

**Research Article**

## **A RESEARCH OF APPROACHES AND OBSTACLES TO DEVELOP THE MUTUAL RELATIONSHIP BETWEEN INDUSTRY AND UNIVERSITY**

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### **ABSTRACT**

The purpose of this research is specifying the obstacles and strategies of development of mutual relationship between university and industry and its secondary purposes are including:

1. To specify the role of cultural obstacles in making mutual relations between university and industry.
2. To specify the role of structural obstacles in making mutual relations between university and industry.
3. To specify the role of practical obstacles in making mutual relations between university and industry.
4. To specify the role of geographical obstacles in making mutual relations between university and industry.
5. To specify the role of natural obstacles in making mutual relations between university and industry.

And using the conceptual model tried to study the obstacles and problems of the relationship between industry and university with an interview between industrialists and professors and faculty members at the universities and with random selection of 150 samples, and in this regard, the relationship between independent variables and dependent variables of this research with statistical analysis of the obtained data which has been calculated with SPSS. While confirming the assumptions the results of this research show that each one of indicators including; cultural, structural, practical, geographical and natural obstacles are effective in the incidence of problems and obstacles in industry and university's relationship.

**Keywords:** *Industry, University, Obstacles, Geographical, Structural, Cultural, Practical*

### **INTRODUCTION**

University and industry are two key institutions of society felt in the current knowledge-based world. However, it was no need to establish relationship between these two institutions in the past. But nowadays obligation to make such a relationship and interaction between these two institutions is more evident. The necessity of establishing relationship between these two parts is to achieve an accurate and useful perception of each other. In advanced societies the relationship between university and industry which are the most important and main providers of educational services is spontaneous and organizational, so that growth and sublimity will not be possible for industrialists without colligates and vice versa, and it will not be effective for society. Training professional and efficient experts on the one hand and employment of graduates on the other hand are the issues that occupy minds in this context. University is the place to train educated experts and industry is both production and supplier of commodities and services. In today's world there is a direct link between technology development and social progress, economic and political developments in every country. According to definition, technology has four essential pillars including; human ware, machine ware, organization ware and information ware which in interaction with each other cause to economic growth and development. Besides, university is literally the place of training expert and professional manpower. If these experts manpower can use their knowledge and skills in production and industry, that will cause development. In this research, we are going to express the leading problems and obstacles of this very important issue and study and offer the strategies to eliminate leading problems and obstacles of the relationship between industry and university.

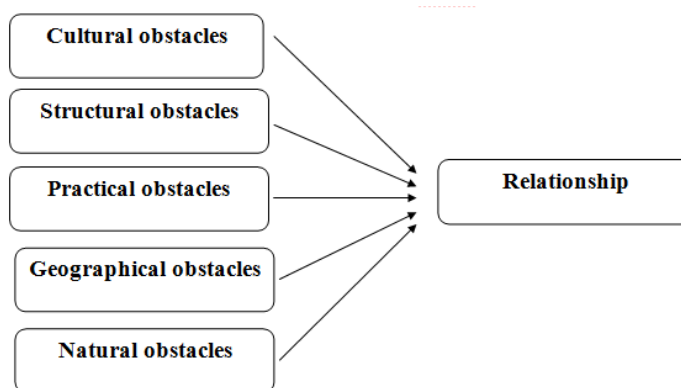
#### **Problem Statement**

Nowadays, all structures among knowledge, technology and industry structure, more than ever, need depth, realism, collectivity and generosity. And industrialists must accept that they are able to properly digest and absorb technology in addition to the university. And collegiate believe that today is tomorrow's

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technology and the place of the establishment of technology is industry which means fruit and the result of knowledge is industry, and both of them must concern that the vitality is digestion and absorption and excavation. Nowadays, the traditional boundaries between university, industry and government have faded. In many context boundaries between these institutions cannot be distinguished from each other. So that part of the territory of university is considered as industry and part of the territory of industry can be considered as university. In conditions that universities use the most of their times on scientific and purely theoretical activities. The knowledge generated in the university can be considered as a competitive advantage. Brown shows in his research in England that the economic success in this country is greatly related to scientific and academic researches. University can also take advantage of the financial resources and equipments of industry and students can take a training course in industry to be familiar with it and faced with the existing daily challenges. The relationship between university and industry in Iran was started with the approved legislation by cabinet in 1361. According to this legislation an office named the relationship between university and industry office was created in the ministry of culture and high education. Moreover, same offices were started to work in the ministry of Oil, Industries, Mines and Metals, Energy (DOE), Transportation, Housing and Urban Development and Program and Budget Organization (PBO). The relationships between industry and university offices were created in many universities. In general it can be said that a set of performance that happened in this area refers to truly perception and the value of this issue to officers and trustees all over the country. But in this research we want to answer this question that despite the antiquity of relationships between university and industry discussion in the space of decision in country, why these institutions could not reach to the specified higher goals and what are the problems and obstacles on this way? So, presenting the following conceptual scheme the discussed questions will be answered:

The conceptual model of research.



## **MATERIALS AND METHODS**

### **Methodology**

This research has two categories of main and secondary purposes which the main purpose is: specify the obstacles and strategies to develop the relationship between industry and university. And its secondary purpose is:

1. Specify the role of cultural obstacles in making mutual relationship between university and industry.
2. Specify the role of structural obstacles in making mutual relationship between university and industry.
3. Specify the role of practical obstacles in making mutual relationship between university and industry.
4. Specify the role of geographical obstacles in making mutual relationship between university and industry.
5. Specify the role of natural obstacles in making mutual relationship between university and industry.

According to the designed model the following assumptions are introduced:

1. There is a significant relationship between cultural obstacles and the lack of proper communication between university and industry.

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2. There is a significant relationship between structural obstacles and the lack of proper communication between university and industry.
3. There is a significant relationship between practical obstacles and the lack of proper communication between university and industry.
4. There is a significant relationship between geographical obstacles and the lack of proper communication between university and industry.
5. There is a significant relationship between natural obstacles and the lack of proper communication between university and industry.

According to the purpose this article is among the applied researches and according to the method it has been a descriptive survey. Statistical society of this research is two teams including; professors and faculty of the university, and industry officials that are a population of 250 people. To estimate the sample size the following formula has been used. In this way, from the total studied society, the sample size was chosen using stratified sampling. And the data collection in this research is conducted in two stages. In the first stage, data collection was conducted through Library method which includes books, articles, theses, and ... In the second stage, the Field method and its tools that are closed questionnaire have been used, that has been prepared in terms of levels and dimensions of the main problem and the research questions. This standard questionnaire was prepared that table number 1 shows the relationship between questions and variables.

**Table 1: Questions distribution**

Row	Variable	Items	No. of questions
1	Cultural obstacles	1-5	5
2	Structural obstacles	6-10	5
3	Practical obstacles	11-16	6
4	Geographical obstacles	17-19	3
5	Natural obstacles	20-23	4

To analyze the data the descriptive statistics including; average, diagram ... has been used and inferential statistics method including Kolmogorov- Smirnov testing and regression testing is going to use. In line with this article, different researches have been done which there are some examples of them:

Ehsani (2004) believes that effective communication between university and industry will be achieved at the time that universities try to transfer technology with applied researches, and this will not be possible without institutionalization the research at universities and also fulfilling the educational needs to experts. Jahangirian (2004) thinks that the first realistic factor in cooperation between university and industry is to believe the importance of the matter and making continuous and strong relationship to success. According to him, the relationship between university and industry has been a showcase relationship for long. It should be noted that industry does not progress without a defined and targeted relationship with university.

In 2012, also Kwon et al in a research investigated the effect of international cooperation in strengthening national research system in Korea. In this research the international dimension of cooperation was added to the research as the forth factor ((f) factor) and has been calculated. The results show that a fixed international writing grid network since 2000 is visible in the South Korea. a research for European commission with the aim of achieving the best way offunctioning in transferring technology from researching organizations found following factors as the key factors o success: focus on the market, organizational culture, organization and the internal management of research organization, rights management, intellectual property, entrepreneurship and creation of new business, latticework.

In a research studied the effective factors in the productivity institutes and the related agents with commercialization of university researches. With productivity assessment of 45 transferring offices in authentic researching university of America they concluded that effective using of technology transferring office can increase the economic value of the commercialization process. Their analysis shows the

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essential following challenges for commercialization of university: the existing of attitudinal legitimate barriers between universities managers and faculty members to commercialize, shortage of experts in technology transferring offices, and insufficient financial available resources.

The first hypothesis: Cultural obstacles have significant effect on lack of proper relation between industry and university.

The calculated significant amount which is 0.02% smaller than the test level 5% shows that cultural obstacles have a significant effect on lack of proper relation between industry and university. Because the "t" is positive, so the variables have a direct relationship and hypothesis  $H_1$  is confirmed which is showed in table 2.

**Table 2: t test, variables of cultural obstacles of lack of relation between industry and university**

Significant level	T statistic	Standard deviation	average	count	variable
0.002	65.534	1.09446	3.6602	150	Cultural obstacles

The second hypothesis: Structural obstacles have significant effect on lack of proper relation between industry and university.

The calculated significant amount which is 0.00% smaller than the test level 5% shows that cultural obstacles have a significant effect on lack of proper relation between industry and university. Because the "t" is positive, so the variables have a direct relationship and hypothesis  $H_1$  is confirmed which is showed in table 3.

**Table 3: t test, variables of structural obstacles of lack of relation between industry and university**

Significant level	T statistic	Standard deviation	average	count	variable
0.000	60.721	1.14675	3.5534	150	Structural obstacles

The third hypothesis: Practical obstacles have significant effect on lack of proper relation between industry and university.

The calculated significant amount which is 0.009% smaller than the test level 5% shows that cultural obstacles have a significant effect on lack of proper relation between industry and university. Because the "t" is positive, so the variables have a direct relationship and hypothesis  $H_1$  is confirmed which is showed in table 4.

**Table 4: t test, variables of practical obstacles of lack of relation between industry and university**

Significant level	T statistic	Standard deviation	average	count	variable
0.009	66.828	0.99016	3.3767	150	Practical obstacles

The forth hypothesis: Geographical obstacles have significant effect on lack of proper relation between industry and university.

The calculated significant amount which is 0.031% smaller than the test level 5% shows that cultural obstacles have a significant effect on lack of proper relation between industry and university. Because the "t" is positive, so the variables have a direct relationship and hypothesis  $H_1$  is confirmed which is showed in table 5.

**Table 5: t test, variables of geographical obstacles of lack of relation between industry and university**

Significant level	T statistic	Standard deviation	average	count	variable
0.031	74.021	0.91985	3.4746	150	Geographical obstacles

The fifth hypothesis: Cultural obstacles have significant effect on lack of proper relation between industry and university.

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The calculated significant amount which is 0.000% smaller than the test level 5% shows that cultural obstacles have a significant effect on lack of proper relation between industry and university. Because the "t" is positive, so the variables have a direct relationship and hypothesis  $H_1$  is confirmed which is showed in table 6.

**Table 6: t test, variables of natural obstacles of lack of relation between industry and university**

Significant level	T statistic	Standard deviation	average	count	variable
0.000	65.225	1.07382	3.5742	384	Natural obstacles

## Conclusion and Suggestion

1. The results of **first hypothesis** shows that the calculated significant amount which is smaller than test level 5% indicate that cultural obstacles have a significant effect on lack of proper relation between university and industry. So that variables such as: a) goals and conflicting missions of industry and university (university mission is promoting science and as a result creating general and social benefits whereas the purpose of industry is personal benefit), b) conflict of interest including; secrecy and personal property rights which leads to contradiction in policy of secrecy in two section (companies usually believe that confidentiality of R&D results is the best way to maintaining their competitive position of innovative. Whereas university is in need of dissemination of research results in order to achieve credibility and reputation), c) the difference between workplaces (the form of proliferation of different languages and the basic assumption) have direct relationship with each other. Jahangirian (2004) concluded that industry without defined and targeted relationship with university will not progress. Therefore, it is recommended that intellectual property law in order to clarify the property of industrial and universities researches results must be passed and executed.

2. The results of **second hypothesis** show that the calculated significant amount which is smaller than test level 5% indicate that structural obstacles have a significant effect on lack of proper relation between university and industry. Therefore, variables such as: the different nature of work in industry and university a) at first, universities usually are involved with basic researches which have complex, theoretical and outspread purposes. Whereas stimulating R&D in the industry has clear and specified purposes. Secondary, industries generally are looking for short-term profit and following the researches results annually is their ordinary method. While the reporting cycle at the universities is much more than this and it technically has less value, b) for universities any improvement in the exciting level of knowledge is counted as a success. But in industry producing a salable product is the least thing that has direct relationship with each other. M Brown et al concluded focus on the market, organizational culture, organization and internal management research organization, individual property rights management, entrepreneurship and the creation of new business, latticework. Accordingly, it is recommended to provide the field of self sufficiency at university in both public and private and more funding do on the basis of scientific products.

3. The results of **third hypothesis** show that the calculated significant amount which is smaller than test level 5% indicate that practical obstacles have a significant effect on lack of proper relation between university and industry. Therefore, variables such as: A) Universities are mainly run by government agencies and so they are organized very different from companies that are profit-driven and have clear management structures. B) Budget process is different in these two sections. (Companies have incentive defined system to align the interest of employees with the company's strategies and interests. Whereas, there is bureaucracy in universities, without being a specific incentive for professors and researchers.). C) Coordination of work (In the university and industry interaction, there are not a sufficient level of project management which in most cases, lead to a delay or failure of the project.) that have direct relationship with each other. Accordingly, it is recommended to more activate the industry and universities offices in order to attract funds of executive offices. And to adjust laws and regulations in an easy and convenient functionality for optimal use of demand-driven funding research projects at universities and administrative centers and to accelerate their adoption.



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4. The results of **forth hypothesis** show that the calculated significant amount which is smaller than test level 5% indicate that geographical obstacles have a significant effect on lack of proper relation between university and industry. Therefore, variables have direct relationship with each other. The distance between universities and industry centers cause to slower transfer of knowledge between these two institutions. In recent years with the creation of science and technology parks and other intermediate structures has somewhat solved this difficulty, but these factors still have not been fully effective. Accordingly, it is recommended to follow up performing university outreach initiatives with forming necessary specialized team regularly and to do student's apprenticeship and internship in written and correct form as students become familiar with the issues and problems of the industry and vice versa. And several universities in the vicinity of the construction of industrial estates.

5. The results of **fifth hypothesis** show that the calculated significant amount which is smaller than test level 5% indicate that natural obstacles have a significant effect on lack of proper relation between university and industry. Therefore, variables have direct relationship with each other. In addition to aforesaid general problems, conditions prevailing in the industry and universities in our country cause to also make other obstacles in the way of the relationship between university and industry. In our country major imports of technology, specifically in the past cause that industry has no real need to science and in fact industry needs has been limited to repair and servicing. a research concluded that legal attitudinal barriers among university administrators and faculty, and insufficient financial available recourses cause to lack of economic value of the commercialization of university, therefore, it is recommended to codify the topics and the content of training courses according to the actual needs of the industry and to create the applied science courses tailored to the needs of the industrial centers and to supervise on the training of students. And invite the experts of industry to come in order to teach university's expertise courses.

### **REFERENCES**

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