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Indian Female Non-Business Graduate Students' Experience: Understanding of Commercial Acumen Skills and Relevance to Employment

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training

Abstract:

Indian female graduate students have to make choices among multiple aspects of their mental and physical abilities as science students and women in a society with different gender norms in the country. However, their experiences have not been well researched within the scholarship on commercial acumen. In this study, using the phenomenological approach, we explored the phenomenon of commercial acumen in the Indian female graduates studying science course mean-

ing non-business course. The participants were diverse in terms of their status as students, current students and alumni. A small number of employers also participated in the study. A survey with open-ended and closed questions was used to evaluate the understanding and relevance of commercial acumen skills in the female graduate students, alumni, and employers. The findings of 127 responses indicated that the female graduate students perceived being on the non-business course as a limited experience of understanding of commercial acumen in the context of employability skills. This study recommends a reflection on the part of the educators to highlight the relevance and definition of commercial acumen during degree programmes.

Introduction

India has one of the largest education systems in the world (third to China and the United States). However, in 2005, the average Indian males complete 2.9 years in school and females 1.8 years (Cheney et al., 2005). Moreover, high competition exists for entry into Higher Education (HE). As of 2021, India recorded a higher nationwide share of men with at least 10 years of schooling than that of women. Around half of the male population age between 15 and 49 years stayed in school for at least 10 years, compared to only 41 percent of their female counterparts (Rathore, 2023). In a country with a high population, 2.5 million new graduates enter the employment sector annually. The university system in India is complex, with university types such as State universities, Deemed universities (aided and unaided), and Private universities; graduate employability is seen as low in students who graduate in universities that do not have the highest ranking (Cheney et al., 2005; Sharma & Sharma, 2015).

Women in undergraduate engineering and technology programmes at Indian universities represent about 28% of undergraduates and 30% of doctoral students. Women represent around 30% of professional and technical employees and around 14% of Research and Development employees (Gupta, 2020). Antithetical, for computer science in India, between 2015 and 2018, women constituted around 40% of undergraduate



students and around 50% of master's students in most Indian colleges and universities (Saxena, 2021). Indian women are noted to think that '*gender is not the deciding factor in who could do well in computer science*' (Saxena, 2021). Indian women are noted to be interested in computing roles for family reasons: computing roles are seen as secure office jobs, undertaken indoors rather than outdoors and rely on mental ability and not physical ability. Computing offers relatively high pay and flexibility in location, giving freedom and independence. The culture in India for those involved in computing displays a high social status, with elements such as hard work, dedication, intelligence and being female-friendly (Saxena, 2021; Varma & Kapur, 2010).

The number of women in work is often less than that of graduates. Gender inequality in the workplace continues to be an issue. The availability of opportunities for the career progressions of women continues to be negatively affected by gender stereotypes, which shape managerial behaviour and occupational outlooks in the workplace with patriarchal expectations (Tabassum & Nayak, 2021). Even more, girls choose professional careers over entrepreneurship (Sangare & Palsapure, 2024). Entrepreneurship requires professionals to have commercial acumen, including abilities and inquisitive nature exhibiting self-motivation, proactive leadership, relentless determination, passion, visionary thinking, risk-taking, setting ambitious targets and inspiring others. Entrepreneurship can impact their professionalism, making them not only attractive as an entrepreneur but also as an employee (Sangare & Palsapure, 2024).

When reviewing the curriculum design for mechanical engineering programmes in developing countries, Saha (2010) noted that a lack of industrial input was the predominant component which should be addressed, forming an essential component of the curriculum framework (Saha, 2010). Khanduja et al. (2009) note a move from the 'science-based conceptual engineer' to the 'science-based entrepreneurial engineer'. Thus, requiring educators to reflect on the changing nature of curriculum design (Khanduja et al., 2009).

The purpose of the current study is to explore the phenomenon of commercial acumen in the Indian female graduates studying science course meaning non-business course. The research aims to evaluate the understanding and attention given to 'commercial acumen' by the staff and students during the educational courses to impact the development of the abilities valuable to students and employers after the courses, such as entrepreneurial skills. This case study, therefore, through the lens of the curricula development to maintain relevance to all parties and offer an enhanced career path to the learners and prepare learners as more valuable employees for the employers.

Given these reasons, it is crucial to know the priorities of relevant stakeholders (students, educators, employers). The survey was designed to capture the stakeholders' priorities so that the findings could inform course development. Further, to develop better teaching practices, it is crucial to research entrepreneurship teaching (Clarke et al., 2020). Therefore, the study would inform curriculum content such that learners may execute their best in their careers beyond graduation and be prepared for the employment market.

The study has the following objectives:

- Establish participants' prior understanding of traditional business education.
- Evaluate the understanding of 'commercial acumen' in a target audience: students (learners), employees and employers.
- Appraise the relevance of employment and an understanding of commercial acumen skills.

Having understood the past research through the literature review, the methodology discusses the questionnaire to identify gaps in the graduates' current skills and understanding of commercial acumen. The questionnaire's objective was to inform students' level of commercial acumen skills gained while studying current courses and the commercial acumen skills demanded by prospective employees/entrepreneurs.

The results present the analysis of the responses of the surveyed students, employees, and alumni. The discussion will enhance the understanding of the curricular developers informing them about the priorities and requirements of the students, employees, and employers. Finally, the paper will conclude with the components essential for equipping the students with commercial acumen in line with the current employment market in India.

Literature Review

Human Capital can be viewed as the sum of the skills and abilities an individual has gained through education or experience (Aliko & Aibieyi, 2014; Kucharčíková, 2011). An employer may view this as an asset and value to the business's performance. According to Baron (2011), the skills and abilities must be related to



how they add value and contribute to the human capital and not be considered in isolation (Baron, 2011). Watson (2013) acknowledges the real-world context of skills and behaviours and using a pragmatic view suggests recognising the value of commercial skills in a real-world context (Watson, 2013). The context in which an entrepreneurial action may happen is problematic to define. Gaddefors and Anderson (2017) argue that entrepreneurial behaviours stem from the context in which those behaviours arise. In other words, entrepreneurial behaviours emerge from the context itself (Gaddefors & Anderson, 2017). Therefore, understanding the added value of enterprise and entrepreneurship is convoluted and confusing because the forms of these skills evolve as the contexts evolve. An example of the contextual approach could be a scientist who develops a funding bid using their writing expertise to become more successful in securing research funding. This would allow the scientists to reach a more significant level of research. In the context of entrepreneurial skill and ability, the scientists understand commercial need for funding bids.

The literature shows that around 10% of students aspire to start a business after completing formal education (Jones & Penaluna, 2013). Business schools have offered Entrepreneur Education (EE) programmes and courses for several years. However, as the goals and priorities of the EE have changed gradually, entrepreneurship is no longer seen as an exclusive field of business majors, and the number of EE programmes offered to non-business students is growing (Roberts, 2012). EE is valuable because non-business graduates can be creative and have entrepreneurial ideas but cannot turn those ideas into business ventures. Jones & Jones (2014) stress the value of EE for non-business graduates by emphasising that many non-business students may have creative and entrepreneurial ideas but lack the entrepreneurial skills to turn their ideas into business ventures (Jones & Jones, 2014).

According to Åstebro et al. (2012), non-business students from science and engineering have the potential to turn creative ideas into successful ventures if they improve their entrepreneurial skills (Åstebro et al., 2012). With the increasing popularity of start-ups and entrepreneurial enterprises in various sectors and the funding from the government for graduate entrepreneurship, many universities are now providing EE to their non-business students, both at the undergraduate and postgraduate levels focusing on new venture creation (Klofsten et al., 2021). However, since most non-business students would have no business experience while attending EE courses in their faculties, it is important to design them based on discipline (Jungnickel et al., 2009). Ozdemir et al. (2019) highlighted the importance of contextualising EE with non-business degrees (Ozdemir et al., 2019). It can generally have a positive effect on the entrepreneurial intentions of students from different disciplines such as science and engineering but has a more significant impact on specific target groups such as business students (Amjad et al., 2020). As recognised by Hasanah et al. (2016) and Yami et al. (2020), the review results show that emerging EE educational requirements must be methodologically adapted to the unique needs of various groups of students (Hasanah et al., 2016; Yami et al., 2021).

There are only a few examples which illustrate that among science and engineering schools which assess students engaging in new start-up ventures, EE is mainly offered by business schools (Arasti et al., 2012; Fayolle et al., 2016; Gandhi et al., 2016; Jamieson, 1991). The Europe 2020 Strategy (European Commission, 2020) also reported EE as the key to the competencies of unlocking personal potential, creativity, and self-initiative – all traits contributing to employability. According to the Researcher Development Framework (Vitae, 2011), employers in the science and engineering sectors seek a certain degree of commercial acumen skills in new employees. In this respect, Clarke et al. (2020) revealed that if EE is delivered relevant to the discipline of the students, a greater level of engagement is realised with the students. Having commercial acumen is very important to market innovation. According to Martin & Iucu (2014), graduates with essential commercial awareness know how economic and political trends can impact their chosen industry. Still, science students often lack commercial acumen, found even less in female students. The benefits of EE are not limited to start-ups, innovative associations, and new jobs. At the higher education level, the main purpose of EE should be the development of entrepreneurial skills and attitudes. In this context, entrepreneurship programs may have objectives such as (a) awareness and motivation (b) training students in terms of starting and running a business (c) identifying and exploiting opportunities (Martin & Iucu, 2014).

Methodology

A survey was designed using 11 questions in 3 themes (student, alumni and in-employment or employer) using a mix of open and closed questions to elicit responses which allow prior background to be established,



and to investigate the personal understanding of the term 'commercial acumen' in each respondent. Survey research is generally used for exploratory and explanatory research. Surveys are used to answer 'who', 'what', 'how much', 'how many', and 'where' research questions using a deductive approach (Harding et al., 2005). The survey methodology is employed in business and management research (Saunders & Bezzina, 2015). Online survey questionnaires efficiently collect quantitative and qualitative data (Corbin & Strauss, 2008). Therefore, the chosen research methodology facilitated actions to meet the research objectives in line with the research purpose and existing knowledge and resources.

The numeric rating scale (NRS) of 0-10 is a technique commonly used for collecting quantitative data. It is a reliable and valid measure of respondents' perception if a high level of consistency is associated with the responses on the 0-10 NRS (Farrar et al., 2008). It is a type of Likert scale allowing scientific reasoning and interpretation of the results in a specific research context. The analytic numerical data thus collected can be analysed statistically for objective data interpretation (Fayyad et al., 1996; Ngai et al., 2009) while capturing subjective perceptions of respondents and can be used to generalise the respondent's views (Carifio & Perla, 2008). Given the advantage of the survey in capturing qualitative data through the open-ended questions and the NRS, a survey instrument using a 0-10 scale was used to achieve the research objective.

The survey questionnaire aimed to identify gaps between (i) the skills and understanding of science graduates while studying the current courses and (ii) the employees' expectations for future employees. It was expected that the survey outcome would inform the level of commercial acumen skills missed by the students and the commercial acumen skills demanded by prospective employees/entrepreneurs. The results were to be used to inform the course to enhance students' entrepreneurship education that would be competent to increase students' employability and address the future needs of employers.

A survey questionnaire was created based on the literature and experts' input. The primary source of the experts' information was the webinar conducted by the British Council on the 'Award announcement and orientation ceremony' of the Going Global Partnerships Grant on 21 January 2022. The Award announcement and orientation ceremony brought together key Going Global Partnerships Grant stakeholders to formally launch the programme and announce grant awards to successful applicants. The event was participated by senior leaders from the British Council and Higher Education sector who discussed several aspects of designing effective teaching and learning programmes of study in the TNE landscape.

The survey was distributed to current students at the Indian university, people working in the industry (employers) in Delhi, and university alumni. The self-report survey instrument was designed, administered, and distributed using a secure online survey tool developed by Jisc (Jisc Online Surveys, 2022). The survey took approximately seven (7) minutes to complete and was entirely anonymous, i.e., no names or student ID numbers were asked. All participants in this research were invited to participate through email. The invitation email provided relevant information to the participants and shared the survey link.

The first page of the survey informed the study objectives. The participants had the right to withdraw at any time. The voluntary nature of the survey was mentioned, and the participants were ensured that it would not affect their studies or employment. The data was collected, stored, and managed securely following the General Data Protection Regulations (GDPR, UK) to ensure best practices were observed. The participants were informed that the data was held on the university intranet, accessed only by the research team, stored using password-protected files and deleted securely upon the completion of the project. The data were processed anonymously. The data will be archived once the course has been developed, i.e., 2 months after the project has been completed. The contact details of the ethics committee were provided in the information section. The participants could only participate after answering the mandatory question by answering yes to the question related to the 'consent'.

A survey was designed using 11 questions, strategically targeted to capture the views of 3 types of participants which included students, alumni, and employed or self-employed people. A mix of open and closed questions was used to elicit responses which allowed the prior background to be established and to investigate the participants' understanding of the term 'commercial acumen' individually and collectively. The survey used a ten-point Likert scale (Morrison-Saunders et al., 2019). The questionnaire evaluated the appropriateness of enterprise education for female computer science students in India. Thus, it was important to collect data from the learners, alumni, and employers. Given the research objective, purposive sampling was used as certain information was required from the targeted individuals.



The study evaluated the meaning of commercial acumen from the various groups' perspective and sought to identify any commonalities or differences in their perspectives. The survey started by establishing the experience of the respondent in terms of if they are a current student, employed or an alumnus. This allowed the researchers to interpret meaning from the lens of the respondent. The interpretive stance allows the development of theories and concepts drawn from the responses. The open questions were structured to allow the respondents to provide their comments. It allowed direct comparisons of the responses and gave the appropriate evaluation of the current EE in the target population. Though the survey was entirely anonymous, respondents who wished to engage in further dialogue with the research team were free to put their email addresses for the research team to reach out to them.

A structured survey questionnaire using mixed-type (closed and open) questions was conducted in English and the research design was as follows:

Table 1. Research design

Research question	Data type	Variables	Analysis
Respondent's category	Nominal	Student Employed/Self-employed Alumni	Descriptive analysis
Respondents' Demographics	Nominal	Location Highest level of education Primary subject studied Enrolment year Graduation year Current employment status Business qualification Field of expertise Years of work experience Sector Field of expertise/main job	Descriptive analysis
Meaning of commercial acumen	Non-numerical	Multiple choice with an option to add responses	Descriptive analysis and Content Analysis
Skills employers look for when recruiting	Non-numerical	Multiple choice with an option to add responses	Descriptive analysis and Content Analysis
Importance of commercial acumen to crack a job interview	Scalar	Likert scale, 1 to 10 represents the importance	Non-parametric analysis
Course/paper/training on commercial acumen can improve the participant's chances of landing a job	Nominal	Binary questions, Yes or No	Descriptive analysis
Graduate training programme	Nominal	Binary questions, Yes or No	Descriptive analysis
Learning gained from the graduate training programme	Non-numerical	Text responses	Content Analysis
Impact of skills learnt from the degree course on the job	Nominal	Binary questions, Yes or No	Descriptive analysis

Source: Research design by Authors



Results

The population size of the respondents was n=127, with 79 students, 9 alumni and 39 employed or self-employed. In total, 128 participants attempted the survey. One participant withdrew from completing the survey by clicking 'No' to the first question. In total 127 responses were received at the end of the survey. The results are discussed from the three participants' groups: Students, Employed or Self-employed and Alumni. The last section discusses the responses related to the commercial acumen. The profile of the respondents is provided in Table 2.

Table 2. Respondents' Profile

Participants	N	%	Participants type from total responses received	127	100%
Total participants attempted	128	100%	Student	79	62.2%
Number of participants withdrawn	1	0.8%	Employed/Self-Employed	39	30.7%
Total responses received	127	99.2%	Alumni	9	7.1%
Participants' highest level of education			Participants' primary subject		
Students			Physics	69	88.4%
Undergraduate	68	86.1%	Chemistry	4	5.1%
Graduate	5	6.3%	English	2	2.6%
Postgraduate	5	6.3%	Mathematics	2	2.6%
Doctorate	1	1.3%	Biology	1	1.3%
Employed/Self-Employed			Employed/Self-Employed primary sector		
Undergraduate	1	2.6%	Government	4	10.3%
Graduate	5	12.8%	Private	30	76.9%
Postgraduate	31	79.5%	Self-employed	5	12.8%
Doctorate	2	5.1%	Alumni		
Alumni			Government	0	0.0%
Undergraduate	1	11.1%	Private	3	33.3%
Graduate	3	33.3%	Self-employed	1	11.1%
Postgraduate	5	55.6%	Unemployed	5	55.6%
Doctorate	0	0.0%	Business qualification		
Students enrolled in the university			Students		
2016	2	2.5%	Yes	0	0%
2017	1	1.3%	No	79	100.0%
2018	1	1.3%	Employed/Self-Employed		
2019	38	48.1%	Yes	28	71.8%
2020	15	19.0%	No	11	28.2%
2021	15	19.0%	Alumni		
2022	7	8.8%	Yes	0	0%
			No	9	100%

Important of commercial acumen to crack a job interview			Students – Years of work experience				
Students	0	40	50.6%	0	1	1.3%	
	1-5	51	64.6%	1	27	34.2%	
	6-10	28	35.4%	2	8	10.1%	
	9-10	16	20.3%	3	2	2.5%	
				10	2	2.5%	
			No reply	39	49.4%		
Employed/Self-Employed			Course/paper/training on commercial acumen improve chances of landing a job				
Students	1-2	9	23.1%	Students			
	1-5	19	48.7%		Yes	69	87.3%
	6-10	20	51.3%		No	10	12.7%
	9-10	8	20.50%				
Alumni			Employed/Self-Employed				
Alumni	1-2	4	44.4%	Alumni	Yes	32	82.1%
	1-5	4	44.4%		No	7	17.9%
	6-10	5	55.6%		Yes	9	100%
	9-10	2	22.2%		No	0	0%
Number of employees in the <i>employed/self-employed</i> companies			Graduate training programme				
Employed/Self-Employed	0-10	2	5.1%	Employed/Self-Employed	Yes	19	48.7%
	11-50	7	18.0%		No	20	51.3%
	51-100	3	7.7%		Alumni		
	101-250	7	18.0%	Yes	4	44.4%	
	251-1000	10	25.6%	No	5	55.6%	
	>1000	10	25.6%				

Source: Results of the data analysis by Authors

Students

Of the total 127 respondents, 79 (62.2%) respondents were current students: 68 (86.1%) undergraduates, 5 (6.3%) graduates, 5 (6.3%) postgraduates, and a doctorate. Of the 78 undergraduate, graduate, and postgraduate students, 69 (88.4%) studied Physics. The remaining 9 (11.6%) studied Chemistry, English, Mathematics, and Biology. The doctoral student was from the biology subject area. No students qualified in a business degree/subject. All students studied in the university between 2016 and 2022, with half of the students (N=38, 48.1%) starting from 2019, and one-fifth of students in 2020 and 2021 (N=15, 19.0%). Out of the total students, 27 (67.5%) students had no work experience; 12 (30%) students had work experience between 1 and 3 years and 1 student had 10 years of work experience. 39 (49.4%) students did not respond, which could indicate that they had no work experience. 5 graduates in Physics, English, Political Science and Science had no work experience. Likewise, 5 postgraduates in Physics, Computing and Geophysics had no work experience. The doctoral student had no work experience. Most respondents agree that the commercial acumen training would improve their chances of landing a job, including 69 (87.3%) students. Contrarily, in all respects, having a sense of commercial acumen was perceived as not important by the students. On the ten-point Likert Scale, where 1 was not important and 10 is very important, 40 (50.6%) students voted for 1 or 2, 51 (64.6%) students voted for ≤ 5, 16 (20.3%) students voted for either 9 or 10, and 28 (35.4%) students voted for ≥ 5.



Employed or Self-employed

Of the total respondents, 39 (30.7%) participants were employed or self-employed. The participants included 1 (2.6%) undergraduate, 5 (12.8%) graduates, 31 (79.5%) postgraduates and 2 (5.1%) doctorates. Four (10.3%) were employed in the government sector, 30 (76.9%) were employed in the private sector and 5 (12.8%) were self-employed. 28 (71.8%) of employed/self-employed had a business qualification. 19 (48.6%) participants worked in companies with less than 250 employees, and of these 19, 5 (10%) had graduate training programmes. 20 (51.2%) participants worked in companies with more than 250 employees, of which 14 (70%) stated that their company had a graduate training programme. The majority 32 (82.1%) of employed/self-employed thought commercial acumen training would improve their chances of landing a job. 15 (46.9%) participants worked in companies with graduate training programmes. 23 (71.9%) of them had a business qualification.

Alumni

The third group of participants was alumni. They were 9 (7.1%) participants, and none of them had a business qualification. Participants either had no experience or less than 2 years of work experience. Amongst them, 6 (66.7%) were in education, 2 (22.2%) were not employed and 1 (11.1%) was an engineer. Only 2 (22.2%) of these participants felt they have used the skills they learnt in their bachelor's degree at their current employment. 4 (44.4%) respondents perceived commercial acumen as being of low importance, i.e., 1 or 2 pt. on the 10-point Likert Scale, and the rest of the 5 (55.6%) respondents rated them to be highly important, scoring between 8 and 10 on the same scale. All participants agree that a commercial acumen course would improve an individual's chance of landing a job.

Commercial Acumen

Most students employed or self-employed, and alumni understood the meaning of commercial acumen as '*to understand how the organisation works as a whole, in line with specific values, targets and goals.*' The second most popular meaning understood by the participants was '*value creation, innovation, and consumer experience*', and the third popular one was '*an understanding of the factors that determine the performance of the company*'. The responses received from the participants were reasonably evenly divided when asked '*what do you feel employers look for when recruiting?*' Most participants thought the primary criteria was '*subject knowledge*', followed by '*business skills*.' The employed/self-employed valued '*subject knowledge*' and '*leadership skills*' highest, and '*business skills*' as the third important criterion. Alumni rated '*soft skills*' as equally important criteria. From the total participants, the sense of commercial acumen in a job interview was seen as very important (rated as 9 or 10 on a 10-point scale) by 26 (20.5%) participants, important (rated between 6 and 10 on a 10-point scale) by 53 (41.70%) participants, and very less important (rated as 1 or 2 on a 10-point scale) by 53 (41.70%) respondents. Unexpectedly, participants had a contradictory perspective. A few participants felt that a sense of commercial acumen is not important in a job interview; however, these participants acknowledge that commercial acumen does improve an individual's chance of landing a job. This suggests some confusion with the meaning of the term '*commercial acumen*' interpreted by the participants.

Discussion

Students' perspectives

Most students from science disciplines overwhelmingly feel that the commercial acumen course or training will support them in landing employment opportunities after their studies. These students had no work experience, so they must have formed their own ideas and beliefs about what constitutes commercial acumen and why it might be valuable. The responses from alumni were evenly distributed concerning the value of commercial acumen skills. Only a minority of alumni said they used the skills learnt from their degree. This implies a change in the skills needed for a career than that gained through university studies. Indeed,



the literature has reported that most of those employed in education considered the sense of added value and necessity of commercial acumen skills in this employment context to be low.

Employed or Self-employed perspectives

The respondents who were employed or self-employed presented a completely different perspective. The respondents of larger organisations with graduate training schemes strongly believed that commercial acumen is important. Of the 20 employed/self-employed and without a graduate training scheme, 10 of them considered that a sense of commercial acumen was not important in a job interview. Their responses were between 1 and 3 on the 10-point Likert scale. Nearly half of this group (N=9) chose between 7 and 10 on the Likert Scale, concurring that commercial acumen training would improve the chances of landing a job. Thus, these respondents were equally divided on the importance of the graduate training scheme. Out of 19 participants having a graduate training scheme in their companies, 11 strongly agreed that the commercial acumen course will improve their chances of landing a job, responding between 7 and 10 on the 10-point Likert Scale. The other 8 respondents too agreed with it. The 2 participants with over 10 years of work experience also agreed. The data demonstrate a direct relationship between work experience, a graduate training scheme, and the value of commercial acumen skills. This establishes that if a participant has a business qualification, they are likely to value the business qualification that supports them in landing a job. 23 of the 39 participants from this category have a business qualification and feel it supports getting a job. Of these 39 participants in this category, 26 participants with over 10 years of work experience responded positively to whether commercial acumen skills improve the chances of getting a job.

Commercial Acumen perspective

The data demonstrate a positive correlation between the length of work experience and an appreciation of the relevance of commercial acumen skills. This implies that people understand what commercial acumen skills mean, and its relevance with employment after employment. The contradictory responses from students and alumni indicated that they were unclear of the theoretical definition of commercial acumen; the perception is that it has value, but a fuller and clearer understanding of that value is realised when employed. This is supported in the literature (Clarke et al., 2020) where relevance is seen as fundamental and key to the understanding of commercial acumen in taught courses. There is a perceived value in commercial acumen training, but the current taught content is unclear in how it defines that value. Therefore, from the data in this case study the gaps in current EE in this context are 'relevance' and 'definition'; the taught material and the delivery of that material should reflect the need for clarity in relevance and definition to enable the learners to fully appreciate the value of commercial acumen.

Conclusions

The study concluded that redefining entrepreneurial education and positive impact of entrepreneurial skills, education with the curriculum to enhance the commercial understanding of the students plays an essential role in the participants' capacity to adjust to the commercial acumen skills demanded by prospective employees/entrepreneurs, and to turn their ideas into business ventures. The findings also show that the female graduate students perceived, being on the non-business course as a limited experience of understanding of commercial acumen in the context of employability skills. This study highlights the deficit model of the non-business course as a provider of commercial acumen skills and overlooks how the commercial acumen understanding can support students' employability and career development. Thus, future research should aim to explore the experiences of non-business students and the transformative potential of the commercial acumen skills courses/trainings.

The findings from this study also showed a positive relationship between work experience, a graduate training scheme, and commercial acumen skills. This suggests that if a participant has a business qualification, they are far more likely to land a job. Students and alumni appear to have mixed views on what commercial acumen means to them and its perceived value. However, they understand the importance of having



entrepreneurial skills for better changes with employment. The perception of value-to-self increases linearly with work experience.

Finally, the study shows a gap in the current EE curriculum where the relevance and definition of commercial acumen are unclear for undergraduates and alumni with little work experience. This study, therefore, recommends a reflection on the part of the educator and curriculum developers to highlight the relevance and definition of commercial acumen during their undergraduate degree. The current research is at a very nascent stage. Further research in this context would be to evaluate the meaning of 'commercial acumen' not only from the respondents' perspectives, but also in the context of work and employability, inform curriculum design and development.

Disclosures and declarations

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Data Availability (data transparency)

The data was collected through Jisc online survey and is stored on the University of Central Lancashire (UCLan) sharedrive. The data is accessed by the UCLan research team only. The data will be stored for seven years only. The data will be deleted after seven years. The results are presented anonymously. The data can be made available by contacting the corresponding author.

Authors' contributions

All authors contributed substantially to the conception and the design of the research project and the research activities. A.C. did the literature review. All the authors operationalised the survey questions. R.T. designed the survey. M.B. pioneered the data acquisition from the relevant participants. R.T. analysed the data, and A.C. and R.T. interpreted the data. A.C. and R.T. wrote the main manuscript, contributing to the critical intellectual content. The work was reviewed critically by A.C., R.T. & M.B. All authors are accountable for all aspects of the work, including accuracy and integrity. R.T. did the editing, formatting, referencing, and final submission.

References

- Alika, I. J., & Aibieyi, S. (2014). Human capital: Definitions, approaches and management dynamics. *Journal of Business Administration and Education*, 5(1), 55-78.
- Amjad, T., Rani, S. H. B. A., & Sa'atar, S. B. (2020). Entrepreneurship development and pedagogical gaps in entrepreneurial marketing education. *The International Journal of Management Education*, 18(2), 100379.
- Arasti, Z., Falavarjani, M. K., & Imanipour, N. (2012). A Study of Teaching Methods in Entrepreneurship Education for Graduate Students. *Higher education studies*, 2(1), 2-10.
- Åstebro, T., Bazzazian, N., & Braguinsky, S. (2012). Startups by recent university graduates and their faculty: Implications for university entrepreneurship policy. *Research policy*, 41(4), 663-677.
- Baron, A. (2011). Measuring human capital. *Strategic HR Review*, 10(2), 30-35.



- Carifio, J., & Perla, R. (2008). Resolving the 50-year debate around using and misusing Likert scales. *Medical education*, 42(12), 1150-1152.
- Cheney, G. R., Ruzzi, B. B., & Muralidharan, K. (2005). A profile of the Indian education system. *Prepared for the New Commission on the Skills of the American Workforce*, 228-253.
- Clarke, A. P., Cornes, C., & Ferry, N. (2020). The use of self-reflection for enhanced enterprise education: a case study. *Education+ Training*, 62(5), 581-598.
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Sage Publications, Inc. <https://doi.org/10.4135/9781452230153>
- Farrar, J. T., Troxel, A. B., Stott, C., Duncombe, P., & Jensen, M. P. (2008). Validity, reliability, and clinical importance of change in a 0—10 numeric rating scale measure of spasticity: a post hoc analysis of a randomized, double-blind, placebo-controlled trial. *Clinical therapeutics*, 30(5), 974-985.
- Fayolle, A., Verzat, C., & Wapshott, R. (2016). In quest of legitimacy: The theoretical and methodological foundations of entrepreneurship education research. *International Small Business Journal*, 34(7), 895-904.
- Fayyad, U. M., Piatetsky-Shapiro, G., & Smyth, P. (1996). Knowledge Discovery and Data Mining: Towards a Unifying Framework. *KDD-96 Proceedings*, 82-88.
- Gaddefors, J., & Anderson, A. R. (2017). Entrepreneursheep and context: when entrepreneurship is greater than entrepreneurs. *International journal of entrepreneurial behavior & research*, 23(2), 267-278.
- Gandhi, S. J., Beruvides, M. G., Taghizadeh, S., & Cross, J. A. (2016). A Comprehensive Review of Entrepreneurship Course Offerings in Engineering Programs. *2016 ASEE Annual Conference & Exposition*, 16248.
- Gupta, N. (2020). Patriarchy reinforced or challenged? A study of engineering students in an elite Indian institute. *Gender, Technology and Development*, 24(2), 250-270.
- Harding, A., Kaczynski, D., & Wood, L. (2005). Evaluation of blended learning: analysis of qualitative data. *Proceedings of the Blended Learning in Science Teaching and Learning Symposium*, 56-62.
- Hasanah, H., Malik, M. N., & Dirawan Darma, G. (2016). Effectiveness the Use Of Entrepreneurship Learning Module Based Tutorial Multimedia In Vocational High School. *Man In India*, 96(9), 3319-3326.
- Jamieson, I. (1991). School work and real work: economic and industrial understanding in the curriculum. *The Curriculum Journal*, 2(1), 55-68.
- Jisc Online Surveys. (2022). *Online Surveys* <https://www.onlinesurveys.ac.uk/>
- Jones, C., & Penaluna, A. (2013). Moving beyond the business plan in enterprise education. *Education+ Training*, 55(8/9), 804-814.
- Jones, P., & Jones, A. (2014). Attitudes of Sports Development and Sports Management undergraduate students towards entrepreneurship: A university perspective towards best practice. *Education+ Training*, 56(8/9), 716-732.
- Jungnickel, P. W., Kelley, K. W., Hammer, D. P., Haines, S. T., & Marlowe, K. F. (2009). Addressing competencies for the future in the professional curriculum. *American Journal of Pharmaceutical Education*, 73(8), 156.
- Khanduja, D., Singla, V., & Singh, R. (2009). Entrepreneurial ambience of engineering education in India. *International Journal of Indian Culture and Business Management*, 2(4), 341-355.
- Klofsten, M., Jones-Evans, D., & Pereira, L. (2021). Teaching science and technology PhD students in entrepreneurship-potential learning opportunities and outcomes. *The Journal of Technology Transfer*, 46(2), 319-334.
- Kucharčíková, A. (2011). Human capital—definitions and approaches. *Human Resources Management & Ergonomics*, 5(2), 60-70.
- Martin, C., & Iucu, R. B. (2014). Teaching entrepreneurship to educational sciences students. *Procedia-Social and Behavioral Sciences*, 116, 4397-4400.
- Morrison-Saunders, A., Hughes, M., Pope, J., Douglas, A., & Wessels, J.-A. (2019). Understanding visitor expectations for responsible tourism in an iconic national park: Differences between local and international visitors. *Journal of Ecotourism*, 18(3), 284-294.
- Ngai, E. W., Xiu, L., & Chau, D. C. (2009). Application of data mining techniques in customer relationship management: A literature review and classification. *Expert systems with applications*, 36(2), 2592-2602.
- Ozdemir, D., Dabic, M., & Daim, T. (2019). Entrepreneurship education from a Croatian medical student's perspective. *Technology in Society*, 58, 101113.



- Rathore, M. (2023). *Women and men with at least 10 years of schooling India 2019-2021, by area* <https://www.statista.com/statistics/1303339/india-gender-education-gap-by-area/#:~:text=As%20of%202021%2C%20India%20recorded,percent%20of%20their%20female%20counterparts>
- Roberts, J. S. (2012). Infusing entrepreneurship within non-business disciplines: Preparing artists and others for self-employment and entrepreneurship. *Artivate*, 1(2), 53-63.
- Saha, S. K. (2010). *Curriculum design of mechanical engineering in a developing country*. Proceedings of the Third International Symposium for Engineering Education, University College Cork, Ireland.
- Sangare, M. M. A., & Palsapure, D. (2024). A Study on Career Aspirations of College-Going Girls in Professional Qualification Versus Entrepreneurship.
- Saunders, M. N., & Bezzina, F. (2015). Reflections on conceptions of research methodology among management academics. *European management journal*, 33(5), 297-304.
- Saxena, P. (2021). Gender and Computer Science Debate at Indian Institutes of Technology. *International Journal of Gender, Science and Technology*, 13(2), 88-109.
- Sharma, S., & Sharma, P. (2015). Indian higher education system: challenges and suggestions. *Electronic Journal for Inclusive Education*, 3(4), 6.
- Tabassum, N., & Nayak, B. S. (2021). Gender stereotypes and their impact on women's career progressions from a managerial perspective. *IIM Kozhikode Society & Management Review*, 10(2), 192-208.
- Varma, R., & Kapur, D. (2010). Access, satisfaction, and future: Undergraduate education at the Indian Institutes of Technology. *Higher Education*, 59, 703-717.
- Vitae. (2011). *Researcher Development Framework* <https://www.vitae.ac.uk/vitae-publications/rdf-related/researcher-development-framework-rdf-vitae.pdf/@download/file/Researcher-Development-Framework-RDF-Vitae.pdf>
- Watson, T. J. (2013). Entrepreneurial action and the Euro-American social science tradition: pragmatism, realism and looking beyond 'the entrepreneur'. *Entrepreneurship & regional development*, 25(1-2), 16-33.
- Yami, S., M'Chirgui, Z., Spano, C., & Barykina, O. G. (2021). Reinventing science and technology entrepreneurship education: The role of human and social capitals. *Technological Forecasting and Social Change*, 164, 120044.