on Millennials' Education. *International Journal of Professional Business Review*, 8(4), 52.
- Kerrin, M., Mamabolo, M. A., & Kele, T. (2017). Entrepreneurship management skills requirements in an emerging economy: A South African outlook. *The Southern African Journal of Entrepreneurship and Small Business Management*, 9(1), 1-10.
- Khiangte1, R. & Lalengzama, C. (2024). Entrepreneurial Skills among Educated Youth: A Study Conducted in Core and Peripheral Area of Lunglei District, Mizoram. *International Journal of Multidisciplinary Research and Publications*, 6(08), 182-184.
- Kirkwood, J. (2009). Is a lack of self-confidence hindering women entrepreneurs?. *International Journal of Gender and Entrepreneurship*, 1(2), 118-133.
- Korber, S., & McNaughton, R. B. (2018). Resilience and entrepreneurship: a systematic literature review. *International Journal of Entrepreneurial Behavior & Research*, 24(7), 1129-1154.
- Kumari, A., & Gupta, A. (2024). An Empirical Analysis of the Determinants of Skill Gap: A Case Study of the Rural Food Processing Industry of the Bihar State of India. *AMC Indian Journal of Entrepreneurship*, 44-56.
- Kumar, S., & Meena, S. (2024, September 11). Navigating India's Skill Landscape: Bridging India's Skill Gap, Empowering India's Workforce. Press Infomation Bureau. <https://pib.gov.in/PressReleasePage.aspx?PRID=2053796>
- Kumar, S., Meena, S., & Aggarwal, R. (2024, December 25). Startup Nation- India: The Future Hub of Global Entrepreneurship. Press Infomation Bureau. <https://pib.gov.in/PressReleasePage.aspx?PRID=2087835>
- Kutzhanova, N., Lyons, T.S., & Lichtenstein, G.A. (2009). Skill-based development of entrepreneursand the role of personal and peer group coaching in enterprise development, *EconomicDevelopment Quarterly*, 23(3), 193-210.
- Lakshminarayanan, S., Pai, Y. P., & Ramaprasad, B. S. (2016). Competency need assessment: a gap analytic approach. *Industrial and Commercial Training*, 48(8), 423-430.
- Lam, W., & Harker, M. J. (2015). Marketing and entrepreneurship: An integrated view from the entrepreneur's perspective. *International Small Business Journal*, 33(3), 321-348.
- Lans, T., Wesselink, R., Biemans, H. J., & Mulder, M. (2004). Work-related lifelong learning for entrepreneurs in the agri-food sector. *International Journal of Training and Development*, 8(1), 73-89.
- Leon, R. D. (2017). Developing entrepreneurial skills. An educational and intercultural perspective. *Journal of Entrepreneurship, Management and Innovation*, 13(4), 97-121.
- Lerner, M., Zahra, S. A., & Gal Kohavi, Y. (2007). Time and corporate entrepreneurship. In *Entrepreneurial strategic processes* (pp. 187-221). Emerald Group Publishing Limited.
- Lévesque, M., & Stephan, U. (2020). It's time we talk about time in entrepreneurship. *Entrepreneurship Theory and Practice*, 44(2), 163-184.
- Lingappa, A. K., Shah, A., & Mathew, A. O. (2020). Academic, family, and peer influence on entrepreneurial intention of engineering students. *Sage Open*, 10(3), 2158244020933877.
- Llorente, I., Odriozola, M. D., & Baraibar-Diez, E. (2023). Fostering communication skills in entrepreneurship education. *Journal of Management and Business Education*, 6(1), 58-77.
- Maczulskij, T., & Viinikainen, J. (2023). Self-confidence predicts entrepreneurship and entrepreneurial



- success. *Journal of Business Venturing Insights*, 19, e00382.
- Mai, Y., Zhang, W., & Wang, L. (2019). The effects of entrepreneurs' moral awareness and ethical behavior on product innovation of new ventures: Evidence from China. *Chinese Management Studies*, 13(2), 421-446.
- Majumdar, S. (2019, October 14). Why our education system is a factory producing clerks and bureaucrats. Outlook. <https://www.outlookindia.com/national/opinion-why-our-education-system-is-a-factory-producing-clerks-and-bureaucrats-news-340483>
- Malhotra, S., & Kiran, R. (2023). Examining the Relationship between Entrepreneurial Perceived Behaviour, Intentions, and Competencies as Catalysts for Sustainable Growth: An Indian Perspective. *Sustainability*, 15(8), 6617.
- Malik, A., Onyema, E. M., Dalal, S., Lilhore, U. K., Anand, D., Sharma, A., & Simaiya, S. (2023). Forecasting students' adaptability in online entrepreneurship education using modified ensemble machine learning model. *Array*, 19, 100303.
- Martin-Rojas, R., Garcia-Morales, V. J., & Bolivar-Ramos, M. T. (2013). Influence of technological support, skills and competencies, and learning on corporate entrepreneurship in European technology firms. *Technovation*, 33(12), 417-430.
- Mason, C., & Arshed, N. (2013). Teaching entrepreneurship to university students through experiential learning: A case study. *Industry And Higher Education*, 27(6), 449-463.
- McMullen, J. S., & Dimov, D. (2013). Time and the entrepreneurial journey: The problems and promise of studying entrepreneurship as a process. *Journal of Management Studies*, 50(8), 1481-1512.
- Milosevic, M. (2018). Skills or networks? Success and fundraising determinants in a low performing venture capital market. *Research Policy*, 47(1), 49-60.
- Ministry of Education (2024). Innovation and Entrepreneurship. Ministry of Education, Government of India. Retrieved October 29, 2024 from <https://www.education.gov.in/nep/innovation-entrepreneurship>.
- Neumeyer, X., Santos, S. C., & Morris, M. H. (2020). Overcoming barriers to technology adoption when fostering entrepreneurship among the poor: The role of technology and digital literacy. *IEEE Transactions on Engineering Management*, 68(6), 1605-1618.
- Oosterbeek, H., Van Praag, M., & Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review*, 54(3), 442-454.
- Pal, R. (2024, March 23). Addressing the entrepreneurial deficit in India: India's imperative for change. Financial Express. <https://www.financialexpress.com/jobs-career/education/addressing-the-entrepreneurial-deficit-in-india-indias-imperative-for-change/3435177/>
- Pandit, D., Joshi, M. P., & Tiwari, S. R. (2018). Examining entrepreneurial intention in higher education: An exploratory study of college students in India. *The Journal of Entrepreneurship*, 27(1), 25-46.
- Pascucci, T., Cardella, G. M., Hernández-Sánchez, B., & Sánchez-García, J. C. (2022). Environmental sensitivity to form a sustainable entrepreneurial intention. *Sustainability*, 14(16), 10398.
- Patil, P. A., & Patil, S. K. (2024). Systematic Planning and Organizing Entrepreneurial Activities: A Holistic Approach for Fostering Entrepreneurial Thinking. *Journal of Engineering Education Transformations*, 37(Special Issue 2).
- PIB (2024, December 3). Ministry of Personnel, Public Grievances & Pensions. Press Information Bureau. <https://pib.gov.in/PressReleasePage.aspx?PRID=2080336>
- Pinto, P., Pallikkara, V., Pinto, S., & Hawaldar, I. T. (2024). Unveiling the entrepreneurial mindset: exploring orientation and intentions among students of prominent engineering disciplines. *Journal of Innovation and Entrepreneurship*, 13(1), 33.
- Politis, D., & Gabrielsson, J. (2009). Entrepreneurs' attitudes towards failure: An experiential learning approach. *International Journal of Entrepreneurial Behavior & Research*, 15(4), 364-383.
- Prabowo, H., Ikhsan, R. B., & Yuniarty, Y. (2022). Drivers of green entrepreneurial intention: why does sustainability awareness matter among



- university students?. *Frontiers in Psychology*, 13, 873140.
- Prince, S., Chapman, S. and Cassey, P. (2021), The definition of entrepreneurship: is it less complex than we think?, *International Journal of Entrepreneurial Behavior & Research*, 27(9), 26-47.
- Priyanka, P., & Preeti, S. (2022). Motivational factors and challenges of women entrepreneurship: insights from rural Uttarakhand. *Организационная психология*, 12(2), 56-66.
- Qin, F., & Estrin, S. (2015). Does social influence span time and space? Evidence from Indian returnee entrepreneurs. *Strategic Entrepreneurship Journal*, 9(3), 226-242.
- Salisu, I., Hashim, N., Mashi, M. S., & Aliyu, H. G. (2020). Perseverance of effort and consistency of interest for entrepreneurial career success: does resilience matter?. *Journal of Entrepreneurship in Emerging Economies*, 12(2), 279-304.
- Sánchez-García, J. C., Vargas-Morúa, G., & Hernández-Sánchez, B. R. (2018). Entrepreneurs' well-being: a bibliometric review. *Frontiers in Psychology*, 9, 1696.
- Sanitha, K.K. & Rubert, D. E. J. (2020). Skills for employment and entrepreneurship: A study among educated youth. *International Journal of Management*, 11(5).
- Santos, G., Marques, C. S., & Ferreira, J. J. (2020). Passion and perseverance as two new dimensions of an Individual Entrepreneurial Orientation scale. *Journal of Business Research*, 112, 190-199.
- Sariwulan, T., Suparno, S., Disman, D., Ahman, E., & Suwatno, S. (2020). Entrepreneurial performance: The role of literacy and skills. *The Journal of Asian Finance, Economics and Business*, 7(11), 269-280.
- Sarkar, D. & Jena, S. K. (2025). Youth in Transition: A Study of Entrepreneurial Competency and Institutional Support in Assam. *International Journal of Research Publication and Reviews*, 6(5), 15319-15326.
- Shepherd, D. A., & Patzelt, H. (2015). The "heart" of entrepreneurship: The impact of entrepreneurial action on health and health on entrepreneurial action. *Journal of Business Venturing Insights*, 4, 22-29.
- Sherman, C. L., Randall, C., & Kauanui, S. K. (2016). Are you happy yet? Entrepreneurs' subjective well-being. *Journal of Management, Spirituality & Religion*, 13(1), 7-23.
- Shir, N., Nikolaev, B. N., & Wincent, J. (2019). Entrepreneurship and well-being: The role of psychological autonomy, competence, and relatedness. *Journal of Business Venturing*, 34(5), 105875.
- Sun, J., Shi, J., & Zhang, J. (2023). From entrepreneurship education to entrepreneurial intention: Mindset, motivation, and prior exposure. *Frontiers in Psychology*, 14, 954118.
- Tripathy, M., Mishra, B., & Satapathy, G. P. (2024). Development of multi-dimensional scale to measure the abilities of rural women towards entrepreneurship. *Indian Journal of Extension Education*, 60(2), 83-88.
- Urban, B., & Richard, P. (2015). Perseverance among university students as an indicator of entrepreneurial intent. *South African Journal of Higher Education*, 29(5), 263-278.
- Vecchiarini, M., & Somià, T. (2023). Redefining entrepreneurship education in the age of artificial intelligence: An explorative analysis. *The International Journal of Management Education*, 21(3), 100879.
- Volery, T., & Pullich, J. (2010). Healthy entrepreneurs for healthy businesses: An exploratory study of the perception of health and well-being by entrepreneurs. *New Zealand Journal of Employment Relations*, 35(1), 4-16.
- Vuong, Q. H., Do, T. H., & Vuong, T. T. (2016). Resources, experience, and perseverance in entrepreneurs' perceived likelihood of success in an emerging economy. *Journal of Innovation and Entrepreneurship*, 5, 1-24.
- Xu, F., Kellermanns, F. W., Jin, L., & Xi, J. (2020). Family support as social exchange in entrepreneurship: Its moderating impact on entrepreneurial stressors-well-being relationships. *Journal of Business Research*, 120, 59-73.
- Yang, A. (2016, February 25). *Why Entrepreneurship Education Does Not Work*. Forbes. <https://www.forbes.com/sites/andrewyang/2016/02/25/entrepreneurship-education-does-not-work/#6a914fee4b06>