Entrepreneurship and Innovation: A Study on Factors Affecting Engineering Graduates towards Entrepreneurship and Innovation

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Abstract— **Entrepreneurship and entrepreneurs are very important for developing countries like India. United States which has entrepreneurship education in schooling has produced great entrepreneurs, where as entrepreneurship education is introduced at higher level education in India. Introduction of entrepreneurship education in to engineering colleges to engineering graduates has been happening from last few years. In this study an effort has been made to identify different factors which are making an impact on the student towards entrepreneurship and innovation. This paper deals with measuring the innovative pedagogy in teaching entrepreneurship to engineering graduates and an attempt is made to identify the different ways to encourage innovation.**

Keywords— **entrepreneurship**; venture;**, education**; **innovation**; **desire**; **intention**

I. INTRODUCTION

Entrepreneurship has become a key in building prosperity and developing the economy of the region. In the current economic context, starting a business is also considered as a solution to face unemployment. Fostering entrepreneurship among the students has become a key for engineering colleges which will reduce stress among the students as they think it as an alternative towards a job and create their own destiny by starting up their own venture and do not wait for a job. Promoting entrepreneurship among the engineering graduates will help in reducing unemployment

II. SUPPORTING INSTITUTIONS IN INDIA FOR ENTREPRENEURSHIP

A. All India Council for Technical Education

All India Council for Technical Education (AICTE) the regulatory authority of technical education in India has identified the importance of entrepreneurship and introduced a scheme Entrepreneurship development cell (EDC) which aims at institutionalizing mechanism, which could act as support system for technocrat entrepreneurs. The EDC set up under the scheme is expected to act as a tool to promote entrepreneurship and self employment amongst technical students as an attractive and viable career option. It also introduced an integrated program of five and half years BE with Management study that gives engineers management skills.

B. Technology Innovation Management and Entrepreneurship Information Service

Technology Innovation Management and Entrepreneurship Information Service (**TIMEIS**) is a joint project of National Science and Entrepreneurship Development Board (NSTEDB), Department of Science &Technology (DST), Government of India, FICCI (Federation of Indian Chambers of Commerce and Industry). The project has taken initiative to provide guidance and assistance to the entrepreneurs especially the techno pruners to find technologies, projects, funding options and information about policy environment, incentive schemes and industrial infrastructure available in the country covering both the central and state government and have become proficient at tapping the local talent pool. Time facilitates entrepreneurs with online interactive tools and templates for developing project profile, feasibility reports, calculating financial and profitability ratios and estimating the market potential.

C. National Science & Technology Entrepreneurship Development Board

National Science & Technology Entrepreneurship Development Board(NSTEDB) was established by Government of India in 1982 is an institutional mechanism, with a broad objective of promoting gainful self-employment amongst the Science and Technology (S&T) manpower in the country and to setup knowledge based and innovation driven enterprises. The Programmes conducted by NSTEDB have created awareness among S&T persons to take up entrepreneurship as a career. The academicians and researchers have started taking a keen interest in such socially relevant roles and have engaged themselves in several programmes initiated by NSTEDB. About 100 organizations, most of

which are academic institutions and voluntary agencies, were drafted in the task of entrepreneurship development and employment generation.

III. Literature Review

Entrepreneurship is by intention, entrepreneurs come out through inventions. According to Kruger et al. (2000), entrepreneurial activity can be studied through intention rather than personality traits; the theory of planned behavior contends that the intentions are a function of three sets of factors i.e. is attitudes, subjective norms and perceived behavioral control. According to Schumpeter, entrepreneur is the one who disturbs the neo-classical equilibrium by executing new combinations in the means of production and who puts the economy on the path of motion and development. Choo and Wong (2009) defined intention of entrepreneur as the search of information that can be used to help fulfill the goal of venture creation. To predict entrepreneurial behavior they suggested intention is going to be the single best predictor. Intentionality is a conscious state of mind that directs attention towards a specific objective Vasaleinen and Pihkala (2009). Behavioral intention is the results from attitudes which are an immediate determinant of behavior (Pihie, 2009). Mazzarol et *al.* (1999) viewed that starting a business is not an event, but it is a process which may take many years to evolve and come to fruition.

Entrepreneurship is a concern for economic development from all-pervasive. There is a growing concern for economic development and this strengthened interest in entrepreneurship with primary focus on exploring practical measures to augment the supply of entrepreneurs, i.e. persons with competence and aptitude to initiate, nurture and expand industrial enterprises. This resulted in the belief in education and training to inculcate and develop entrepreneurial capabilities in people so that they could set up their own enterprises. The birth of training efforts for the promotion of entrepreneurship in the country was purely an indigenous initiative, there is vast entrepreneurial potential available in the country that could be tapped and developed through appropriate training intervention.

IV. Purpose of the Study

In spite of continuous support and assistance from the authorized and supporting bodies there is not such great interest shown by engineering graduates towards entrepreneurship. Entrepreneurship is picking in India but not as fast as it is being happening in developed countries. Poor rate of entrepreneurship among engineering graduates may be attributed to several different factors. This study has been made to identify the positive factors which would develop entrepreneurial mind set among the engineering graduates.

V. Methodology

Total five factors have been taken for this study and opinions were collected from the students through a structured questionnaire .a five liker scale has been taken with 1 as strongly disagree, 2 disagree, 3 as neither agree nor disagree, 4 as agree and 5 as strongly agree .Total of 100 students were given the questionnaire among which 9 did not respond at all and 75 students answered all questions and remaining 17 did not respond to few questions. The data in table one is of the group who has answered all the questions.

A. Factors chosen for consideration

1) Intention to become an entrepreneur
2) Desire towards entrepreneurship
3) Willingness towards entrepreneurship education
4) Entrepreneurial Knowledge
5) Confidence in establishing a venture
6) Intention and desire towards innovation

TABLE I. Response Of Students Who Answered All The Questions

S.No	Factors	Strongly Disagree	Dis-Agree	Neither Agree Nor Dis-Agree	Agree	Strongly Agree	Total Respon-dents
1	intension	14	19	12	20	10	75
5	intention	3	19	7	17	29	75
3	intention	17	23	17	9	9	75
Total		34	61	36	46	48	225
4	desire	19	24	14	12	6	75
2	desire	3	11	14	22	25	75
Total		22	35	28	34	31	150
6	knowledge	1	4	5	54	11	75
7	knowledge	1	14	19	24	17	75
Total		2	18	24	78	28	150
8	education	3	22	18	29	3	75
9	education	6	8	8	29	24	75
10	education	1	4	3	22	45	75
Total		10	34	29	80	72	225
11	confidence	4	17	12	29	13	75
12	confidence	1	14	16	24	20	75
13	confidence	2	7	9	34	23	75
Total		7	38	37	87	56	225
14	innovation	4	5	9	33	24	75
15	innovation	8	20	24	14	9	75
16	innovation	9	12	9	22	23	75
Total		21	37	42	69	56	225

B. Interpretation of the collected data

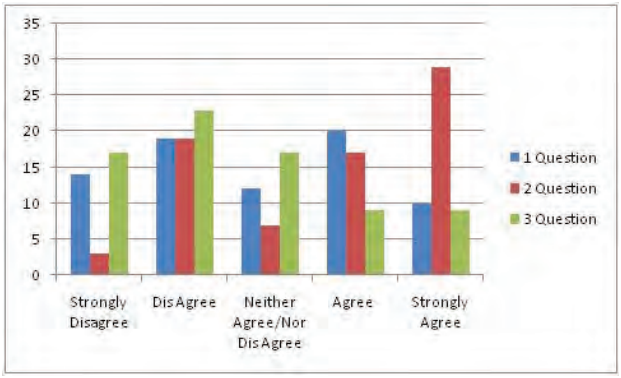

Fig 1. Respondent's opinion about their intention to become an entrepreneur

Three questions in different dimensions have been asked, to find their intention towards entrepreneurship and for question one "I want to launch a new venture company of my own before graduation" response was- 44% of the students strongly disagree and disagree where as 16% neither agree nor disagree and 40% students strongly agree and agree. For the question two "I think that founding a new venture company is the only way to succeed in life" 29.3% students strongly disagree and disagree where as 9.4% neither agree nor disagree and 61.3% students strongly agree and agree. For third question "I would dedicate my life to establishing a new venture company even if my parents were strongly against it" and the response was 53.3% students strongly disagree and disagree where as 22.6% neither agree nor disagree and 24.1% students strongly agree and agree.

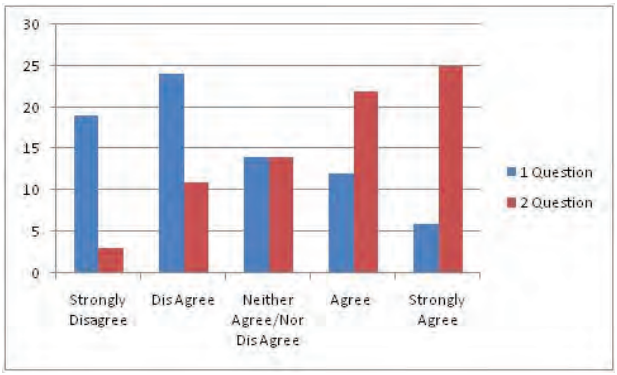

Fig 2. Respondents desire towards venture creation

Two questions were asked to know their desire towards venture creation and the response for first question "I am more interested in establishing my own venture company than getting a job" and response was 53.3% of the students strongly disagree and disagree where 18.7%neither agree nor disagree and 28% students strongly agree and agree. The second question "Even if I launch new ventures and fail many times, I will keep on trying until I Succeed" and the response was 18.7% students strongly disagree and disagree where as 18.7% neither agree nor disagree and 62.6 % students strongly agree and agree.

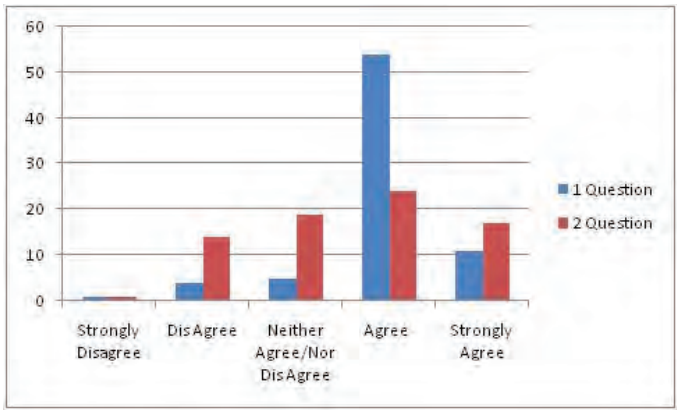

Fig 3. Entrepreneurial knowledge

Two questions were asked about the knowledge towards entrepreneurship the response for first question "I have some knowledge about entrepreneurship" and response was 6.7% of the students strongly disagree and disagree where as 6.7%neither agree nor disagree and 86.6% students strongly agree and agree. The second question "I am very intelligent and capable of accomplishing whatever I set out to do" and the response was 20% students strongly disagree and disagree where as 25.3% neither agree nor disagree and 54.7 % students strongly agree and agree.

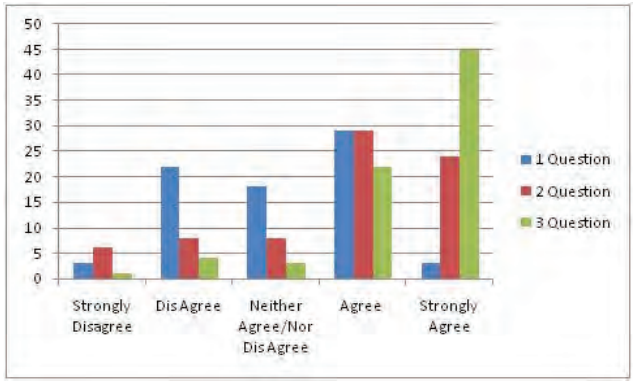

Fig 4. Respondent's willingness towards Entrepreneurship Education

Three questions were asked to know their intention towards entrepreneurship education and the response for first question "If a major in entrepreneurship were available, I would change my major to it" and response was 6.7% of the students strongly disagree and disagree where 6.7%neither agree nor disagree and 86.6% students strongly agree and agree. The second question "Entrepreneurship should be taught in high school" and the response was 20% students strongly disagree and disagree where as 25.3% neither agree nor disagree and 54.7 % students strongly agree and agree. The third question "I think

that a class entitled "Entrepreneurship" would be very helpful for those Interested in starting their own venture companies" and response was 6.7% of the students strongly disagree and disagree where 6.7%neither agree nor disagree and 86.6% students strongly agree and agree.

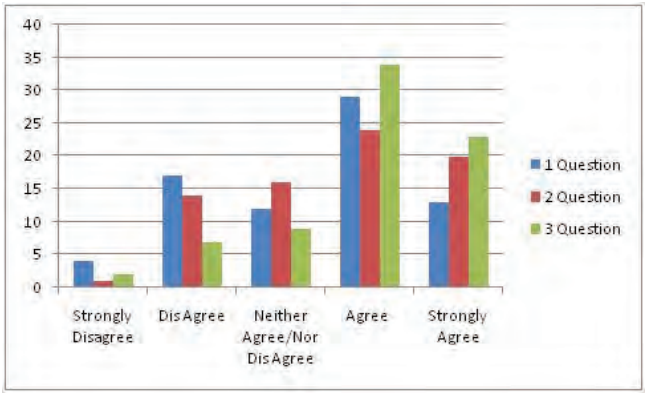

Fig 5. Confidences in venture creation

Three questions were asked to know their confidence in venture creation and the response for first question "If I launch a new venture company, I can provide my own funds and human resources" and response was 28% of the students strongly disagree and disagree where 16%neither agree nor disagree and 56% students strongly agree and agree. The second question "I am confident that I can successfully launch a new venture company on my own" and the response was 20% students strongly disagree and disagree where as 21.3% neither agree nor disagree and 58.7 % students strongly agree and agree. The third question "I am confident that I can select a business with good potential if I launch a new venture company of my own" and response was 12% of the students strongly disagree and disagree where as 12%neither agree nor disagree and 76% students strongly agree and agree.

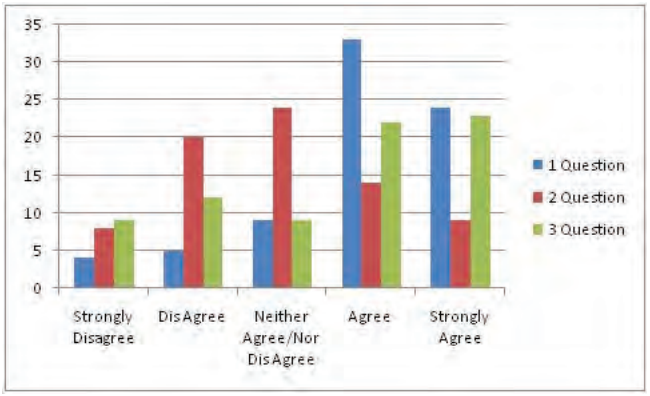

Fig 6. Intention for innovation

Three questions were asked to know their intention towards innovation and the response for first question "I will start new venture with innovative idea only" and response was 12% of the students strongly disagree and disagree where as 12%neither agree nor disagree and 76% students strongly agree and agree. The second question "I will not enter in to existing business" and the response was 37.3% students strongly disagree and disagree where as 32% neither agree nor disagree and 30.7 % students strongly agree and agree. The third question "I think finding innovative idea is the only way to succeed" and response was 28% of the students strongly disagree and disagree where 12%neither agree nor disagree and 60% students strongly agree and agree.

III. DISCUSSION

As per the above responses it was observed that 40% out of the respondents are willing to start a new venture before graduation and when asked for their opinion to be successful in life 61.3%of them opined that entrepreneurship would be the opportunity to succeed in life but when the same where asked will they go if their parents are against to it only 24.1% of them are showing willingness towards entrepreneurship.

When they were asked whether they go for a job are take entrepreneurship only 28% has shown interest towards entrepreneurship and 53.3% of them shown interest towards job but when the same were asked whether you keep on trying if you fail as an entrepreneur till you achieve success in it 62.6% of them said they will.

When they were asked about the knowledge they have towards entrepreneurship 86.6% of them have accepted that they have some knowledge about entrepreneurship and when the same were asked about being capable and intelligent to accomplish the task they wish to accomplish 54.7% of them has accepted that they can.

When asked about taking entrepreneurship as major in their engineering 86.6% of them are willing also to the question do entrepreneurship has to be introduced at high school level 54.7% of them said yes. Will entrepreneurship subject will help you in starting a venture 86.6% of them said they accept it.

When asked about acquiring the needed funds and human resources by them 56%of them said they can do it by themselves and will they succeed in it 58.7% of them said they will and when asked about whether they can identify the business which has potential 76%of them said yes.

When asked will they start venture only with innovative idea 76% of them said yes and when asked will you enter into existing business 37.7% of them were not interested but 30.7%of them were willing to do and when asked do you think innovative idea is the only way to succeed in life 60%of them has accepted it and 28% said no.

IV. CONCLUSION

Entrepreneurship education motivates towards venture creation (Cho, 1998; Clark et al., 1984) intention of creating a venture can be increased by entrepreneurship education. In this we found that student's intention towards venture creation 40%of them has the intention but majority of them are looking towards their parents support. Awareness about entrepreneurship for parents is an important factor. Support from the family would encourage the students to start a new venture. Entrepreneurship has to be taught as a carrier choice rather than looking it make like the next option if they don't get a job. Students have the knowledge of entrepreneurship but need guidance and support to work along with work place here the incubation centers will come into help and also 76%of the students responded that they will start a venture only with an innovative idea. Students intention towards innovation is high which can be encouraged by assisting them through mentoring and helping them in execution through incubation centers. Students are interested in taking entrepreneurship education which is a positive factor.

The way entrepreneurship is thought to the students needs to be changed. The students have the intention and desire but what is missing is exposure towards the stakeholders like investors, employees and customers. There should be a module where during their education they work on projects and learn about their idea acceptance by investors and customers.

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