

RESEARCH ARTICLE

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Identifying and Prioritizing the Dimensions and Components of Academic Entrepreneurship Development in the Field of Humanities

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Abstract

The field of humanities is different from other fields in many aspects, therefore, in order to develop academic entrepreneurship in this field, we need its special model. In this article, two goals are pursued, first, the key components of the development of academic entrepreneurship are identified, and then we discuss the prioritization and influence of the dimensions on each other. This article is practical in terms of its purpose. After carrying out library studies, using the fuzzy Delphi method, we have identified the dimensions, and in the second step, we have used the Dematel method and the ranking of the components using the analytical network process (ANP) to find cause and effect relationships. Therefore, the components of the government's role, entrepreneurial culture, the educational structure and financial infrastructure of the penetrating (cause) and the components of the university structure, research and commercialization and the communication links under the influence (effect) are introduced. The first priority of university entrepreneurship development was entrepreneurial culture and in order expanded developmental periphery including research and commercialization, communication links, strengthened steering core including university structure, stimulated academic heartland includes educational structure, financial resources including financial infrastructure and the least important is the government component.

Keywords: *Development model, Humanities, Dematel, Culture, Academic Entrepreneurship*

Introduction

Entrepreneurship and innovation in the field of humanities has its own difficulties, which is associated with the lack of relevant and extensive studies in the field of entrepreneurship development in the humanities (Zhang & Yang, 2020). Higher education institutions should encourage students to learn and do entrepreneurial

activities so that innovative initiatives in business arise and succeed in their work by taking risks. In addition, higher education institutions should provide adequate training in order to find solutions for possible problems of students in the future in the market (Vaquero-García, Ferreiro-Seoane & Álvarez-García, 2017). Entrepreneurial universities, which are

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tools to facilitate entrepreneurship through the economic exploitation of research and development, are undoubtedly a suitable source for motivating the entrepreneurial spirit in students and professors (Marques, 2016).

Academic entrepreneurship is valuable and vital for all universities, colleges and students in different fields. Academic entrepreneurs emerge in multiple roles, they can be academic researchers, company founders, and company managers. Their decisions should be based on the interaction between the academic environment and industrial or commercial environments, which makes academic entrepreneurship more complicated than other types of entrepreneurship (Xia, Liu, Tsai, Li, Chu & Wang, 2018). The development of entrepreneurship requires the improvement of business environment development policies (Davari, Ramezanpor Nargesi, Afrasiabi & Davari, 2018).

The nature of the ideas of humanities fields is different and it is more difficult to present it to the world. They are more inclined to create social welfare in government or non-commercial organizations with insufficient financial resources, but they will have long-term financial benefits. The lack of correct understanding about the transfer of humanities knowledge, the unknown nature of humanities fields, and the expectation of the society and the government for more participation of these fields in the socio-economic development of the country can be mentioned as the reasons for conducting this research. Considering the need of humanities universities to be more financially independent, to be different from other universities, to provide employment opportunities for students and graduates, to support the development of businesses in the field of humanities and to make university education more efficient. A pattern should be drawn in this field. Academic entrepreneurship development models have increased the ability of researchers to find connections and components of entrepreneurial activities (Xia

et.al. 2018). But since the research done in the specific field of human sciences, there is no model with prioritization of its components and dimensions. Therefore, the question in this article is how to prioritize the dimensions and components of the development of academic entrepreneurship in the field of humanities? In this research, an attempt has been made to provide a model along with identifying and prioritizing the dimensions and components of the development of academic entrepreneurship in the field of humanities.

Literature Review

In order to present the development model of academic entrepreneurship in humanities fields, it is necessary to examine academic entrepreneurship and the factors affecting it in other fields. With the emergence of academic entrepreneurship, most universities chose a strategic approach appropriate to it (Siegel & Wright, 2015).

Entrepreneurial culture: Entrepreneurial culture is seen in most of the university entrepreneurship development researches (Mujahid, Mubarik & Naghavi, 2019). One of the serious challenges of the entrepreneurs of humanities is the gap in social ideas about the university, such as humanity fields will not lead to employment. The damage that exists in the heart of the university culture (Khoshnevisan et al., 2018).

Strengthened steering core: Some researchers consider university entrepreneurship to include all entrepreneurial activities that are not limited to licensing, creating new companies in the university, technology transfer, development centers, science and technology parks, patent assignment and regional development (Guerrero & Urbano, 2015). A university is responsible for guiding their businesses and achieving their development goals so it must pay attention to innovation process, capture economic value, start-up business and try to

reduce the challenges and limitations ahead (SirafiNafis, TaheriKia & Khoshtinat, 2022).

The characteristics of university professors is one of the challenges that conflicts with the entrepreneurship of humanities in the sense of its value creation (Khoshnevisan et al, 2018). So we need to have a university structure that fits the demands and needs of professors and students so that university entrepreneurship can be developed (Goudarzi, Hosseini & Tabaiean, 2017). The flexible structure along with access to information for academics facilitates the field of entrepreneurship (Mostafazadeh & Haghighat Monfared, 2020).

Financial resources: the level of access to resources and financial support in the society indicates the direct and indirect access of university entrepreneurs to finance the start-up of an entrepreneurship (Mujahid et.al 2019). Proper financing and having financial facilities to carry out research and educational activities are important factors for universities (Mahdavi, Sheikh al-islami, Hassan Moradi & Shukri, 2022). The material resources that are required from the formation of the idea to the presentation of the prototype are effective in launching academic spin-offs (Pilegaard, Moroz & Neergaard, 2010).

Stimulated academic heartland: The educational structure aligned with entrepreneurship leads to high job satisfaction, reduction of unemployment rate and increasing success in the field of work such as more income (Hj Din, Anuar & Usman, 2016). Humanities express the general aspects of social life, so students do not study in the field of humanities for the sake of gaining information, but also for their own social development (Yu & Levesque-Bristol, 2018).

Developmental field: academic entrepreneurs can also be considered academic people who build a new organization and present an invention or innovation or a new solution to the market as a business opportunity (Ozgul & Kunday, 2015). The nature of the establishment and development

of a startup in the university is influenced by the performance of its university entrepreneurs because they may move in a direction that is different from the strategies of the university management in order to achieve their goals. Even if a university has a favorable final performance, the viewpoints of its different faculties and disciplines can be different from each other towards entrepreneurship (Klofsten ,Fayolle, Guerrero, Mian, Urbano & Wright, 2019).

The nature of research, the type of ecosystem, people, intellectual property, are effective for transferring university technology to spin-offs in solving three gaps in the entrepreneurial ecosystem, which are the lack of ecosystem mechanisms targeting graduates with research skills, lack of attention to technology-oriented entrepreneurship, and lack of The existence of official channels (Cantu-ortiz, Galeano, Mora- Castro and Fangmeyer Jr, 2017) . In the research of the success of spin-offs of universities of humanities, factors have been identified. The human resource factor that plays an essential role in identifying opportunities, successful negotiation and providing the required knowledge. Also, the nature and role of the university, including its management mechanism, so that the lower the management levels, the more successful the implementation and follow-up of university entrepreneurship will be (Pilegaard, Moroz & Neergaard, 2010).

In addition to the above, some researchers have also pointed out the role of the government as the main player in the development of entrepreneurship (Fellnhofner, Mueller, 2018). The government can play a role of governance by passing relevant laws, and with financial support (Mujahid, Mubarak & Naghavi, 2019) and the exchange of knowledge and information, it can play a facilitating role in the development of entrepreneurship (Corsi & Prencipe, 2016). The development of entrepreneurship is created by the availability of information and a

favorable environment, which the government plays an essential role in creating it (Yadegari Taheri, Vakili Alroaia, Faezi Razi & Heydariyeh, 2021). In the research (Falah Haghighi, Mahmoudi & Bijani, 2018), the lack of proper support from the government for graduates is mentioned as one of the obstacles to the development of entrepreneurship.

In the mentioned articles, the elements were discussed and all of them are based on the revision of previous studies. The researcher was not able to find prioritizing the dimensions and components of academic entrepreneurship development in the field of humanities. Almost no researches were found in which both direct and indirect relations are shown as well as the intensity of those impacts. Furthermore, the role of each individual component in a system in terms of receiving effect from all other elements of a system and exerting impacts on all other components in the same system and

the intensity of these impacts and the importance of elements have not been studied in previous researches. In the current article, the researcher intends to conduct quantitative research in order to fill the existed gaps and hand out a more comprehensible framework as well as presenting a practical visual map for managers and scholars for designing a new model and innovating it.

Finally, Clark's model (2002) is the conceptual model used in this research. It includes the components of: a strengthened steering core, a developmental field, which goes beyond the boundaries of the traditional university, a diverse financial resources, stimulated academic heartland, and an integrated culture of entrepreneurship. Clark's model covers most of the main components of other models, so it is used as the theoretical basis of the research in this research.

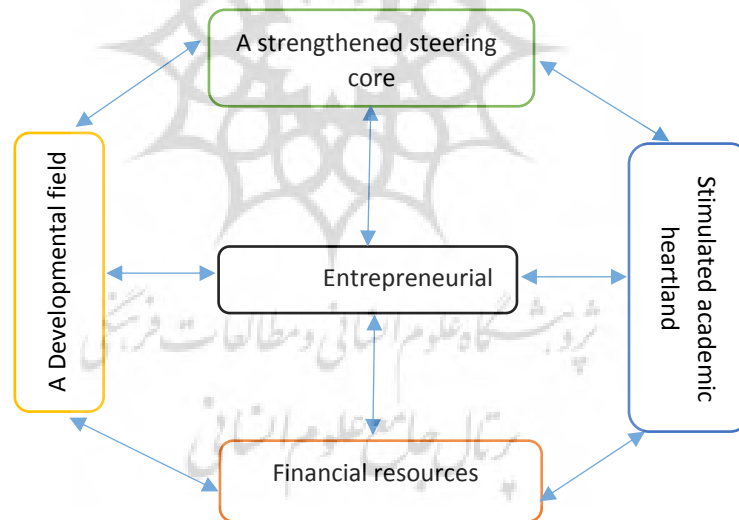


Figure 1. *Conceptual model*

Research Methodology

The purpose of this research is applied, and the research method is qualitative, which uses the fuzzy Delphi method to select key dimensions, and with the help of the fuzzy DeMatel method, it determines cause and effect relationships, and finally uses the

network analysis process to prioritize the dimensions. The statistical population of the research is experts in the field of academic entrepreneurship, including humanities professors or students or graduates of humanities whose entrepreneurial activity is academic entrepreneurship and in the field of

humanities with a history of more than five years of activity. The sample size is 12 active people in the field of academic entrepreneurship in humanities. Due to the limited statistical population, the sample size was considered the same as the statistical population. Demographic characteristics are shown in Table 1. According to library studies and experts' opinions, the dimensions and components of the development of academic entrepreneurship in the field of humanities were determined. Items in the questionnaire designed by the researcher were sent to the experts and they were asked to express their opinion regarding the importance of each index. According to the questions of the questionnaire and the defined linguistic changes, the phase of each index has been calculated. In the next step, the opinion of the experts along with the questionnaire was re-

sent to several people. Finally, after three stages, according to the acceptable limit of 0.8, 34 key components were determined. In order to analyze the cause and effect of the dimensions of the development of academic entrepreneurship in the field of humanities, the Dematel technique was used. Dematel technique is a suitable method for complex structures that examines the relationships between the influencing components and provides a cause and effect graph. In order to prioritize the dimensions and components of academic entrepreneurship development, the analytical network process (ANP) was used based on seven dimensions and its components. Determining the importance of these criteria can help officials and managers to make faster decisions about promoting the field of humanities in line with academic entrepreneurship.

Table 1

Demographic information of experts

Gender	3 women	9 men	
Age group	20-35 years: 3 people	35-50 years: 9 people	
education	Bachelor's degree: 3 people	Master's degree: 4 people	PhD: 5 people
Position	professors or academic staff affiliated with university entrepreneurship centers, 5 people	managers and vice-presidents of science and technology park, 3 people	humanities graduates, 4 people
Geographical area	Tehran, 7 people	Qom, 4 people	Saveh, 1 person

Research Findings

In this research, after library studies and literature background to confirm the related issues by using the fuzzy Delphi method, the components and dimensions of academic entrepreneurship development in the field of humanities were obtained by sending a questionnaire in three stages to experts. The results led to the presentation of a model based on Clark's model including the main academic driver, entrepreneurial culture, strong leadership core, financial resources and development area.

In this research, the role of the government was added to the set of factors, which was

recognized as an environmental factor affecting others. The subcategory of the role of the government shapes the vision of the government, reforming laws and regulations, improving information resources. Entrepreneurial culture includes value creation, holding programs related to entrepreneurship, changing attitudes, strengthening risk-taking in the academic community, accepting new ideas. The developmental field includes research and commercialization, university communication links. Research and commercialization were identified with the components of prioritizing entrepreneurship in services, improving patent

regulations, allocating budget to services, allocating necessary time, strengthening teamwork and strengthening the quality of research, and the university's communication links include communication with prominent people, companies/ Organizations, graduates and entrepreneurship centers. The structure of the university was considered as a strengthened steering core, including internationalization of the university, changes in the field of professors, changes inside the university, development of the university park of humanities, moving towards the fourth generation of universities and the vision of the university. The Stimulated academic heartland was the educational structure. Among the identified components are familiarity with the service business model, granting benefits to innovators, updating educational content, changing the teaching and learning method, and skill learning in the university with humanities fields. Since academic entrepreneurship, like all types of entrepreneurship, requires a financial budget, so this infrastructure can be strengthened with various measures, including amending financial laws and regulations in accordance with the capacities and characteristics of service businesses that form the majority of entrepreneurship in humanities fields. With a strong educational infrastructure and the assurance of the university's capabilities, various projects can be undertaken to transform education from theory to practice and to create fields of entrepreneurship and innovation. The growth of humanities fields can be witnessed by signing contracts with government organizations and conducting practical and research activities by students. Since humanities fields are mostly focused on government organizations and departments, such as public administration, psychology fields, in addition to the cooperation of universities with companies, they can earn money by signing contracts with government departments. Humanities are linked with

culture and society, so by participating in cultural and social activities in the city, we will solve the problems of people and society, and the experiences of academics will be added. And finally, just as other fields generate income for the university by conducting research and obtaining patents, humanities fields can also create a source of long-term income for the university by obtaining copyright and trademark rights.

In the second part, in order to analyze the cause and effect between the dimensions of the development of academic entrepreneurship in the field of humanities, the Dematel approach is used. This technique consists of four steps. In the first stage, the pairwise comparison matrix of dimensions (influence rate) should be scored by experts and combined with each other (geometric mean of experts' opinion) and turned into a matrix. In the second step, the weighted normal matrix is calculated. In the third step, the relative intensity matrix of direct relationships, the relative intensity matrix of indirect relationships, and the relative intensity matrix of direct and indirect relationships are calculated. In the fourth step, R, J, R-J, R+J elements are calculated (table 2).

Table 2

Calculation of elements R, J, R+J, R-J

Dimensions	R+J	R-J	R	J
research and commercialization	6.08	0.91-	2.58	3.50
Financial infrastructure	3.13	0.27	1.70	1.43
Government's role	1.5	1.5	1.5	0.00
Educational structure	3.39	0.33	1.86	1.53
University structure	4.56	-0.48	2.04	2.52
Entrepreneurial culture	5.67	0.60	3.13	2.54
Communication links	5.72	-1.30	2.21	3.51

The final hierarchy of direct and indirect relationships according to the values of (R+J) and (R-J) is as shown in Figure 2. Therefore, the components of the government's role, entrepreneurial culture, the educational

structure and financial infrastructure of the penetrating (cause) and the components of the university structure, research and

commercialization and the communication links under the influence (effect) are introduced.

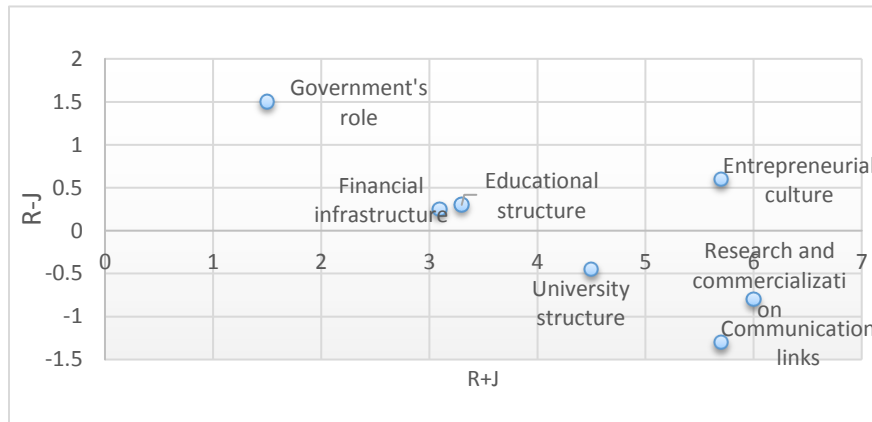


Figure 2. The position of the dimensions in the possible hierarchy

Using the analytical network process, comparative matrices (pairwise comparisons) of dimensions, the dependence of dimensions on each other and components are formed based on the geometric mean of experts' opinions and their compatibility is controlled. Unlike the process of hierarchical analysis, where the relationship between dimensions

and components is hierarchical and one-way, in the analytical network process, in addition to the hierarchical relationship, in some parts of the model, dimensions and components may be related and mutually dependent. The final importance vector (weight) for dimensions and components after normalization is presented in Table 3.

Table 3
 Prioritization (weight) of dimensions and components of academic entrepreneurship development in humanities

final weight	relative weight	Components	Weight	Dimensions
0.031	0.188	Prioritizing entrepreneurship in services	0.166	research and commercialization C1
0.024	0.147	Improving patent regulations		
0.024	0.146	Allocation of funds to services		
0.022	0.134	Allocation of necessary time		
0.030	0.179	Strengthen teamwork		
0.034	0.205	Strengthening the quality of research		
0.018	0.150	Carrying out multiple projects	0.122	Financial infrastructure C2
0.020	0.160	Contract with government agencies		

final weight	relative weight	Components	Weight	Dimensions
0.027	0.220	Terms and Conditions	0.128	Government's role C3
0.027	0.219	Participation in social and cultural activities of the city		
0.031	0.251	Patents		
0.055	0.427	Amendment of laws and regulations		
0.044	0.344	Improving information sources		
0.029	0.229	The vision of the government		
0.018	0.152	Getting to know the service business model	0.120	Educational structure C4
0.032	0.271	Granting benefits to innovators		
0.026	0.214	Update educational content		
0.022	0.187	Changing the way of teaching and learning		
0.021	0.175	Skill learning in the university		
0.025	0.193	Internationalization of the university	0.131	University structure C5
0.021	0.160	Changes in the field of professors		
0.019	0.144	Changes within the university		
0.019	0.146	Development of University Park of Humanities		
0.023	0.176	Moving towards the fourth generation of universities		
0.024	0.181	University perspective		
0.049	0.272	value creation	0.179	Entrepreneurial culture C6
0.024	0.133	Holding programs related to entrepreneurship		
0.045	0.249	Change of attitude		
0.035	0.194	Strengthening risk-taking in the academic community		
0.027	0.153	Acceptance of new ideas	0.154	Communication links C7
0.032	0.206	Prominent people		
0.040	0.262	Companies/organizations		
0.040	0.258	graduates		
0.042	0.274	Entrepreneurship centers		

Finally, according to experts' opinion, entrepreneurial culture (weight 0.179) is more important than other dimensions, and among its components, value creation is the most important (relative weight = 0.272, final weight = 0.049). The second priority is research and commercialization (weight 0.166), among its components, strengthening the quality of research is the most important (relative weight = 0.205, final weight = 0.034). The third priority is communication links (weight 0.154), among its components, entrepreneurship centers have the most importance (relative weight = 0.274, final weight = 0.042). The fourth priority is the structure of the university (weight 0.131), among its components, internationalization has the most importance (relative weight =

0.193, final weight = 0.025). The fifth priority is the role of the government (weight 0.128), among its components, the amendment of laws and regulations is the most important (relative weight = 0.427, final weight = 0.055). The sixth priority is financial infrastructure (weight 0.122), among its components, laws and regulations have the most importance (relative weight = 0.220, final weight = 0.027). Finally, the educational structure (weight 0.120) has the least importance, and among its components, giving benefits to innovators has the most importance (relative weight = 0.271, final weight = 0.032). Figure 3 shows the development pattern of academic entrepreneurship in humanities based on Clark's model resulting from this research.



entrepreneurship among humanities academics.

In general, identifying the dimensions, components and indicators of the academic entrepreneurship model and the location of the components and indicators depends on various factors, including time and statistical population, as well as the analysis of their opinions according to the points given to each of Indicators and components. Therefore, theoretically and operationally, the identified indicators and components in each research have minimal differences compared to other researches, which are caused by the development of patterns in newer researches. In Clark's model, there was no government component and indicators related to humanities were added to it. It is also worth mentioning that in order to grow and expand university entrepreneurship in humanities fields, the interaction and cooperation of other fields with this field cannot be ignored. Additionally, by applying other methods rather than Dematel the convergence of results would be examined. It would be even appropriate to consider other models of academic entrepreneurship with the aim of gaining greater precision in the identification of factors to foster academic entrepreneurship in humanities fields.

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