



An Empirical Study to Predict the Self-Employment Intention of Engineering Students Using EAO Model in Kerala

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Abstract

India produces more than five lakh engineers every year but very few of them are employed, the rest are unemployed. The statistics have shown that the market is oversupplied with young and inexperienced engineering graduates. The present study is mainly focusing on engineering graduates in Kerala. In Kerala there are more than 120 engineering colleges and every year more than 35,000 students pass out with engineering qualification but the question is how many of them are employed? Since career opportunities are less in Kerala they migrate to distant places in search of greener pastures. To solve the unemployment issue among graduates, the only solution is self-employment. Hence, it is important to know the self-employment intentions of engineering graduates. In the present study EAO model is used to understand the engineering graduate attitudes toward entrepreneurship and their relationship with self-employment intentions. A survey approach was adopted in the study. The sample size taken for the study was 300 students from different engineering colleges in Kerala on the basis of convenience. The results show that personal control and self-esteem have significant and positive relationships with self-employment intention. Meanwhile achievement and innovation were found to have no significant relationship with self-employment intention. These findings provide important insight to promote and produce a positive image of entrepreneurship as a career.

Keywords: EAO model, self-employment intention, Engineering graduates, Kerala

I. Introduction

Entrepreneurship has played an important role in economic prosperity and social stability in many developed countries. Today India as developing country is faced with massive challenges of high levels of unemployment among the youth, especially engineering graduates, due to lack of work experience, low skills base and education dangers (National employment report, 2011). The formal labour market in India is currently saturated, unable to absorb the ever increasing number of labour force. India produces more than five lakh engineers annually, but only 17.45% is

employed. An economy with a large percentage of unemployed qualified candidates is not only inefficient, but socially dangerous (National employment report, 2011).

The present study is focused on engineering graduates in Kerala. With Kerala's 120 engineering colleges producing more than 35000 engineering graduates every year, poses various questions like how many of them are getting employment and how many of them stay back in Kerala. Since career opportunities are less in Kerala they migrate to distant places in search of greener pastures. The only solution for generating



employment is entrepreneurship and now government in Kerala understands this truth. Hence Kerala government is taking number of initiatives like the start-up villages in different parts of the state and making budgetary provisions in its annual budget for encouraging young entrepreneurs. But the question is do the engineering graduates have self employment intention or not?

Many studies have been conducted to investigate the characteristics of entrepreneurs (J. M. Crant 1996; E.J.Douglas and D.A.Shepherd 2002; S.Thrikawala 2011). Robinson et al. (1991) commented that most of the previous studies on entrepreneur heavily emphasized on personality and demographic approaches. But these approaches have some limitations that make them inappropriate to measure the entrepreneurs' characteristics. The work of Robinson et al. (1991) was one of the first to incorporate an attitudinal approach to predict entrepreneurial activity. An advantage of using an attitudinal approach is that it can be more domain-specific, which increases the correlation with actual behavior and reduces unexplained variability. Attitudes tend to change across time and situations through an interactive process with the environment, and once a person's attitude has been measured, a prediction can be made about the person's future actions (Carlson, 1985). Robinson et al. (1991) have developed Entrepreneurial Attitude Orientation (EAO) scale which is tested to be high in validity and reliability. In the present study EAO model is used to understand the engineering graduate attitudes toward entrepreneurship and their relationship with self-employment intentions.

II. Literature Review

Self-employment intention has been defined as the intention to start a new business (H. Zhao, G. E. Hills, and S. Seibert 2005), the intention to own a business (J. M. Crant 1996), or the intention to

be self-employed (E. J. Douglas and D. A. Shepherd 2002). This career choice is not in favour of young graduates who observe entrepreneurship as their second or even last choice of employability (S. Thrikawala 2011). The individual decision to choose an entrepreneur as a career is sometimes assumed to depend on personality traits. Theory of Planned Behavior I. Ajzen. (June 1, 2013) has become the most popular used theoretical framework in past studies of entrepreneurial intention. According to the Theory of Planned Behavior (TPB), human action is guided by three kinds of considerations: beliefs about the likely outcomes of the behaviour and the evaluations of these outcomes (behavioural beliefs), beliefs about the normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behaviour and the perceived power of these factors (control beliefs) I. Ajzen. (June 1, 2013). Behavioural beliefs produce a favourable or unfavourable attitude toward the behaviour, normative beliefs result in perceived social pressure or subjective norm, and control beliefs give rise to perceived behavioural control. Attitude toward the behaviour, subjective norm, and perception of behavioural control determine intention. The more favourable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person's intention to perform the behaviour.

There are many discussions on entrepreneurship intention around the world which focus on attitude toward the behaviour in an attempt to differentiate between entrepreneurs and non-entrepreneurs. However, there are no studies being conducted in Kerala among engineering graduates self-employment intentions. Thus, it is the aim of this research to shed some new insights to the current entrepreneurship literature about self-employment intention of engineering graduates of Kerala. Z. M. Zain, A. M. Akram, and K. E. Ghani (2010)



did a survey among business students and found out that there was a significant relationship between personal traits factor or attitude toward the behaviour and the self-employment intention. However, they examine this personal traits factor in general as the way an individual thinks and behaves without focusing on achievement in business, innovation in business, perceived personal control of business outcomes, and perceived self-esteem in business (EAO model).

M. N. Mohd Shariff and M. B. Saud (2009) did a research using the EAO model on final year business management undergraduates. Their result show that there is a significance difference between undergraduates minored in entrepreneurship courses and non-entrepreneur undergraduates in terms of self-esteem and personal control, with the mean for the entrepreneur undergraduates group being higher in personal control. Hence, there is no significance difference in terms of innovation and achievement. F. T. Xue, K. T. Yoon, and C. L. Liang (2011) who did a survey on universities students from two public universities and two private universities claimed that there was a positive significant relationship between the need for achievement and entrepreneurial intentions of students to start a business. However, the moderate relationship between the need for achievement and entrepreneurial intention shows there is a variation on level of need for achievement. The findings of M. N. Mohd Shariff and M. B. Saud (2009) are also quite contradicted with what have been found by J. Koe Hwee Nga and G. Shamuganathan (2010).

J. Koe Hwee Nga and G. Shamuganathan (2010) who did a survey on college and undergraduates from private higher educational institutions using the "Big Five" personality measure (Big Five model) found out that personality traits such as agreeableness, openness and conscientiousness generally gave a positive influence on social

entrepreneurship dimensions. The items under openness and conscientiousness are quite similar with innovation and achievement items in the EAO model respectively. The study found that openness exerted significant positive influence on financial returns and social vision whereas conscientiousness was found to exert a positive influence on sustainability and financial returns. In addition, K. Jusoff, M. Ismail, S. A. Khalid, M. Othman, N. A. Rahman, K. M. Kassim, and R. Shekh Zain,(2009) also did a survey using the "Big Five" personality measure on undergraduates in institution of higher learning agreed that entrepreneurial intention was positively correlated with openness but not conscientiousness. N. Ismail, N. Jaffar, S. Khan, and T. S. Leng, (2012) did a survey on undergraduates in three private universities agreed that there was no significant effect of need for achievement towards entrepreneurial intention besides internal control. They claimed that both independent variables may be affected by other variables. According to K. Jusoff, M. Ismail, S. A. Khalid, M. Othman, N. A. Rahman, K. M. Kassim, and R. Shekh Zain, (2009) conscientiousness was associated with diligence, organization and persistence which suit to self employment but at the same time it also suit in a larger organization whereas open individuals tend to be curious, imaginative, adventures and receptive to business opportunities. Besides openness, K. Jusoff, M. Ismail, S. A. Khalid, M. Othman, N. A. Rahman, K. M. Kassim, and R. Shekh Zain,(2009) also found that extraversion was significant which describes the extent to which people are active, energetic and enthusiastic.

III. Conceptual Framework and Hypothesis Development

A. Entrepreneurial Attitude Orientation (EAO) Model

This study adopts the Entrepreneurial Attitude Orientation Model to predict the engineering



graduates' self-employment intention in Kerala. The EAO Model is developed by Robinson et al. (1991) with the purpose to offer an alternative approach to study entrepreneurship. It contains four subscales which are:

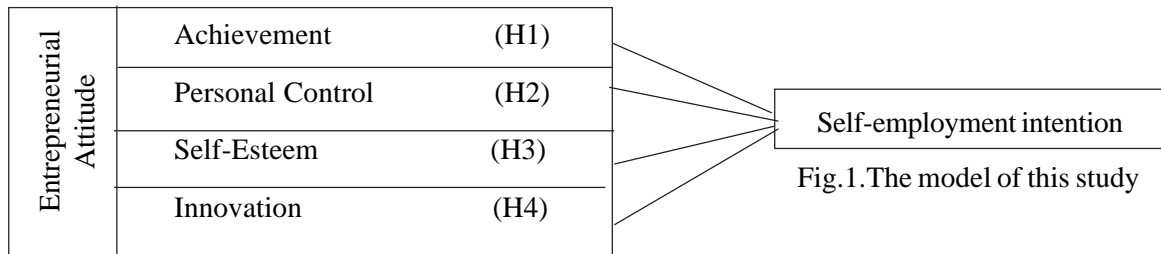
- 1) Achievement in business, referring to concrete results associated with the start-up and growth of a business venture.
- 2) Innovation in business, relating to perceiving and acting upon business activities in new and unique ways.
- 3) Perceived personal control of business outcomes, concerning the individual's

perception of control and influence over his or her business.

- 4) Perceived self-esteem in business, pertaining to the self-confidence and perceived competency of an individual in conjunction with his or her business affairs.

B. Hypotheses Development

With reference to the Theory of Planned Behavior (TPB) by I. Ajzen. (June 1, 2013), the following diagram (see Fig. 1) depicted the model of this study:



The hypotheses for this study are stated as:

- 1) H1: Higher levels of achievement are associated with higher levels of self-employment intention
- 2) H2: Higher levels of personal control are associated with higher levels of self-employment intention
- 3) H3: Higher levels of self-esteem are associated with higher levels of self-employment intention
- 4) H4: Higher levels of innovation are associated with higher levels of self-employment intention

IV. Research Method

IV (A). Research Design and Instrument

A survey approach is utilized in this study by giving questionnaires directly to the engineering graduates. The questionnaire was developed by modifying those of Robinson et al. (1991) to suit the focus of this study in Kerala. The questionnaire

is divided into three parts. The first part consists of questions related to demographic variables while the second part consists of the entrepreneurial attitude (i.e. the EAO scales). The final part solicits the respondents' self-employment intentions.

***IV (B). Sample***

The sample of this study is the engineering graduates in Kerala. Convenience sampling method is employed in the study. The sample size is 300.

IV (C). Administration of the Research Instrument

The questionnaires were distributed personally to the engineering graduates in their respective institutions with the permission of institution management. A pilot test was conducted with 50 respondents. The feedback from the pilot testing required minor amendment on the questionnaire and it was modified on the bases of the requirements.

IV (D). Variables of the Study

The dependent variable is the self-employment intention of the engineering graduates. This variable is measured on a 5-point Likert scaling ranging from strongly disagree to strongly agree, by providing the respondents 16 statements related to self-employment intentions. For each statement the respondents were required to circle one number on the scale.

The independent variables of this study are the entrepreneurial attitude of the engineering graduates. Specifically, they are achievement in business (Achievement), innovation in business (Innovation), perceived personal control of business outcomes (Personal Control) and perceived self-esteem in business (Self-esteem). These variables are measured using the EAO scale in 5 point likert scale. There are in total 75 statements given to the respondents which represented by twelve statements on Personal Control, fourteen statements on Self-esteem,

twenty three statements on Achievement and another twenty six statements on Innovations. For each statement the respondents were required to circle one number on the scale.

V. Data Analysis***V (A). Demographic Profile***

The profile of the survey respondents comprised of 139 (46.33%) females and 161 (53.67%) males. The responds age group ranged between 19 -22 years. SPSS 21 version is used for analyzing the data.

V (B). Factor Analysis and Reliabilities

Principal component factor analysis was performed on independent variables (i.e. Achievement, Personal Control, Self-esteem and Innovation) and on dependent variable (i.e. self employment intention) to define the underlying structure among the variables in the analysis (Table 1). Column 2 of (Table 1) shows the finalized number of items included for each variable. The values of the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy for each variable were all above 0.50, while each of the Bartlett's test of sphericity was significant at 5 percent. For the purpose of the hypothesis testing only statements with factor loadings more than 0.60 were taken (Table 2). In conclusion, nine out of twenty three statements on achievement were included in the final analysis. For innovation, from twenty six only five has being included. For personal control, from twelve statements only five were included and for self-esteem from fourteen statements only five were included in the final analysis. For self employment intention, among sixteen items only three were included.



Table 1: Results of Factor Analysis and Reliability for the EAO Scales and Self-Employment Intention

Construct	Number of items with factor loading greater than 0.60.	KMO	Cronbach Alpha
Independent Variables			
Achievement	9	.872	.887
Personal Control	5	.736	.714
Self-Esteem	5	.942	.908
Innovation	5	.807	.815
Dependent Variable			
Self-Employment Intention	3	.729	.703

The result of factor analysis is summarized in Table 2. A single factor solution emerged with an Eigen value greater than one is taken for the study. The reliability tests based on Cronbach’s alpha measurements were conducted on dependent variable (i.e. self-employment intention) and the independent variables (i.e. Achievement, Personal Control, Self-esteem and Innovation). As shown in the last column of (Tables 1), the reliability coefficients ranged from 0.703 to 0.908, indicating that all the reliability coefficients exceeded the minimum acceptable level of 0.6. Hence, one can conclude that the items measuring entrepreneurial attitudes and self-employment intention was assessed to be reliable.

V (C). Regression Analysis

Table 4 presents the regression estimation for self-employment intention. From the table, it is understood that R^2 (= 0.066) which implies that

6.6 percent of self-employment intention can be explained by the four independent variables. The proposed model was adequate as the F-statistic (= 21.643) was significant at the 5 percent level. This indicated that the overall model provides a statistically significant relationship between entrepreneurial attitudes and self-employment intention. From Table 3 Personal control and self-esteem were found to have a significant and positive relationship with self-employment intention. Therefore, hypothesis H2 and H3 were supported. However, achievement and innovation was found to have no significant relationship with self-employment intention. Hence, H1 and H4 were not statistically supported. As shown in Table 3, the VIF values for independent variables ranged from 1.550 to 1.735, providing the solid evidence against the presence of multicollinearity.

Table 2: Constructs for the EAO Scales and Self-Employment Intention

Construct	Survey items and corresponding loadings
Achievement	I believe that concrete results are necessary in order to judge business success 0.752. I often sacrifice personal comfort in order to take advantage of business opportunities 0.645 I think that to succeed in business these days you must eliminate inefficiencies 0.644 I always feel good when I make the organizations I belong to function better 0.714 I feel proud when I look at the results I have achieved in my business activities 0.651 I believe the most important thing in selecting business associates is their competency 0.669 I feel good when I have worked hard to improve my business 0.779 I get a sense of accomplishment from the pursuit of my business opportunities 0.712 I always try to make friends with people who may be useful in my business 0.637
Personal Control	I create the business opportunities I take advantage of 0.848 I know that social and economic conditions will not affect my success in business 0.876 I believe that in the business world the work of competent people will always be recognized 0.751 I feel resentful when I get bossed around at work 0.683 I feel very good because I am ultimately responsible for my own business success 0.623
Self-Esteem	I usually perform very well on my part of any business project I am involved with 0.844 I believe successful people handle themselves well at business gatherings 0.765 I believe it is important to make a good first impression 0.711 I believe that to succeed in business it is important to get along with the people you work with 0.813 I believe that the authority I have in business is due mainly to my expertise in certain areas 0.705
Innovation	I seldom follow instructions unless the task I am working on is too complex 0.808 I enjoy being able to use old business concepts in new ways 0.782 I believe that organizations which don't experience radical changes now and then tend to get stuck in a rut 0.793 I enjoy being the catalyst for change in business affairs 0.705 I enjoy finding good solutions for problems that nobody has looked at yet 0.745
Self-Employment Intention	I will choose my career as an entrepreneur 0.786 I prefer to be an entrepreneur rather than to be an employee in a company 0.836 I am prepared to do anything to be an entrepreneur 0.868

Source: SPSS generated result out of authors' data

Table 3: Results of Regression Analysis

Model	coefficient	t-statistic	Collinearity tolerance	Statistics VIF
(Constant)	3.666			
achievement	0.079	0.959	0.724	1.581
innovation	0.051	0.534	0.633	1.579
Personal control	0.103	1.246*	0.645	1.550
Self esteem	0.113	1.981*	0.576	1.735



Table 4: Test Results

R ²	Adjusted R ²	F Value	Sig
0.066	0.063	21.643	0.00
Note: *significant at 5 per cent level/ Dependent Variable: self employment intension			

Source: SPSS generated result out of authors' data

VI. Discussion

This study found that entrepreneurial attitudes such as personal control and self-esteem have statistically significant relationships with self-employment intention. However, achievement and innovation were found to have no significant relationship with self-employment intention. Thus, only H2 and H3 are accepted. H1 and H4 are rejected. The finding shows that engineering graduates with high personal control and self esteem have high self employment intention and on the other hand the finding on achievement and innovation indicates that the engineering graduates who are perceived to have high achievement and innovation in business however do not have intention to be self-employed or in other word to operate own business. This may be caused by other variables, for example achievement and innovation may be affected by the personal control or self-esteem. Hence, although the engineering graduates who have perceived high achievement in business and innovation in business, does not make any difference on their entrepreneurial intention. In addition as mentioned by, K. Jusoff, M. Ismail, S. A. Khalid, M. Othman, N. A. Rahman, K. M. Kassim, and R. Shekh Zain (2009), achievement and innovation in business factor is also needed in a larger organization that may push an individual away from self-employment. This finding on achievement supports the claims of N. Ismail, N. Jaffar, S. Khan, and T. S. Leng (2012), K. Jusoff, M. Ismail, S. A. Khalid, M. Othman, N. A. Rahman, K. M. Kassim, and R. Shekh Zain, (2009), and M. N. Mohd Shariff and M. B. Saud(2009) . The finding

on personal control and self-esteem support the findings of M. N. Mohd Shariff and M. B. Saud (2009) that entrepreneurship is affected by ones' personal control and self-esteem. In conjunction to the EAO model it is revealed that the engineering graduates who perceived that they have strong control and strong influence over his or her business have greater intention to be self-employed. For self-esteem, the findings support the gist of the EAO model that graduates who have high self-employment intention are those who have high level of self-confidence and competency in business affairs. In line with the assumption of the EAO model, this finding demonstrated that engineering graduates who were highly intended to be self-employed were those who have high level of self-confidence and competency.

VII. Conclusion

The results of this study has conformed to the literature that entrepreneurial attitudes do have positive relationship with self-employment intention. Universities nowadays have position themselves as a hub of entrepreneurship by nurturing an entrepreneurial environment. Besides more entrepreneurial curriculum or seminar to educate and guide students, it is now up to the university policy makers and government to team up in promoting and producing a positive image of entrepreneurship as a career. This is because even though students have the relevant entrepreneurial knowledge and skills, if they do not possess positive image about entrepreneurship, they might not be interested to venture into the field.



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