

A STUDY ON ENTREPRENEURSHIP DEVELOPMENT AMONG ENGINEERING STUDENTS

Dr. C. Sundar

Abstract

The growth of engineering graduates is phenomenal with the privatization of higher education. Statistics has revealed that in the next ten years, 130-150 million Indian citizens will be searching for jobs, including 100- 120 million looking for their first jobs - that's seven times Australia's population! But employment opportunities for these young engineers are very bleak. The lack of efforts to bridge the gap between the industry and institutions also contribute to the woes of engineering students. Also from the view point of the Economy, fostering entrepreneurship has become a matter of the highest priority in public policy throughout most industrial countries. Thus Entrepreneurship Development of the young engineering graduates is one of the critical solutions to tackle the problem of unemployment and also sustain accelerated economic growth. This urged the researcher to carry out a study on the Entrepreneurial propensity and influential factors among engineering students in and around Chennai. The important findings and proven hypotheses of the study are presented in this paper.

Key words: Entrepreneurial Propensity, dimensions of entrepreneurial traits, National Entrepreneurship Network (NEN).

Introduction

India has the third largest scientific and technical manpower in the world. There are more than 36 million educated unemployed people in India. The growth in labour supply and the increase in unemployment result, in part from the demographic situation of the Indian population.

Since the beginning of Planning in India, the youth have been recognized as the most vital section of the community (Planning Commission of India - 1952)). Among the problems faced by the youth, particular reference is to be made to unemployment. Unemployment is not only waste of human resources, but also fuels social unrest. The high rate of youth unemployment needs serious attention by the policy makers not only to mitigate the frustration faced by them but also to minimize the likely alienation and widespread deviant behavior of the youth throughout the country. The educated unemployed will become revolutionaries and

will try to destroy social order because of their mounting frustration and the prevailing inequity and injustice (Chowdhry 2002).

Large scale unemployment thus contributes to the excessively high crime and violence which have affected many Countries. This fundamental question has to be addressed and remedies applied now, even if the effect will be seen only after 10 to 15 years. The policy makers have to be sensitized to this issue. To quote the recent official figure of India, there were more than 36 million educated unemployed in India as of 2009. On the other hand, with the economic reforms under way, there is a trend of downsizing of Government activities. Viewed from this twin angles, there is an urgent need for promoting self employment among youth (www.ced-tn.org). To combat these problems, to relieve poverty and to improve the standard of living of its entire people, a society requires economic development resulting in the creation of employment opportunities and to

achieve this end, India needs more number of entrepreneurs.

Unemployment of Engineering Graduates and the Need for Entrepreneurship Development

Engineering colleges in India are producing graduates in larger numbers than can be absorbed by the job market. The numerous private self financed engineering colleges and universities turnout the majority of engineering graduates.

Employment opportunities for the engineering graduates coming out of these private engineering colleges are very bleak. The main reason often cited is the quality of education imparted by them. The lack of efforts to bridge the gap between the industry-institutions also contributes to the woes of engineering students. The engineering education also does not enable the young engineering graduates to stand on their own. Entrepreneurship Development of the young engineering graduates is a solution, amongst many other solutions, to tackle the problem of unemployment of engineering graduates (Sharma 2002). The state of Tamil Nadu has invested highly on education and ranks third highest in terms of total expenditure on education- clearly indicating the thrust on creating a sound human capital base.

At a stage when there is a shifting to knowledge and technology based industries, this human capital base combined with favorable labor climate offers ideal conditions for economic growth. Thus, there is a need to formulate a strategy, which should cover the 90,000 engineering graduates coming out every year from different colleges and Universities in Tamilnadu and turning at least a good percentage of them into successful entrepreneurs (Naavi 2003).

One's proclivity for an entrepreneurial career is not only a function of the economic

environment, but also personal (Johnson 1990) and Cultural factors (Brodsky 1993). It also involves changing the existing attitude of seeking wage employment and look for a career in small business (Menon 2000).

Objectives of the study

1. To carry out a comprehensive study in order to establish the degree of Entrepreneurial Propensity among engineering students.
2. To make an in-depth probe and identify the blend of factors that can be used as a composite yardstick for measuring the overall disposition towards entrepreneurship.
3. To finalize a list of trends and patterns that can help to promote favorable disposition towards entrepreneurship.

Hypotheses

1. There is no significant difference between the overall dispositions towards entrepreneurship with regard to dimensions of entrepreneurial traits.
2. There is no significant difference between genders with regard to dimension of entrepreneurial traits.
3. There is no significant relationship between respondents being member in National Entrepreneurship Network (NEN) and overall disposition towards entrepreneurship.
4. There is no significant relationship between students who studied entrepreneurship as a subject and overall disposition towards entrepreneurship.
5. There is no significant relationship between percentage of marks in U.G and dimension of entrepreneurial traits.

Research Methodology

On the data Collection front, a questionnaire was developed after a pilot study and has been satisfactorily tested for Validity and Reliability. It sets out to capture the intended data. The study is based upon 810 samples, culled out of a base of 3900 students from 39 Engineering Institutions, from various branches (Civil, Mechanical, ECE, EEE, CSE, I.T, B.Arch.) . The sample scheme has been scientifically arrived at and is quite representative of the intended field. The hypotheses configured based on all these scientific foundations, have been tested statistically. The study has also tested 10 general axioms, since the analysis has exposed these factors also during the course of the Research. Suitable analytical techniques like one way Anova, Chi- Square, T-Test have been adequately employed.

Descriptive analysis

Table 1: Frequency Distribution of Respondents interested towards entrepreneurship

Particulars	Frequency	Percentage
Interested in Entrepreneurship	810	21
Not interested	3090	79
Total	3900	100

From the Table 1, it is inferred that 79% of respondents are not interested in the entrepreneurship as their career and only 21% respondents are very much interested in the entrepreneurial career. It appears that the majority of the respondents have not shown interest towards entrepreneurship.

Table 2: Frequency Distribution of Respondents' reasons for not preferring entrepreneurship

Reasons for not preferring entrepreneurship	Frequency	Percentage
Risk Taking	574	18.6
Capital Requirement	487	15.8
No Support from family	720	23.3
No experience	465	15.0
Bad experience in part self or close relative	93	3.0
Uncertainties	361	11.7
Not aware about entrepreneurship	390	12.6
Total	3090	100

From the Table 2, it is inferred that 23.3% respondents do not get support from their family that negatively influences their decision towards entrepreneurial career, 18.6 % of respondents are low risk takers ,15.8% respondents do not prefer the entrepreneurship because of lack of capital, 15% respondents not preferred because they are not having experience ,12.6% respondents said they are not aware of entrepreneurship and 11.7 % of respondents do not prefer entrepreneurial career because of uncertainties in the business environment.

Table 3: Frequency Distribution of Gender

Gender	Frequency	Percentage
Male	547	67.53
Female	263	32.47
Total	810	100.00

From Table 3, 67.53 % of respondents are Male and 32.47% of respondents are Female. It is seen that the majority of the respondents' are Male.

Table 4: Frequency Distribution of Respondents' Membership of National Entrepreneurship Network (NEN)

Member of NEN	Frequency	Percentage
Yes	114	14.07
No	696	85.93
Total	810	100.00

From Table 4, it is seen that, 85.93% of the respondents are not members in NEN and only 14.07% of respondents are members in NEN. Thus the majority of respondents are not members in National Entrepreneurship Network.

Testing of Hypothesis 1: This hypothesis states that there is no significant difference between Males and Females with regard to the dimensions of Entrepreneurial traits.

Table 5: Findings from t-test for significant difference between Male and Female with regard to dimension of entrepreneurial traits

Dimension of Entrepreneurial Traits	Male		Female		t value	P value
	Mean	SD	Mean	SD		
Human Relations Ability	24.36	4.39	23.46	4.61	2.69	0.007**
Communication Ability	31.11	6.17	32.17	5.14	2.42	0.016**
Self Confidence	19.90	3.47	20.39	3.16	1.92	0.055
Energy Level	27.10	4.93	28.00	4.29	2.53	0.011**
Thinking Ability	15.40	3.30	16.00	2.98	2.51	0.012**
Goal Setting	19.66	3.73	20.57	3.10	2.41	0.001**
Taking Initiative	15.91	3.33	16.63	3.23	2.90	0.004**
Risk Taking	30.00	5.01	29.16	5.12	2.22	0.027*

Note: 1. ** Denotes significance at 1% level.
 2. * Denotes significance at 5% level.

Since P value is less than 0.01, the null hypothesis is rejected at 1% level of significance with regard to related factors of Entrepreneurial traits like Human Resource

Ability, Communication Ability, Energy level, Thinking Ability, Goal setting, and Taking initiative. Hence there is significant difference between male and female with regard to related factors of Entrepreneurial traits like Human Resource Ability, Communication Ability, Energy level, Thinking Ability, Goal setting, and Taking initiative.

Since P value is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to related factors of Entrepreneurial traits like self confidence. Hence there is significant difference between male and female with regard to related factors of Entrepreneurial traits like self confidence.

It appears that male respondents possesses certain entrepreneurial traits like Human Resource Ability, Energy level, Thinking Ability, Goal setting, Taking initiative and Risk taking higher than female respondents. It appears that, Female respondents possesses certain Entrepreneurial traits like Communication Ability, Thinking Ability and self confidence higher than Male respondents".

Testing of Hypothesis 2: There is no significant difference between the Levels of disposition towards entrepreneurship with regard to dimension of entrepreneurial traits.

Table 6: Findings from t-test for significant difference between the levels of disposition towards entrepreneurship with regard to dimension of entrepreneurial traits

Dimension of Entrepreneurial Traits	F value	P value	Levels of disposition towards entrepreneurship		
			Low	Moderate	High
HR Ability	27.925	0.000**	25.54 ^a	24.03 ^b	25.66 ^c
Communication Ability	35.869	0.000**	29.22 ^a	31.38 ^b	38.805 ^c
Self Confidence	45.742	0.000**	18.566 ^a	20.092 ^b	21.513 ^c
Energy Level	27.213	0.000**	25.778 ^a	27.384 ^b	29.041 ^c
Thinking Ability	39.514	0.000**	14.221 ^a	15.679 ^b	16.833 ^c
Goal Setting	47.491	0.000**	18.276 ^a	20.087 ^b	21.421 ^c
Taking Initiative	65.495	0.000**	14.267 ^a	16.392 ^b	17.592 ^c
Risk Taking	62.191	0.000**	27.0553 ^a	29.915 ^b	32.083 ^c

Note: Different alphabet between Levels of disposition towards entrepreneurship denotes significant at 5% Level using Duncan Multiple range test.

Since the P value is less than 0.01, the null hypothesis is rejected at 1% level of significance with regard to related factors of Entrepreneurial traits like Human Resource Ability, Communication Ability, and Energy level, Thinking Ability, Goal setting, self confidence, Risk taking and Taking initiative. Hence there is significant difference between levels of disposition towards entrepreneurship with regard to dimension of entrepreneurial traits like Human Resource Ability, Communication Ability, Energy level, Thinking Ability, Goal setting, Self confidence, Risk taking and Taking initiative. It is observed that, there is greater significance with level of disposition towards entrepreneurship and various related factors of entrepreneurial traits.

Based on Duncan Multiple Range test, it was found that those respondents' having high spirit of entrepreneurship significantly differ from those who are having moderate and low level of entrepreneurial spirit at 1% level of significance with regard to Human Resource Ability, Communication Ability, Self-Confidence, Energy Level, Thinking Ability, Goal Setting, Taking Initiative, and Risk Taking. The respondents' having Moderate level of entrepreneurial spirit significantly differ from the respondents' of Low level spirit of Entrepreneurship at 1% level of significance with regard to Human Relations Ability, Communication Ability, Self-Confidence, Energy Level, Thinking Ability, Goal Setting, Taking Initiative, and Risk Taking.

From the Table 6, it can be observed that, to become an entrepreneur, one should possess the entrepreneurial traits like, Human Relations Ability, Communication Ability, Self-Confidence, Energy Level, Thinking Ability, Goal Setting, Taking Initiative, and Risk Taking etc. These are respondents' whose interest in entrepreneurial career can be properly motivated and they can be helped to develop their skill and traits through training programmes

Findings

1. The most revealing finding is that the majority of the student respondents do not even consider entrepreneurship as a career option. The reasons are:
 - Their families are not likely to support.
 - They have low risk taking ability.
2. An interesting piece of finding has come up regarding the caste / Community background of the respondents who are showing high degree of disposition towards entrepreneurship. It was found that majority of the respondents belonging

- to Backward community are showing good propensity towards entrepreneurship.
3. Another interesting question asked is which set up of family is conducive for entrepreneurial intensity. It is seen that respondents from nuclear family have shown more interest in entrepreneurial career rather than respondents from joint family.
 4. The next two findings concern the role of supporting agencies in the development of entrepreneurship. (a) Entrepreneurial Development cell. (ED Cell) (b) National Entrepreneurship Network.(NEN)
 - a. Those respondents who are members in ED Cell are having high propensity level towards entrepreneurship. The study also has come out with a startling finding that the majority of the technical educational institutions are not having ED Cell at all.
 - b. The respondents who are members in NEN (National Entrepreneurship Network) have shown high inclination level in developing entrepreneurial competencies.
 5. The majority (86.6%) of the respondents are not aware of the Government schemes and measures for the development of entrepreneurship.
 6. The study has traversed the question of financial sourcing for starting the entrepreneurial venture. It is seen that the majority of the respondents prefer to go for bank loan for the investments needed for their ventures. This also corroborates with the low risk taking tendency of the respondents.
 7. The majority (75%) of the respondents have U.G % of marks between 70% and 80%, and these students have higher entrepreneurial propensity.

Suggestions

1. Entrepreneurial Propensity should be actively promoted in technical institutions through establishment of Entrepreneurship Development cells.
2. The educational institutions should give equal importance to Entrepreneurship development just as they give to Placement achievements.
3. The study found that entrepreneurship subject is not in the curriculum of Engineering Education Programme. But most of the engineering syllabi have one subject on General Management as an elective (comprising units on HR, MARKETING, O.B, FINANCE, ECONOMICS).But entrepreneurship has not been found in the above mentioned exalted company. So it is essential that the Universities consider introducing entrepreneurship as a course or at least as a major unit within a course.
4. Entrepreneurship education is an important component of Government's economic strategy for fostering job creation. Introduction of entrepreneurship into the curriculum of engineering studies would again become 'academic' for which students' attitude will be the same i.e. to get marks and pass in the examinations. Hence the course should include practical applications such as:
 - a. Entrepreneurial Motivation.
 - b. Entrepreneurial Competencies.
 - c. Creativity and Innovation.
 - d. Entrepreneurial opportunity and selection.
 - e. Enterprise Management.
 - f. Schemes and facilities available to new entrepreneurs.
 - g. Project formulation and Planning
 - h. Project appraisal.

- i. Inspirational interaction with self made men from all walks of life.
 - j. Quantitative techniques for marketing research and for implementing survey results.
5. The Government must also open single window counters for entrepreneurship in all the engineering institutions for:
- a) Creating awareness & inspirations.
 - b) Informing about various schemes.
 - c) Liaison between venture capitalist and students.
 - d) Guidance for Patents.
 - e) Incubation.
 - f) Providing support in selecting the projects.
 - g) Networking between various knowledge sources and action agencies.

Conclusion

There is a dire need for a driving force in order to fuel further economic growth in the Country. Research indicates that there is a strong link between Entrepreneurial venture in a Country and the Country's economic development. Research also indicates that business venture by the educated graduates adds more value to the economy as whole. The study was conducted to assess the entrepreneurial propensity and competence of the final year engineering graduates. This study seeks to make a beginning in the pursuit of identifying the target students who have the inclination and the rudimentary competencies for starting a small business. These students could be provided suitable training, infrastructural and incubation support. It is also expected that students can improve their entrepreneurial skills, through continuous training, experience and inspiration. Thus the Study has contributed in

urging Policy & Practical interventions by both the Government and Technical Educational Institutions for bringing in Entrepreneurial culture and Entrepreneurial indoctrination.

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About the Author:

Dr. C. Sundar is presently Head of the Dept. of Management Studies, SRM University, Ramapuram Campus. This article is a condensation of his Ph.D. Thesis.
sundar.chidambaram@yahoo.com