

Individual features affecting the students' entrepreneurship capability in agricultural scientific-applied higher education centers of Iran

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Abstract: The main purpose of this study is to identify individual features affecting the students' entrepreneurship capability in Iranian agricultural scientific-applied higher education centers. Analysis of relationships between personal characteristics and entrepreneurship capability showed that there is significant relation between age, family income, and work experience with graduates' entrepreneurship capability. Based on the results of regression analysis, the most effective variable in graduates' entrepreneurship capability is work experience.

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1. Introduction

Entrepreneurship and entrepreneurial behavior are considered to be essential competences and constructs of individual competitiveness in the future (Kuopusjarvi & Lamminpa, 2006). Entrepreneurship and enterprise are now generally recognized as valid and worthwhile foci for study through formal education, with over one-third of all 'experts' identifying education as the most critical issue with young people (Reynolds *et al.*, 2000).

Bolton and Thompson (2000) reflected that "Sadly, our culture and our educational system, not only inhibit the flowering of entrepreneurial talent; they positively discourage it". They considered that their anecdotal evidence with entrepreneur programs for undergraduates suggested that too much education can actually deter entrepreneurs and bury their talent even deeper (except for high technology fields where educational qualifications tended to be much higher). So developing an entrepreneurial culture and supporting innovative, new and small firms are high on government agendas. Universities and other organizations in the higher education sector have a key role to play, both through training entrepreneurs and knowledge transfer to industry.

A glance to the history of agriculture education system in Iran indicate that the investment and attention in various dimension of education has never been suitable and didn't conform to

employment status, vastness of agriculture sector, and frequency of stakeholders of this sector in Iran (about 3.5 million stakeholders). However worthy efforts of higher agricultural education centers and universities to train specialized graduates should not be ignored, but focus on learning theoretical knowledge instead of scientific-applied knowledge, lack of attention to foster creativity and innovative ability of students, non-suitability of courses content with needs of job market, lack of practical courses, and lack of experienced and skillful teachers to teach practical courses are the main problems of this system. The situation shows the need to equip students at all levels in the education system with personal entrepreneurial capacities to deal with greater levels of uncertainty and complexity in both their work and personal life (Ravasi and Turati 2005, Gibb 2007).

In the other hand, scholars believe that agricultural scientific-applied education system is a kind of education planning by skillful instructors and specialists to train student interested in agricultural affairs (Mack Bannatyne & hall, 2003). In other research, Lindley (1996) has noted that agricultural scientific-applied educations could have an important role in empowerment of farmers, researchers, extension personnel, and all people whose occupations are related with agriculture and also distributors of agricultural products. Landkinen

(2000) has emphasized in his research that scientific-applied training is considered as a investment in qualitative improvement of labor force, because this kind of education cause to create knowledge and skill in process of production. Kotrlik (2002) believe that productivity of instructors in scientific-applied educations is more than trainers in other educational systems.

According to the different researches, individual characteristics have a significant impact on the involvement of entrepreneurs particularly when it comes to enterprise management (Kalyani & Chandralekha 2002). Some of these psychological characteristics are: need for achievement, desire for independence, job satisfaction from work, entrepreneurial role, and risk taking (Lordkipanidze et al., 2005). The results a research about relationship between social capital and entrepreneurship showed that there's a significant relationship between social capital variables such as structural and quality dimensions, and entrepreneurship (Dadashi & Asgari, 2011). Based on another study in Iran, students scored relatively low on the competitiveness and risk taking propensity despite their high scores on need for achievement and need for power, and there is no significant difference between discipline and sophomore/senior. While there is statistically positive correlation between grade point average and need for achievement, this relation is negative for risk taking propensity, i.e., the more risk taking trait an individual shows in his/her behavior, the less attempt he/she makes to gain better grade point averages (sharifzadeh & zamani 2005).

Regarding to importance of entrepreneurship capacity in graduates, the role of agricultural scientific-applied education system in training efficient graduates, and the needs of agriculture sector to skillful and capable graduates, it was necessary to study what make changes in graduates' entrepreneurship capacity. This would be possible by recognition of the variables which affect the entrepreneurial characteristics and improve them. So the main goal of this study is to identify features affecting the students' entrepreneurship capability in agricultural scientific-applied higher education centers of Iran. The objectives of this research are including:

- Describe Iranian agricultural scientific-applied students by personal, professional, and educational characteristics.
- Assessment of psychological and individual features effecting on students' entrepreneurship capability of agricultural scientific-applied education system.

2. Material and Methods

The type of current research is descriptive-correlative. The population in this study is graduates of agricultural scientific-applied centers from 2008-2010 in central district of Iran including Tehran, Ghom, Semnan and Ghazvin that are 470 graduates. In order to determine size of sample, 30 graduates were selected accidentally and variance was calculated through distribution of questionnaire between them as data collection tool. Based on the variance, size of sample was estimated 135 graduates through Cochran formula. The sampling method was stratified sampling in which the people were selected quite by accident inside the stages (table1).

Table 1- Number of graduates being surveyed

provinces	Number of graduates	Number of samples
Tehran	146	70
Semnan	159	46
Qazvin	35	10
Qom	30	9
Total	470	135

According to the objectives of scientific-applied educations, dependant variable in this study is the entrepreneurship capability of graduates which was evaluated by several questions. Independent variables are individual, occupational, and educational features. By considering the objectives of research, the questionnaire was used as data collection tool. In order to determine the reliability of questions, the pilot-test was done by completing 30 questionnaires by graduates of agricultural scientific-applied educations and Cronbach Alpha coefficient was estimated to be 87% which is indicative of desired reliability of the research tool. Data analysis was done in two descriptive and inferential statistic levels by SPSS software. In descriptive level, through

statistical measures such as frequency, percentage, average, variance and standard deviation and in inferential level Pierson correlation coefficient and regression analysis have been used.

3. Results

According to the results, the graduates entering by free quota (59.6%) in agricultural scientific-applied educations are more than graduates of employment quota (40.4%). The average of their age was 28 years and its standard deviation was 9.34 which is indicative of high dispersal of interviewees age. Among graduates of free quota 78.8 percent were male and among graduates of employment quota 84 percent were male. Based on the findings, only 23.19 percent of free quota graduates were married; meanwhile 69.7 percent of employment quota graduates were married. According to table 2, more than half of graduates are employed meanwhile 63.74 percent of free quota graduates are unemployed. Also, according to the table 3, among total 83 occupied graduates more than half (57.14%) are working in public sector and only 6 persons (7.8%) are self-employed. In this study, graduates also were asked to report their work experience, family income, parents' educational level, and interest in continuing education.

Table 2- Demographic profile and descriptive statistics of graduates

Quota	Free (59.6%)	Employment (40.4%)
Age	Mean= 28	S.D=9.34
Gender	F* Male (78.8%)	Female (21.2%)
	E* Male (84%)	Female (16%)
Marital status	F Married (23.2%)	Single (76.8%)
	E Married (69.7%)	Single (30.3%)
Occupational status	F Employed (36.3%)	Unemployed (63.7%)
	E Employed (100%)	Unemployed (0%)

*F: Free quota; *E: Employment quota

In this research to consider the relationship between independent and dependent variables Pierson and Spearman coefficients were used. The data of table 3 shows that correlation coefficient

between the graduates' entrepreneurship capability and the age of graduates was -0.24 which is in negative and significant level. So, the older graduates had less entrepreneurship capability than younger graduates. While, the interest of graduates regarding continuing their education has a positive and significant relation with dependent variable. On the other hand, the variable of the parents' educational level had no significant relationship with graduates' entrepreneurship capability. Other results of correlation analysis are shown in the table 3.

Table 3- Relationship between graduates' entrepreneurship capability and independent variables

Variables	Correlation Coefficient	R
Age of graduates	Pierson	** -0.24
Educational level of father	Spearman	0.04
Educational level of mother	Spearman	0.03
Work experience	Pierson	*0.41
Family income	Pierson	*0.63
Interest in continuing education	Spearman	*0.38

** Significant in 0.01 level; * Significant in 0.05 level

According to the results of regression analysis (tables 4 and 5), in first step "work experience" was entered in the equation that the multiple regression coefficient (R) was 0.718 and determining coefficient was 0.516. It means that 51.6 percent of changes of graduates' entrepreneurship capability are explained by this variable. In the next step, the variable "Family income" was entered in the equation. This variable increased the multiple regression coefficient of (R) to 0.774 and determining coefficient to 59.8 percent. Actually, this variable can explain 8.2 percent of changes of dependent variable. In the third step, the variable "Interest in continuing education" was entered in the equation that showed 0.816 of correlation coefficient and 0.666 percent determining coefficient. This variable can explain 6.8 percent of changes in dependent variable.

Table 4- Determining coefficients of effective variables in graduates' entrepreneurship capability

step	R	R ²	R ² AD
1	0.718	0.516	0.513
2	0.774	0.598	0.594
3	0.816	0.666	0.658

Table 5- Effect rate of variables in graduates' entrepreneurship capability

Variables	B	Beta	t	Sig.
Constant coefficient	22.34	-	6.14	0.000
Work experience	0.82	0.58	7.3	0.000
Family income	0.72	0.48	4.3	0.000
Interest in continuing education	0.65	0.32	3.9	0.007

The results of the regression analysis shows that after entrance of all independent variables which had significant correlation with dependent variable, only the variables of work experience, family income and interest in continuing education remained. These three variables can totally explain 66.6 percent of changes of the dependent variable. Of course, other changes are related to other elements which have not been studied in this research. So, According to the results, the linear equation of regression would be as follow:

$$Y=22.34+0.82 X_1+0.72X_2+0.65X_3$$

4. Discussions

The results of the study indicated that despite of the emphasis of agricultural scientific-applied educational system on making applied the theories and try to preparing the graduates to work, over more than half of free quota graduates are unemployed. On the other hand, only a small part of employment graduates is working as self-employed (7.8 percent) and most of them are employed in public sector. These findings showed that lack of proportion in current courses in agricultural scientific-applied educational system with job market and weakness of this system in training entrepreneur graduates.

The other consequences of this study were negative and significant correlation of age, as well as

positive and significant correlation of work experience, family income and interest in continuing education variables with the graduate' entrepreneurship capability. In fact, the older graduates or with more work experiences had more entrepreneurship capability of graduates. Also, the results of multiple regression showed that work experience of graduates has more important effect in explanation of changes in entrepreneurship capability of graduates.

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