

The role of support activities in academic entrepreneurship

Mohammad Saeed Akbari

Ph.D. Student, Department of Educational Management, Kazerun Branch, Islamic Azad University, Kazerun, Iran.

*Amin Bagheri Karachi **

Assistant Professor, Department of Education, Farhangian University, Tehran, Iran.

**Corresponding Author*

Alireza Ghasemi Zad

Assistant Professor, Department of Educational Management, Kazerun Branch, Islamic Azad University, Kazerun, Iran.

ABSTRACT

A university that intends to train entrepreneurs needs to be a flexible, efficient, creative, innovative and entrepreneurial organization in order to cope with changes and evolution. This study is to investigate the role of support activities in academic entrepreneurship. It is descriptive survey and an applied research. The population includes 987 employees of Khuzestan public universities. Organizational Entrepreneurship Questionnaire was used to gather data. The questionnaire includes 22 items with 6 components for measuring organizational entrepreneurship. After the questionnaire was validated by experts' opinions, research questions were examined via spss. Descriptive statistics of mean, standard deviation, etc. were used to analyze the data. The data obtained from interviews was analyzed through open and axial coding based on the grounded theory. Here, support activities mean organizational structure design, human and financial resource management, and activities of intermediary institutions. The results showed that structure designing is a serious management responsibility. It may lead the organization structure towards success or failure by the way it is implemented. Faculty members as a capital have a high potential for entrepreneurship. Entrepreneurship experts need financial support because of their entrepreneurial thinking.

Keywords: Support Activities, Academic Entrepreneurship, Entrepreneur

Introduction

In today's developed world, if an organization cannot respond to variations and needs or just act passively in the face of changes, it will lag behind the development caravan. Hence, organizational entrepreneurship must be seriously considered in organizations body by policy-makers (1). Resort to entrepreneurship is an efficient strategy that governments adopt in order to cope with challenges mentioned above. So, developed countries experiences from 2000's demonstrate their full attention to entrepreneurship and its promotion in the country (2). Also, global development process suggests that as advanced

technologies increase, the role and position of entrepreneurs become more significant (3). An entrepreneur might have the greatest impact on the economic growth. For this, the main role is given to entrepreneurs in the explanation of economic development theory. Other impacts of entrepreneurship includes improved life quality, proportional distribution of income and consequently peace of mind, exploiting resources and activating them for massive national productivity, and social benefits through the government (4). Entrepreneurship has significantly evolved so that various types of it emerge. In general, researchers mostly divide entrepreneurship into two main types: individual and organizational entrepreneurship. In the individual entrepreneurship, the entrepreneur acts individually and independently while in the latter, the entrepreneur acts within a pre-established organization (5). In addition, entrepreneurship entails a process that begins with recognition of opportunities and ends in exploitation and outcome. Passing through one step, the entrepreneur reaches the higher step.

In a country like Iran, due to the high rate of unemployment and the low rate of self-employment, encouraging entrepreneurship is a priority. Moreover, strict control of the economy in the last three decades and nationalization of private companies have resulted in the increasing weakness of small and medium-sized enterprises. However, regarding the officials' attention to the issue of employment and due to the undeniable importance of small and medium-sized firms in job creation, the reasons for encouraging entrepreneurship gets clear. Hence, self-employment loans, the plan to exclude workshops with less than 5 staff from the labor code, loans to small firms in exchange for hiring some employee, etc. might be justified. On the other hand, due to the importance and role of entrepreneurship and entrepreneurs in the development process of countries in the last decade, universities in developing and developed countries have implemented special and diverse educational and research plans to educate and train entrepreneurs according to their needs and facilities. It should be noted that the university that intends to train entrepreneurs must be a flexible, efficient, creative, innovative and entrepreneurial organization in order to deal with change and evolution as well as to enjoy the available opportunities (6). Actually, an entrepreneur university is a place where new jobs are emerged and it supports entrepreneurs educationally, financially and marketingly (7). Accordingly, the purpose of this study is to investigate the role of support activities in academic entrepreneurship.

Theoretical background

Entrepreneur and entrepreneurship

Entrepreneurship is mentioned as the engine of economic development and the main factor in creativity and innovation (8). Entrepreneurship in practice is the ability to create a thing out of nothing (9). Sharma and Chrissman (1999) believe that entrepreneurship refers to actions associated with creation, revitalization, or innovation of an organization that occurs within or independent of the organization. Independent entrepreneurship involves the creative measures of an organization that are performed by individuals who are independent of the organization. The term "entrepreneur" refers to people who engage in independent activities or organizational entrepreneurship (10). AhmadPour dariani (2004) believes that an entrepreneur is a person with a new idea and thought who offers a new product or service to the market by developing a business and mobilizing resources that is associated with financial, social and prestige risk (11).

D. Mckera and E.Flannigan (1996) define entrepreneurs as innovative, focused, and successful people who want to use shortcuts that are ineffective according to the book. They develop innovative, profitable, and fast-growing companies in the economic system (12)

Organizational entrepreneurship

Organizational entrepreneurship is defined as a tendency that engages the organization in activities that help it to successfully identify and invest in opportunities. An organizational entrepreneur is a person who, while working in an organization, uses his entrepreneurial skills and organizes resources to generate and manage new activities. Organizational entrepreneurs introduce new products, services and processes to enable companies to achieve high growth and profit. Organizational entrepreneurship can also improve processes within the company (13). Organizational entrepreneurship is a set of efforts to develop competitive advantages of the organization through innovation and significant changes as well as the

balance of competition in industry. In the organizational culture of entrepreneurship, goal-seeking and common aspirations are internalized in employees, and organizational communication is smooth and effective in such culture. Employees are satisfied with their job by feeling that the work is meaningful; teamwork is common and individuals are able to work with team members, each with their own characteristics (14). Moreover, the structural factors that play a role in organizational entrepreneurship are as follows: the process and system of creativity and innovation, providing the necessary facilities for innovation, effective communication with customers, training of entrepreneurial techniques and skills, development of areas of inclusive employee participation, creating an attractive and sincere work environment (15)

Method

This is a descriptive survey and an applied research. The statistical population includes 789 staff of Khuzestan public universities. Since the statistical population is large and researchers can not refer to all of them, a group of them is selected as a sample and the results are generalized to the population. Due to the importance of the subject, all of the statistical population completed the questionnaire.

Books, articles, studies, and surfing the Internet were reviewed to gather data for literature and background. Organizational entrepreneurship questionnaire was used to collect data from the population. It consists of 4 items in which six components are used to measure organizational entrepreneurship. The measurement level of the questionnaire is interval and is based on a 6-point Likert scale. The questions, except for the second question after the offensive competition, are set in a positive direction. The questionnaire was completed by employees and they were asked to specify the items to the extent that they apply to their workplace, on a 5-point Likert scale (too much, much, partly, little, too little). After confirming the validity of the questionnaire by professors and experts, SPSS was used to test the research questions. Descriptive statistics of mean, standard deviation, etc. were used to analyze the data.

The data obtained from interviews was analyzed through open and axial coding based on the grounded theory. Here, support activities mean organizational structure design and management of human and financial resource and intermediary institutions activities.

Findings

Question 1: The role of organizational structure design in academic entrepreneurship

Table 1: Concepts and categories extracted from the first research question

Open coding (initial)	Open coding (Secondary)	Frequency	%	Axial coding	Selective coding
Gathering resources with a common goal through the desire and tendency towards entrepreneurship. Forming the nature of entrepreneurial thinking and insight to create value through common resources. Drawing a common entrepreneurship vision as a main source of inspiration. Having an idea and plan for entrepreneurship and becoming an entrepreneur. Strengthening the entrepreneurial attitude and insight by creating an entrepreneurial desire.	The general orientation of the organization towards entrepreneurship	8	22.2	Context	Entrepreneurial structure
In the entrepreneurial organizational structure, the roles of individuals are decisive. Dynamics of roles through their enrichment. Helping achievement of organizational goals with effective roles. Acting according to the abilities and roles with insight and responsibility. Activities of people based on their ideas and enriched roles. Paying attention to roles and not following a definite and determined procedure for performing tasks in the entrepreneurial university. Focusing roles on entrepreneurship enriches them. Encouraging entrepreneurial activities by enriching roles and filling job vacancies by playing rich roles. Taking on social roles by expanding relationships with different communities as a strong source of support for academic entrepreneurship.	Enriched roles	6	16.6	Intermediary conditions	
Independence is a prerequisite for an entrepreneurial university. Sovereignty means independence in educational and curriculum planning, admission system, graduation					

<p>certification system, exams and evaluations, quality assessment, accreditation and allocation, independence at all levels and academic processes have been discussed and challenged since the birth of universities. Impact of universities independence degree on the adoption and implementation of decisions. The impact of management independence on the scientific and research independence. Lack of decision-making on entrepreneurship due to the lack of academic independence. Adopting a principled approach instead of a selective approach represents the lack of independence in university management. The role of different tastes in synergy and independence of universities. Strong guidance of the university towards entrepreneurship by respecting different tastes and avoiding the assignment of affairs to faculty members. Contradiction of rigidity and petrification in entrepreneurial structure. Relieving faculty members and students of any factional affiliation through scientific independence and turning them away from scientific isolation. The value of science for the sake of science itself, not science for the sake of ??</p> <p>Protecting the flexible structure against the changes of the society and facilitating creativity and innovation processes in the flexible structure and creating dynamism in the organization. Being away from certainty and polarization in the entrepreneurial university and adapting and flexing with the existing conditions. Production, review and organization of idea into a flexible structure and then changing it into a product or service in the market to response demands and keep pace with changes in the flexible structure. Development, interaction and evolution of flexible systems as a stimulus for widespread use of innovation as well as integration of university activists. Transfer of research results from university to outside with high profitability in flexible structures. Mismatch between the free dissemination and exchange of ideas by researchers and experts at the university and thus the increase in wealth in rigid structures.</p> <p>Production of new products and ways to do proper business in agile organizations. The success of agile organizations in being creative and respond to changes in business. The emergence of agile organizations in a turbulent and calm environment. Loss of opportunities if universities cannot cleverly and logically deal with unforeseen events and changes. High agility represents flexibility. Agility must occur in all aspects of the organization. Agile roles in the entrepreneurial teams based on accountability, responsibility, effective communication, the level of involvement and participation and self-organization of the faculty members and students at the agile university. Desire and eagerness to learn new techniques and open mindedness in an agile organization. Increase in creativity, flexibility and adaptability to change through agility.</p>	<p>Academic independence</p>	<p>16</p>	<p>44.4</p>	<p>Outcome</p>	<p>Entrepreneurial structure</p>
<p>Managers' efforts to form new ideas of managers by presenting new management methods. In addition to opportunism, managers must seek to create opportunities. Search for possibilities to improve the manager's and the members' performance due to the managers who can make opportunity. Following the trainer-trainee approach instead of the boss-subordinate approach. The importance of building trust among managers for academic entrepreneurship. Getting people off the defensive mood by building trust. Disclosure of ideas through building trust. Building trust can be done in two parts: First, assurance of managers' capability in the field of second entrepreneurship, and second??</p> <p>Clarification of laws and regulations as the tools for monitoring and accountability. If the rules are not clear, there will be problems in the implementation phase .</p> <p>Giving full information to executives and entrepreneurs is one way to clarify rules and regulations. Helping to clarify rules through holding classes should play a supporting role for entrepreneurs. It is not possible to enforce the law because it is not suitable for some people and remove the useful laws optionally. Binding laws can serve as a strong support for entrepreneurship.</p> <p>In academic entrepreneurship, horizontal communication patterns are more appropriate than vertical patterns .</p>	<p>Flexibility</p>	<p>7</p>	<p>19.4</p>	<p>Outcome</p>	<p>Entrepreneurial structure</p>

<p>Contribution to the free flow of information through horizontal and comprehensive communication. More freedom in the transfer and exchange of information and the use of creative and entrepreneurial capacities and sharing the knowledge and activities of individuals in an entrepreneurial team is complementary to horizontal and all-encompassing communication patterns (networking).</p> <p>Creating dynamic interaction among university members in networking through information distribution rather than information control.</p> <p>Breaking vertical, horizontal and geographical boundaries through networking.</p> <p>Forming competent and specialized entrepreneurship groups through establishing internal communication, which has a lot of flexibility.</p> <p>Networking by focusing on the entrepreneurial mission and encouraging individuals to work in changing and evolving environments</p>	Agility	9	25	Outcome	Entrepreneurial structure
	Management mechanisms	12	33.3	Core category	
	Legal mechanisms	10	58.3	Casual conditions	
	Communication mechanisms	21	27.7	Strategy	

In the structural requirements, the academic independence has the highest percentage (44.4%). In the structural mechanisms, the legal mechanisms has the highest percentage (58.3%).

Question 2: The role of human resource management in academic entrepreneurship
(Table on page 164, Chapter 2)

According to the table, having entrepreneurial characteristics, capacities and general entrepreneurship skills have the highest percent (22.2%) among the recruitment indicators. In education and improvement indicators, the highest percentage is for the development of educational standards (25%). In promotion indicators, interaction with industry has the highest percentage (41.6%). In the support mechanisms section, the highest percentage is for the formation of entrepreneurial poles (19.4%).

Question 3: The role of financial management in academic entrepreneurship

Table 2: Concepts and categories extracted from the third research question

Open coding (initial)	Open coding (secondary)	frequency	%	Axial coding
Attraction of risky capital through industrial and agricultural sectors,,	Attraction of risky capital for university staff			
Introduction of products and services obtained from projects to industry and agriculture to attract capital to use them.				
		12	33.33	Strategy
The failure of many academic entrepreneurs is due to lack of access to sufficient capital				
Establishment of a center to attract risky capital.				
Establishment of a center to attract risky capital. Solving the financial problems of entrepreneurs by attracting risky capital and forming a risky investment fund.	University as an investment institution			
Attracting investors to invest through reporting by various media and announcing the value of products to the society.				
		6	16.66	
Developing entrepreneurship through gaining profit by participating in the stock market and using securities				
Entering the stock market with university brand	Presence of academic companies in the stock market			
Competition of companies and universities in the stock market				
Providing better quality services and products, products with more quantities by both universities and knowledge-based companies in the stock market		7	19.44	
Encouraging universities and academics to enter the stock market				
University as an investor in long-term industrial projects outside the university				
Making contract between university as an investor and external entrepreneurial plans				
and supporting entrepreneurs from outside the university				
Achieving financial independence by exploring opportunities for investment outside the university				
Avoiding extra and non-refundable costs and directing them to entrepreneurship.				

According to the table, interviewees believe that the attraction of venture capital for university entrepreneurs (33.33%) is one of the main ways to diversify financial resources and their role in the development of academic entrepreneurship. The establishment of financing institution or office for entrepreneurial activities has the most contribution (25%) to developmental role of the financial management of universities. Allocation based on educational activities in the field of entrepreneurship (25%) is the leading indicator of allocating financial resources to universities.

Question 4: The role of intermediary institutions in academic entrepreneurship

Table3: Concepts and categories extracted from the third research question

Open coding (initial)		Open coding (secondary)		Frequency		%	
Commercialization as the main role of intermediary centers. Commercialization with participation of all of these centers. The role of all intermediary institutions from generating ideas to producing product and registration. Intermediary centers prompt commercialization.		Contribution to commercialization		22		61.11	
Dissemination of entrepreneurial thinking and culture through classes, seminars, workshops and conferences.		Educational role		13		36.11	
Promoting entrepreneurial culture through festivals, designing posters, writing pamphlets and books, and holding competitions. Consulting provides a kind of service to entrepreneurs outside the university. Consulting as revenue resource for university. Contribution to the financial independence of the university through counseling.		Promotional role		11		30.55	
Facilitating entrepreneurship and entrepreneurs by establishing a counseling center at the university or at any of these structures. Adjusting every individual risk. Reducing fear and increasing commercialization awareness through counseling. Importance of consultation in protecting the intellectual property rights of individuals		Advisory role		9		25	
Creating intermediary institutions is considered as an entrepreneurship activity.		recruitment of academic staff		5		13.8	
The role of intermediary institutions in recruitment of academic staff. Students' employment.							
Development of commercialization strategy by intermediary institutions, jointly or separately. Developing a commercialization strategy for research results is a requirement for an entrepreneurial university		Developing a globalization strategy		7		19.44	
Intermediaries connects university with work market and completes the academic entrepreneurship cycle.		Existence and presence of intermediary institutions		19		52.7	
However, there is a weak communication among the intermediaries and they are absent in the main body of universities as the main component.							

According to the table 3, in the role of intermediary institutions, the most percentage was reported to be for commercialization (61.11%). In dedicated roles of intermediary institutions, the organization of student meetings for entrepreneurship development (19.44%) plays the basic role. These centers also can play the greatest role in establishing relations and synergies among the companies (16.66%). Regarding the role of industry liaison offices, motivating more communication between academia and industry (19.44%) plays the primary role in the relationship among the industry liaison offices. In the role of technology transfer offices, promoting the principles governing the management of intellectual property in the university has the highest percentage (25%) and in the role of scientific research parks, making new business opportunities in the global market for universities has the largest share (22.22 %).

Conclusion

Question 1: The role of organizational structure design in academic entrepreneurship

Proper organizational structure creates an appropriate environment for entrepreneurship. Interviewees of this study believe that special requirements and mechanisms should be considered for designing the organizational structure in order to be able to play a role in academic entrepreneurship.

The followings are the extracted categories from the axial coding in the third research question:

1. Legal communication mechanisms (causal condition);
- 2- Management mechanisms (core category);
- 3-Communication mechanisms (strategy);
- 4- General orientation of the organization towards entrepreneurship (background);
- 5- Enriched roles (intervening condition);
- 6- Academic independence, flexibility and agility (outcome)

Legal mechanisms as a causal condition play a serious role in academic entrepreneurship, which was emphasized by 58.3% of the interviewees. There are two important points to notice when using legal mechanisms: the transparency of the law and the supporting role of the law for entrepreneurs and entrepreneurship.

Clarity and transparency is inherent features of law (15). The law must be clear enough for its subjects and executives to understand the meaning and apply it to the intended purpose. In this way, the matters are managed according to a specific system and rule and entrepreneurial forces and resources are not wasted. Lack of transparency makes rules and regulations difficult to implement and complicates the entrepreneurship process. These are consistent with findings of Yadollahi et al. (1992), (14).

Management mechanism is the core category in building an entrepreneurial structure, and subsequently in developing an academic entrepreneurship that is mentioned by 33.3% of the participants in the study. Trust building and increasing trust at the organizational level are management mechanisms. Building trust is first and foremost that empowers disclosure of ideas by faculty members and they try to have an active presence in the market with confidence in their abilities. Eliminating the boss and subordinate approach will help increase the level of trust. These are in line with results found by Donisi (quoted by Dadidson & Vikland) who believes that there is a relationship between trust level and organizational entrepreneurship.

Communication mechanism is the appropriate strategy in realizing the entrepreneurial structure that was mentioned by 27.7% of the participants. As the organizational communications get formal, group interactions drastically decreases and thus the organization distances itself from achieving entrepreneurial goals .Expansion of horizontal and all - round communications as well as networking to facilitate communication were discussed by interviewees. Communicating through establishing freedom in exchanging information, making entrepreneurs team and sharing knowledge and activities by teams member lead to the use of creative and entrepreneurial capacities in a university. It also establishes dynamic interaction between faculty members and students through networking and develops ideation and entrepreneurship. Using multiple communication channels, freedom of action and authority, communication with all organizational levels and also providing communication information system for networking plays an important role in academic entrepreneurship that is stated by Joblian and Putman (2001), Alimardani et al (2009), Kurdnaich et. al (2009), and Karier (1966).

The intervening conditions in this question are considered as the enriched roles, emphasized by 61.6% of the participants.

House College Dictionary defines enrichment as: becoming more valuable and more important. Pattern of relationships among roles provides an organizational system. So, the structure can be thought as the exception considered for every role and relations. In entrepreneurial organizations, role is emphasized instead of tasks. According to authors such as Henman et al. (2000) and Henderson (2007), it is the individuals' role in an organizational structure that gives people the opportunity for creativity and innovation without a precise and meticulous definition. Interviewees think that individuals' roles also play a decisive role in academic entrepreneurship. Faculty members behave based on their enriched roles, ideas and thoughts. They expand their relations with the colleagues in the area of entrepreneurship according to their abilities and the entrepreneurial insight. Academic independence, flexibility and agility are consequence of using appropriate communication strategies. A proper organizational structure prevents rework, conflict, friction and waste of forces. It is able to respond to changes in the environment due to flexibility. Reduced bureaucracy and flexibility in commercialization process is an important issue in academic entrepreneurship. By a flexible self-management system, the establishment of extensive networks and connections among faculty members, researchers, industry activists, investors and entrepreneurs take steps to remove barriers to academic entrepreneurship. This is in line with the findings of, Yadollahi Farsi et al. (2011).

Independence is a prerequisite for an entrepreneurial university, emphasized by 44.4% of the interviewees. Academic freedom and independence are values that seem to be synonymous, but experts believe that they are not the same; they are simply related. Academic freedom belongs to academics, i.e. individuals, while independence is related to the educational institution. This is consistent with the findings of Bikas (1995), Berdal (1990), and Boild (2007).

Agility is the other requirement of an entrepreneurial university, emphasized by 52% of the interviewees. Universities, like other organizations and institutions, have to look for agility to compete in the 21st century in order to be able to react quickly to changes. This is in line with the views of Jafarnejad and Shahaei (2007), Dolatmodeli (2008) and Eckels and Nick (1998). Creativity, flexibility and adaptability to changes and creating the correct ways to do business occur in agile organizations.

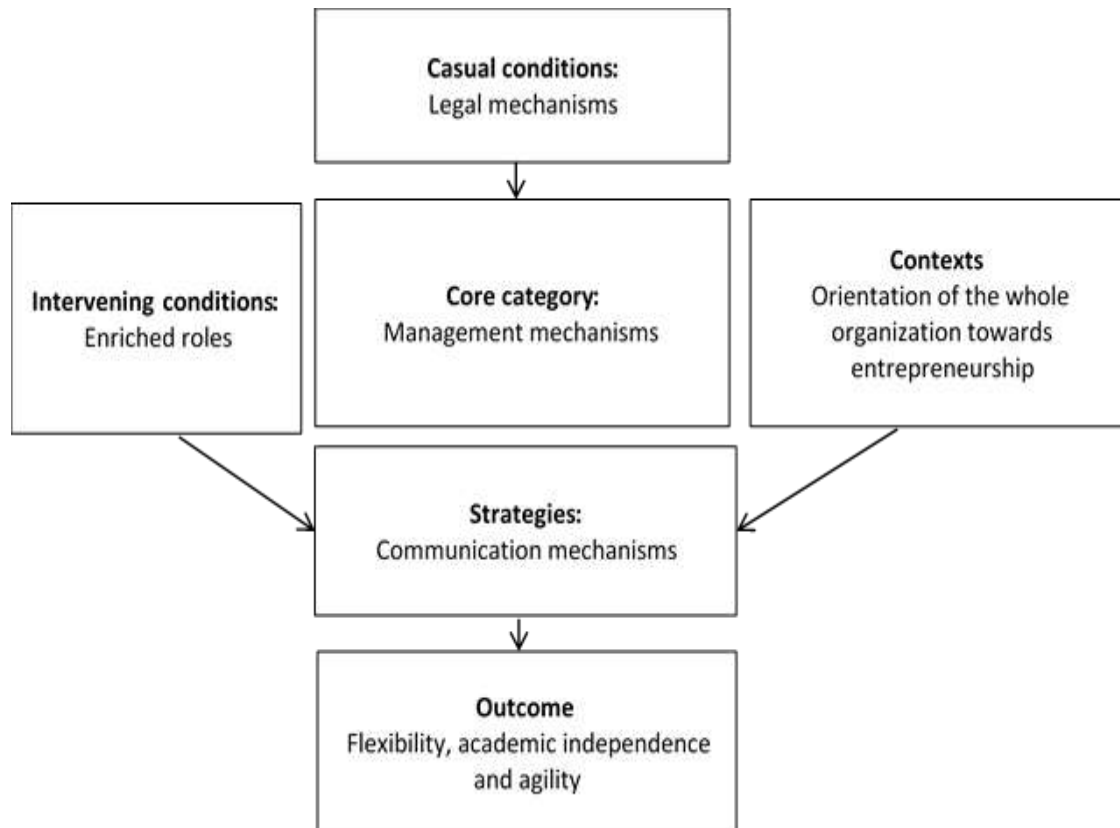


Figure 1: Causal, intervening, and contextual categories of entrepreneurial structure in academic entrepreneurship

Question 2: The role of human resource management in academic entrepreneurship

Human resource management through various functions such as recruitment, education, motivation etc. prepares university for the entrepreneurship. Human resources system can impact on the development of academic entrepreneurship in terms of attracting and encouraging scientific and professional members as well as creating a mechanism for their interaction. The followings are the categories extracted from the axial coding:

1. Entrepreneurial indicators when recruiting faculty members (causal conditions); -
- 2- Training and improvement of faculty members (core category);
- 3- Entrepreneurial indicators in faculty members' promotion (strategy);
- 4- Support mechanisms (intervening conditions);
- 5- Entrepreneurial structure (context);
- 6- Value-creating human capital (outcome)

Having entrepreneurial characteristics when attracting is the issue that was mentioned by 22.2% of the participants. Lack of entrepreneurial capacities and talents hinders correct transfer of entrepreneurship information to students, because gaining sufficient experience depends to entrepreneurial capacities and talents. For example, the existence of opportunistic potential in faculty members motivate them to search for entrepreneurship potential in the community; or, the potential of taking risk lead them to a risky market. Therefore, risk-tolerant and opportunistic people deserve to be employed by entrepreneurial universities. This is consistent with the findings of Chrissman et al. (2009), Roverback and Arnold (2006), Jensen et al. (2010).

Training is the best and most appropriate way to empower human resources. The major problems that universities suffer from include resistance against change, rejection of new methods and processes, avoidance of traditional methods and fear of entering the new areas among the current members that are

due to their inability. Elimination of such problems is possible through training. Empowerment and promotion of entrepreneurial skills will be achieved using appropriate educational models. One of the goals of training is to commit and hold members accountable for entrepreneurship. Entrepreneurship is derived from a French word meaning commitment. Training brings about awareness, commitment and concern among faculty members. Commitment to the community because of concern about the future of graduate youth also being responsible and accountable to all their future are the outcomes from education and improved faculty members. This is consistent with the findings of Etzquitz et al. (2003) and AbuArdakan et al. (2007).

The use of entrepreneurial indicators in promoting faculty members seems to be the basic strategy for entrepreneurial human resource management. Using the index of commercialized research in the promotion of faculty members was stated by 63.1% of the interviewees. Still, the results from commercializing research are not approved by Iranian universities as a scientific legitimacy. This illegitimacy occurs due to various factors such as lack of financial resources for business development, technology transfer, knowledge and skill gaps in business activities, lack of academic culture and lack of researchers' motivation to disclose their inventions and to participate in further developments through a concession agreement .

Intervening conditions that help implement strategies are supportive mechanisms that include: getting support for publishing entrepreneurship articles and books, forming entrepreneurial poles, appointing entrepreneur faculty members in the University Board, awarding the Entrepreneurship Prize to the entrepreneur faculty members and providing the mechanisms for faculty members attendance and participation in national, regional and international conferences, printing, writing and translating articles and books as a privilege for the members of the scientific staff.

At the moment, due to economic conditions, expensive paper and long licensing process, publishers, faculty members and even students are reluctant to publish books, and this is an obstacle to more publishing, especially in the field of entrepreneurship. On the other hand, students and faculty members need support in publishing articles and compiling books. Establishing centers to cover the costs of publishing entrepreneurship books motivates faculty members. The need for support centers was categorical due to the high cost of publishing books that was mentioned by 8.3% of the interviewees.

Appointment of faculty members on the board of the university is the other support mechanism that was stated by 13.8% of the interviewees. Presence of entrepreneurial faculty members and the use of their experiences help formulate entrepreneurial policies and strategies. It is a reflection of the significance of the academic entrepreneurship and encourage the use of entrepreneurial members' creativity and innovations in changing infrastructure.

Entrepreneurial human resource management is needed for strategies to be effective for realizing the academic entrepreneurship. This should be done in an appropriate and entrepreneurial context and organizational structure, which was discussed in the previous question. The need for an appropriate structure in human resource management, the optimal performance of human resource managers, flexibility, agility, bureaucratic structure that hinders the optimal performance of human resources, and alignment of the type of structure with the type and quality of management were the issues that 19.4% of the participants stated.

The production of value-added human capital is an important outcome of entrepreneurial human resource management. Human resources management is the source of the value-creating chain in organizations. This value chain begins with the faculty members themselves and is connected with students, staff and then the community. In the value-creating chain, the domain of human resources must be able to turn the strategy into a result, the mission of the organization into action, and the vision of the organization into a worthy goal which deserves dedication and loyalty of everyone .

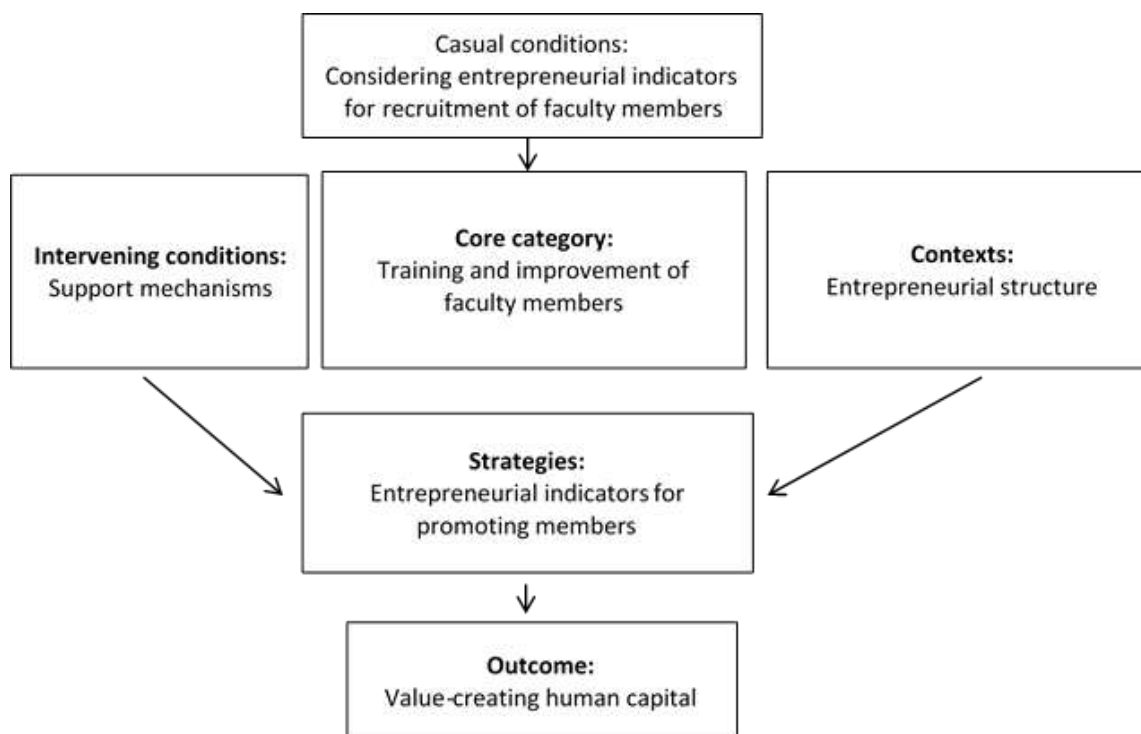


Figure 2: Causal, contextual and intervening categories of human resources in academic entrepreneurship

Question 3: The role of financial management in academic entrepreneurship

By acquiring and allocating financial resources, financial resources managers provide academic entrepreneurship mechanisms. The following six categories were obtained in axial coding:

- 1- Lack of financial resources and decreased government budget in higher education sector (causal conditions);
- 2- Diversification of revenue sources to achieve financial independence (core category);
- 3- Student marketing, conducting revenue-generating research, the presence of academic companies in the stock market, attracting risky capital (strategies);
- 4- Having an economic justification plan to create a field or a faculty, etc., university as an investment institution (context);
- 5- Establishment of an institution or office for financing entrepreneurial activities, establishing marketing centers for the sale of educational and research services to the community, allocating part of the endowments to academic entrepreneurship services, establishing academic insurance to support academic entrepreneurs (intervening conditions)
- 6- Allocation of financial resources based on education and research activities in the field of entrepreneurship, allocation of financial resources to colleges that prioritize research commercialization, the allocation of financial resources based on the number of entrepreneurial professors, allocation of financial resources based on the number of academic entrepreneur graduates (outcome).

Due to the increased social demand for university entrance, rising oil prices, the emergence of numerous crises in international trade, slowdown in economic growth, and the inability to raise taxes, the lack of funding for universities is an international issue in both advanced and developing countries. Developing countries have reduced their supportive role in pursuing free market economy policies. It led to a reduction in government expenditures, including higher education spending. However, the situation of Iranian universities are more complicated. This is consistent with the results of Hassan Gholipour et al (2011).

Financial independence is located at the core of entrepreneurial financial management. Due to developments in the field of universities mission and duty and the decreased government budget, financial independence as part of university independence has varied from low to more of the same spectrum.

Therefore, entrepreneurship is one of the factors of evolution in this case. The introduction of entrepreneurship has increased the desire of universities for financial independence. Some universities focus on academic entrepreneurship and knowledge commercialization to attain financial independence and some others consider it as a way to diversify financial. Financial independence paves the way for structural and administrative changes and quality of academic affairs. 27% of the interviewees stated that due to declining support, universities are under pressure for funding which needs to be solved through proper management of financial resources.

According to 19.44% of the interviewees, student marketing is also one of the basic strategies in achieving financial independence. Domestic and foreign student marketing by faculty members attracts money and causes the employment of foreign students' potential in knowledge-based companies. The role of world's universities entrepreneurial professors in attracting students is quite obvious. Student marketing by professor and receiving tuition and earning money through it contributes to the financial independence of the university, the export and import of entrepreneurship, increasing international prestige in the world, gaining experience of domestic students from foreign students, and helping the development of the country by receiving strong information from the recruited students.

Economic justification plan for any activity that wants to be done in university, such as creating a field, a group, faculty, etc., allows application of the strategies mentioned above. This was emphasized by 16.6% of the interviewees.

One of the major and influential areas in academic independence is that the university itself acts as an investing institution. In general terms, investment means the use of available money to earn more in the future. There are usually less companies to make a joint venture with a science center in the early stages of technology development. But, universities need to connect more closely with investment centers in order to exploit their low interest in joint venture in the best way.

Insurance to support academic entrepreneurs is an intervening category that was stated by 13.8% of the interviewees. It plays a key role in compensating for the financial effects of risk. Entrepreneurship is a risky activity. Accordingly, the insurance industry can reduce risks by supporting entrepreneurship and entrepreneurs. It enables university to establish an insurance company in the name of the university and while supporting entrepreneurs from risk, the university will earn significant income.

Allocating a part of endowments for academic entrepreneurship services was emphasized by 13.8% of the interviewees. The culture of endowment is not only for our country. More than one hundred American academic centers are established and run from endowments. In years, increasing support of American higher education institutions, NGOs, companies, and benefactors from their higher education system have led to the success of American universities.

Allocation of financial resources for entrepreneurship is the consequence of applying entrepreneurial strategies in financial resource management. Allocation of financial resources based on the number of entrepreneur graduates and educational and research activities in the field of entrepreneurship, allocation of financial resources to colleges where research is prioritized, and allocation of financial resources based on the number of entrepreneurial professors were the issues considered by the interviewees. Part of the allocation is based on student per capita. It means that universities receive budget on the basis of the number of students they train. Accordingly, the allocation of financial resources can be based on the number of entrepreneurial graduates.

Allocation based on research commercialization can also play an important role in academic entrepreneurship that was mentioned by 11.11% of the interviewees. Commercialization was discussed in previous questions. Commercialization of research can serve as an indicator for evaluation of faculty and budgeting. Moreover, based on the amount of outputs in the field of commercialization, the inclusion of commercialization index in university accreditation should be used as a basis for allocating funds and increasing the share of colleges and departments budget.

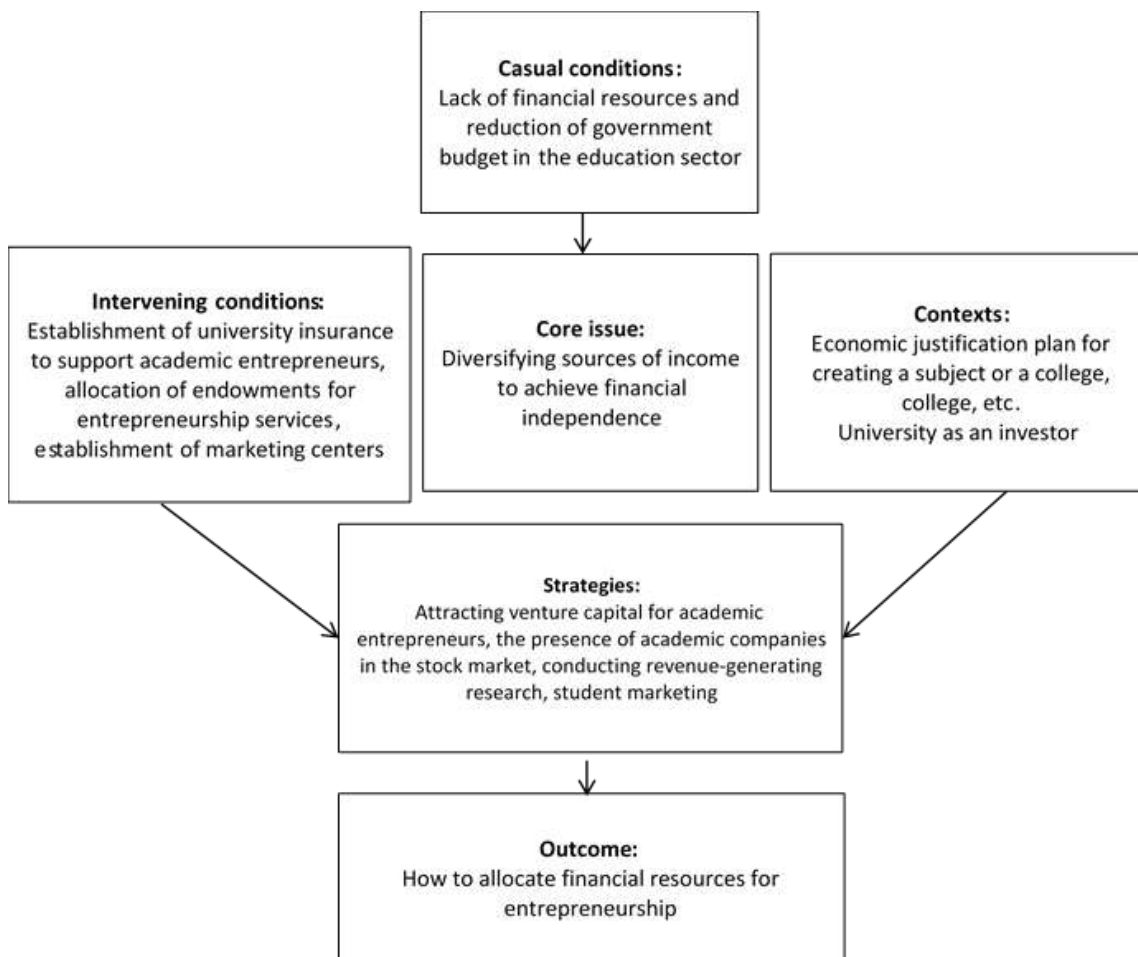


Figure 3: Causal, contextual, and intervening categories of entrepreneurial management of financial resources

Question 4: The role of intermediary institutions in academic entrepreneurship

In this question, the role of five intermediary institutions that can act as a complement or catalyst for academic entrepreneurship is discussed. These five institutions are: Entrepreneurship centers, growth centers, technology transfer offices, communication offices, and industry- research science parks communication offices. The following six key categories were extracted from the interviews:

1- Intermediaries such as entrepreneurship centers, growth centers or technology transfer offices (causal conditions);

2- Helping commercialization, helping achievement of entrepreneurial research mission, support of knowledge-based companies by establishing relationships and synergies among companies, guaranteeing entrepreneurs to get loans, development of entrepreneurship in cities through the establishment of companies branch, supporting foreign knowledge-based companies founded by domestic students and professors (attracting Iranian entrepreneurs from abroad), development of inter-organizational cooperation, increasing the effectiveness and efficiency of technology transfer, and managing the university's technological process (core categories);

3- Education, research, consulting, promotion of entrepreneurship and principles governing the management of intellectual property in university (strategies);

4- Entrepreneurship and commercialization strategy and creation of new business opportunities for universities in the global market (context);

5- Managerial support, helping to evaluate departments and colleges through the valuation of royalties and inventions, motivating more communication between academia and industry, establishing centers for ideation and thinking, development of internship stages, organizing student meetings for entrepreneurship development, publishing academic entrepreneurship books, participating in university assessments, recruitment of university staff, and producing a database (intervening conditions);

6- Academic entrepreneurship (outcome).

Intermediary institutions and their active presence in universities is a casual condition for the formation of an axial category in development of entrepreneurship. Industrial liaison office, growth centers and entrepreneurship centers are located in universities, but only the growth and entrepreneurship centers are directly involved in entrepreneurship-related activities. According to the interviewees, Industrial liaison offices do not play a significant role in academic entrepreneurship. Technology transfer offices have not been established yet. In this regard, Segal et al. (2004) state that there are technology transfer offices in many countries to facilitate the transfer of commercialized knowledge from universities to industries. The main role of such offices is to protect the intellectual property of the university and the results of academic research as well as to transfer the commercial knowledge to the industry through the assignment of patents or other types of intellectual property resulting from research. Helping to commercialize and to fulfill the mission of entrepreneurial research as well as to support knowledge-based companies are the axial categories of this section. Commercialization and fulfillment of the entrepreneurial research mission were discussed in the second question. Usually, an interface is needed, which can be used as a commercialization center for technology and innovation. The purpose of establishing these centers is to look for ways to get the most out of the results obtained from research, development and innovation .

More than half of the students in public universities are from small cities, with original and creative ideas. These people usually suffer from unemployment after graduating and returning to their place of residence. Academic entrepreneurship should be developed in small cities through the establishment of knowledge-based companies by professors or university graduates. Provision of entrepreneurial services to the society is one of the duties of an entrepreneurial university, and society should benefit from academic entrepreneurship. Establishment of branches of academic knowledge-based companies in small cities might prevent young people migrating to big cities and they might be diligent in their urban development. Therefore, intermediary institutions recruit rural and urban students in academic companies due to the recognition of their open mind to come up with ideas.

Education, research, consultation and promotion are four strategies used by intermediary institutions to develop entrepreneurship in society. For example, in the regulations for entrepreneurship development and in universities and higher education centers, paragraph A of the strategies section states “Encouraging and attracting the academic community to entrepreneurship training courses”. Paragraph B states that “Expansion of research on entrepreneurs, entrepreneurship projects, entrepreneurship environment and atmosphere, and other related fields according to the conditions and requirements of the Islamic homeland”.

Integration of entrepreneurial education with curriculum, content and teaching methods in classrooms was discussed in Question 1. Providing educational services and consultation in the field of entrepreneurship to idea owners and independent, organizational and social entrepreneurs, as well as to the applicant organizations are proposed to fill the gap between the university and intermediary institutions. This is in line with the findings of Thompson (1999).

Having a database through networking by these institutions, which is provided jointly, play a significant role in fair distribution of information and informing entrepreneurs about the real needs of society to academic entrepreneurship. Forming committees of entrepreneurs in intermediary institutions and attending the evaluation committee can contribute to the development and progress of academic entrepreneurship. This avoids intermediary institutions from island acting as a separate unit from the university.

Existence of new business opportunities in the global market is another area in which strategies work well. This was expressed by 22.22% of the interviewees. Ability to generate and access to new technologies in order to enter and compete in the global market, definition of new markets for universities by connecting them with foreign knowledge-based companies, and attracting foreign capital through parks and gathering of university entrepreneurs around the world are some of the important items for globally effective presence

. Establishment of knowledge-based companies in the region is a notable symbol of the presence in the global market and contributes to the emergence of innovative industries and increased competitiveness among the knowledge-based companies of the region by adopting a transnational marketing strategy. Figure 6-5 displays the role of core categories of intermediary institutions in academic entrepreneurship.

References

- [1] Hadizadeh Moghaddam, Akram and Rahimi Filabadi, Farajullah, 2005, Organizational Entrepreneurship, Janan Publisher.
- [2] Moghimi, Seyed Mohammad, 2004, Factors Affecting Organizational Entrepreneurship in Organizations of Public Social and Cultural Services of Iran, Management Culture Quarterly, Second Year, No. 7, pp. 27-78.
- [3] Block, and S.A . Stump (2003) ; " Entrepreneurship Education Research : Experience and Challenge " ; In Sexton , D.L., Kasarda , J . D. (Ends), The State of the Art Of Entrepreneurship ; PWS – Kent publishing company ,Boston.
- [4] Shah Hosseini, Ali, 2007, Entrepreneurship, Tehran: Ayizh.
- [5] Samad Aghaei, Jalil, 2006, Creativity, the Essence of Entrepreneurship, First Edition, Tehran: University of Tehran Entrepreneurship Center Publisher.
- [6] Largani Seyedeh, Maryam, Mir Arab Razi, Reza and Rezaei, Saeed, 2008, Entrepreneurship education in the new millennium; Infrastructure for Employment of Higher Education Graduates, Research and Planning in Higher Education, Volume 14, Number 4 (50), pp. 119-137.
- [7] Aghazadeh, Hashem and Hosseinzadeh, Hashem, 2004, Organizational Entrepreneurship, Tadbir Monthly, No. 102.
- [8] Ahmadpour Dariani, Mahmoud, 2001, Entrepreneurship, Tehran: Pardis
- [9] Ashomre, C., (2004). Criteria for youth entrepreneurship, Education, Columbus.
- [10] Chrisman, James & Kellermanns Franz (2006). Entrepreneur. In Michael Hitt & Duane Ireland, Entrepreneurship, Victoria : Blackwell Publishing, pp. 61-63.
- [11] Ahmadpour Dariani, Mahmoud, 2004, Entrepreneurship: Definitions, Theories, and Patterns, Tehran: Pardis Publications.
- [12] Khanifar, H., 2005, Presenting a native management model based on the view of Imam Ali (AS) using a Three-dimensional conceptual model, Management Culture, 3 (8).
- [13] Ahmadpour Dariani, Mahmoud, 2002, Entrepreneurship, Fourth Edition, Pardis Company, Tehran
- [14] Yaddollahi Farsi, Jahangir, 2005, Management and Evaluation of Organizational Entrepreneurship Performance, Management Culture, No. 10.
- [15] Rasekh, Nazanin, 2007, Determining the relationship between participatory management and entrepreneurship in the Faculty of Physical Education and Sports Sciences, University of Tehran, Master Thesis in Sports Management, Faculty of Physical Education and Sports Sciences, University of Tehran.