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Original Article

Identify and analyze the macro requirements of online education in higher education with emphasis on the corona pandemic effect

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Abstract

The purpose of this study was to identify and analyze the macro requirements of online education with emphasis on the corona pandemic. The method of this research is both qualitative and quantitative. To conduct this research, in addition to the documentary study, the content analysis technique with MAXQDA12 software was used to identify the dimensions and indicators and to determine the share of each factor, the confirmatory factor analysis method of smart pls3 software was used. The statistical qualitative population in this study was among all experts in the field of educational management and governmental and higher education, which was conducted after 17 saturated interviews. In the quantitative section, all faculty members of Tehran universities were selected according to Morgan's table, which 353 samples were selected by simple random method. Eventually, 7 dimensions and 41 indicators were identified. The structural equation method of smartpls3 software was used to draw the pattern. The results showed that the dimensions of Social and cultural requirements (0.874), Infrastructure requirements (0.872), Educational and research requirements (0.796), Policy and strategic requirements (0.791), Financial and economic requirements (0.779), Legal requirements (0.779) and Managerial and organizational requirements (0.694), have the most important roles in the macro requirements of online education based on the Corona pandemic.

Keywords

Macro requirements of online education, Coronavirus pandemic, Higher education

Introduction

Due to development of technology and information, the society expects the higher education system to be more responsive and dynamic to the competitive and developing global economy. In such an age, considering the widespread demand for higher education, governments alone are unable to finance and fulfill the growing demands. In order, higher education considered as a key factor in achieving sustainable development; such as democratization, liberalization, decentralization, and privatization should be used as a key policy requirements to improve standards and quality in this sector [1]. Recent world is experiencing profound structural changes, one of the main axes of which is "life based on knowledge". The industrial society is evolving into an information society. In parallel with this phenomenon, rapid changes have taken place in the structure of higher education in the world arena [2]. One of the major features of this changing in the higher education industry is approaching its content to the commercial activities of businesses because of the belief in the profitability of higher education

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in 21st century society. In a knowledge-based economy, the development system is deeply knowledge-based, and the higher education sector in such an economy has become a determining and leading sector [3]. Also, in difficult situation of the society when it is not possible to attend in classes (such as the Corona virus), higher education determines the future of the country [4]. The coronavirus has spread in many countries around the world and has killed many people. The Secretary-General of the World Health Organization has announced that "Covid 19" has reached the global epidemic level and thousands people have been infected with this virus and have died due to this disease, the outbreak of coronavirus began in Wuhan of China, with a population of approximately 9 million, by the spread of the corona, schools and universities in the countries affected by the disease were closed and everyone began to provide distance education; Internet, smartphones, laptops and computers became important tools for establishing classes in schools and universities; through which education was provided to students in Iran. Iran has designed and implemented various scenarios to improve the situation of home education, including teaching lessons through the TV education network, preparing educational CDs, and compiling textbooks. Education system and universities did their best not to deprive students of the necessary education, but the lack of infrastructure in some areas, especially rural areas, as well as the low level of income of some groups, especially in the suburbs, caused this educational cycle not done completely [5]. The most central requirements of academic institutions are, first of all, improving the quality of teaching and learning. Thus, evaluation programs are necessarily an important part of their activities. In order to ensure the quality of learning and determine the amount of what they have learned in traditional education, various methods are used. However, in the current situation, due to the prevalence of coronavirus, education is out of the traditional mode and is mainly provided on the Internet and in cyberspace and electronically [6]. This led us to answer the question of whether the Corona pandemic has affected the requirements of online education and whether the requirements of online education have changed significantly since the corona outbreak. In this regard, two questions were raised: 1- What are the dimensions and indicators of online education requirements in the context of the Corona pandemic? 2. What is the role of these requirements in online education?

Rezaei (2020) in a study entitled "Evaluation of student learning during the corona: challenges and solutions" examined the performance of students and graduates of the of corona virus period, the results showed that the most important evaluation methods that students have learned during the outbreak of coronavirus (virtual education) include face-to-face exams (with the permission of the relevant authorities), virtual written exams, virtual verbal exams, verbal questions and answers, virtual presentations, electronic portfolio and multiple evaluation (combined). Molaei Gholanji (2020) in a study entitled "Study of the challenges of virtual education and corona" investigated the challenges and problems of cyberspace teaching in the days of the corona virus from the perspective of teachers with a proper understanding of the effects and benefits of electronic media and their place in the educational system, it can be hoped that with the help of such media and the creation of electronic environments, the limitations of teaching and learning will be removed and the student can cope with the wide range of similar people and contribute significantly to the development of virtual, communication and interactive spaces by sharing information. It should also be remembered that such media have been able to influence the rate and speed of learning and make the learning environment more attractive than before and make the student active and involved in the teaching and learning process. Sukendro et al. (2020) in a study entitled "Using an Advanced Technology Acceptance Model to Understand Students' Use of E-Learning during Covid19" examined the impact of coronavirus on technology and its acceptance, which showed that there is a significant relationship between technology and prevalence, it means that the greater the corona epidemic, the more interested students are in using technology, and the easier it is to use

technology, the more willing they are to use it. Zheng et al. (2020) in a study entitled " Digital Higher Education COVID 19: Investigating the Impact of Active Personality on Social Capital through Internet Self-Efficacy and the Quality of Online Interaction" examined the impact of digital education on personality and social capital and the results showed that students with active personalities when using online education have the ability to strengthen more internal social capital than introverted students.

Methodology

This study is a mixed method study (qualitative and quantitative). In the qualitative stage, using semi-structured interviews, the primary components were identified through content analysis. The participants in the research are experts in the field of educational management, higher education management, governmental management who have written articles and books in the field of policies and online education. Inclusion criteria were experts with at least three years of experience working at the university in the field of higher education, specialists with at least a doctorate in educational management and higher education management. The sampling method was also purposeful. According to Tashakkori and teddlie (9) in this sampling method, cases are selected non-randomly and completely purposefully, in the qualitative part, 17 experts participated in this study. The qualitative content analysis process was used to determine the most important requirements of online education. Data collection method for collecting quantitative data, was a 5-point Likert scale questionnaire (from a very suitable option to not suitable at all). 353 faculty members (Azad and public) were selected by using a simple random method (due Corona epidemic the researcher did not have the freedom to choose the sample in a systematic and stratified manner).

Results and discussion

Question 1: What are the major requirements of online education in higher education based on the Corona pandemic?

To answer this question, 17 interviews were conducted with experts in human resource management, public administration, and education management and higher education with semi-structured questions. Finally, in this process, 221 primary codes were extracted. By multiple revisions and integration of codes based on similarity and in several stages, 7 main themes (many of which were obtained in the research literature section) and finally 41 indicators (according to Table 1) were extracted.

Table1. Dimensions and indicators of online education requirements based on Corona pandemic

Basic codes below them	Organizing and comprehensive codes
Dimensions and indicators of online education requirements based on pandemic of corona	
Policy and strategic requirements	
1- Stability in policy implementation	
2- Incentive policies to become a virtual university	
3- Support of decision-making executive bodies	
4- Coordination in different parts of the government	
5- Emphasis on privatization in macro programs	
6- Belief of managers and professors in the role of virtual teaching in higher education	
7- Development of land-based and regional planning-based privatization	
8- Lack of influence of this process from political considerations	
9- Coordination with the anti-epidemic Headquarters (Covid 19)	

Legal requirements
1- Recognition of virtual education legally 2- Develop clear rules to develop this process 3- Codification of transparent work laws and description of specific duties 4- Formulation of transparent investment laws in this period (Covid 19) 5- Codification of laws with the participation of beneficiaries 6- Flexibility of rules
Financial and economic requirements
1- Lending to develop the necessary facilities during the epidemic and quarantine period 2- Government financial support to the private sector during the epidemic and quarantine 3- Granting research credits during the epidemic and quarantine period 4- Granting subsidies in paying current expenses 5- Granting loans and scholarships to students
Infrastructure requirements
1- Development of technology sector (equipment and supplies) 2- Preparing faculty members and managers to use the equipment 3- Granting internet bandwidth to facilitate the use of virtual classes 4- Giving equipment to professors and students who are not able to provide the necessary facilities. 5- Educating students to use cyberspace 6- Allowing the use of internet facilities of public libraries individually in compliance with health protocols 7- Granting funds for the development of the Internet and digital libraries
Managerial and organizational requirements
1- Determining specific quality indicators to measure the performance of universities during the epidemic 2- Development of office automation 3- Government supervision through quality assurance and accreditation mechanism 4- Providing the necessary technical information 5- Evaluating policies and comparing achievements and eliminating shortcomings
Social and cultural requirements
1- Informing and gaining public trust in using this method during the Covid19 epidemic 2- Participation of beneficiaries in the planning and development of this process 3- Credibility training of the quality of virtual education during the Covid 19 epidemic through radio and television
Educational and research requirements
1- Freedom of action in selecting and attracting professors by universities 2- In-service training for using teaching techniques during the Covid19 epidemic 3- Educating deprived students in villages by experienced people during the Covid19 epidemic 4- Defining research projects in order to optimize education with the participation of students and professors virtually 5- Forming educational and research evaluation committees 6- Evaluating the performance of professors and students periodically
The total of extracted codes is 7 dimensions and 41 indicators

In continue, to confirm the validity and reliability of the components, structural equations (internal and external) were drawn, which showed that the final model with 5 dimensions and 41 indicators is approved. Below, each is discussed and interpreted separately.

External model (model for measuring macro requirements of online education based on Corona pandemic)

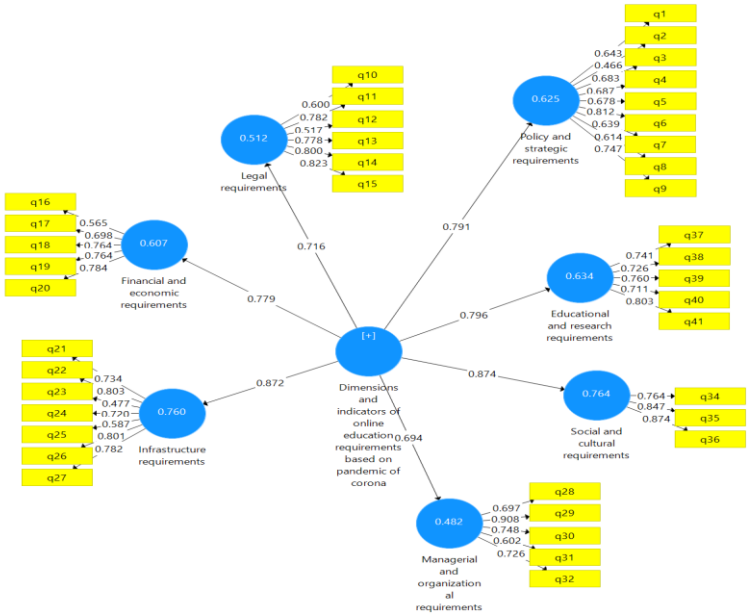

Figure 2. External model of partial least squares (model for measuring macro requirements of online education based on Corona pandemic)

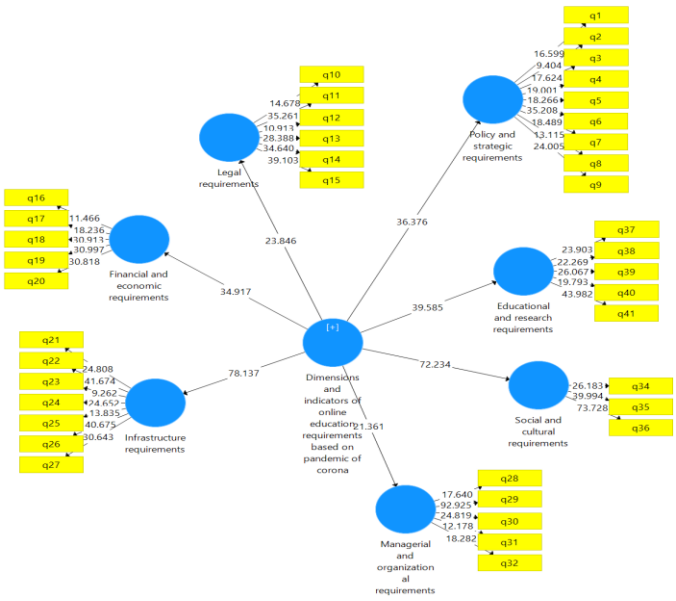

Figure 3 . Bootstraping amount of minor squares (model for measuring macro requirements of online education based on Corona pandemic)

According to Figures 2 and 3, it can be concluded that the final pattern is confirmed with factor loads above 0.3 and t-test above 1.96. The results and rank of each dimension are given in Table 2.

Table 2. Summary of results of confirmatory factor analysis tables of variable macro requirements of online education based on Corona pandemic

ranking	T statistics	Factor load	Macro-requirements variables of online education based on the Corona pandemic
4	36.37	0.791	Policy and strategic requirements
6	23.84	0.716	Legal requirements
5	34.91	0.779	Financial and economic requirements
2	78.13	0.872	Infrastructure requirements
7	21.36	0.694	Managerial and organizational requirements
1	72.23	0.874	Social and cultural requirements
3	39.58	0.796	Educational and research requirements

The results showed that the dimensions of Social and cultural requirements (0.874), Infrastructure requirements (0.872), Educational and research requirements (0.796), Policy and strategic requirements (0.791), Financial and economic requirements (0.779), Legal requirements (0.779) and Managerial and organizational requirements (0.694) are the most important in the macro requirements of online education based on the Corona pandemic, respectively.

Table 3. Indicators of fitness of model path analysis

Fitness indicators		Indicator name
Permissible limit	amount	
> 0.3	0.823	R^2
> 0.3	0.432	AVG
> 0.3	0.595	GOF

The results of Table 3 showed an acceptable fitness of the Corona-based online education requirements model in higher education.

Conclusion

In order to ensure the quality of learning and determine the amount of what they have learned in traditional education, various methods are used. But now, due to the outbreak of the coronavirus, many schools and universities have been forced to close their face-to-face activities and are now changing teaching methods to e-learning, especially online education. These conditions are clearly visible in Iran and other countries. In the United States, for example, Harvard University, Massachusetts, announced in a statement that all of its college and secondary school classes would hold virtually until further notice and students should not return to campus during the spring semester or beyond [6]. The University of Oxford, Oxford shire, UK has also announced in a statement that it has suspended its classes, but does not think online education is effective, and that teaching and learning is pursued online whenever possible. The university will likely replace its summer exams with online assessments. The University of Toronto, Canada, has also announced that all classes and face-to-face exams at the university will be canceled from March 16 until the end of spring, and that education will be provided by alternative methods. Also, all university events have been canceled until April 30. According to the results of scientific research by the QS Institute, it was found that almost half of the world's

educational classes have gone online in these conditions. A situation that has plagued many countries, leaving universities with no choice but to teach online [4]. Therefore, due to the prevalence of coronavirus and the need to prevent its spread by closing university classes in Iran, the issue of continuing teaching in universities was raised online. Online education and e-classes, which had not been considered in Iranian universities until now, are now in the spotlight. Simultaneously with these events, universities thought of launching virtual education systems for their students and promoted current semester classes in the context of virtual education systems. But what is important now is to discuss the requirements of online education based on the Corona pandemic. In order to achieve the objectives of the research, the qualitative research method was used and in order to analyze the collected information, the content analysis method was used. The study participants were "experts" who were selected using purposive sampling method and snowball method. Data collection was semi-structured interview method. In an interview, the person was asked what are the requirements for online education based on the Corona pandemic, given the prevalence of the Corona virus and the replacement of virtual education with face-to-face education? Finally, with the opinion of 353 faculty members who were randomly selected from public and Azad universities, the impact of each dimension was asked. Finally, 7 dimensions were identified for the requirements of online education at the macro level based on the Corona pandemic, which were: Policy and strategic requirements, legal requirements, financial and economic requirements, infrastructure requirements, managerial and organizational requirements, social and cultural requirements, and educational and research requirements, of which Social and cultural requirements were the most influential. The results of this study were in line with the results of Rezaei (4), Molaei Gholanji (6) Turani and Rostami (10) and Rostami (11). Suggestions can also be made in this regard: 1- Change in macro educational and research policies based on online education with the effect of Corona pandemic 2- Change in educational and research laws based on online education 3- In-service training of professors to get acquainted with various methods of online education during the corona epidemic.

References

[1] Akpotu, N. E., &Akpochafo, W. P. (2009). An Analysis of Factors Influencing The Upsurge Of Private Universities In Nigeria. J Socsci, 18(1), 21-27.
[2] Karimian, F., Rahmatzehi, KH. (2018). The Investigation Of Cyberspace Impact On Educational Progress Of Students. 11th International Conference Of Psychology And Social Sciences, Tehran.
[3] Salami, N., Shirsavar, H., Haghani, M., (2009). Recognition Of Dynamic-Static Factors Of Higher Education System In Iran. Higher Education Of Iran. 10(2), 89-110.
[4] Rezaei, A.M., (2020). Evaluation Of Student's Learnings In Corona Period: Challenges And Solutions. Educational Psychology Journal, 16(55), 179-214.
[5] Mirani Sargazi, N. Etal, (2020). Corona And Challenges Of Virtual Learning In Iran. 2nd Psychology, Educational Sciences, Social Sciences And Counseling Conference. Italy.
[6] Molaei Gholangi, Y. (2020). Investigation Of Challenges Of Virtual Learning And Corona. Psychology And Educational Sciences Studies, Summer, No.50, 191-206.
[7] Sukendro, S., Habibi, A., Khaeruddin, K., Indrayana, B., Syahruddin, S., Makadada, F. A., & Hakim, H. (2020). Using An Extended Technology Acceptance Model To Understand Students' Use Of E-Learning During Covid-19: Indonesian Sport Science Education Context. Heliyon, 6(11), E05410.
[8] Zheng, F., Khan, N. A., & Hussain, S. (2020). The COVID 19 Pandemic And Digital Higher Education: Exploring The Impact Of Proactive Personality On Social Capital Through Internet Self-Efficacy And Online Interaction Quality. Children And Youth Services Review, 105694.

[9] Tashakkori, A. & Teddlie, C. (2003). Handbook Of Mixed Methods In Social &
[10] Behavioral Research. Thousand Oaks: Sage.
[11] Toorani, Z. Rostami, Z. (2018). Cyber Space Potentials For Education And Training In Education System. 9th Conference Of Iran Education And Training Philosophy Association. Cyberspace And Training Philosophy.
[12] Rostami, SH. (2018). Cyber Space Potentials For Education And Training In Education System. 9th Conference Of Iran Education And Training Philosophy Association. Zahedan. Sistan Baloochestan University.