Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.6, No.13, 2015

Identifying the Barriers upon Development of Virtual Education in Engineering Majors (Case Study: The University of Isfahan)

Sepideh Nikoonezhad*[1] Mohammadreza Nili[2] Ahmadreza Nasr Esfahani[3]
1.M.A. Department of Education Planning, Faculty of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran
2. Assistant professor, Faculty of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran
3. Professor, Faculty of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran
* E-mail of the corresponding author: s.nikoonezhad@yahoo.com

Abstract
The present study aims at investigating barriers upon development of virtual education in engineering majors at the University of Isfahan. The study has applied a mixed method (qualitative and quantitative) and its population consists all of the department members of the technical and engineering majors at the University of Isfahan including 125 persons, the department heads of the engineering majors and selected managers and experts in charge of virtual education and information technology of the University of Isfahan including 17 persons. 8 of these 17 persons were interviewed purposefully. Also, 95 of 125 were selected as the sample by using Cochran formula and Morgan Table and by applying a researcher-made questionnaire the barriers upon development of virtual education were investigated from the professors' viewpoints. The findings resulted from interview by categorizing method and the results of the questionnaires were analyzed by statistical analysis and SPSS software. The results of the study indicated that the barriers upon development of engineering education could be divided into three parts including physical, human resources, and organizational conditions. Among the barriers in the physical area, we can mention shortcomings in technical and software infrastructures, shortage in laboratories and workshops, in humanistic area there are weaknesses of interactions between professors and students, low ability of the professors in using software, and in the area of organizational conditions, we can refer to decision-making focus on the virtual section, organizational separation of the virtual education from educational departments and weakness of the interaction between the virtual section and faculties and engineering departments of the university.
Keywords: virtual education, engineering majors, development, university

1. Introduction

Along with development of higher education, information and communication technologies have also been developed and their entrance to different aspects of life, education, profession, and achievement to information literacy, are the prerequisites of life and survival in today's knowledge-based society (Yari, 2011). The most important consequence of these changes is the challenges to which the higher education system is encountered in the new century. The most important of these challenges could be described as follows: complicated relation between globalization and education especially higher education (Javdani, 2009) the speed of knowledge production (Saied et al. 2011; Fazlalizadeh et al. 2012), creating continuous and lifelong educational system, increase in demand and number of the students to achieve information literacy and realizing an appropriate status and convergent to the globalization phenomenon (Montazer&Dayani, 2003; Farajollahi&ZarifSanaye'I, 2009; Zamani&Madani, 2001), time and place limitations, unqualified traditional systems of education and limited capacity of these systems (Fazalizadeh et al. 2012).

Creation of these challenges has made the experts, planners, and management system of the higher education to make attempt to solve these problems. Educational systems especially the higher education which play a pivotal role in growth, development, and survival of every country should be the first institutions that enjoy the advantages and potential facilities of the modern technologies to fight against the challenges while these technologies themselves are considered as its causes. To overcome these challenges, there are different methods. The most important one is the method mentioned in universal declaration on higher education in UNESCO's universal summit in Paris in 1998 which relies on educational modern environments to be harmonized with information age and illustration of the virtual systems (Montazer&Dayani, 2003).

Nowadays, the traditional methods of education on their own cannot be efficient and coordinated with the present changes. However, information technology and communications are used as powerful instruments to promote the quality and efficiency of education so that he traditional methods of education could be changed and no more need for physical presence in classes (Kia, 2009). Accordingly, fundamental developments were exerted to the system of higher education and educational methods were changed, too, so that everyone with his/her own facilities could be able to begin the learning procedure in every place and time without physical presence in educational places (Saied et al. 2011). Most of these changes include cross-border educations enjoying communication technologies, distance learning or virtual education (Javdani, 2009).

A great deal of studies indicate that utilizing technology in education brings about reduction in education costs, saving time, increase of teaching and learning opportunities, and the possibility of having rapid access to information (Omu'I Milan Ghashghan et al. 2011). Russel (1999) conducted a series of comparative studies between traditional and virtual educations and theorized that there is no significant difference between virtual education and traditional education and the efficiency of both methods is almost identical. Development of virtual education and virtual majors not only would not lead to reduction of learning but also, according to the advantages of virtual education in relation to traditional education, they would be appropriate in meeting the day-to-day increase of science learning in today's world particularly in Iran regarding its population.

For this, during recent years, educational politicians in many developing countries, including Iran, have been particularly interested in virtual education (Rahimi&Yadollahi, 2011). This issue illustrates the importance of development of these kinds of educations around the world especially in Iran (Fazlalizadeh et al. 2012). Considering the mentioned needs and challenges and other challenges by which higher education system of Iran is encountered with, also, the opportunities and results which have been created due to development of information and communication technologies and upheavals occurring internationally, usage and development of distance education system based on web will be very fruitful and useful (Mani'e, 2004). Therefore, virtual universities gradually began to work in Iran along the traditional ones. In Isfahan city, because of movement of this city toward becoming industrial center, demand for higher education and need for constant learning is increasing. This has made it clear that it is necessary to create and develop virtual majors particularly the technical and engineering ones which are in relation to industry. However, the virtual faculty of the University of Isfahan has established the majors of Commercial Management, Executive Management, Library Science, Information, and Languages. Also, Law and Computer Games are being established while little attention has been paid to technical and engineering majors.

Mosallanejad&Sobhanian (2008) dealt with investigation of critical thinking among the students of virtual and traditional educations in computer majors and the results indicated that considering critical thinking in virtual educations to be strengthened as well as the advantages of this kind of education, and since self-confidence, self-reliance and independent learning are recommended, virtual education along with traditional education or as substitution for theoretical courses could be used in universities.

HoseiniLorgani, MirarabRazi&Rezaie (2008) studied barriers upon development of electronic education in Iran education system. Their results indicated that the most important barriers to electronic education in Iran education system are 1. Technological 2. Cultural/ social 3. Pedagogical 4. Legal/ administrative 5. Strategic and 6. Educational, respectively.

Abdollahi et al. (2010) asserted that one of the principle factors about implementing virtual education in universities are the professors of educational groups and many studies have reported that professors resistance against accepting the modern educational technologies is the fundamental problem and hindrance in development of virtual education developments.

Aref, Moti'-e Birjandi&Damankhorshid (2012) realized that usage of the software programs such as DIGSILENT, PSCAD/EMTDC, and SIMULINK/MATLAB make it possible for the teachers of Electrical Engineering to transfer the concepts to the learners deeply and applicably.

The study of Shea et al. (2005) revealed that from professor's viewpoint, the most important impediments in virtual learning include: time limitations, lack of qualifications in awards and encouragements, the problem of possessing the courses and periods, the amount of the professor's authority in education, additional workload for producing the contents of the online courses, technical problems, training courses, inadequate support, and addition of new functions which demand assistant professors, technical consultants and creating cooperation with them.

For Panda & Mishra (2007) the most important barriers mentioned by the faculty members include poor access of the students to internet (limited access), dealing with education instead of being along with education and training in electronic learning (lack of training and practical education), lack of technical support of the university and lack of supporting the educational designs for electronic learning and such kinds of problems.

In a report provided by a group of Canada's Universities which have had cooperation with each other regarding education in virtual universities (2012), it has been published that the impediments in Canada's virtual universities which need renovation and improvement, are divided into four major groups: 1. Resistance of the faculty members, 2. Shortage of expertise, 3. Organizational and systematic barriers, 4. Lack of resources. Summarizing the conducted studies and the researchers' viewpoints, the barriers have been classified in three groups and accordingly, three questions were posed for each one which are actually the research questions:

1. What are the barriers upon development of virtual education in engineering majors regarding the physical resources?
2. What are the barriers upon development of virtual education in engineering majors regarding the human resources?

3. What are the barriers upon development of virtual education in engineering majors regarding the organizational conditions?
4. How is priority importance of the three areas of physical resources, human resources, and organizational conditions in development of virtual education at the University of Isfahan viewed by the professors of the technical and engineering majors?

2. Methodology

In terms of purpose, the study is applied, since it intends to find one of the problems [in higher education] and the related results could be implemented immediately after its end (SeyyedAbbaszadeh, 2001). At the level of methodology, a mixed method was applied in which both qualitative and quantitative methods were used. The used instruments were interview and questionnaire. The population of the study for interview included 17 persons from the Department Heads of the engineering groups, the selected management members and expert authorities in the sections of virtual education and information technology of the University of Isfahan by 8 of which interview was conducted purposefully. The population of the questionnaire was also the faculty members of the engineering majors at the University of Isfahan in 2012-2013. They were 125 persons and using Cochran formula and Krejcie and Morgan Table, 95 of them were selected to complete the questionnaires.
The questionnaire was prepared based on the achieved results of the interviews and the studied resources b the researcher. 10 questions measured the barriers of physical resources, 17 measured barriers of human resources and 15 questions measured the organizational conditions. The considered hypothetical mean was 3.5. The achieved results from the interviews were analyzed in categorizing method and the results of the questionnaires were analyzed through statistical analysis and SPSS software program.

3. Findings and Results of the Study

The results of the interviews and questionnaire are given in the following Tables in the order of the research questions.
The first question: What are the barriers upon developments of virtual education in engineering majors regarding the physical resources?
Table 1: the obtained categories from interviews in terms of physical resources

Number	**Physical resources section**	**Frequency**	**percent**	**Rank**
1	Poor interaction of the professors with students (due to inappropriate software programs)	5	62/5	**The first rank**
2	Inappropriate software and hardware programs needing promotion	4	50	**The second rank**
3	Late payments to the professors and assistants and …	3	37/5	**The third rank**
4	Not using interactive software programs and using elementary software programs at the level of PowerPoint	3	37/5	**The third rank**
5	Place and time limitations in conducting and controlling the virtual classes from distance by the professors	1	12/5	
6	Inability to connect rich virtual libraries	1	12/5	
7	Little support from the ministry	1	12/5	

In this area, the most important barriers include: poor interaction of professors with students because of inappropriate software programs, inappropriate software and hardware facilities needed to be promoted, late payments to professors and lack of using interactive software programs and using elementary software programs such as PowerPoint.

Table 2: single-sample T-test of the physical resources with mean of 3.5

number	The questions related to the physical resources section [1]	Mean	Standard deviation	T value	Freedom degree	Level of significance	Ranking mean
1	Weaknesses in technical infrastructures and appropriate hardware	3/8136	1/33229	1/808	58	0/000	5/64
2	Inability of the section of the virtual education in arranging online classes	3/5763	1/48792	0/394	58	0/000	5/08
3	Lack of enough space for arranging present classes	2/8983	1/94489	-2/376	58	0/001	3/56
4	Requiring the professors in studio to prepare electronic contents	3/5085	1/86966	0/035	58	0/000	4/98
5	Lack of especial laboratories and workshops for the virtual education section[2]	4/1333	1/54554	3/174	59	0/000	6/42
6	Mere use of audio and video and finally PowerPoint	3/7627	1/19394	1/690	58	0/000	5/91
7	Limitations of the virtual libraries[3]	4/0508	1/94248	2/178	58	0/000	6/06
8	High costs of virtual education (because they are uneconomical	3/3220	2/33002	-0/587	58	0/000	4/13
9	Limited support of the Ministry for virtual education	4/5593	2/83008	2/875	58	0/000	5/94
10	Late payments of tuition fees to professors and assistants[3]	5/2203	2/49183	5/303	58	0/000	7/30

The results given in Table 2 reveal that in the questionnaire related to barriers upon development of the virtual majors in the area of physical resources, t was calculated for items 1, 5, 6, 7, 9, and 10 and it was significantly higher than the average level, for items 2 and 4 it was at average level, and for items 3 and 8 they it was lower than the average level. The highest ranking mean is related to the items 10, 5, and 7 respectively.

The second question: What are the barriers upon development of virtual education in engineering majors regarding the human resources?

[1] The numbers next to each question (1, 2, 3) indicate the rank of each question.

Table 3: the obtained categories from the interviews in human resources section

number	Human resources section	Frequency	Percent	Rank
1	Lack of motivation and lack of cooperation from the professors for creating virtual majors	4	50	**The first rank**
2	Inability and lack of the required expertise of the professors to teach and inability in working with virtual software programs	4	50	**The first rank**
3	Lack of authority of the professors in getting the courses and proposing them by expertise and assistants	4	50	**The first rank**
4	Lack of interest of students and their cooperation	4	50	**The first rank**
5	Shortage in time and professors' much workload	3	37/5	**The second rank**
6	Need to attract professors and experts	2	25	**The third rank**
7	Concentrated decision-making on management section	2	25	**The third rank**
8	Using only several professors and not using other ones	1	12/5	
9	Teachers being out of date in teaching	1	12/5	
10	inability of the students	1	12/5	
11	Poor supervision of the management	1	12/5	
12	Shortage of experts in electronic education	1	12/5	

The most important impediments in this area include:

Lack of motivation and lack of cooperation of the professors for creating virtual majors, inability and lack of the required expertise of the professors to teach in virtual methods and also inability in working with virtual software programs, lack of authority of the professors in handling the courses and proposing them by expertise and assistants of the virtual section, lack of interest of students and their cooperation.

Table 4: single-sample t-test of human resources section with average of 3.5

number	The questions related to human resources section*	Mean	Standard deviation	T value	Freedom degree	Level of significance	Ranking mean
1	Little cooperation of the professors in proposing majors in virtual system	4/2034	1/90081	2/842	58	0/000	10/50
2	Modernity of virtual education update of resistance	3/1695	1/85837	-1/366	58	0/000	7/42
3	Inadequate ability of the professors in working with the required software programs in virtual education	2/7966	2/07431	-2/605	58	0/005	5/77
4	Only using the professors as producers of the educational contents	3/8475	1/74013	1/534	58	0/000	9/36
5	Low interest in professors to change their classes to virtual form	3/4576	2/02844	-0/160	58	0/000	8/15
6	Out of date professors regarding scientific and technological fields	2/7627	1/79404	-3/157	58	0/002	5/55
7	Low interest of professors in proposing their major in virtual system	3/8475	1/58455	1/684	58	0/000	9/99
8	Poor familiarity of the teachers in teaching method, learning and virtual verdict	3/3559	1/84543	-0/600	58	0/000	7/73
9	Lack of feeling needs to propose virtual majors	3/9322	1/24380	2/669	58	0/000	10/45
10	Much load of work on the professors	4/2203	1/16067	4/767	58	0/000	11/50
11	Low demand and lack of interest among students	4/3051	2/42298	2/552	58	0/000	10/05
12	Poor ability of students in using virtual software programs	3/1017	2/16313	-1/414	58	0/000	6/70
13	Weaknesses in relationships and interactions between students and professors in virtual education section	4/0000	1/42635	2/693	58	0/000	10/34
14	Weaknesses of the staff in using educational software programs appropriate to each major	3/8814	2/37142	1/235	58	0/000	8/91
15	Shortage of skilled specialists and experts in virtual education	3/7797	2/06838	1/039	58	0/000	8/95
16	Low flexibility of the management[3]	4/5424	2/34390	3/416	58	0/000	10/76
17	Management with inadequate expertise regarding virtual education[2]	4/4576	2/02844	3/626	58	0/000	10/86

*the numbers next to each question (1, 2, 3) indicate the rank of each question.

The given results in Table 4 indicate that in the questionnaire related to barriers upon development of virtual majors in human resources, the calculated t for the items 1, 4, 7, 9, 10, 11, 13, 14, 15, 16, and 17 is significantly higher than the average level, for the item 5 it is in average level and for the items 2, 3, 6, 8, 12 it is lower than the average level. The highest ranking mean has been related to the items 10, 17, and 16.

The third question: What are the barriers upon developments of virtual education in engineering majors regarding the organizational conditions?

Table 5: the obtained categories from interviews in the section of organizational conditions

number	**Organizational conditions section**	**Frequency**	**percent**	**Rank**
1	Lack of appropriate and specific laws	6	75	**The first rank**
2	Need to create educational council, relation and interaction with departments and using their abilities.	5	62/5	**The second rank**
3	Lack of need assessing and strategic planning	4	50	**The third rank**
4	Quantity orientation (lack of necessary quality)	4	50	**The third rank**
5	Fledgling virtual education and system, and lack of institutionalization completely	4	50	**The third rank**
6	Need to in-service training	3	37/5	
7	Separation of the virtual faculty from the present sections and departments	3	37/5	
8	Lack of strong law in spiritual and material possession	3	37/5	
9	Weakness in correct informing about establishment of the virtual section	2	25	

The most important problems in this area are: Lack of appropriate and specific laws, need to create educational council, relation and interaction with departments and using their abilities, lack of need-assessment and strategic planning, quantity orientation, fledgling virtual education and system, and lack of complete institutionalization.

Table 6: single-sample t-test for organizational conditions with mean of 3.5

number	**Questions related to organizational conditions***	**Mean**	**Standard deviation**	**T value**	**Freedom degree**	**Level of significance**	**Ranking mean**
1	Neglecting the society's needs (lack of assessing the needs and planning)	3/1864	1/89804	2/778	58	0/000	6/77
2	Unclear evaluation of the quality of the virtual periods	4/0000	1/36458	2/814	58	0/000	7/27
3	Looking at the virtual section as revenue-making	4/0000	1/29987	2/955	58	0/000	8/30
4	Mere attention to quantity and inattention to quality of education	4/3051	1/57846	3/918	58	0/000	7/71
5	Weaknesses in providing in-service trainings for the professors	3/6780	1/75618	0/778	58	0/000	5/86
6	Weakness in persuading the professors to propose virtual specialized majors	3/8644	1/16645	2/400	58	0/000	7/20
7	Inability of virtual section in attracting qualified professors[3]	4/3220	1/59136	3/968	58	0/000	8/78
8	Poor interaction of the virtual section with faculties[1]	4/6102	2/68468	4/195	58	0/000	9/11
9	Limited involvement of the teachers and department heads in decision-making	4/2712	1/50666	3/932	58	0/000	8/71
10	Focus of decision-making on the virtual section[3]	4/5417	2/07270	3/482	47	0/000	8/78
11	Poor material and spiritual possession law[2]	4/5085	1/69556	4/569	58	0/000	8/84
12	Lack of educational regulations corresponding to the present methods	4/5932	2/19025	3/834	58	0/000	7/73
13	Separation of virtual educations from education departments	4/0417	1/41359	2/655	47	0/000	7/98
14	low clarity of the present rules and regulation in the virtual section	4/5000	1/79834	3/853	47	0/000	8/72
15	Poor informing about virtual education	4/0678	1/40030	3/115	58	0/000	8/23

*the numbers next to each question (1, 2, and 3) show the rank of each question.

The results in Table 6 show that in the questionnaire related to barriers upon development of virtual majors in organizational conditions, the calculated t for item 1 is lower than average, for item 5 it is at average level and for the rest of the items it is significantly higher than average level. The highest ranking means are related to 8, 11, 7, 10 respectively.

The fourth question: How is priority importance of the three areas of physical resources, human resources, and organizational conditions in development of virtual education at the University of Isfahan viewed by the professors of the technical and engineering majors?

Accordingly, Friedman Test was used to rank the factors.

Table 7: ranking mean of three areas of physical resources, human resources and organizational conditions in virtual education at the University of Isfahan, Technical and Engineering Faculty

Factors	Mean	Mean of ranking
Physical equipments and resources	3/85	1/94
Human resources	3/63	1/54
Organizational conditions	4/19	2/52

The results of Table 7 related to the ranking mean of the dimensions reveal that the highest ranking is allocated to organizational conditions while the lowest ranking is given to human resources.

Table 8: Friedman's test in Technical and Engineering Faculty

Chi-square value	23/292
The degree of freedom	2
Level of significance	0/001

The results of Table 8 show that the obtained results between the importance ranking set of three areas of physical resources, human resources and organizational conditions in virtual education in the University of Isfahan at the level of $p<0.01$ are significant (chi-square value is 23.292). Therefore, the research question in that there is significant difference between the scores of the importance of the three areas of physical resources, human resources, and organizational conditions in virtual education of the University of Isfahan is confirmed.

4. Conclusion

As it was observed in Table 2, the highest ranking means are related to late payment of salary to the professors and assistants, lack of laboratories and workshops, and limitations in virtual libraries respectively. In the interviews, barriers are generally matched with the questionnaires and in ranking with the late payments to the professors and assistants are also matched and in terms of the interviews, the barriers in order of importance include: poor interaction between the professors and students due to inappropriate software programs, inappropriate software and hardware facilities which need to be promoted, late payment to the professors and assistants, and not using interactive software programs but using the elementary ones. The reason regarding late payments could be due to the fact that his problem is existed both in the virtual section and education departments of the university and professors in the educational departments usually are not satisfied in this regard. Regarding lack of libraries and workshops, an interviewee stated that "because of existence of laboratories, the engineering majors are difficult to be proposed in virtual system". About virtual libraries, various problems could be seen in the education departments, too, and students often have problems in finding internet materials. This problem has also been observed in the virtual section. The utilized software programs in virtual section have less interactive capability; therefore, they have not been efficient in providing appropriate interactions.

The achieved results have been similar to the studies conducted by Shea et al. (2005) on technical problems and insufficiency in awards and encouragements, as well as similar to the results of Panda & Mishra's (2007) study on lack of technical support.

Table 4 indicate that the highest ranking means are related to the workload of the professors in the present education section and other university positions, management with inadequate expertise regarding virtual education, and low flexibility in management, respectively. These results are generally in line with the results of the interviews as well as with the workload of the professors in the ranking part. In the interviews, the most important cases were: lack of motivation and lack of cooperation of the professors to propose virtual majors, inability and lack of expertise of the professors to teach in virtual forms and to work with virtual software programs, lack of authority of the professors in holding the courses and proposing the courses by specialists and assistants in the virtual section, lack of students' interest and cooperation, short of time and load of work for the professors, need in attracting professors and specialists, and concentrated decision-making in management section.

About high workload of the professors, we can mention different responsibilities such as teaching, advising the students, managing positions, and vice-presidencies. These responsibilities make them refuse to be involved in a new job. To solve this problem, one of the interviewees has mentioned that "the process of

attracting professors is very slow". Therefore, this is another problem which causes increase in professors' workload.

The present results have been in line with the results of the study of Shea et al. about authority of the professors in proposing education and a report given by a group of Canada's universities on barriers to virtual education (2012), revealing that shortage of expertise and resistance of the department members are the most important barriers. The same results were obtained by Abdollahi et al. (2010) in that the main problem in development of virtual education is resistance of the professors.

The results of Table 6 indicate that the highest ranking means are respectively related to poor interaction between the virtual section with departments and faculties of the university, weak material and spiritual possession rules for professors to produce contents in the departments, inability of the virtual section in attracting the qualified professors and concentrating the decision-making process on the virtual section. In general, these results were in line with the results of the interviews. Also they were similar to the ranks in weakness of interactions of the virtual education with faculties and departments of the university. According to the interviews, the most important barriers include: lack of appropriate and certain rules, the need to establish educational council and creating interaction with departments and using their abilities, lack of assessing the needs in strategic planning, quantity orientation and novelty of virtual education, and also lack of complete institutionalization.

It seems that the weakness of the interaction is due to the fact that the virtual section has embarked on establishing and developing the majors without asking for the department members' opinions and this problem has made the faculty members to be unsatisfied.

The present results have been in line with the result of the study conducted by Shea et al. (2005) in that one of the most important barriers is the problem of possession of the periods and courses.

The results of the Tables 7 & 8 show that there is significant difference between the set of scores about importance of the three areas of physical resources, human resources, and organizational conditions in virtual education in the University of Isfahan from viewpoint of the professors of the technical and engineering majors. The highest rank is related to the organization condition and the lowest one related to human resources. In a report provided by a group of the universities in Canada, the organizational and systematic barriers were considered to be among the most important problems. As it was clear, from the viewpoints of the managers, professors, and experts of the technical and engineering majors, most of the problems were related to the organizational conditions.

According to the findings achieved from the results, in the area of physical resources, it is recommended that the university authorities should provide the material and spiritual resources for the responsible people at virtual section to improve software and hardware facilities and purchase the required equipment. To create interactive education, it is recommended that experts use interactive and simulator software programs in preparing the site and virtual education network. Also, usage of smart software programs could be useful. In order to increase the motivation of the professors, the necessary fund for payment should be supplied in proper time. For some laboratory and workshop courses, it is better to have present education and also to use laboratories and workshops of the faculty's education departments. To strengthen the virtual libraries, the Ministry, and also the virtual section need to make E-books from the written books and put them in university and journals and sites. Also it is possible to prepare the theses, journals, and books present in the library of the technical and engineering faculty as electronic form and to give them to the students of the virtual section.

Based in the results, in the area of human resources, it is suggested that the works should be divided to the professors with less responsibilities and new and expert department members be attracted so that high workload of the professors and their university responsibilities be reduced. To meet the professors' needs, it could be useful to propose in-service trainings.

Regarding the results in the area of organizational conditions, it is suggested to have meetings with professors and the University's authorities in order to illustrate the importance of the development of virtual education, to establish planning council made of the professors of the technical and engineering majors, legislating the necessary rules, to carry out need-assessing programs, quality improvement, validity, and strategic planning by the planning council in constituted in the virtual section.

Finally, according to the results of prioritizing the importance of the barriers in the areas, for making virtual majors in technical and engineering majors in the University of Isfahan, it is suggested, at first, to remove the organizational barriers, then the physical ones and finally the human resources.

5. References

Omu'I Milan Ghashghagh. &Mansoor, Mehdinejad, Vali. &Ya'ghubi, Noormohammad (2011). Study of the effective factors in inclination of the department members in using electronic learning systems. Media electronic learning journal, (3) 2, 28-38.

Javdani, Hamid. (2009). Globalization and higher education, the gap between theory and practice: modern

strategies for developing Iran higher education. Quarterly of research and planning in higher education. 53: 107-131.

Hoseini-e Lorgani, SeyedehMAryam. &MirarabRazi, Reza. &Rezaie, Sa'id. (2008). An investigation on the obstacles to the development of electronic education in Iran education system. Journal of management and planning in educational systems. 1: 47-59/

Rahimi, Mehrak. &Yadollahi, Samaneh (2011). The relation of computer anxiety of the high school students with major, gender, and improvement in english language course, Educational innovations. 10: 51-73.

Zamani, BibiEshrat. &Madani, Seyed Ahmad. (2011). Strategies of increasing efficiency and effectiveness of the professors in virtual educations. Media electronic learning jornal. (3) 2. 39-50.

Sa'id, Nasim. &Zarabian, Foruzan. &Mehrabi, Manoosh. &Alipoor Ahmad (2011). Investigating and comparing the general self-efficacy among the conventional and distance students of Kerman province. Media electronic learning jornal. (2) 2: 17-22.

SeyedAbbaszadeh, Mirmohammad. (2001). Practical methods opf research in humanities. Orumyyeh: Orumyyeh University.

Aref, Aliakbar. &Moti' Birjandi, Aliakbar. &DamankhorshidAlireza (1390). Application of software in education of electrical power engineering. Scientific-research journal of education. 2: 121-128.

Abdollahi, Seyed Majid. &Zamani, BibiEshrat. &Ebrahimzadeh, Isa. &Zare', Hosein. &Zandi, Bahman (2010). Proposing a conceptual model for investigating the main worries and inhibitors of the professors participation in virtual education. Media electronic learning jornal. (2) 1: 2-9.

Farajollahi, Mehran. &Zarifsanaye'iNahid. (2009). Education based on information technology and communication in higher education. Quarterly journal of education strategies. 167: 171-174.

Fazlalizadeh, Reza. &Aghazadeh, Ahmad. &Ahghar, Ghodsi. (2012). Comparative analysis of distance higher education in England. India and Iran. Research in course planning. 5, 32: 28-48.

Kia, Aliasghar (2009). An introduction to virtual (electronic) education. Ketab-e Mah of social sciences. 24: 82-89.

Mosallajejad, Leila. &SobhanianSa'id. (2008). Investigating critical thinking among the virtual and traditional students of computer science. Development steps in medical education .the journal of the center of medical education development and systems. 2: 127- 134.

Montazer, Gholam'ali. &Dayani, Mohammadhosein. (2003). Virtual university. The quarterly of librarianship and informing. 6: 1-10.

Mani'I, Reza. (2004). Development of distance education in higher eduation system (opportunities and challenges). Rahyaft quarterly. 83: 43-52.

Shiva, Yari. (2011). Reviewing the informative literary texts in Iran. Librarianship and information quarterly. 1: 185-219.

Russell, T. L. 1999. *The no significant difference phenomenon.* Chapel Hill: Office of Instructional Telecommunications, University of North Carolina.

Shea, P., Li, C., & Pickett, A. 2005. Increasing access to higher education: A study of the diffusion of online teaching among 913 college faculty. *International Review of Research in Open and Distance Learning* 6,(2), 2-27.

Panda, S, Mishra, S. 2007. E-Learning in a Mega OpenUniversity: Faculty attitude, barriers and motivators, *Educational Media International*. 44, (4), 323–338.

CVU. 2012. A consortium of Canadian universities collaborating in online university education.*OnlineUniversity Education in Canada: Challenges and Opportunities*. This report was funded by Human Resources and Skills Development Canada, Updated January:
http://www.cvuuvc.ca/Online%20University%20Education%20%20jan17%202012.pdf

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Academic conference: http://www.iiste.org/conference/upcoming-conferences-call-for-paper/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar