



## A Study on the Development of Entrepreneurship Skills of Agricultural Applied-Scientific Students in East Azerbaijan Province, Iran

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**Abstract** – Agricultural applied-scientific education responsible for developing the practical skills of students as well as their theoretical education can play an important role in developing some characteristics, abilities and skills of students by developing Entrepreneurship Skills programs in education planning. To this end, the study investigated the entrepreneurship skills development of agricultural applied-scientific students of east Azerbaijan province, Iran in 2013. It was done using survey method. The statistical samples of the study were 488 applied-scientific students. The sample numbers was 122 that were calculated by the Cochran formula. The instrument of the study was questionnaire and the data were gathered through the stratified random sampling. The validity of the study instrument was confirmed by the professors of Tehran and Teacher Training Universities and agricultural applies-scientific clear-sightseers. The reliability of the study was calculated by Cronbachs' alpha coefficient that was ( $\alpha=0.82$ ). It means that the instrument of the study is reliable. The data were analyzed using SPSS. The results of the Spearman's correlation coefficient showed that there is positive and significant relationship between age, the level of father education, the application of entrepreneurship education methods and entrepreneurship skills development of students. Also the results of Kruskal- Wallis test showed that the father job has an effect on entrepreneurship skills Development of students.

**Keywords** – Development, Entrepreneurship Skills, Students, Applied-Scientific, Agriculture.

### I. INTRODUCTION

For the recent decade in Iran, applied-scientific higher education was emphasized as to make connection between higher education and occupations in agricultural sector. Because agricultural applied-scientific education aims to train people to increase their knowledge, create the pertinent skills and tap their hidden talents. It prepares graduate students for getting different jobs and professions and business. It also enhances their ability to a great degree. (Applied & Scientific Universities of Qom, 2005).

Moghimi (2006) believed that of agricultural applied-scientific education centers with regarding its own philosophy improving applied student's skills together theoretical educations can one of the main solution for decreasing unemployment rate among agricultural graduate students through entrepreneurship development in educational programs, development, skills reinforcement and abilities. Norouzadeh and

MehrabiYeganeh (2006) in their studies said that the developing of entrepreneurship education at agricultural applied- scientific higher education centers can be one of the ways to increase effectively productivity of human resources at agricultural sector. Khosroupooret *et al.*, (2008) believe that the most important case of developing of each society is human resources. Furthermore, in order to reach a stable and balanced development, training experts, skilled required workforce of different part of the society in educational organizations is of prime principal. Agriculture regarded as one of the important productive and economic sector of development programs play an important role. Ever-increasing needs to articles of food and limitation of production possibility necessitate the agricultural development and applying more efficient and new technology. And this can be gained by acquiring knowledge, improvement and consolidating of skills and abilities of human resources in this sector.

Azizi and Hossini (2005) emphasized on applying the methods of entrepreneurship skills development can increase entrepreneurship skills of students of agricultural. Accordingly this development of adoptability of educational programs contents and compatibility between teaching topics and entrepreneurship. Baradaran and Salehi (2005) stressed on entrepreneurship education as to achieve goals of agricultural education acquiring the required skills and employment of graduate students as the most important goals.

Farrokhzad (2005) believe that in an ever-changing era of modern day in which education and educational programs is changing, applied-scientific educations seem to be regarded as an investment in human resources. Soltani (2005) believes that the aim of centers of agricultural applied-scientific education is to focus on scientific aspects, theoretical educational skills and to immediately create opportunities for employment of graduate students and resolve specific social or economic needs in agriculture sector.

Therefore investigating the development of entrepreneurship skills in students is one of the aspect of assessment of educational activities quality in specifically agricultural applied-scientific education system. This change in analysis of inside's efficiency of agricultural applied-scientific education system can be applied to the current situation to facilitate decision-making. Using the results, everyone can improve activities through educational programs. Therefore, according to the importance of agricultural applied- scientific educations

and the needs of agriculture part to expert graduate students in order to acquire the required skills and employment, there is a need to train graduate students with entrepreneurship skills.

This study investigated development of entrepreneurship skills of agricultural applied- scientific students of East and West Azerbaijan, Iran. To achieve the general goals of the study the specific goals provided as follows

1. The study of individual and professional characteristics of students and its effects on developing entrepreneurship skills
2. To investigate the rate of adoptability of educational programs contents, topics and subjects in terms of entrepreneurship
3. To analyze application of methods to entrepreneurship education in applied-scientific from students' point of view

## II. MATERIALS AND METHODS

This research and nature of it is the applied one and the type of variable control is descriptive-correlative ones. The statistical population of this research were 488 students of agricultural applied- scientific centers of east province of Iran in 2013. Among them 122 students were selected as a statistical samples with the method of stratified Random sampling proportionate with society population by Cochran formula. According to applied-scientific aims, the dependent variable in this research is to develop students entrepreneurship skills and the indicator of dependent variable were calculated with five parts of Likert spectrum that is (very low = 1; low = 2; moderate = 3; high = 4; very high = 5) by allocated numbers addition to different component of interval scale. Independent variables were professional and personal characteristics, adoptability and compatibility of educational programs, compatibility of applied-scientific topics with entrepreneurship and application of entrepreneurship education. According to the research purposes, the questionnaire was used as a tool of gathering information. In descriptive statistics, the following statistical words were used: Mean, Standard Deviation (SD), percent, cumulative percent and inferential statistical, the Spearman's correlation coefficients, Mann-Whitney test, Kruskal-Wallis test and multiple Regressions analyze were used.

## III. RESULTS AND DISCUSSION

Professional and personal specification of students: The investigation of the gathered data show that the mean of students' age were 25 years old. 70 percent of them were male, 73.90 percent were single, and 33.20 percent of the student's Field of Study was Livestock and Poultry and 43.48 percent of students' father's literacy level was associate and bachelor degrees (Table 1)

The Ranking of Students' Point of View about adoptability and compatibility of Educational Programs content: In this regard, 8 components were selected and they were asked from students to rate adoptability of

Table 1: Frequency Distribution of students' professional and personal specification

Variable	Frequency	Percent
<b>Age</b>		
18-20	245	86.60
29-39	21	7/40
40-50	15	5/30
Over 51	2	0.7
<b>Sex</b>		
Male	198	70
Female	85	30
<b>Marital Status</b>		
Single	209	73.90
Married	74	26.10
<b>Field of Study</b>		
Livestock & Poultry	94	33.20
Plant and Flower	48	17
Irrigation	13	4.60
Pasturage	29	10.20
Mechanization	20	7.10
Diary Products	10	3.50
Bee-Keeping	19	6.7
Water Transmission	35	12.40
Lands Development	15	5.30
<b>Father's Job</b>		
Free	87	30.74
Teacher/ Educational	42	14.84
Employee	81	28.62
Laborer	2	0.7
Engineer	2	0.7
Retired	47	26.60
Army-man	6	2.12
Medical Groups	5	1.49
Agriculturist	6	3.18
Cleric	2	0.7
<b>Father's Degree</b>		
Illiterate	11	3.88
Below-high school	50	17.66
High School	86	30.38
Associate & Bachelor	123	43.46
Degrees		
M.A & PhD	13	4.59

educational programs contents about entrepreneurship with each of the components. The results show that the adoptability and compatibility of educational programs contents about entrepreneurship with technological and scientific developments have been remarkable which rests at top priority. Also information technology or informing students' skills, mental, scientific abilities and the changes of teaching periods and educational contents were ranked in order from two to four priorities. And finally there is a few adoptability and compatibility between adoptability of applied-scientific educational programs contents concerning entrepreneurship and creative or innovative of students, expanding professional specialization of students and finally creating multiple management of students (Table 2).

**Table 2: Frequency Distribution of Studied Students Ideas about adoptability and compatibility of Educational Programs Contents**

Proportionate of Agricultural Applied Scientific Centers Educational Programs Contents	Mean	SD	Order
Technological & Scientific Development	4.06	1.07	1
Information Technology	3.95	0.99	2
Students Skills, Mental, Scientific Abilities	3.89	1.11	3
The Changes of Teaching Periods & Educational Contents	3.88	1.14	4
Labor Market Needs and Applicable	3.86	1.19	5
Creating Innovation of Students	3.82	1.13	6
Expanding Students Professional Specializations	3.79	1.16	7
Creating Multi-Skills Management of Students	3.75	1.14	8

Very Low = 1      Low = 2      Moderate = 3      High = 4      Very high = 5

The Ranking of Students' Point of View about compatibility topics of Agricultural Applied Scientific Centers with Entrepreneurship: In this regard 4 components were selected that the mean of the compatibility of specialized subjects with entrepreneurship were 3.35 that is the top priority. Compatibility of topics

of main subjects, compatibility of topics of basic subjects and compatibility topics of general subjects with entrepreneurship having lower mean were low ranked. In general there is little compatibility between university lessons headlines with entrepreneurship and (Table 3).

**Table 3: Frequency Distribution of Students' Point of View about compatibility of topics concerning entrepreneurship.**

The Rank of University topics Compatibility with Entrepreneurship	Mean	SD
Specialized Topics Compatibility with Entrepreneurship	3.35	1.07
Main topics Compatibility with Entrepreneurship	3.29	0.81
Base topics Compatibility with Entrepreneurship	3.23	0.97
General-Knowledge topics Compatibility with Entrepreneurship	3.07	1.10

Very Low = 1      Low = 2      Moderate = 3      High = 4      Very high = 5

The Ranking of Students' Point of View about the application of methods of Entrepreneurship Education in Development of Entrepreneurship Skills: In this regard, 15 components were selected. The students are going to determine the application of each of above- mentioned methods in development of entrepreneurship skills by Likert spectrum. The results show that running workshops as the most was the first rank. Also, training teachers and instructors of entrepreneurship education, holding group

programs, running of entrepreneurship specialized seminars, recognition and introducing successful entrepreneurial and inviting them for giving a lecture, building internet base, organizing research group to investigate entrepreneurship and finally organizing entrepreneurship society are other important methods of developing entrepreneurship skills were low ranked (Table 4).

**Table 4: Frequency Distribution of Studied Students' Ideas about the application of methods of Entrepreneurship Educational in Development of Entrepreneurship Skills.**

Priority	Application of methods of Entrepreneurship Education	Mean	S.d
1	Running Workshops	4.11	0.95
2	Training Teachers and Instructors of Entrepreneurship Education	4.01	0.92
3	Holding Groups' Programs	3.98	0.87
4	Running Entrepreneurship Specialized Seminars	3.94	0.96
5	Recognition and Introducing Successful Entrepreneurial and Inviting for Lectures	3.93	0.92
6	Building Internet-Base for Entrepreneurship Centers of applied-Scientific	3.90	1.10
7	Organizing Research Groups to Investigate Entrepreneurship	3.86	1.17
8	Organizing Entrepreneurship Society at Applied-Scientific Centers	3.85	0.96
9	Teaching Entrepreneurship Lessons at Universities Using Advanced Educational	3.79	0.97
10	Instruments to Educate Entrepreneurship	3.77	0.81
11	Creating a New Field of Study with the Title of Management with Entrepreneurship	3.38	1.01
12	Publication of Promotional, Scientific Magazine about Entrepreneurship Field	3.37	1.05
13	Preparing Educational Books about Entrepreneurship Field	3.13	0.99
14	Using the Method of Distance Learning to Educate Entrepreneurship	3.05	1.29
15	Publishing Articles about Entrepreneurship at Applied-Scientific Centers	2.61	1.25

Determining the Relation between Independent Variable of the Research with development of Entrepreneurship Skills: The results of Spearman's correlation coefficient show that there is significance relationship between father's literacy's levels and applying methods of entrepreneurship education at with developing entrepreneurship skills that is 0.01 ( $r = 0.01$ ). Also, there

is a positive and significant relationship students entrepreneurship skills development that is 0.05 ( $r = 0.05$ ). But there is not any significance relationship between educational programs content and or applied scientific topics with developing students entrepreneurship skills (Table 5).

Table 5: Investigation of the Relationship between Research Independence Variable with Students Entrepreneurship Skills

Independence Variable	Spearman's Correlation Coefficient	Significance Level
Age	0.159	0.010
Father's Literate's Level	0.266	0.000
Educational Programs Contents	0.080	0.199
Applying Development Methods of entrepreneurship education	0.509	0.000
Topics of Applied-Scientific Centers subjects	-/109	0.076

\*\* $P \leq 0.05$       \*\* $P \leq 0.01$

In order to forecast the effect of research independence variables on students' entrepreneurship skills development, the stepwise regression analysis were used. Regression analysis results show that after entering independence variable into Regression equation and calculating the

significance of each variable with the use of step to step method, 36.10 percent of students entrepreneurship skills development rate variable were explained by applying methods of entrepreneurship education, age and father's literate's level (Table 6).

Table 6: Step to Step Regression to Explain the Effect of Research Independence Variables on Developing of Students Entrepreneurship Skills.

Independence Variable	B	Beta	T	Sig
Constant Digit	0.447	-	1.625	0.105
Applying the Methods of Entrepreneurship Education	0.297	0.392	7.564	0.000
Age	0.206	0.235	4.614	0.000
Father's Literacy's Level	0.205	0.173	3.141	0.002
$R = 0.600$ $R^2 = 0.361$ $R^2_{Ad} = 0.350$ $F = 35.240$ $Sig = 0.000$				

According to the results of table 8, the following equation was written in this way:

$$Y = 0.447 + 0.297x_1 + 0.209x_2 + 0.205x_3$$

Therefore, with use of the above formula, the rate of students' entrepreneurship skills development was estimated.

Comparing Groups Mean: In order to compare the means of two independence society that the data is either ranked or serial, the Mann-Whitney test and for comparing the mean of sample numbers that were more than once, the

Kruskal-Wallis test were used. The results of the Mann-Whitney test show that there are not significance differences between the mean of entrepreneurship skills development of single and married students at the level of 0.05. (Table 8) But there are significant differences between father's job and students' entrepreneurship skills development at the level of 0.01, so that the father's job has an effect on the developing of students entrepreneurship skills (Table 7).

Table 7: Comparing the two Groups about Entrepreneurship Skills Development (Mann-Whitney Test).

Independent Variable	Variable Levels	Ranked Mean	Z- Test	Sig
Male/Female	Male	142.59	-0.184	0.854
	Female	140.64		
Spatial Status	Single	143.64	-0.567	0.0571
	Married	137.36		

$P \leq 0.05$

Table 8: Comparing Groups Mean about Entrepreneurship Development (Kruskal-Wallis Test).

Independence Variable	Chi-Square	Sig	Degree of Freedom
Educational Courses	7.231	0.124	12
Father's Job	16.067	0.001	8

$P \leq 0.01$

#### IV. SUGGESTIONS

1. On the base of the priority of students' point of view about application of methods of entrepreneurship education at agricultural applied-scientific centers, running workshops were ranked as top priority. Training teachers and instructors of entrepreneurship education training and running group programs at applied scientific centers were low ranked. So it is suggested in order to promote entrepreneurship cultures, eliminate financial limitations, to transfer the knowledge and research results of entrepreneurship fields of other countries, there should be some opportunities to create entrepreneurship skills development at agricultural applied-scientific centers.
2. To rank the compatibility rate of educational different topics in order of specialized subjects, main subjects, basic and general subjects in relation to entrepreneurship and through students' point of view, there is the least compatibility of agricultural applied-scientific topics with entrepreneurship. So that it is recommended that entrepreneurship subjects at associate and bachelor degrees level were presented with topics of taking risk, self-confidence, assuming responsibilities, self-reliance and bearing failure and being bearable at problems.
3. According to the results students' entrepreneurship skills development is done by applying the methods of entrepreneurship educational. So, it is suggested that applied-scientific educational courses at different levels of knowledge and skills were designed in a way that they would create the necessary abilities for learning a job skills at productive process for getting a job, a profession or business at different opportunities.

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