EVALUATION OF BARRIERS TO PROFESSIONAL INTERACTIONS AMONG FACULTY MEMBERS IN IRAN'S AGRICULTURAL HIGHER EDUCATION SYSTEM

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ABSTRACT

Scientific interactions and cooperation are among the main components of science production. The interaction and communication among the faculty members are considered as one of the most important areas of communication in higher education. Thus, the level of interactions, communication and collaborative activities plays major role in the professional development of faculty members. The main objective of this research is to answer the main question of what are the main barriers to professional interaction and scientific cooperation among faculty members. This research is descriptive-analytical in terms of nature. It uses content analysis method. To achieve this goal, an open-ended question was developed. The purposeful sampling method was used in this research and a total of 67 faculty members participated in this research. Based on the research results, the barriers of professional interactions of faculty members were identified and categorized in 9 categories of cultural, individual characteristics, legal / regulatory, financial, political, attitudinal, motivational, planning and policy-making, and infrastructure categories. Finally, the results showed that sub-category of lack of budget and non-allocation of adequate budget is the first priority of barriers. In addition, the sub -categories of lack of group and collective work culture, individual and personality characteristics of people, inhibitory rules of university in collaborative and joint work (administrative bureaucracy), ideological dependence to ruling parties, lack of support and encouragement of faculty members in scientific cooperation, inadequate design of university structures for performing educational and research activities ranked second among the barriers identified.

Keywords: Professional Interactions, Barriers, Faculty Members, Content Analysis, Agricultural Higher Education System

INTRODUCTION

Human resources have a special status in each organization and they are considered as the main capital of the organizations. It is highlighted in knowledge-based organizations, especially universities and higher education institutions, where faculty members are the main human resources, because the main and specialized activities of such organizations are performed by faculty members and paying attention to their talents means paying attention to human capital in universities and higher education institutions and their desirable management is considered very important .One of the major challenges faced by higher education in the world at the current time is the qualitative growth and development of faculty members in universities. Nowadays, the development of human resources is more important than ever (Hosseini, 1997). Nowadays, we see many advances and developments in

agricultural science, which these developments have caused a change in the curriculum of higher education institutions in developed countries in order to adapt to changes and technologies supplied in the agriculture industry (Vaughn, 1999).

In order to respond to rapid changes in the development of technologies in agriculture and bring change in the knowledge and skills of learners in various agricultural sciences, faculty members of higher education institutions in these fields of study should always develop their professional knowledge and skills (Russell, 1999). In the 21st century, faculty members of the agricultural sciences should fulfill the important roles such as learning facilitator, developer of agricultural programs, manager and supervisor of agricultural projects in university, professional educator, and continuing learner (Sworzel, 1995). Hence, in order to bring about significant changes in the agricultural sector of each country, the development of practical programs is an essential in order to identify the professional needs and provide the necessary conditions for the development of professional skills of the faculty members of agriculture.

Given the importance and position of the faculty members of universities, especially agricultural faculties, in advancing the missions of the higher education system and the formation of rapid changes in agricultural technologies and a set of emerging challenges affecting the whole system, including faculty members, it is necessary to take some measures by higher education system planners for continuous improvement of the general system and to enhance academic capabilities and professional skills of the faculty members. One of the special components, which is highly important in the professional development of faculty members is the level of interactions, communications and collaborative activities among them, which their visualization should be searched in level of involvement of members in the group works related to community and scientific networks such as scientific associations and other scientific communities such as editorial boards, scientific committees for research projects, etc. (Nurshahi and Samiei, 2011).

Thus, the weakness in establishing these communications leads to improper interactions among faculty member. As a result, identification of the factors affecting the scientific performance of the faculty members of an organization, which plays a fundamental role in the comprehensive development of the community, is considered to be crucial (Anbari et al., 2012). In Iranian universities, given the existing studies, educational method in Iran's educational system is mainly based on individual and competitive principles, and less attention is paid to interactional practices, cooperation, and professional and group communication. There is also now evidence suggesting that due to individualism in the universities, resilience to group work is being felt, since in group work, the success of a person is less attributed to the person and the more individualism culture, compared to collectivism culture, dominates the mental spaces (Taslimi and Farhanghi, 2010).

The weakness of professional interactions, especially group work and scientific cooperation results from national culture. It is due to the fact that countries, which have intimate political and cultural relations and its members tend to have very close relationships have more international cooperation compared to the countries, which have racial bias. In communities and countries where there is no effective group work, researchers tend to work individually, do not help their colleagues, and not receive any help from them (Noruzi and Velayati, 2009). Important barriers to professional interaction include individual barriers such as individualism and lack of involvement in group work, socio-cultural barriers (Karimian et al., 2011), lack of

knowledge on the group work culture, lack of interactions, interpersonal and group communication, feeling organizational identity, low trust, group work and poor involvement among the faculty members, lack of communication and coordination among researchers for the exchange of information and experiences, as well as lack of group work in the major research centers of Iran (Samiei Rad and Ghasemi, 2015).

In addition, weakness of intellectual consensus among the elites on the rules of collective action, the weak commitment of those working in scientific areas against the principles and rules governing scientific activities and theoretical ethics, the weakness of mutual trust among the faculty members and managers, the weakness of the collective involvement among the academics in their affairs, limited free space for wisely conversation, and exchange and critique of thought, the weakness of scientific interactions, the weakness in link between university and society, the weakness of the interactions among the scientific institutions of Iran and universities and the scientific institution out of country (Fazlollahi and Maleki Tavana, 2011) have been recognized as a major barrier to professional interactions and group collaboration among faculty members.
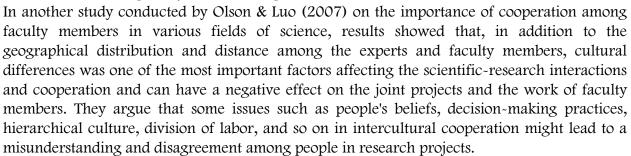
As the cultural barriers are one of the most important barriers in the development of faculty members of universities and higher education institutions, new interactions are needed in three sectors of education, research and outsourcing services, since conducted studies suggest the weakness of group work in each of the functions of education, research and outsourcing services. For example, research conducted on the quality of working life of faculty members of Iranian public universities based on the level of three types of educational, research and scientific and administrative activities confirms that the quality of working life of the faculty members and the level of interactions, communication, and collaborative activities among faculty members is not desirable and the level of faculty members' use of growth opportunities and professional development is at the low and moderate level (Janalizadeh et al., 2013).

Research results also suggest weakness of Iran's scientific and research culture in the area of education and research, and factors such as inappropriate livelihood status of researchers, weakness of morale and searching ethics and questioning in general culture of Iran and weakness in group work demographic morale of collective labor And paying more attention and giving more value to individualism compared to collective production and its values have been reported as weak points of Iran's scientific and research culture (Taefi, 2000). Moreover, non- promotion of group work culture, lack of appropriate scientific and research space in Iran, education-centered system of Iran's education system, lack of access to information and scientific resources by researchers in Iran, lack of the research culture, lack of communication among the researchers, concentration of studies in public organizations and non-obliging the professors for research have been reported as factors of weak interactions in the education and research areas (Committee for the Identification of Research and Technology Barriers, 2002).

In this regard, given the importance of professional interactions and communication in the professional development of faculty members and as professional interactions are among the requirements of the lifelong learning age, it is recommended that the barriers and challenges for advancing the professional interactions to be recognized among faculty members and appropriate strategies to be adopted for improving these interactions. Thus, the main problem of this research is to identify barriers of professional interaction among faculty members in the

agricultural education system. Now, we review some of the studies conducted in the area of barriers to professional interaction of faculty members. With regard to views of faculty members and scholars on the area cooperation and factors affecting academic interactions, Hara et al. (2003) identified four factors including individual adaptability, work communication, motivations, and socio-economic infrastructure. The research results suggest that there is relationship between the factors and types of cooperation. In some cases, these factors facilitate cooperation and, in other cases, prevent cooperation among the faculty members.

In a research entitled "Factors affecting science and research cooperation in interdisciplinary natural sciences in university settings", Maglauglin & Sonnenwald (2005) categorized 20 factors affecting interdisciplinary scientific cooperation in four general classes of individual factors, factors related to resources, motivational factors and common grounds factors, and by examining each of these categories, they identified the factors for each class. Individual and personal factors: supports of financial institutions and research centers, scientific resources and publications; motivational factors: teaching and learning, exploring new discoveries, rewards; and factors relating to common grounds: geographical distances, and special language of each field of study. In addition, in this research, they showed that the limitations of authorities of universities and their administrative organizational barriers, time, language and vocabulary of each field of study, different research methods of various fields of studies are barriers in interdisciplinary scientific cooperation.

In another study conducted by Olson & Luo (2007) on the importance of cooperation among faculty members in various fields of science, results showed that, in addition to the geographical distribution and distance among the experts and faculty members, cultural differences was one of the most important factors affecting the scientific-research interactions and cooperation and can have a negative effect on the joint projects and the work of faculty members. They argue that some issues such as people's beliefs, decision-making practices, hierarchical culture, division of labor, and so on in intercultural cooperation might lead to a misunderstanding and disagreement among people in research projects.

Rahimi and Fattahi (2008) investigated the effect of factors affecting scientific cooperation from the viewpoints of faculty members of Ferdowsi University. They categorized the examined factors into two groups of incentive factors and preventive factors. They also divided each group into three subgroups of environmental factors, individual factors and process-structural factors. The results of their research suggest that factors such as the culture of involvement in community, the budget of cooperation activities, mutual trust among the individuals, and the common goals and views among people have the greatest effect on the level of scientific cooperation. Results of another research conducted by Aytac in 2010 on facilitating and inhibiting role of cooperation and scientific interactions showed that external factors (uncontrollable) such as organizational, economic, governmental factors and internal factors such as motivation, goal, trust and hope are effective in the international scientific cooperation of Turkish researchers.

Ryahi (2010) examined barriers and international scientific cooperation challenges faced by the faculty members of the University of Tehran in compilation a joint documents in the ASI database. He realized that political problems and barriers are the most effective barrier in the international scientific cooperation. Cultural variable has the lowest impact compared to other

factors. This research reported that inadequate mastery of English or other languages was the most important barrier to international scientific cooperation. Moreover, the results of the research conducted by Ahmadi et al in 2016 on the factors preventing and predicting the faculty members' cooperation and interactions indicate that political and scientific encouraging factors are the most important encouraging factor and motivational inhibitory barriers were the least important barrier for scientific cooperation of faculty members.

Finally, the results of the research conducted by Nazar Zadeh Zare et al. (2017) under title of "competency model of faculty members in international interactions" identified six competencies, including scientific (interdisciplinary knowledge), professional (having international language skills, etc.), communication (negotiation techniques, etc.), intercultural (cultural respect, etc.), metacognition (self-management), and intellectual (critical thinking, and so on). Given the studies conducted on professional interactions, it can be concluded that no comprehensive study has been carried out so far to identify the barriers to professional interactions among the faculty members. Hence, given what was stated above, the issue of identifying barriers to professional interaction and scientific cooperation of faculty members in the universities of Iran deserves paying special attention. Thus, identifying these barriers by taking into account the characteristics, conditions and context of the Iran's higher education system and, consequently, providing solutions to increase and enhance these interactions in universities seem to be an essential. Thus, the general objective of this paper is to evaluate the barriers to professional interaction among faculty members in the agricultural higher education system. In this regard, this research was conducted to achieve two main objectives: 1 – extracting the barriers to the professional interactions among the faculty members and 2- classification of these barriers.

METHODOLOGY

This qualitative research is a descriptive-analytical conducted based on content analysis to identify the barriers of professional interactions among the faculty members in the Iran's agricultural higher education system. The research population included agricultural faculty members of Tehran Tarbiat Modares, Shiraz, Kermanshah, Lorestan and Zabol universities. The purposeful sampling method was used in this study and 67 faculty members participated in this research, so that 21 faculty members of Tehran Tarbiat Modares University, 24 faculty members of University of Shiraz, 9 faculty members of University of Kermanshah, 5 faculty members of University of Zabol, and 8 faculty members of University of Lorestan participated in this study. In this research, faculty members who had good history and experience and on professional interactions and cooperation and had willingness to cooperate, responded to the open-ended questions of the study. The data were collected using questionnaire with one open-ended question: "what are the barriers to effective professional interactions among faculty members from your point of view?" To analyze the data of this research, qualitative data analysis method was used. The process of analyzing the research data was carried out according to the steps proposed by Granhim and Londman: 1- After collecting the question answered, the texts were reviewed several times by the researcher for general and proper understanding 2-Whole of texts were considered as the unit of analysis. The unit of analysis means the notes that were to be analyzed and encoded, 3. Words, sentences, or paragraphs were considered as semantic units. Semantic units were a set of words and sentences that were

related to each other in terms of content. These units were summed up and juxtaposed according to their content. 4. Then, semantic units reached to the level of abstraction and conceptualization and were named with codes. 5. The codes were compared with each other in terms of similarities and differences and they were categorized under more abstract classes (sub-categories) with a specific label. 6. Finally, by comparing the classes with each other and deep and accurate reflection, the content of the data was introduced under the title of theme (categories) of the study.

The accuracy and robustness of the research study was evaluated using the criteria proposed by Guba and Lincoln: researcher cooperated and interacted with the participants to collect valid information. Re-attempt was made to increase the credibility of the study step-by-step and analyze the data analysis and data were reviewed to increase the dependability of data. To increase the confirmability of data, the views of faculty members of the university and their complementary comments were used. To increase the transferability of the research report, the applicability of the research in other areas would be evaluated (Guba and Lincoln, 2005).

RESULTS

The classification of the barriers to professional interactions among the faculty members based on statistics
As stated above, the categories of the barriers to professional interactions among the faculty members were extracted based on content analysis. Tables 1, 2, … 10 represent the classification of these categories.
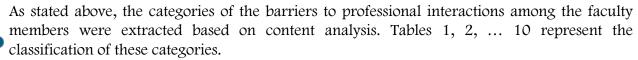Table (1) shows the frequency of sub-categories of barriers to the professional interaction among the faculty members in the cultural category. In this regard, sub-categories such as: lack of group work culture / lack of collective work culture; lack of observing ethical and professional standards by some colleagues (lack of knowledge of academic ethics) of philosophy of science and the scientific principles / scientific behavior and the basic principles of each field of study; lack of paying attention to international cooperation had the highest emphasis, and the lack of providing experience and proper morale in dealing with research and findings; polarization of some sectors; and neglecting the non-local professors and lack of cooperation with them had the least emphasis.

Table 1: Frequency of the sub-categories of barriers to the professional interaction of faculty members in the cultural category

row	Cultural category	frequency
1	Lack of group work culture/ lack of collective work culture	17
2 3	Lack of observing the professional and ethical principles by some colleagues (lack of knowledge on academic ethics) of science philosophy and scientific principles/ scientific behavior and basic principles of each field of study	15
4	Lack of paying attention to international cooperation	14
5	Lack of communication of faculty members of different universities	13
6	Lack of cooperation among educational departments	12
7	Lack of interaction willingness among the Iranians Lack of knowledge on group work in universities	12
8		12
9	degree-orientation	11
10	Differences in social cultures	10

11	Unstable socio-cultural conditions	8
12	Anti-participatory and anti-interactional environments	8
13	Neglecting non-local professors and lack of cooperation with them	4
14	Polarization of some sectors	3
15	Lack of providing experience and proper morale in dealing with research and findings	2

Table (2) shows the frequency of sub-categories of barriers of professional interaction among the faculty members in the category of individual characteristics. In this regard, sub-categories such as: lack of group work, the inability of some faculty members to communicate with their colleagues, and the willingness of individuals to do individual work for some reasons (being the hero of project / performing individual works or being individualism had the highest emphasis, and jealousy of members in providing information to their colleagues; and the lack of mastery of one or more international languages, especially English, for international interactions, had the least emphasis.

Table 2: Frequency of the barriers of professional interactions among the faculty members in the category of individual characteristics.

row	Individual characteristics	Frequency
1	Lack of group work morale	15
2	Inability of some faculty members in communicating with colleagues	14
3	Willingness of people for performing individual works for reasons (being the hero of project, performing the works individually or being individualism)	13
4	Lack of adequate experience and scientific information in some people	13
5	Authority ambitions of people	13
6	Pride and prejudice	13
7	Arrogance	12
8	Negligence of some faculty members	9
9	Individual concerns of faculty members	8
10	Diversity in individual or behavioral characteristics of people	7
11	Lack of sense of responsibility in doing some group works	6
12	Lack of time due to great number of problems of faculty members	5
13	Lack of mastery of one or more international languages especially English language for international interactions	4
14	Jealousy of faculty members in providing information for colleagues	4
15	Jealousy of people with regard to better result of the studies	2

Table (3) shows the frequency of the sub-categories of barriers to the professional interaction among the faculty members in the legal / regulatory category. In this regard, the sub-categories of restricting the faculty members to provide a resume based on the promotion regulations; the lack of university support of group research privileges in particular; and restrictions of travel to other countries for faculty members had the highest emphasis, and lack of paying attention to group and collaborative activities in the faculty members promotion regulations; spending much time to do individual activities such as writing papers, lack of paying attention to group activities by evaluation team had the least emphasis.

Table 3: Frequency of the sub-categories of barriers to professional interaction of faculty members in sub-category of legal / regulatory factors

row	legal / regulatory factors	Frequency
1	restricting the faculty members to provide a resume based on the promotion regulations	16
2	the lack of university support of group research privileges	13
3	restrictions of travel to other countries for faculty members	12
4	Administrative bureaucracy	12
5	Considering the number of papers of faculty members as criterion to compare with other scientific centers (paper-oriented)	12
6	High emphasis on research and lack of opportunities for doing these activities	12
7	inhibitory laws and rules of university	10
8	Legal barriers for collaborative interdisciplinary cooperation	4
9	lack of paying attention to group activities by evaluation team	3
10	spending much time to do individual activities such as writing papers	2
11	lack of paying attention to group and collaborative activities in the faculty members promotion regulations	1

Table (4) shows the frequency of sub-categories of barriers to professional interactions among the faculty members in the financial category. In this regard, sub-categories such as the lack of adequate budget in organizations and the creation of parasitic state in organizations and universities; disproportionate division of costs in joint works (disproportionate division of task and cost); and budget deficit in research and group works had the highest emphasis and competitiveness nature of areas of activities in attracting joint financial resources; lack of financial support of the university of research group projects (financing of professors); and the lack of considering the mission for Agricultural Jihad Ministry for the agriculture faculties and lack of allocating adequate budget allocation had the least emphasis.

Table 4: Frequency of the sub-categories of the barriers to professional interactions among the faculty members in the category of financial factors

row	Financial factors	Frequency
1	lack of adequate budget in organizations and the creation of parasitic state in organizations and universities	16
2	disproportionate division of costs in joint works (disproportionate division of task and cost)	13
3	budget deficit in research and group works	12
4	Lack of healthy interaction in accepting the projects and attracting the financial resources	11
5	Financial restrictions and lack of attention to faculty members' academic opportunities	10
6	The inconsistency of the research budget in Iran with international budgets and other scientific centers in world	10
7	Lack of allocating adequate budget allocation or agricultural faculties	9
8	lack of considering the mission for Agricultural Jihad Ministry	7
9	lack of financial support of the university of research group projects (financing of professors)	4
10	competitiveness nature of areas of activities in attracting joint financial resources	2

Table (5) shows the frequency of the sub-categories of barriers to the professional interaction among the faculty members in the political category. In this regard, the sub-categories of

political, ideological and political orientations or disputes and the polarization of the members; the ideological dependency to ruling parties / the professors' orientation and bias; and factional views and attitudes among individuals (political debates among people) had the highest emphasis. In addition, the lack of intellectual and psychological security in establishing the communication due to lack full trust in scientific people in the country; the lack of open cultural and political space in the universities for such an interaction; and the lack of network or communication channels among the professors having dependency to parties and ruling governments had the least emphasis.

Table 5: frequency of sub-categories of barriers to professional interaction among the faculty members in the category of political factors

row	Political factors	Frequency
1	political, ideological and political orientations or disputes and the polarization of the members	15
2	e ideological dependency to ruling parties / the professors orientation and bias	14
3	factional views and attitudes among individuals (political debates among people)	13
4	Focusing on individual activities of the professors by evaluation team (incorrect policy-making in the evaluation of professors)	13
5	political management governing the universities (wrong thinking of managers and policy makers / lack of professional communication at a high and low level)	10
6	Political polarization of the members	9
7	Not taking the views of members of other political parties into account	9
8	lack of network or communication channels among the professors having dependency to parties and ruling governments	5
9	lack of open cultural and political space in the universities for such an interaction	3
10	lack of intellectual and psychological security in establishing the communication due to lack full trust in scientific people in the country	2

Table (6) shows the frequency of sub-categories of barriers to professional interaction among the faculty members in sub-category of attitude. In this regard, the sub-categories of negative attitude among faculty members for progress of other members (rivalry and jealousy); lack of confidence in expressing the views and opinions and consequences of expressing individual opinions; and the difference in opinions and views (inconsistency in academic views of professors) had the highest emphasis. In addition, lack of addressing the professional interactions among the faculty members from the point of view of managers; lack of belief in research works in order to solve the society problems; and negative biases of professors towards the joint and group work had the least emphasis.

Table 6: Frequency of the sub-categories of barriers to professional interaction among the faculty members in the category of attitudinal factors

row	attitudinal factors	Frequency
1	negative attitude among faculty members for progress of other members (rivalry and jealousy)	21
2	lack of confidence in expressing the views and opinions and consequences of expressing individual opinions	19
3	difference in opinions and views (inconsistency in academic views of professors)	16
4	Lack of trust in collaborative activities	7
5	negative biases of professors towards the joint and group work	7
6	lack of belief in research works in order to solve the society problems	4

7	lack of addressing the professional interactions among the faculty members from the point of view of managers	3

Table 7 shows the frequency of sub-categories of barriers to professional interaction among the faculty members in motivational category. In this regard, the sub-categories of low motivation for faculty members (lack of motivation); not giving opportunity for younger, efficient, and high-energy professors; competition to receive the tuition (creating a market-based business environment) had the highest emphasis and greed of faculty members; lack of encouragement of scientific cooperation; the existence of a parasitic state among members and assigning all project works to one person had the least emphasis.

Table 7: Frequency of the sub-categories of barriers of professional interaction among the faculty members in the category of motivational factors

row	motivational factors	Frequency
1	low motivation for faculty members (lack of motivation	11
2	not giving opportunity for younger, efficient, and high-energy professors	10
3	competition to receive the tuition (creating a market-based business environment)	8
4	Lack of attention to view of more experienced professors	8
5	Self-interest seeking of some professors, especially professors with more employment history	7
6	Lack of support and encouragement to group work by authorities	6
7	the existence of a parasitic state among members and assigning all project works to one person	5
8	lack of encouragement of scientific cooperation	3
9	Greed of members	3

Table (8) shows the frequency of sub-categories of barriers to professional interactions among the faculty members in planning and policy making category. In this regard, the sub-categories of lack of appropriate scientific and applied mechanisms for group work, poor communication between the university and the executive or industry sectors in joint projects, and lack of allocating adequate time by faculty members to do joint works had the highest emphasis, and paying inadequate attention to the group activities of the universities of Iran; lack of willingness of Jihad Agriculture Ministry to use the scientific capacity of the faculties and faculty members, and the lack of proper coordination in research priorities of Iran had the least emphasis.

Table 8: Frequency of sub-categories of barriers to professional interaction among the faculty members in planning and policy –making category
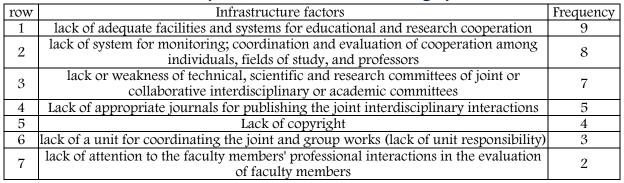
row	planning and policy –making	Frequency
1	lack of appropriate scientific and applied mechanisms for group work	8
2	poor communication between the university and the executive or industry sectors in joint projects	7
3	lack of allocating adequate by faculty members to carry out joint works	6
4	Lack of specific program by Ministry of Science for scientific cooperation	6
5	Lack of proper planning in research priorities	5
6	Not making universities mission-oriented scientifically	3
7	Lack of appropriate valuing for educational and research activities	3
8	Lack of using university developmental strategies in practice	3

9	Inappropriate design of research structure of the universities in scientific development of Iran, especially in agriculture and natural resources sector	2
10	Lack of attention to interdisciplinary issues in the educational policy-making issues in Iran	2
11	lack of proper coordination in research priorities of Iran	2
12	lack of willingness of Jihad Agriculture Ministry to use the scientific capacity of the faculties and faculty members	2
13	paying inadequate attention to the group activities of the universities	1

Table (9) shows the frequency of sub-categories of barriers to professional interaction among the faculty members in infrastructure category.

In this regard, the sub -categories of lack of adequate facilities and systems for educational and research cooperation; the lack of system for monitoring; coordination and evaluation of cooperation among individuals, fields of study, and professors; and lack or weakness of technical, scientific and research committees of joint or collaborative interdisciplinary or academic committees had the highest emphasis, and lack of attention to the faculty members' professional interactions in the evaluation of faculty members; the lack of a unit for coordinating the joint and group works (lack of unit responsibility), and lack of copyright had the least emphasis.

Table 9: The frequency of sub-categories of barriers to professional interaction among the faculty members in infrastructure category

row	Infrastructure factors	Frequency
1	lack of adequate facilities and systems for educational and research cooperation	9
2	lack of system for monitoring; coordination and evaluation of cooperation among individuals, fields of study, and professors	8
3	lack or weakness of technical, scientific and research committees of joint or collaborative interdisciplinary or academic committees	7
4	Lack of appropriate journals for publishing the joint interdisciplinary interactions	5
5	Lack of copyright	4
6	lack of a unit for coordinating the joint and group works (lack of unit responsibility)	3
7	lack of attention to the faculty members' professional interactions in the evaluation of faculty members	2

Extracting and categorizing barriers of professional interactions among the faculty members

The results of this section showed that 9 categories were the most important barriers to professional interaction among faculty members from the viewpoint of the faculty members which these categories are presented in Table 10. Among these categories, cultural, individual characteristics, and legal / regulatory factors, respectively, were the most important barriers to interactions.

Table 10: Frequency distribution of categories of barriers to professional interaction among faculty members

row	categories	Frequency
1	Cultural	141
2	individual characteristics	125
3	legal / regulatory factors	97
4	Financial	94
5	Political	93

6	Attitudinal	77
7	Motivational	61
8	Policy-making/planning	50
9	Infrastructure	38

In these tables, the categories of barriers to professional interactions among the faculty members have been categorized in nine categories including cultural, individual characteristics, legal / regulatory, financial, political, attitudinal, motivational, planning and policy-making, and infrastructure categories based on rate of repetition. The first section relates to barriers to interactions in the cultural category in 14 sub-categories. The second section related to barriers to interactions in the category of individual characteristics in 15 sub-categories.

The third section relates to barriers to interactions in the legal / regulatory category with 11 sub-categories. The fourth section relates to barriers to interactions in the financial category with 10 sub-categories. The fifth section relates to interactions in the political category with 10 sub-categories. The sixth section relates to interactions in the category of attitudes with 7 sub-categories. The seventh section relates to interactions in motivational category with 9 sub-categories. The eighth section relates to interactions in the planning and policy –making category with 13 subcategories, and finally, the ninth section relates to interactions in the infrastructure category with 7 sub-categories.

Categorization of inferential categories of barriers to professional interaction among faculty members

Categorization of the derived categories of barriers to professional interaction among faculty members

After extraction of categories, they were categorized in cultural, individual characteristics, legal/regulative, financial, political, attitudinal, motivational, and planning and policy-making, and infrastructure categories. Table (11) shows the categorization of the categories derived. Based on this categorization, categories with a frequency of more than five repetitions are reported as first-class or first-priority categories. Accordingly, lack of budget and lack of allocating adequate is the first priority. In addition, categories with more than five repetitions were placed among the second-class or second-priority categories. Hence, lack of a collective work and group work culture, individual and personality characteristics of people, and inhibitory rules of university in joint works (administrative bureaucracy), dependency to ruling parties, lack of support and encouragement of faculty members in scientific cooperation, inappropriate design of university structures for educational and research activities were placed in the second priority.

Finally, categories with less than four repetitions are categorized as third-class or third-priority categories. Accordingly, inability of some faculty members to communicate and collaborate with their colleagues, the lack of a specifying mechanism and program for joint work by Ministry of Science, lack of committee or unit for scientific cooperation are among the third-class or third-priority categories. Although the categorization of the derived categories was based on the number of repetitions, it should be noted that this categorization does not mean that other categories are not important, but all derived categories should be considered by authorities.

Table 11: Categorization of the derived categories of barriers to professional interactions among the faculty members

row	Categories	Derived categories	Frequency
1	Cultural	Lack of group work or collective work culture	5
		Lack of interdisciplinary communication and interactions	3
		Anti-interactive environments	3
		Polarization of the sectors	2
2	individual characteristic	Individual characteristics of people	5
		Inability of some faculty members in communicating with colleagues	4
		shortage of time and individual concerns of people	3
		Sense of jealousy and competition among the colleagues	2
		Willingness of people for individual works (individualism)	1
		Lack of mastery of one or more international languages	1
3	Legal/ regulative	Inhibitory rules of university for joint works (administrative bureaucracy)	5
		Lack of attention to group and collaborative activities in the faculty members' promotion regulations	3
		Over emphasize to research in universities	3
4	Financial	Lack of budget and lack of allocating adequate budget	6
		Unhealthy financial interactions in attracting and accepting the projects	1
		Competition in areas of activities in attracting the joint financial resources	1
5	Political	Ideological dependency to ruling parties	5
		Political management ruling the universities	3
		Lack of open cultural and political space	2
		Ethnical or tribe prejudices and biases	1
6	Attitudinal	Negative attitude of professors for joint works	2
		Lack of belief in joint works in solving the society problems	1
		Not addressing the professional interactions among the faculty members from the viewpoint of managers	1
7	Motivational	Lack of support and encouragement of faculty members in scientific cooperation	5
		Greed of faculty members	3
		The presence of parasitic state and assigning all project works for one person	1
8	Planning and policy-making	Inappropriate design of the structure of the universities for doing educational and research activities	5
		Lack of specifying mechanism and program for joint work by Ministry of Science	4
		Lack of attention to interdisciplinary issues in the science-education policy-making	1
9	Infrastructure	Lack of committee or unit for joint scientific cooperation	4
		Lack of system for monitoring, coordinating, and evaluating in the joint scientific cooperation	2
		Lack of required facilities for joint and group activities	1

DISCUSSION AND CONCLUSION

The effort to help faculty members achieve professional development is feasible through development plans (Bradley & Chyka, 2006). However, it is not achieved merely by implementation of such plans. At present time, one of the main challenges faced by universities

in world is professional development of faculty members. Acquiring professional competencies requires continuous professional development in three areas of technical knowledge, specialized skills and individual characteristics such as: group work, problem solving and development of public management skills (Roscoe, 2010).

Special policies and measures should be considered to promote the culture of cooperation among the faculty members in universities and research centers in order to take useful steps for scientific development and progress of Iran by better understanding of the scientific cooperation benefits. By identifying the inhibitory factors, we can strengthen the incentives and eliminate the barriers. Conducting such studies makes it possible to take steps to develop and solve problems in professional cooperation and interaction and to make special plans for the growth of scientific cooperation. The research show that the most important barriers to the professional interaction of faculty members identified in this research are as follows. Generally, the barriers of professional interaction among the faculty members were identified and categorized in nine categories.

The most important category among identified barriers is the cultural category with 4 sub-categories, including lack of collective and group work culture, lack of interdisciplinary communication and interactions, anti- interactive environments, and polarization of sectors. In addition, among the barriers to professional interactions, the category of individual characteristics with 6 sub-categories of individual and personality characteristics of people, the inability of some faculty members to communicate and collaborate with colleagues, shortage of time and individual concerns of people, sense of jealousy and competition among colleagues, the willingness of people to do individual works (individualism), the lack of mastery of one or more international languages had the high importance among other barriers identified.

The third category of barriers identified in terms of importance among other barriers is the legal-regulatory category. In this category, three sub categories university inhibitory rules and laws in joint works (administrative bureaucracy), lack of attention to group and participatory activities in the faculty members' promotion regulations, over-emphasis on research (research-orientation) in universities were identified and extracted.

The fourth category of identified barriers included financial category with three sub-categories of lack of budget and non-allocation adequate budget, unhealthy financial interactions in attracting and accepting projects, competition in areas of activities of attracting joint financial resources .The fifth category of barriers included the political category with four sub-categories of ideological dependency to ruling parties, the political management governing the universities, the lack of open political and cultural space, ethnical and tribal prejudices. The sixth category of barriers included the attitudinal category with 3 sub-categories, including negative attitudes of faculty members to joint works, lack of belief in joint works in solving society problems, non-addressing the professional interactions among the faculty members from the point of view of managers. The seventh category of barriers included the motivational categories with 3 sub-categories of lack of support and encouragement of faculty members in scientific cooperation, greed of faculty members, presence of parasitic state and assigning all works for one person.

The eighth category of barriers included the category of planning and policy-making with three sub-categories of inappropriate design of university structures for performing

educational activities, lack of a specifying mechanism and program for joint work by the Ministry of Science, lack of attention to interdisciplinary issues in scientific-educational policy-making. Finally, the ninth category included the infrastructure category with 3 sub-categories of lack of a committee or unit for joint scientific works, lack of a system for monitoring / coordinating, and evaluating joint scientific works, lack of adequate and facilities for joint and group activities. Based on the results, lack of budget and non-allocation of adequate budget was placed at the first priority of barriers of professional interaction among the faculty members, which is consistent with the results of the research conducted by Aytac in 2010. Thus, the allocation of special grants (while limited) from internal financial resources to do joint research by faculty members and attracting external credits to do research for out of university institutions can be helpful in this regard. Moreover, lack of a collective and group work culture had the high emphasis among the barriers, which this result was consistent with the results of research conducted by Nazar Zadeh Zare et al. (2017), Rahimi and Fattahi (2008), (Olson & Luo, 2007).

For this purpose, Ministry of Science needs to develop comprehensive, strategic and long-term planning for the development of culture and the creation of appropriate conditions in universities to increase the level of involvement of individuals, especially faculty members in group activities, for forming a positive attitude towards group cooperation interactions and enhancing their level of knowledge on the ways to improve professional interactions through regular and localized educations. In addition, the category of personal and individual characteristics of people was strongly emphasized among the identified barriers, which it is in line with the results of the research conducted by Maglauglin & Sonnenwald (2005). Thus, the presence of jealousy and self-interest seeking among faculty members is due to the lack of their knowledge of group work culture and the benefits of involvement in scientific and professional cooperation which this barrier can be eliminated by creation and development of the culture. Finally, as the category of culture is one of the most important barriers to professional interaction among faculty members, authorities and planners of the agricultural higher education system should provide the economic and cultural conditions for more involvement of professors in scientific and professional cooperation, since such scientific cooperation enhances the scientific experiences and motivation for production of specialized knowledge by professors.

Recommendations

- Facilitating and encouraging the formation and continuity of professional / research communications of faculty members at different levels, through membership in international and domestic academic and community assemblies, joint research, researcher exchange and so on.

- Increasing the communication and interactions among the universities / agriculture and natural resources faculties and relevant executive departments in other ministries and organizations.

- Establishing a strategic committee for studies to develop research priorities for the agricultural sector of the country with the aim of organizing joint research projects consisting of educational groups.

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