

The Role of Iranian Higher Agricultural Education System on Entrepreneurial Success of its Graduates: Some Policy Implications for Entrepreneurship Education

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Abstract: A mixed method research design was employed to explore the role of Iranian Higher Agricultural Education System (IHAES) on entrepreneurial success among its graduates so as to propose some strategies to integrate entrepreneurship education into IHAES. The result suggests 22 competencies as important for successful entrepreneurial behavior by graduates of IHAES. The results also indicate that IHAES has played no role in providing entrepreneurs with the needed skills other than the specialized skills. As perceived by the participants, 7 strategies could be utilized by IHAES to integrate entrepreneurship education into the curricula.

Key words: Agricultural Sector · Entrepreneurship Development · Entrepreneurial Competencies · Entrepreneurship Education · Entrepreneurial Success · Higher Agricultural Education

INTRODUCTION

Over the past 15 years the higher agricultural education system in Iran has been considerably expanded, reflecting a broad shift away from an elite system towards mass higher agricultural education. Since 1990, there has been an increase in student numbers and it is estimated that there are currently over a hundred thousand students studying at higher agricultural education institutions in Iran [1]. This expansion has led to an increasingly access to higher agricultural education across a wider range of population coupled with an increased supply of graduates to the labor market [2]. However, the graduate recruitment in the market place has been on a downward trend since then. Available statistics show that although agriculture by having a 19.9% of student population is the most populous part of higher education in Iran, its participation rate in employment is only 0.47%, a figure which is the lowest compared to other parts of higher education [3]. This is while the higher agricultural education student population has been increasing annually such that the number of students has increased from 33368 in 1996-97 to 62070 in 2003-4: a 93.5% growth rate [4]. Thus, should the current trend remain unemployment among graduates of higher education in

agriculture will increase more rapidly as compared to that of other higher education areas of specialization [5].

There are two main reasons for growth in unemployment rate among the agricultural higher education alumni:

1. Since the early 1990, as a result of population growth, for the public demand to be responded, the model of higher education in Iran changed from market-demand to social-demand, leading to an influx of students enrolled in higher education. The consequence of this change in the policy was emerging disequilibrium between supply and demand sides of the market place, hence resulting in the unemployment growth among higher education graduates [6].
2. Historically, in Iran, government has been the main source of employment creation in particular for university graduates. The main strategy of higher education, therefore, was to prepare its clientele for government employment [7]. But today, as a result of international and national challenges, the situation has drastically changed. On the international side globalization, shift toward knowledge-based economy, and on the national side deregulation,

market liberalization, population growth, and government downsizing have caused a shift in market place towards the informal sector [8].

The inability of higher education of Iran to appropriately respond to the challenges mentioned above has caused many national researchers to point to the incongruity of higher education with the needs of changing marketplace as a main reason of unemployment growth rate among higher education graduates [2, 3, 9].

Meanwhile, international organizations such as OECD, ILO and World Bank and different national governments believe that nurturing entrepreneurship as a planned intervention in the whole system of the society, including higher education, can assist the governments to better deal with economic development and unemployment [7]. Underlying this notion is the inherent belief that entrepreneurship is critical to economic and social development of any country.

EDUCATION AND ENTREPRENEURIAL SUCCESS

There are numerous studies on various relations between entrepreneurship, education, and the success of entrepreneurs [10-13].

Contradictory results have emerged from prior studies. From the view of many researchers, education is considered probably to give the entrepreneur the knowledge and skills that are necessary to increase the performance of the venture. In a survey of new firms in the north of England, it was suggested that the educational attainment of founders to be low, though an inverse relationship was found between age and education [14]. Other research, however, have described a well-educated and well-qualified population for entrepreneurs [15-17]. Education specifically related to entrepreneurship and small business management may provide a better preparation for potential entrepreneurs. This education may take the form of business degrees with a major or concentration in entrepreneurship, certificate or degree programs in entrepreneurship [18], or shorter-length programs related to enterprise startup and small business management [19]. These programs vary in their aims, which include increasing the likelihood of start-ups, improving start-up skills, and better managing the venture.

Contradict to the view that education influences new firm performance, some assert that general education do not provide an appropriate preparation for new venture management [20-22]. Skills and knowledge developed through formal education are viewed by many entrepreneurs and practitioners as insufficient

for successful performance in real-world situations [23] and may even suppress entrepreneurial attributes [24, 25].

On the international side, although a number of evaluative studies have examined the role of education and training on new venture success [26-30], there has been little research examining the retrospective perceptions of alumni towards the role of higher education, in particular the role of higher agricultural education, on entrepreneurial success. The situation is even worse when investigating inside Iran. At the present time, the higher agricultural education curriculum in Iran does not contain a clear, specific description of self-employment or entrepreneurship content [4]. It is not known to what extent entrepreneurship is taught at the university level in agricultural education. There is no research based upon which to build a perspective of either the role of the Iranian higher agricultural education system on, or the competencies most necessary for entrepreneurial success of the graduates of this part of the education system.

This is while, it is implicitly expected that the graduates of higher agricultural education institutions have had developed the most necessary skills needed to success in the conduct of an agricultural-based enterprise due to the nature and the process of agricultural education which is very similar to that of entrepreneurship education. This study was designed to redress this research gap. Due to their post-qualification employment experience, alumni entrepreneurs can contribute important insights into the role of higher agricultural education on entrepreneurial success. The following research questions were raised to address the above problem:

- 1- What are the unique competencies most necessary for a graduate of higher agricultural education in Iran to begin and maintain a successful entrepreneurial business in the area of agriculture as perceived by the entrepreneurs?
- 2- To what extent is higher agricultural education programs perceived as assisting in the development of these competencies?
- 3- What sources and methods have been utilized by entrepreneurs to develop these competencies?
- 4- Has the Iranian higher agricultural education system been influential in providing the entrepreneurs with these competencies?
- 5- What strategies should the institutions of higher agricultural education apply to provide necessary education for better infusion of these competencies in students?

This study comprises an initial attempt to gain insight into how higher agricultural education institutions can revitalize their curricula to better prepare their student for the market place and to keep pace with the changing nature of the environment around them. The emerging information can be of significance to policy makers, teachers, curriculum developers, researchers and other Iranian parties involved in the provision of agricultural entrepreneurship education and agricultural entrepreneurship development in general.

METHODOLOGY

This study was undertaken in two phases. The first phase used qualitative approach to explore the followings: competencies most important to entrepreneurial success in the Iranian agricultural context as perceived by entrepreneurs; the methods and sources which have been utilized by entrepreneurs graduated from IHAES to develop the entrepreneurial competencies in themselves; and the role of and the strategies which can be used by IHAES to prepare students for an entrepreneurial career in agriculture. Data were collected through in-depth, semi-structured interviews with 15 entrepreneurs graduated from IHAES. Purposive and snow-ball sampling techniques were applied to gather the data. Finally, a list of 22 entrepreneurial competencies was derived from the literature search and interviews with the entrepreneurs.

In the second phase of the research, a questionnaire was constructed to test the robustness of the qualitative data on a larger population. The questionnaire was validated by a 5 member panel of experts. The sample for the second phase was composed of alumni from all over the country currently running an agricultural-based

business. As there was no specific source of information available on different aspect of agricultural business ownership in the country, a two-stage sampling technique was applied. At the first stage, 8 provinces were randomly chosen, one from each of 8 regions of the country. At the second stage, the research team visited each province and tried to find as much businesses as possible. To this end, the research team searched multiple potential sources of information at the provincial level such as Agricultural Organization, Rural Cooperatives Organization, Business Affair Department, Center for Small and Medium Industries, and Agricultural Bank. The snow-ball sampling method was also used to find more and more business establishments. By using these two approaches it was possible to identify 72 successful businesses with 103 team-members graduated from IHAES. This was believed to be a reasonable sample size from which results could be generalized across the wider population, tempered by the resource and time constraints imposed on the study. In total, 103 questionnaires were filled out using interviews with the participants. The descriptive statistics such as Mean, Standard Deviation, Coefficient of Variation, and Mode were applied using SPSS software to analyze the data.

RESULTS

Entrepreneur and firm characteristics and demographics: As exhibited in Table 1, 86.4 percent (89 persons) of the top-team management members, those who were graduates of IHAES, were male and only 13.6 percent (14 people) were females. This result indicates a very low rate of entrepreneurial behavior among the female as compared to the male graduates. It is,

Table 1: Summary Information on Respondents and Enterprises

Variable	Frequency	Percent
GENDER		
Male	89	86.4
Female	14	13.6
AREA OF ENTREPRENEURIAL ACTIVITY		
Greenhouse-based enterprises	18	25.0
Animal husbandry	14	19.5
Farming	11	15.3
Agricultural support services	10	13.9
Horticulture	8	11.1
Animal husbandry related services	6	8.3
Aquaculture	5	6.9
TIME PERIOD OF START-UP		
Before the Islamic revolution in 1978	7	9.7
1980s	15	20.8
1990s	50	69.5

Table 2: Importance of the Competencies for Entrepreneurial Success

Entrepreneurial competencies	Mean	S.D.	C.V.	Mode
1. Technical knowledge and skill in the agricultural area of specialization in which to establish a business venture	4.85	1.06	0.21	5
2. Appropriate knowledge and understanding of the market	4.78	1.10	0.23	5
3. How to assess the unmet needs of customers and market	4.77	1.14	0.24	5
4. How to identify specialized services, products and goods which market and customer will need in the future	4.77	1.19	0.25	5
5. Ability to conduct an effective market research in the area of specialization	4.73	1.26	0.27	5
6. Ability to identify and evaluate an opportunity in the market	4.72	1.35	0.29	5
7. Knowledge and skill on how to develop an identified opportunity into a valid idea	4.72	1.42	0.31	5
8. Ability to conduct feasibility study on whether the developed idea is socio- economically desirable	4.70	1.49	0.32	5
9. Ability to conduct feasibility study to ensure whether the developed idea is practical	4.70	1.55	0.33	5
10. Ability to develop a business plan	4.68	1.61	0.34	5
11. Knowledge and skill to estimate and manage the risk of entry into the market in the area of specialization	4.66	1.66	0.36	5
12. A full understanding of the different stages of starting up a new business venture in the area of expertise	4.62	1.70	0.38	5
13. Ability on how to marshal the different resources needed to launch a new business venture in the area of specialization	4.23	1.73	0.41	4
14. Technical management skills	4.14	1.76	0.43	4
15. Time management skills	4.12	1.78	0.44	4
16. How to design and set up an effective organizational structure for the business	4.06	1.80	0.44	4
17. Complete knowledge and understanding of the current and future government policies in the agriculture sector and in the area of specialization	3.97	1.84	0.46	4
18. Team working abilities	3.70	1.87	0.50	4
19. Financial management and accounting knowledge and skills	3.58	1.91	0.53	4
20. Oral communication skills needed to succeed in the business	3.57	1.92	0.53	4
21. Written communication skills needed to succeed in the business	3.30	1.95	0.60	3
22. Knowledge and understanding of the business law in Iran in particular in the agriculture sector	2.98	1.98	0.66	3

therefore, necessary to further investigate the reasons for this disequilibrium especially because the share of females in current situation of the Iranian higher agricultural education, as a proportion of the population of student, is larger than that of males [4].

Table 1 shows a diverse area of entrepreneurial activity among the sample, with greenhouse-based enterprises accounting for 25 percent of the sample size. Other areas of specializations constituting the sample were: animal husbandry and related serviced (27.8 percent of the samples), farming (15.3 percent), agricultural support services (13.9 percent), horticulture (11.1 percent), and aquaculture (6.9 percent).

In respect of the time period of start-up, Table 1 shows that the majority of the enterprises have been set-up during 1990s (69.5 percent of the sample) indicating a meaningful growth of entrepreneurial behavior among the graduates of Iranian higher agricultural education system during 1990s as compared to 1980s (20.8 percent) and before the Islamic revolution in 1978 (9.7 percent).

Importance of the competencies for entrepreneurial success: Table 2 lists the 22 entrepreneurial competencies with the Mean, Standard Deviation (S.D.), Coefficient of Variation (C.V.) and Mode, ranked according to their importance for entrepreneurial success as perceived by the participant. The item C.V. served as the criterion for ranking the competencies: the smaller the C.V. the more important the competency. All above statistics were computed by assigning a numerical value to each category of the Likert- type scale: highly important = 5, important = 4, somewhat important = 3, not important = 2, not at all important = 1.

Table 2 indicates that all the 22 identified competencies are perceived as “somewhat important”, “important”, or “highly important” for entrepreneurial success in the Iranian agricultural context. According to Mode value of the competencies, the following competencies are highly important for entrepreneurial success in agriculture:

1. Technical knowledge and skill in the agricultural area of specialization in which to establish a business venture;
 2. Appropriate knowledge and understanding of the market in the area of specialization;
 3. How to assess the unmet needs of customers and market in the area of expertise;
 4. How to identify specialized services, products and goods which market and customer will need in the future;
 5. Ability to conduct an effective market research in the area of specialization;
 6. Ability to identify and evaluate an opportunity in the market;
 7. Knowledge and skill on how to develop an identified opportunity into a valid idea;
 8. Ability to conduct feasibility study on whether the developed idea is socio- economically desirable;
 9. Ability to conduct feasibility study to ensure whether the developed idea is practical;
 10. Ability to develop a business plan;
 11. Knowledge and skill to estimate and manage the risk of entry into the market in the area of specialization; and
 12. A full understanding of the different stages of starting up a new business venture in the area of expertise.
- 2- The entrepreneurs mostly used three primary methods to master the entrepreneurial competencies. These are as follows:
 - “Trial and error” and “learn- as -you –go- along” in the business;
 - Prior work experience related to the business and apprenticeship; and
 - Self- taught method.
 - 3- All alumni entrepreneurs believe that IHAES has been influential in development of only one competency which is “Technical knowledge and skill in the agricultural area of specialization in which to establish a business venture”. This is the technical knowledge and skills about agriculture that a student receives when studying at the university.
 - 4- The only competency which alumni entrepreneurs have attended the training courses outside the university to acquire is “Technical knowledge and skill in the agricultural area of specialization in which to establish a business venture”. This implies that about one fourth of the entrepreneurs have gained the necessary technical and specialized knowledge and skills for entrepreneurial success through attending the training courses provided by the organizations other than universities.

Methods and sources utilized by the entrepreneurs to master the competencies and the role of higher agricultural education:

The participants were asked to choose as many methods they have used to develop each competency as possible from a list tabulated in the questionnaire. They were also given the choice to name other methods than mentioned in the questionnaire by providing them with blank spaces adjacent to the tabulated list. The result is exhibited in Table 3, with the figures representing percentage of the sample.

The most significant results from the interpretation of the data represented in Table 3 are the followings:

- 1- To acquire the entrepreneurial competencies, the alumni entrepreneurs have utilized 5 methods or sources which are listed below:
 - “Trial and error” and “learn- as -you –go- along” in the business;
 - Prior work experience related to the business and apprenticeship;
 - Self- taught method;
 - Training experiences after graduation outside the university; and

Strategies which can be utilized by IHAES to better develop the identified competencies in students:

Table 4 shows the strategies which IHAES can apply to better develop entrepreneurial competencies in students as viewed by the participant in the study. These strategies have been exhibited in the table in order of their importance. The item C.V. served as the criterion for ranking the strategies: the smaller the C.V. the higher degree of importance of the strategy. All above statistics were computed by assigning a numerical value to each category of the Likert- type scale: highly important = 5, important = 4, somewhat important = 3, not important = 2, not at all important = 1.

According to the view of the entrepreneurs, the most important strategy for developing entrepreneurial competencies in students is “To send students to the successful entrepreneurial enterprises in the area of expertise in order to gain real-world, practical entrepreneurship experience”. This result is in line with the results from the previous section in which it was interpreted that entrepreneurs were believed in practical,

Table 3: Methods and Sources Utilized by Entrepreneurs to Develop the Competencies

Entrepreneurial competencies	“Trial and error” and “learn- as -you –go- along” in the business	Prior work experience related to the business and apprenticeship	Self- taught method	Training experiences after graduation outside the university	Agricultural education at the university
1. Technical knowledge and skill in the agricultural area of specialization in which to establish a business venture	80.6	82.5	75.7	23.4	87.6
2. Appropriate knowledge and understanding of the market	94.2	85.4	78.7		
3. How to assess the unmet needs of customers and market	93.2	81.6	49.5		
4. How to identify specialized services, products and goods which market and customer will need in the future	91.3	77.7	59.2		
5. Ability to conduct an effective market research in the area of specialization	94.2	80.6	75.7		
6. Ability to identify and evaluate an opportunity in the market	92.2	75.7	70.9		
7. Knowledge and skill on how to develop an identified opportunity into a valid idea	90.3	80.6	68.0		
8. Ability to conduct feasibility study on whether the developed idea is socio- economically desirable	89.3	81.6	85.4		
9. Ability to conduct feasibility study to ensure if the developed idea is practical	91.3	78.6	85.4		
10. Ability to develop a business plan	88.3	80.6	90.3		
11. Knowledge and skill to estimate and manage the risk of entry into the market in the area of specialization	94.2	76.7	78.6		
12. A full understanding of the different stages of starting up a new business venture in the area of expertise	88.3	87.4	44.7		
13. Ability of how to marshal the different resources needed to launch a new business venture in the area of specialization	87.4	73.8	86.4		
14. Technical management skills	68.0	63.1	56.3		
15. Time management skills	64.1	81.6	82.5		
16. How to design and set up an effective organizational structure for the business	87.4	71.8	67.0		
17. Complete knowledge and understanding of the current and future government policies in the agriculture sector and in the area of specialization	65.0	73.8	72.8		
18. Team working abilities	81.6	81.6	-		
19. Financial management and accounting skills	82.5	68.0	70.9		
20. Oral communication skills needed to succeed in the business	75.7	73.8	57.3		
21. Written communication skills needed to succeed in the business	67.0	68.9	54.4		
22. Knowledge and understanding of the business law in Iran in particular in the agriculture sector	69.9	66.0	61.2		

Table 4: Strategies which Can Be Utilized by IHAES to Better Develop the Identified Competencies in Students

Strategies	Mean	S.D.	C.V.	Mode
1. to send students to the successful entrepreneurial enterprises in the area of expertise in order to gain real-world, practical entrepreneurship experience related to the area of specialization	4.18	1.04	0.25	4
2. to develop and integrate courses covering different entrepreneurial competencies into the all area of specialization in agriculture	4.14	1.09	0.26	4
3. to establish a mutual, interactive relationship between the university and the successful agricultural enterprises in order to exchange knowledge and information regarding different area of entrepreneurship	4.08	1.15	0.28	4
4. to emphasize more on the practical side of agricultural education by the universities	4.02	1.27	0.32	4
5. to conduct case studies of the entrepreneurial life of successful agricultural entrepreneurs, in particular those graduated from IHAES, by students and then share the achieved knowledge and experience with other students through planned meetings and procedures	3.43	1.76	0.51	3
6. to use successful agricultural entrepreneurs as educators to participate in teaching some entrepreneurial competencies at the university	3.28	1.90	0.58	3
7. to invite successful agricultural entrepreneurs, in particular those graduated from IHAES, to the university to share their entrepreneurial knowledge and experience with students	3.22	1.98	0.61	3

real world experience as the most important method to acquire entrepreneurial competencies. As showed in Table 4, this strategy has the highest Mean value as compared to the other strategies. The Mean value for the importance of this strategy is 4.18 which correspond to the category of “important” on Likert-type scale.

DISCUSSION

Twenty-two competencies under review by the entrepreneurs were considered as important for entrepreneurial success in the Iranian agricultural context. Interpretation of the findings suggests that the most important competency for entrepreneurial success is technical and specialized knowledge and skills in the area of business activity. This finding is in agreement with the notion that the foremost competency for success in entrepreneurship is technical knowledge and skill in the area of business in which to start a venture [31-33].

It was found from the point of view of the participants that the primary method useful for mastering entrepreneurial competencies is practical, hands-on, and real-world experience. This finding is consistent with the findings of other entrepreneurship scholars [34-38] who suggest real-world experience as the most efficient method for mastering entrepreneurship. This imposes an overwhelming responsibility over the agricultural universities to better provide practical, real-world opportunities in the area of specialization for their students. In other words, if the agricultural universities are to encourage more entrepreneurial behavior among their students, the foremost policy would be to enrich the curricula with experiential learning and real-world experiences in the area of study.

The findings also suggest that the higher agricultural education in Iran has not played a significant role in developing the identified entrepreneurial competencies in alumni entrepreneurs. This is while entrepreneurs believe that these competencies are important for entrepreneurial success. Therefore, to better prepare students for the market place, the Iranian agricultural universities should integrate the 22 identified competencies into the current curricula.

Interpretation of the data regarding strategies that could be utilized by the Iranian higher agricultural education to develop entrepreneurial competencies in students suggest that practical experience in successful enterprises under mentoring of the entrepreneurs that require individuals to practice entrepreneurship is proven to be the most useful strategy to infuse entrepreneurial

competencies in students. This is consistent with the findings of entrepreneurship researchers who recommend on-the-job training and apprenticeship under supervision of mentors as among the best strategies to learn entrepreneurship [33, 36, 37, 39-42].

IMPLICATION

The previous economic structure in Iran was well served by higher agricultural education institutions in that they provided a resource pool for governmental organizations. This, however, has developed a student mindset that favors employment in the formal sector. With an economy in transition, small businesses now account for an increasing proportion of economic activity [43]; hence, higher agricultural education institutions need to redefine their role in the economy and society, specifically in what they offer. To that end, designing programs to foster an entrepreneurial mindset in students would be of vital importance.

It must be taken into consideration that exposure to one course in entrepreneurship does not ensure entrepreneurial orientation or more positive expectations about entrepreneurial abilities in students. Rather, higher agricultural education institutions can contribute to create a more entrepreneurial disposition among students by integrating programs into the mainstream offerings to develop the 22 identified competencies in this research in students. To this end, they must apply hands-on entrepreneurial business related environment and scenarios that simulate entrepreneurial activities. Placement of students in situations where they can work with and observe the operation a successful business owner during apprenticeship and mentoring was to be the most useful strategy as perceived by the participants of this research. To establish a mutual, interactive relationship between the university and the successful agricultural enterprises in order to exchange knowledge and information regarding different area of entrepreneurship can also be an effective strategy to incline entrepreneurial behavior in students. The other strategies that should be utilized by the institutions of higher agricultural education in this regard are the followings:

1. To emphasize more on the practical side of agricultural education by the universities;
2. To conduct case studies of the entrepreneurial life of successful agricultural entrepreneurs, in particular those graduated from the Iranian higher agricultural

education system, by students and then share the achieved knowledge and experience with other students through planned meetings and procedures;

3. To use successful agricultural entrepreneurs as educators to participate in teaching some entrepreneurial competencies at the university; and
4. To invite successful agricultural entrepreneurs, in particular those graduated from the Iranian higher agricultural education system, to the university to share their entrepreneurial knowledge and experience with students.

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