

“A COMPARATIVE STUDY OF ENGINEERING AND MANAGEMENT STUDENTS OF NORTH KARNATAKA ON SIGNIFICANCE OF ENTREPRENEURIAL COMPETENCIES”

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ABSTRACT

Self-reliance is the major mantra for sustained performance. Being entrepreneurial minded is the lifeline for independent and enhanced standard of living. This necessitates emphasis on importance of entrepreneurial competencies among the youth which has always been a greatest demographic dividend of India. It’s the time to be innovative to replace the global supplies with the local supplies and be self-reliant and entrepreneurship is the key for it. Ecosystem plays a major role in boosting the entrepreneurial spirit and make individuals to be practitioners of entrepreneurship. So education is a very important component of the entrepreneurial ecosystem that can be a best catalyst in boosting entrepreneurial competencies among students who can be future entrepreneurs. The major objectives of this study are to determine the entrepreneurial competencies among the engineering and management students and examine the difference in the level of competencies among the students of these two streams. A quiz consisting seven entrepreneurial competencies with various statements, was administered to a convenience sample of students from engineering course and students from management course for this purpose. This study attempts to discuss the existing level of entrepreneurial competencies among the engineering and management students of North Karnataka, especially in Belgaum city and help the institutions in designing a dynamic curriculum and pedagogical interventions in the course that is entrepreneurship oriented.

Key Words: Dynamic Curriculum and Pedagogy, Engineering Education, Entrepreneurial Competencies, Entrepreneurship, Management Education.

Introduction

Entrepreneurship is the catalyst of achieving the goal of incremental wealth and social wellbeing of the nation. India has 62.5% of the population of the age group 15 to 59 years. This in turn will create the need for better education and huge employment opportunities and also creation of more employers than employees. Education is the most important component of the strong entrepreneurial ecosystem. The movement of Indian economy from factor driven economy to knowledge intensive and technology driven economy, triggers a

need for education institutions to focus on training students through interventions that are part of the curriculum and which will direct their mind towards taking up entrepreneurship as a career option.

According to the Global Entrepreneurship Monitor Survey, the major constraints for entrepreneurship development in India include “financial support, culture and social norms, R&D transfer Education and Training”. The current scenario of has posed the unrevealed challenges for the enterprises today. This is the right time to test the competencies of students to

emerge with innovative solutions and grab the opportunity of incubation from various support systems and policies and become profitable by going virtual. This study of existing level of competencies of the engineering and management graduates will enable the educational institutions offering these programs to design an apt entrepreneurship program that will lead to actions by the students in practicing entrepreneurship. This paper tries to study the important entrepreneurial competencies and assess the significance of entrepreneurial competencies among engineering and management students. The first section discusses about entrepreneurship. The second section is about the literature review. The third section takes through the entrepreneurial competencies. The fourth section discusses the research methodology. Fifth section talks about the findings and conclusion.

Literature Review:

Competencies are at the heart of entrepreneurship. They are the key to performances. Competency is the combination of skills, knowledge and attitude that leads to high performance and assures sustainance. An entrepreneur is expected to possess the competencies in various dimensions like attitudinal, behavioural, technical and managerial aspects. Education system is the catalyst that induces these competencies among students. As per the study conducted by NASSCOM, only twenty five percent of the technical graduates possess the skills required for the employment and fifteen percent of other graduates the necessary skills for employment. The study of business administration graduates of institutions at various cities of India showcased less than 25% of them

possessing the skills required for employment. This scenario necessitates a careful introspection of the education system for better students with right competencies that will enable them to be entrepreneurs or employees rather than just employees

Competencies are trainable. McClelland and McBer's (1986) study on Individuals need for achievement found that individuals could be trained to develop a high need for achievement. They conducted a study on SMEs to determine if successful entrepreneurs possessed more key traits for success than average entrepreneurs. The research revealed that successful entrepreneurs were more proactive, achievement oriented, and committed to others than average entrepreneurs.

Hannu Littunen (2000) in his article, "Entrepreneurship and the Characteristics of the Entrepreneurial Personality" examined the characteristics of the entrepreneurial personality and the effects of changes in the entrepreneur's personal relationships. According to the empirical findings, becoming an entrepreneur and acting as an entrepreneur are both aspects of the entrepreneur's learning process, which in turn has an effect on the personality characteristic of the entrepreneur. The entrepreneur's drive to solve problems (=mastery) had increased, and control by powerful others decreased since the start-up phase. Change in the entrepreneur's relations with others is also observed to have an effect on the entrepreneur's personality characteristics. The empirical findings also show that as the number of co-operative partners decreased, control by powerful others also

decreased, and that, since the start-up phase, entrepreneurs whose personal relations had increased also showed a clear increase in mastery.

Sergio Postigo, Donato Lacobucci and Maria Fernanda Tamborni (2003), in their paper, "Undergraduate Students as a Source of Potential Entrepreneurs: A Comparative Study between Italy and Argentina" found that there is a growing consensus that in the "information society" education is one of the key factors for the emergence of new firms and their development prospects. In this context, new ventures set up by graduates are expected to play a critical role especially for the emergence of knowledge and technology-based firms. The main aim of the paper is to analyze the influence of different contexts- developed and developing countries on students' image about entrepreneurs, social background influence on the motivation to become an entrepreneur and the perception about creating a new ventures. It was observed that overall there were more similarities than differences between Argentinian and Italian students in their entrepreneurship perception and in their attitude. However, the social background of the students plays a major role. The study has identified the need for designing an entrepreneurship programme for university students.

Kirby (2004) states that the successful entrepreneur has to have a set of personal skills, attitudes and behaviors that go beyond the purely commercial ones. These attributes, this way of thinking and behaving need to be developed in students if their entrepreneurial capabilities are to be enhanced as they are to be equipped to meet the challenges of the present

entrepreneurial climate. On this basis, it is contended that there is a clear need to identify the personality traits and skills of the students that make a successful entrepreneur.

Yonca Gurol and Nuray Atsan (2006) in their study "Entrepreneurial Characteristics amongst University Students - Some Insights for Entrepreneurship Education and Training in Turkey" explored the entrepreneurship profile of Turkish university students to make an evaluation for their entrepreneurship orientation by comparing them with non-entrepreneurially inclined students. Six competencies, namely need for achievement, locus of control, risk taking propensity, tolerance for ambiguity, innovativeness and self-confidence, are used to define the entrepreneurial profile of students. Respondents who said that "I'm planning to form my own business venture" are accepted as potential entrepreneurs. a 40-item questionnaire is administered to students, with questions related to demographic variables, entrepreneurial inclination, and six entrepreneurial traits above cited (with Likert type items) The results of the t-tests showed that, except for tolerance for ambiguity and self-confidence, all entrepreneurial competencies are found to be higher in entrepreneurially inclined students, as compared to entrepreneurially non-inclined students. That is, these students are found to have higher risk taking propensity, internal locus of control, higher need for achievement and higher innovativeness.

Nancy.M Levenburg and Thomas Schwarz .V (2008) in their paper entitled "Entrepreneurial Orientation among the

youth in India” explored the levels of interest in entrepreneurship among undergraduate business student and drew comparison with students enrolled in the U.S. many literatures also suggested that education, culture and environment play a key role in developing attributes and these attributes varied across the nations. The results showed that Indian’s youth were found showing a higher level of interest in starting new ventures than U.S students.

Olivier Giacomini, Franc Janssen, Mark Pruett, RishelShinnar, Francisco Liopis and Bryan Toney conducted a study to analyze a large sample of international universities to assess the differences in the entrepreneurial dispositions, aspirations, motivations and perceived barriers among American, Asian and European students. In the process they surveyed 2093 students out of that 422 were Indians. The students were from various fields of study including management and engineering. The questionnaire included 16 items assessing the perceived importance of different motivators. Some of the main motivations for the students to opt for entrepreneurship were ability to be creative, Risk Taking Ability, Knowledge and Self Confidence.

Rabindra Kumar Pradhan, PapriNath examined the relationship between emotional intelligence and entrepreneurial orientation (Tendency & Attitude). A survey with sample size of 301 from different departments of engineering and management of IIT Kharagpur. The study identified need for achievement, internal locus of control, propensity to take risk, tolerance to ambiguity and internal locus of control as important components of entrepreneurial orientation. A structured

questionnaire having 52 items answered on a five point scale was prepared to study the same. The entrepreneurial orientation scale in the questionnaire covered 10 psychological variables, namely achievement motivation, locus of control, propensity to take risk, innovation, self-confidence, extraversion, social networking, perception of new venture opportunities, perceived family support and entrepreneurial learning. The study also explored that perceived venture opportunities, perceived family support, social networking, and entrepreneurial learning as sets of social variables that influence a person’s entrepreneurial orientation. The study showed that entrepreneurial education is an important factor contributing to entrepreneurial orientation.

Madhuri S. Deshpande in her paper “Barriers to Entrepreneurship among management students: A case study of SRTM University, Nanded, Maharashtra, India”. (Deshpande, M. S. (2014), has tried to identify the factors which enable management graduates to enter into entrepreneurship. A survey of management students and informal discussions done with teachers, head of the departments and principals revealed that students were skeptical to start the business due to few reasons like fear of failure, tolerance to ambiguity, inability to sense the business opportunity, financial background, technical knowledge and creativity. The study suggests that one to one interaction between the entrepreneurship teacher, trainings for developing achievement motivation and problem-solving abilities, information about various business opportunities and supports from the government, development of

entrepreneurship development centres from the conception stage would assist to overcome the barriers.

Daniela Maresch, Rainer Harms, Norbert Kailer, Birgit Wimmer-conducted a study to understand the relation between pro-entrepreneurial attitudes, subjective norms and perceived behavioral control on Entrepreneurial Intention. The components noted by them to test the relation were Self Efficacy, Locus of Control. Their study also involved Entrepreneurial Education as the moderator variable and its impact on the EI. The findings suggested that EE is generally effective for both business students and science and engineering students.

Deepak Pandit, Maheshkumar P. Joshi and Shalini Rahul Tiwari in their paper entitled "Examining Entrepreneurial Intention in Higher Education: An Exploratory Study of College Students in India", stated the field of entrepreneurship is gaining acceptability among the youth of India. While the initiation, funding and success and failure of start-up have been studied extensively, the entrepreneurial ecosystem that support, nurture and prepare entrepreneurs requires further examination. One such component of this ecosystem is the institutes of higher education that play a crucial role in preparing future entrepreneurs of India.

Entrepreneurial Competencies:

According to Boyatzis (1982) Competency is "a capacity that exists in a person that leads to behaviour that meets the job demands within the parameters of organizational environment, and that in turn brings about desired results". Based on the work of Boyatzis, Bird (1995)

defined entrepreneurial competencies as "the underlying characteristics possessed by the person which results in new venture creation, survival and/or growth". The competency mix comprises knowledge, skill and attitude. (Dr.R.K.Sahu)

3.1 History of Competency:

In the 19th century it was believed that competencies could be acquired only through years of on-the job learning. Then came the Era of scientific management where Fredric Taylor's and Henry Ford's use of assembly line shifted from workers to Time-and-motion Study. Complexity was minimized and efficiency was maximized. Employees had little value. If the worker could not handle the monotony- boredom, physical strain – a large number of applicants were available to fill openings. Later in the Mid Century management centric view were enforced. I.e. somebody had to run things and only those in command were assumed to have the information, perspective and abilities to make decisions. This is where the concept of competency began.

Competence is the ability to do a task. This is the function of Knowledge and Skills. "Competency is the demonstration of Competence Characteristics and commitment Characteristics of an individual for making superior contributions to the organization".

The literature review summarizes the set of domain wise entrepreneurial competencies as attitudinal competencies which encompasses dealing with failures, tolerance of ambiguity and locus of control and behavioural competencies which consists need for achievement, acting upon opportunities, risk taking, innovation and

creativity as some of its components also managerial competencies like problem solving, communication skills and interpersonal or social skills.

3.2 Importance of Entrepreneurial Competencies:

The competency results in superior performance. This is exhibited by one's distinct behaviour in different situations. The popular Kakinada experience conducted by McClelland and winter (1969) has proved beyond doubt that the entrepreneurial competency can be injected and developed in human minds through proper education and training. Competency finds expression in human behaviour.

Problem Statement

This study attempts to discuss the existing level of entrepreneurial competencies among the engineering and management students of North Karnataka, especially in Belgaum city and help the institutions in designing a dynamic curriculum and pedagogical interventions in the course that is entrepreneurship oriented.

Research Objectives:

1. To study the important entrepreneurial competencies
2. To assess the significance of entrepreneurial competencies among engineering and management students.

Research Methodology:

A quantitative descriptive research was followed for this research study. The data was collected through survey method using a structured questionnaire. A questionnaire consisting seven entrepreneurial competencies with various statements using Likert scale ratings, was

administered to a convenience sample of 25 students from engineering course and 25 students from management course for this purpose.

Research Hypotheses:

H₀₁: There is no significant perception of entrepreneurial competencies among engineering students

H_{a1}: There is significant perception of entrepreneurial competencies among engineering students

H₀₂: There is no significant perception of entrepreneurial competencies among management students

H_{a2}: There is significant perception of entrepreneurial competencies among management students

H₀₃: There is no significant difference in perception of engineering and management students on entrepreneurial competencies

H_{a3}: There is a significant difference in perception of engineering and management students on entrepreneurial competencies

Descriptive Statistical Analysis:

Table 1 highlights the entrepreneurial competency, "Need for achievement" using the select statements. The mean values were observed to be greater than 3 in all statements and hence it shows the positive opinion of the respondents towards the statements.

Among the engineering students; "I continue to work towards the goals though people be negative about it", statement has recorded highest mean at 4.16 whereas among the management students; "I feel

satisfied only when I reach the desired level of results”, statement has recorded highest mean at 4.20. Yet the statement that reveals the relevance of assignments helping to achieve the goals still shows a moderate level of acceptance, this shows the scope for improvement in engineering pedagogy.

From lower and upper value of 95% confidence interval (CI); it is realized that the response outcome will be same as observed in the above table since the mean lies between the CI ranges for the whole study population. The agreement of 95% of the respondents in the study population is likely to possess opinion as that of entire respondents in the sample regarding all listed statements.

Table 2 highlights, “Locus of Control” entrepreneurial competency using the select statements. The mean values were observed to be greater than 3 in all statements and hence it shows the positive opinion of the respondents towards the statements.

Among the engineering students; “I always protect my personal Interests” and “I am determined about what has to happen in life” has recorded highest mean at 4.36 whereas among the management students; “I feel that it is not good to plan far ahead as it may have bad fortune” statement has recorded highest mean at 4.08. Yet the mean value for the statement –“I feel that it is not good to plan far ahead as it may have bad fortune” is at moderate level, i.e.3.04 for engineering students and 3.65 for management students. This indicates moderate level of possession of the competency- being futuristic, which is part of the competency – Locus of control.

From lower and upper value of 95% confidence interval (CI); it is realized that the response outcome will be same as observed in the above table since the mean lies between the CI ranges for the whole study population. The agreement of 95% of the respondents in the study population is likely to possess opinion as that of entire respondents in the sample regarding all listed statements.

Table 3 highlights the entrepreneurial competency: “Innovation”, using the select statements. The mean values were observed to be greater than 3 in all statements and hence it shows the positive opinion of the respondents towards the statements.

Both among engineering and management students; “I believe that new ways of doing the usual things will help us to be creative” has recorded highest mean at 4.28 and 4.20 respectively.

From lower and upper value of 95% confidence interval (CI); it is realized that the response outcome will be same as observed in the above table since the mean lies between the CI ranges for the whole study population. The agreement of 95% of the respondents in the study population is likely to possess opinion as that of entire respondents in the sample regarding all listed statements.

Table 4 highlights, “Tolerance to Ambiguity” entrepreneurial competency using the select statements. The mean values were observed to be greater than 3 in all statements and hence it shows the positive opinion of the respondents towards the statements.

Both among engineering and management students; “There is a clear difference between right and wrong” has recorded highest mean at 4.40 and 4.36 respectively. At the same time both engineering and management students considering the people opinion about their actions are at moderate level. So the mentoring process can closely look into this aspect and play a major role in inculcating self thinking among the students.

From lower and upper value of 95% confidence interval (CI); it is realized that the response outcome will be same as observed in the above table since the mean lies between the CI ranges for the whole study population. The agreement of 95% of the respondents in the study population is likely to possess opinion as that of entire respondents in the sample regarding all listed statements

Table 5 highlights the “Risk taking ability” entrepreneurial competency using the select statements. The mean values were observed to be greater than 3 in all statements and hence it shows the positive opinion of the respondents towards the statements.

Both among engineering and management students; “I keep trying to achieve my goals though I fail many a times” has recorded highest mean at 4.48 and 4.36 respectively. At the same time the confidence to start the business immediately after the graduation, represented by the statement- “I want to establish my own unit after few years of experience” is having a mean value of 3.68 among engineering and 3.96 among management graduates. So this represents the need for a curriculum and pedagogical

interventions on training students on taking calculated risk while venturing.

From lower and upper value of 95% confidence interval (CI); it is realized that the response outcome will be same as observed in the above table since the mean lies between the CI ranges for the whole study population. The agreement of 95% of the respondents in the study population is likely to possess opinion as that of entire respondents in the sample regarding all listed statements

Table 6 highlights “Decision making ability” entrepreneurial competency using the select statements. The mean values were observed to be greater than 3 in all statements and hence it shows the positive opinion of the respondents towards the statements.

Among engineering students; “I go through the facts and evidences before starting the decision making process” has recorded highest mean at 4.48 and among management students “I am confident of my decision making abilities as success of my decisions till now are very high” has highest mean at 4.24 .

From lower and upper value of 95% confidence interval (CI); it is realized that the response outcome will be same as observed in the above table since the mean lies between the CI ranges for the whole study population. The agreement of 95% of the respondents in the study population is likely to possess opinion as that of entire respondents in the sample regarding all listed statements.

Table 7 highlights the “Self-efficacy” entrepreneurial competency using the select statements. The mean values were

observed to be greater than 3 in all statements and hence it shows the positive opinion of the respondents towards the statements.

Both among engineering students; “Failures just make me try harder” has recorded highest mean at 4.60 and 4.52

From lower and upper value of 95% confidence interval (CI); it is realized that the response outcome will be same as observed in the above table since the mean lies between the CI ranges for the whole study population. The agreement of 95% of the respondents in the study population is likely to possess opinion as that of entire respondents in the sample regarding all listed statements.

Reliability Statistics:

Entrepreneurial Competencies perception among the engineering and management students were analyzed with the help of seven competency parameters and respondents were requested to provide their opinion on the listed items. In order to assess the reliability and validity of the respondents; Item-Total Correlation and Cronbach's Alpha values were analyzed and it was observed that Cronbach's Alpha was more than 0.70 for majority of the competency parameters that is statistically good enough for hypothesis testing with a reliable outcome, as represented in table 8.

Testing of Hypothesis

H₀₁: There is no significant perception of entrepreneurial competencies among engineering students.

H_{a1}: There is significant perception of entrepreneurial competencies among engineering students.

One-Sample Statistics of entrepreneurial competencies tested for engineering students

From table 9 it is witnessed that the SD is less than 1, it indicates that there is consistency in the respondent's opinion towards the listed Select statements related to Entrepreneurial Competencies as the aggregate mean value in statements is more than 3 which falls on the positive side of the scale and also falls within the upper and lower confidence intervals as observed from descriptive statistics.

One-Sample Test of entrepreneurial competencies tested for engineering students

Based on the results of the test, the null hypothesis H₀₁: “There is no significant perception of entrepreneurial competencies among engineering students” was rejected and the alternate hypothesis H_{a1}: “There is a significant perception of entrepreneurial competencies among engineering students” was accepted, since test has revealed a significant statistical value with p-value less than the 5% significance level (i.e. $0.001 < 0.05$) in our study as per table 10. Therefore it justifies the acceptance of alternate hypothesis based on the one sample t test procedure. Hence it could be inferred that engineering students perceive entrepreneurial competencies significantly.

H₀₂: There is no significant perception of entrepreneurial competencies among management students.

H_{a2}: There is significant perception of entrepreneurial competencies among management students.

One-Sample Statistics of entrepreneurial competencies tested for management students

From table 11 it is witnessed that the SD is less than 1, it indicates that there is consistency in the respondent's opinion towards the listed Select statements related to Entrepreneurial Competencies as the aggregate mean value in statements is more than 3 which falls on the positive side of the scale and also falls within the upper and lower confidence intervals as observed from descriptive statistics.

One Sample Test of entrepreneurial competencies tested for management students

Based on the results of the test, the null hypothesis H_{01} : "There is no significant perception of entrepreneurial competencies among management students" was rejected and the alternate hypothesis H_{a1} : "There is a significant perception of entrepreneurial competencies among management students" was accepted, since test has revealed a significant statistical value with p-value is less than the 5% significance level (i.e. $0.001 < 0.05$) as represented in table 12, in our study and therefore it justifies the acceptance of alternate hypothesis based on the one sample t test procedure. Hence it could be inferred that management students perceive entrepreneurial competencies significantly.

H_{03} : There is no significant difference in perception of engineering and management students on entrepreneurial competencies

H_{a3} : There is a significant difference in perception of engineering and management students on entrepreneurial competencies

Independent Samples Test

The table 13 reveals the mean value and standard deviation scores with respect to Engineering & Management domain towards entrepreneurial competencies. The aggregate mean scores and standard deviation for Engineering students are 4.00 and 0.54 respectively whereas for Management students the mean and the standard deviation are 3.97 and 0.42 respectively. This indicates that Engineering student's responses are relatively more positive and Management students are more consistent than the Engineering counter parts.

Based on the insignificant F-value and p-value correspondingly Levene's test for equality of variance is more than 0.05, "equal variances assumed", the t-test value is less than 1.96 and observed p-value is more than standard p-value of 0.05, it can be inferred that Engineering & Management student's do not differ in their perception on entrepreneurial competencies with respect to their education domain. Therefore, the H_{03} : There is no significant difference in perception of engineering and management students on entrepreneurial competencies is accepted and alternate hypothesis H_{a3} : There is a significant difference in perception of engineering and management students on entrepreneurial competencies is rejected. Hence it can be concluded that Engineering & Management students do not differ in their perception on entrepreneurial competencies but express similar significance even though they belong to different education domain.

Findings:

The testing of hypotheses reveals that both engineering and management students perceive entrepreneurial competencies significantly. It also reveals that Engineering & Management students do not differ in their perception on entrepreneurial competencies with respect to their education domain.

Engineering students' responses are relatively more positive and Management students responses are more consistent than the Engineering counter parts.

Since the statement related to the relevance of assignments helping to achieve the goals, still shows a moderate level of acceptance, we understand that there is a scope for improvement in engineering pedagogy.

There exists a moderate level of possession of the competency- "being futuristic".

Engineering and management students consider people's opinion about their actions. So the mentoring process can closely look into this aspect and play a major role in inculcating self thinking among the students.

Conclusions

Many studies have been conducted on the entrepreneurial competencies among the students of engineering and management programs across various universities in India. There are considerable efforts to enhance the entrepreneurial competencies among the students to encourage entrepreneurship as career choice by them. Still it's a continuous process of implementing new curriculum and the pedagogical interventions to make the

students ready for the situation based unrevealed challenges. So there must be a dynamic process implemented which will make students to be creative innovative and willing to take calculated risk to gain the momentum in enterprising. This study helps to achieve these objectives.

Limitations and Scope for Further Study:

This study and the results have several limitations and also scope for further research. More independent analysis can be performed with increased sample size. The study did not examine in depth, the factors responsible for the competencies. It is limited to specific geographical area in Karnataka so the results cannot be generalized to all parts of India.

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List of Tables and Figures:

Descriptive Analysis:

Descriptive statistics of entrepreneurial competencies among engineering and management students.

Table1: Need for Achievement

Need for achievement	Engineering Students				Management Students			
	Mean	SD	Lower	Upper	Mean	SD	Lower	Upper
I continue to work towards the goals though people be negative about it	4.16	0.98	3.75	4.56	3.96	0.89	3.59	4.33
I feel satisfied only when I reach the desired level of results	3.84	1.14	3.36	4.31	4.20	0.82	3.86	4.54
I never procrastinate until there is exists a convenient time.	3.84	1.17	3.35	4.32	3.96	0.84	3.61	4.31
I try to learn and do my job/assignments though the task seems to be difficult	4.04	1.09	3.58	4.49	4.12	0.83	3.78	4.46

I do my assignments with interest as I know that it will help me to achieve my goals directly/Indirectly	3.60	1.31	3.13	4.22	4.08	0.76	3.77	4.39
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Table 2: Locus of Control

Locus of Control	Engineering Students				Management Students			
	Mean	SD	Lower	Upper	Mean	SD	Lower	Upper
My actions will be responsible for my life	4.24	1.01	3.82	4.66	3.96	0.68	3.68	4.24
I always protect my personal Interests	4.36	0.76	4.05	4.67	4.00	0.96	3.60	4.40
I am determined about what has to happen in life	4.36	0.91	3.99	4.73	4.04	0.79	3.71	4.37
I execute the plans	4.24	0.72	3.94	4.54	4.04	0.68	3.76	4.32
I achieve my goals because I work hard for it.	4.28	1.02	3.86	4.70	4.04	0.98	3.64	4.44
I feel that external people largely affect my achievements	3.96	1.27	3.43	4.49	3.56	1.12	3.10	4.02
My personal interests are not achieved because there are strong competitors	3.44	1.16	2.96	3.92	3.80	1.04	3.37	4.23
I believe that fate decides my life	3.20	1.22	2.69	3.71	3.36	1.15	2.89	3.83
I feel that it is not good to plan far ahead as it may have bad fortune	3.04	1.49	2.43	3.65	4.08	0.81	3.74	4.42

Table 3: Innovative Behaviour

Innovative Behavior	Engineering Students	Management Students
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	Mean	SD	Lower	Upper	Mean	SD	Lower	Upper
I am creative as people always ask my suggestion in creative projects	3.52	1.12	3.06	3.98	3.72	1.06	3.28	4.16
I do things differently	3.88	1.05	3.45	4.31	3.72	1.17	3.24	4.20
I always find new uses of existing things around	4.04	0.89	3.67	4.41	3.96	0.84	3.61	4.31
I create the devices out of the existing things which will ease the daily jobs.	3.84	0.99	3.43	4.25	3.72	0.98	3.32	4.12
I am open for new ideas	4.16	0.90	3.79	4.53	4.08	0.91	3.70	4.46
I trust new inventions	3.92	0.76	3.61	4.23	3.84	0.94	3.45	4.23
I believe that new ways of doing the usual things will help us to be creative	4.28	0.84	3.93	4.63	4.20	0.71	3.91	4.49

Table 4: Tolerance of Ambiguity

Tolerance of an ambiguity	Engineering Students				Management Students			
	Mean	SD	Lower	Upper	Mean	SD	Lower	Upper
I am uncomfortable with people unless I feel that I can understand their behavior	3.72	1.14	3.25	4.19	3.84	0.94	3.45	4.23
I don't like to handle a problem if I think that the problem has a solution	3.36	1.44	2.77	3.95	3.36	1.08	2.92	3.80
Every problem has a solution	4.12	1.05	3.69	4.55	3.92	0.81	3.58	4.26
People's reaction matter to me	3.68	1.44	3.09	4.27	3.52	0.96	3.12	3.92
There is a clear difference between right and wrong	4.40	1.00	3.99	4.81	4.36	0.64	4.10	4.62

Table 5: Risk taking Ability

Risk Taking Ability	Engineering Students				Management Students			
	Mean	SD	Lower	Upper	Mean	SD	Lower	Upper
I keep trying though sometimes I fail on the assignments	4.04	0.79	3.71	4.37	3.96	0.68	3.68	4.24
I want to challenge myself in terms of ability to work on new requirements of the corporate/startup by taking live projects.	4.08	0.81	3.74	4.42	4.04	0.61	3.79	4.29
I want to establish my own unit after few years of experience	4.32	0.69	4.04	4.61	4.16	0.62	3.90	4.42
I want to establish my own unit immediately after my graduation	3.68	1.44	3.09	4.27	3.96	0.98	3.56	4.36
I keep trying to achieve my goals though I fail many a times	4.48	0.77	4.16	4.80	4.36	0.57	4.13	4.59
I am confident that I can face any new challenges	4.12	0.97	3.72	4.52	4.20	0.76	3.88	4.52

Table 6: Decision making Abilities

Decision Making Abilities	Engineering Students				Management Students			
	Mean	SD	Lower	Upper	Mean	SD	Lower	Upper
I evaluate the pros & cons of the alternatives for a problem before implementing	3.88	1.01	3.46	4.30	3.92	0.81	3.58	4.26
I am confident on the alternatives that I select as I always know the process of implementing strongly	3.96	0.84	3.61	4.31	3.92	0.81	3.58	4.26

I go through the facts and evidences before starting the decision making process	4.32	0.80	3.99	4.65	3.68	0.69	3.40	3.97
I sometimes get surprised about the positive consequences of my decisions	4.28	0.84	3.93	4.63	4.00	0.76	3.68	4.32
I take right amount of time to choose the alternatives	3.92	1.22	3.42	4.42	3.96	0.79	3.63	4.29
I create implementation plans before I communicate my decisions	3.92	1.00	3.51	4.33	3.80	0.91	3.42	4.18
I am confident of my decision making abilities as success of my decisions till now are very high	4.00	1.15	3.52	4.48	4.24	0.72	3.94	4.54

Table 7: Self-efficacy

Self-Efficacy	Engg. Students				Mgmt. Students			
	Mean	SD	Lower	Upper	Mean	SD	Lower	Upper
I am certain that the plans I make, I make them work	4.12	0.97	3.72	4.52	4.08	0.81	3.74	4.42
When I decide to do something, I immediately start working on it	4.04	1.06	3.60	4.48	3.76	0.88	3.40	4.12
I am self- Reliant	3.96	1.06	3.52	4.40	4.00	0.87	3.64	4.36
I don't give-up easily	4.24	1.09	3.79	4.69	4.36	0.64	4.10	4.62
Failures just make me try harder	4.60	0.76	4.28	4.92	4.52	0.65	4.25	4.79

Table 8: Reliability Statistics of Entrepreneurial Competencies

Entrepreneurial Competencies	No. of Items	Cronbach's Alpha	
		Engineering Students	Management Students

Need for Achievement	5	0.734	0.793
Locus of Control	9	0.660	0.681
Innovative Behavior	7	0.886	0.863
Tolerance of an Ambiguity	5	0.678	0.545
Risk Taking Ability	6	0.544	0.629
Decision Making Abilities	7	0.814	0.816
Self-Efficacy	5	0.795	0.821

Table 9: One Sample Statistics entrepreneurial competencies tested for engineering students

Particular	Mean	SD
Need for Achievement	3.91	0.80
Locus of Control	3.90	0.56
Innovative Behavior	3.95	0.73
Tolerance of an Ambiguity	3.86	0.81
Risk Taking Ability	4.12	0.52
Decision Making Abilities	4.04	0.68
Self-Efficacy	4.19	0.74
Aggregate of Competencies	4.00	0.54

Table 10: One Sample Test of entrepreneurial competencies tested for engineering students

Particular	Test Value = 3					
	t	df	p-value	Mean Diff.	95% CI Diff.	
					Lower	Upper
Need for Achievement	5.699	24	0.001*	0.91	0.58	1.24
Locus of Control	7.997	24	0.001*	0.90	0.66	1.13
Innovative Behavior	6.523	24	0.001*	0.94	0.64	1.24
Tolerance of an Ambiguity	5.275	24	0.001*	0.85	0.52	1.19
Risk Taking Ability	10.737	24	0.001*	1.12	0.90	1.33

Decision Making Abilities	7.610	24	0.001*	1.04	0.75	1.32
Self-Efficacy	8.074	24	0.001*	1.19	0.88	1.49
Aggregate of Competencies	9.306	24	0.001*	0.99	0.77	1.21

Table 11: One Sample Statistics of entrepreneurial competencies tested for management students

Particular	Mean	SD
Need for Achievement	4.06	0.61
Locus of Control	3.88	0.49
Innovative Behavior	3.89	0.71
Tolerance of an Ambiguity	3.80	0.50
Risk Taking Ability	4.11	0.42
Decision Making Abilities	3.93	0.54
Self-Efficacy	4.14	0.59
Aggregate of Competencies	3.97	0.42

Table 12: One Sample Test of entrepreneurial competencies tested for management students

Particular	Test Value = 3					
	t	df	p-value	Mean Diff.	95% CI Diff.	
					Lower	Upper
Need for Achievement	8.679	24	0.001*	1.06	0.81	1.32
Locus of Control	8.897	24	0.001*	0.88	0.67	1.08
Innovative Behavior	6.300	24	0.001*	0.89	0.60	1.18
Tolerance of an Ambiguity	7.947	24	0.001*	0.80	0.59	1.01
Risk Taking Ability	13.124	24	0.001*	1.11	0.94	1.29
Decision Making Abilities	8.558	24	0.001*	0.93	0.71	1.16
Self-Efficacy	9.645	24	0.001*	1.14	0.90	1.39
Aggregate of Competencies	11.681	24	0.001*	0.97	0.80	1.15

Table 13: Independent Samples Test

Particular	Domain	Mean	SD	t-value	p-value
Need for Achievement	ENGG	3.91	0.80	0.754	0.455
	MGM	4.06	0.61		

Locus of Control	ENGG	3.90	0.56	0.178	0.859
	MGM	3.88	0.49		
Innovative Behavior	ENGG	3.95	0.73	0.282	0.779
	MGM	3.89	0.71		
Tolerance of an Ambiguity	ENGG	3.86	0.81	0.293	0.771
	MGM	3.80	0.50		
Risk Taking Ability	ENGG	4.12	0.52	0.050	0.961
	MGM	4.11	0.42		
Decision Making Abilities	ENGG	4.04	0.68	0.621	0.537
	MGM	3.93	0.54		
Self-Efficacy	ENGG	4.19	0.74	0.253	0.801
	MGM	4.14	0.59		
Aggregate of Competencies	ENGG	4.00	0.54	0.159	0.874
	MGM	3.97	0.42		