

QUALITY IN VIRTUAL EDUCATION: THE QUALITY EVALUATION MODEL FOR EDUCATIONAL ACTIVITIES IN VIRTUAL INSTITUTIONS

Negin Barat Dastjerdi

dastjerdey@gmail.com

Abstract: This study investigated to presents a conceptual model to evaluation of elements and components in the educational activities in virtual institutions. For this purpose, the previous studies and proposed framework proposed by researchers and experts in the field of virtual education were examined then were identified based on elements of virtual education. Among the proposed models ,the framework by Khan(2005) chosen as the base model because of greater compatibility with cultural, social and educational conditions in Iran .so, the basic model in the form of 8 main factors were presented as (institutional, management, instructional, pedagogical, resource support, ethical considerations and evaluation factor) and 35 sub-components. The primary model has given to 200 outstanding teachers who were in virtual education and their views was measured about the main components and sub-components of each of the eight factors .based on the empirical finding, the conceptual model to evaluation of educational activities in virtual university of Iran design and confirmed.

Keywords: Evaluation, quality, virtual education, Model, institution.

Introduction

The purpose of virtual training is to provide the possibility of free and equal access in different courses and create a uniform learning environment for different groups .The virtual training is a kind of non-verbal form of education in which the web, electronic course content and learning management software is used to perform the learning process. Learning through virtual space is one of the new methods of ICT-based education that can cause the change on all forms of education and learning in the 21st century and end to the challenging of the social demand rate for education and the lack of adequate educational resources (Mills, 2009,p.23).Experts believe that there different learning paradigms ,it is necessary to measure the level of learning by learners used the methods and tools by each paradigm and assessment methods should be used in virtual training that is commensurate with the nature of this type of training and the environment because there are many factors that complicate the structure of virtual training for teachers and learners (Liang & Krizi, 2004,p.4)

Hence many universities and educational institutions around the world regarded to design and deliver programs and e-learning courses to meet the growing demand for training enthusiasts .(Betts,2009,p.23).For this reason, it has begun the design of the evaluation system for virtual education by many instructional designers and IT professionals in recent years (Magalahaes & schiel, 1997,p.76).

Therefore, as the development of virtual education at the university level become more important subject of evaluation and quality assurance Teaching - Learning Process and the need to meet and influential in the educational process (Clark, 1994,pp.64-71).Evaluation is a process that there would be analyzed and interpreted within it which is about a phenomenon or collected data. Then, judgment is made based on that interpretation. It must be careful to chosen samples and study tools in order to collect information on the evaluation process. The data collected will be analyzed by using qualitative or quantitative methods so that we can judge the worth or importance of a phenomenon .So, the educational evaluation is a process that admitted to the judge and to improve their quality or provide correction by gathering information about the features of the educational system (inputs, processes and outputs and their the requirements and standards for the design, development and implementation of e-learning in higher education because any assessment and evaluation considered as the fixed part and parcel of the educational system among the activities main objectives are the comparison of one program with other programs, the improvement of the current program and determine its efficiency and effectiveness (Bazargan, 2001,pp.365-372)

Up to now, different approaches to the evaluation of virtual training and e-learning programs have been carried out by experts that their certain aspects and components of the educational process in virtual environments have been placed under evaluation such as studies by Hughes & Attwell, 2007 that provided a framework for the evaluation of e-learning which were considered variables such as learning, learning environment and technology underlying factors and educational variables.

Trowler (1998) regarded components such as suitable design for learning, curriculum standards, and compliance with standards of quality of content and how to organize it, use of backup resources of learners, web design and provide resources for supporting teacher for the quality of virtual education

Synnytsya & provinsky (2004) in order to assess the quality of courses, virtual learning objectives of the course regarded to the needs of professionals and teachers, the target audience, learning environment (directories, utilities tools, evaluation and feedback) and learning resources .

Elissavet & economides (2003) paid attention to the quality of technology and learning tools in shaping the content of training and interaction between teacher and learner .They believed that assessing the quality of virtual education is a function of the quality of the four elements of content, design factors, updating and technical support and technological tools.

Southern regional education boards (2006) in order to help develop and validate continuous learning have been set a framework for evaluating the quality of e-learning courses. In this context, the role of technology in shaping the quality of the elements is important .Based on this framework, the architectural design of the course, how users interact, meet the technological needs of learners ,ability to access and technological support is a prerequisite for quality improvement of other elements of the course.

According to the idea of lanzilotti & ardito & costabile (2006) to assess the quality of education in terms of quality electronic should be considered to four main factors of technology, interactivity, content and services and their constituent factors. Technological factors as the most important factor consist of the ease of access, the use of high technology, compatibility with various operating systems functions, and access to software and hardware system integration technology. The interaction components consist of attention to how provide educational materials, tools, services and activities to encourage interaction between learners and teachers. The content refers to the appropriateness of the quality education plans, strategies and development of learner-centered educational process. Self-assessment tools, support services, access to search engines and ease of use of tools is concerned and services factor is concerned to develop new tools and features continuous support of learning, communication tools, self-assessment tools, support services, access to search engines and ease of use of tools.

Hao & borich (2010) presented a model to evaluate e-learning courses by using a comprehensive systems approach .According to this model to evaluate e-learning environment should be assess inputs, activities and outputs or transactions. Inputs are electronic learning environment learners, teachers, and technology tools .The characteristics of stakeholders (including the characteristics of learners, educators, technologists, and managers) factors related to the period (such as finance) and environmental factors are created such as infrastructure, technical and cultural issues such as adherence or non-adherence to copyright law restrictions on transactions and activities. These limitations include the learner's readiness to enter the electronic periods, the readiness of the teacher to teach in a virtual environment - organizational , technical and pedagogical support and Virtual Learning Environment outputs based on this model involves the acquisition of knowledge and skills by learning, mental models for interpreting new information and high-level intellectual skills.

Seok & Meyen (2006) elements of teaching effectiveness, effectiveness of learning - engaging, design teaching, information resources, evaluation and IT support as indicators that should be considered when evaluating e-learning, were expressed.

There have seen the development of virtual education in our higher education institutions in recent years in Iran and higher education institutions and universities have started investments in the field of virtual education and several studies on the factors influencing the implementation of virtual training courses have been conducted, but unfortunately due to initial concerns such as infrastructure and technology, designing courses and educational content less attention has been paid to the issue of virtual training courses. Since e-learning and virtual education is in most countries, especially new and emerging third world countries and has not been given practical and widespread use of this training method. So, the use of this type of education as well as other emerging technologies in developing countries such as Iran faced with some uncertainties and challenges and only through a rigorous evaluation system and regular can be identified complex problems associated with this type of learning.(Montazer, 2007, pp.1-25).However, due to the lack of a comprehensive framework and tools for evaluation of Iran's virtual education, it is necessary to develop evaluation criteria that is based on scientific and valid standards and this matter reveals the importance of addressing the issue of evaluating and developing a comprehensive model for evaluating the educational processes in institutions where offering this type of training in Iran. One of the most important challenges in evaluating virtual learning system is multiplicity of factors ,variables and various categories in this field that from different views and the different situations and cultural

factors has been the aim of this study that is done by reviewing earlier studies based on models of e-learning as well as some indicators by researchers, experts and successful cases of host universities of this type of education in virtual learning to identify the constituent elements of infrastructure and present the basic principles of component-based framework for evaluating learning in primary and secondary schools and institutions .So, regarding the different perspectives and approaches , the electronic evaluation will be presented as initial conceptual framework and will be evaluated from the views of virtual model experts and also will be proposed an appropriate statistical methods and validate it. Thus, the main question of this study is that what are the main components and sub-components of quality evaluation of virtual education?

Virtual Evaluation Models

Although e-learning growth accelerated by the development of networks, knowledge about the effectiveness of this new approach to education is limited due to lack of scientific evaluation .By reviewing performed literature review in different countries, the researchers introduce some of the terms used in the evaluations that are summarized in Table 1.

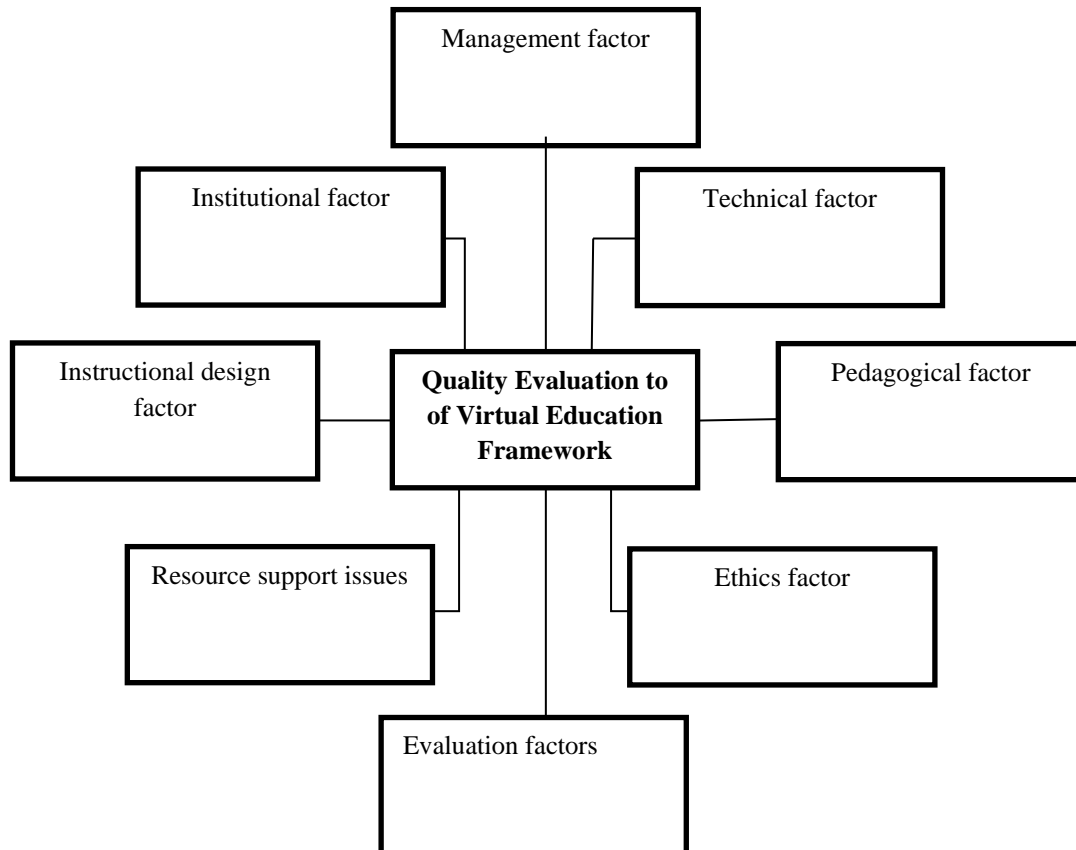
Table 1.Virtual Evaluation Models

Model Provider	Factors and Virtual Education Components
Higher Education Policy Institute,2000	Organizational support, Development course, Teaching – Learning process, Student support, teachers Support, Assessment and evaluation
Khan, 2005	institutional, management, instructional design factor, technological, pedagogical, resource support, ethical considerations and evaluation factor
Gavind Osami, 2002	Organizational support, Development course, Teaching and learning, Course structure, Student support, teachers Support, Assessment and evaluation
Ferzen, 2005	Organizational factors, Technology factors, Factors related to teacher, Factors related to learning, Instructional Design factors,pedagogical factors
Shao, 2006	Organizational support, Course development and instructional design, Teaching and learning, Resources and structure of the course, Support students and teachers, Assessment and evaluation, Use of technology, Products and services E-learning
Oliver, 2001	teacher expertise ,student readiness ,faculty support ,student support ,evaluation ,evaluation and assessment
Insung Jung, 2010	Interaction, staff support ,institutional mechanism ,institution credibility, learner support, information and publicity ,learning tasks
Mc Gorry, 2003	Flexibility, responsiveness and support, learning participation , interaction, usefulness case of use technology, overall satisfaction
Zaho, 2003	Course effectiveness, adequacy of access, interns of technology infrastructure, student satisfaction, institutional factors, technology factors, lecture factors, student factors, pedagogical factors
Husson, Moretti & Pawlowski, 2006	Course delivery services (student support, staff support) ,curriculum design, management (institutional strategies)
Masoumi , 2012	Institutional factor, technological factor, instructional design factor, evaluation factor, pedagogical factor, student support, faculty support & Lindstrom

As previously mentioned, evaluation process of virtual education systems depends on a variety of factors and variables, so this study aims to examine previous studies and based on the experience of successful models of

learning and universities and agencies that provide this type of conceptual model would be present an essential element for evaluating the quality of the components and provide virtual training. Therefore, the proposed evaluation frameworks in this area mentioned in Table 1 were studied. After reviewing numerous existing models of research and interviews with experts in the field of virtual education and also with regard to socio-cultural - educational and technology in Iran Khan model 2001 chosen as the theoretical framework and based on the components of this model was presented the elements of the original research. Then, the presented model from assessed by the experts of virtualization education and validate it. Finally, the proposed model to evaluate virtual education in universities offering this type of training was introduced in the country.

Figure 1. Initial Framework of Evaluation in Virtual Education based on the Proposed Model by Khan 2005



The evaluation of virtual education model is constructed on two levels, including “factors” and “sub factors” (i.e. best practice), which characterize and exemplify the sub-factors and factors. For further elaboration, these factors and sub-factors are briefly described based on their literature review. As pointed out, the framework is divided into eight main factors and 35 sub-factors. What follow is an outline of framework with underlying assumptions and a brief description of factors and sub-factors.

Describes the Components of the framework

Institutional Factor

This factor concerns how well the virtual institutions pursue their mission and goals and to what extent they take advantage of their diverse resources in terms of managing and organizing various recourses. (Berge, 2001; Khan, 2005; McKinnon, Walker, & Davis, 2000; Novak, 2002)

Management Factor

This factor refers to managing various stages of E-learning processes including planning, design, production, evaluation, delivery and maintenance. (Khan, 2005,p.43)

Resource support factor

This factor examines the online support and resources required to foster meaningful learning environment. (Fulcher & Lock 1999, p.313)

Technological Factor

This factor addresses technical infrastructures and assets that form the backbone of an e-learning entity. The technological infrastructure is viewed as the ensemble or 'web' of equipment, techniques, applications whose efficiency can be characterized in terms of availability and reliability, the adequate functionalities, usability and integration into the existing infrastructure (Guribye, 2005, p.10).

Instructional Design Factor

Instructional design is an iterative process that refers to the structuring and arranging of resources and procedures used to promote learning in an institution (Gagne', Wager, Goals, & Keller, 2005; Laurillard, 2002, p.54).

Pedagogical Factor

This factor, which addresses the process of learning and teaching in terms of how learning and teaching is carried out (communication, collaboration and interaction), is at the core of e-learning environments. Accordingly, the pedagogical factor is considered to be most critical when constructing a high quality e-learning. (Chickering & Ehrmann, 1996, p.22; Cohen & Ellis, 2004, p.51; Fresen, 2005, p.86; Marshall, 2006, p.19; Swedish National Agency of Higher Education, 2008; Volery & Lord, 2000, pp.216-223).

Ethical Factor

This factor consideration of E-learning related to social and political influence, cultural diversity, bias, geographical diversity, digital divided, etiquette and the legal issues. (Khan, 2005, p.119).

Evaluation Factor this factor centers on examining the effectiveness of the institution, program and course (how and to what extent learning objectives are met), as well as its cost effectiveness from both institutional and educational perspectives. It also addresses the immediate stakeholders' satisfaction (students and teachers) with and standpoints concerning the services constructed and received. (Barker & Wendel, 2001, p.51; Holsapple & Lee-Post, 2006, pp.67-85; Institution for Higher Education Policy, 2000; Khan, 2005, p.230; Moore, 2005, p.29).

Methodology:

In this research, some studies, e-learning models and some indicators presented by the researchers, this type of training in the analytical method - is considered descriptive around the world. Also according to back up for scientific models and their features and availability of their data has been identified the main elements of virtual training assessment. In the next step, due to validation by using the opinions of experts, Masters Managers and planners in the areas of information and communication technology, educational technology a, IT management and e-learning systems in higher education, the basic framework of the conceptual model was designed based on the factors and elements that have the greatest emphasis on their agreement. The participants included all experts, professors, professionals, managers and planners of virtual training who were working in higher education institutions in Iran. The purposive sampling method (based on their expertise in the field of virtualization) 200 of them were chosen as the model for validation.

The instrument for collecting data in this study was a questionnaire made by the researcher that made valid regarding the models in education Virtual education and interviews with experts and visits to the databases. To assess the validity of its content the questionnaire was laid to the 10 prominent scholars in the field of virtual education and they were asked to express their comments of final .The final questionnaire were made based on the model proposed in 8 main areas of management, training, design and education, ethical issues, technical issues, and pedagogical support services and 35 sub-components. In order to determine the reliability of the questionnaire, it was conducted on a sample group of 30 experts and the reliability was 87% for it the Cranach's alpha method. In the final step, after receiving the questionnaire to assess the appropriateness of the model structure of each component of the primary and secondary statistical analysis methods were calculated by using SPSS software and components that had more value were introduced as a key component of the proposed model.

Data analysis:

To investigate the structure factors of the proposed model, the correlation of each of the primary and secondary components was determined that the majority of them have had significant correlation. In addition, the calculation of many experts' opinions showed that in most of them the important components and sub-components of the proposed model evaluated as too high and high. It should be noted that few of the sub-components that have had no significant correlation or their importance was too low or too high was excluded from the proposed model. On the other hand, in order to calculate the reliability of the proposed model, the internal consistency of the main component was measured by using Cranach's alpha that their values are shown in Table 2.

All in all, it can be concluded that the proposed model framework for assessing the quality of virtual training in universities of Iran is appropriate from the perspective of experts.

Table 2. Cranach's alpha for Scales of 8 Factors of Virtual Education Model

Components	Number of item	Alfa
Institutional factor	3	%72
Instructional design factor	5	%71
Technology factor	3	%84
Pedagogical factor	8	%85
Management factor	3	%84
Resource Support factor	3	%91
Ethics factor	7	%91
Evaluation factor	3	%70

To establish the reliability of the scales for the factors and assess their internal consistency, Cornbrash's alpha was calculated. These evaluate how well the items of scale measure a single dimensional latent construct. A high value indicates that the items included in the scale can measure the same underlying structure and thus form a reliable factor. As shown in table 2 all components of present model high value of Cornbrash's Alfa.

We have tested every component of research model and have used Factor Analysis. Bartlett's test of sphericity finds out whether the correlation Matrix is in identity, indicating that the variables are unrelated .the significance test gives the result in very small values(less than 0.05.for our model it is 0.000),indicates a significant relationship among different variable. We have used Coefficient of KMO and Statistic's Bartlett's. The Bartlett's statistic is equal to 2436.676; showing significance at the 0.05 level. Further we have selected 8 components of evaluation of virtual education with Eigen value over 1, according to rotation Method (varmix with Kaiser Normalization). The varmix method indicates that the 8 components measure 0.66 of the total Variance.it shows 0.34 of variance related to components lesser than this couldn't measure with factor analysis.it is thus found that these components of research model are confirmed. Table 3 shows the components selected for research model.

Table 3. Rotated components matrix related to present model

Row	Factor	Component	Load
1	Institutional factor	Affairs academic	./558
		Administrative affairs	./648
		Student services	./729
2	Instructional design factor	Page and site design	./317
		content design	./564
		Navigation	./448
		Accessibility	./667
		Usability testing	./766
3	Technological factor	Software	./851
		Hardware	./753
		Infrastrucre planning	./572
4	Pedagogical factors	Content analysis	./566
		Audience analysis	./828
		Goal analysis	./768
		Media analysis	./761
		Design analysis	./593
		Organization	./850
		Instructional strategies	./760
		Blending strategies	./652
5	Management factor	People – process and product	./689
		Management team	./682
		Managing – E - learning	./796
6	Resource Support factor	Online support	./653
		Online resource	./596
		Offline resource	./666
7	ethics factor	Social and political influence	./706
		Cultural diversity	./774
		Learner diversity	./575
		Digital divide	./735
		Etiquette	./593
		Legal issues	./704
		Geographical diversity	./663
8	Evaluation factor	Evaluation of content	./656
		Development process	
		Evaluation of program and institutional levels	./720
		Evaluation of learners	./625

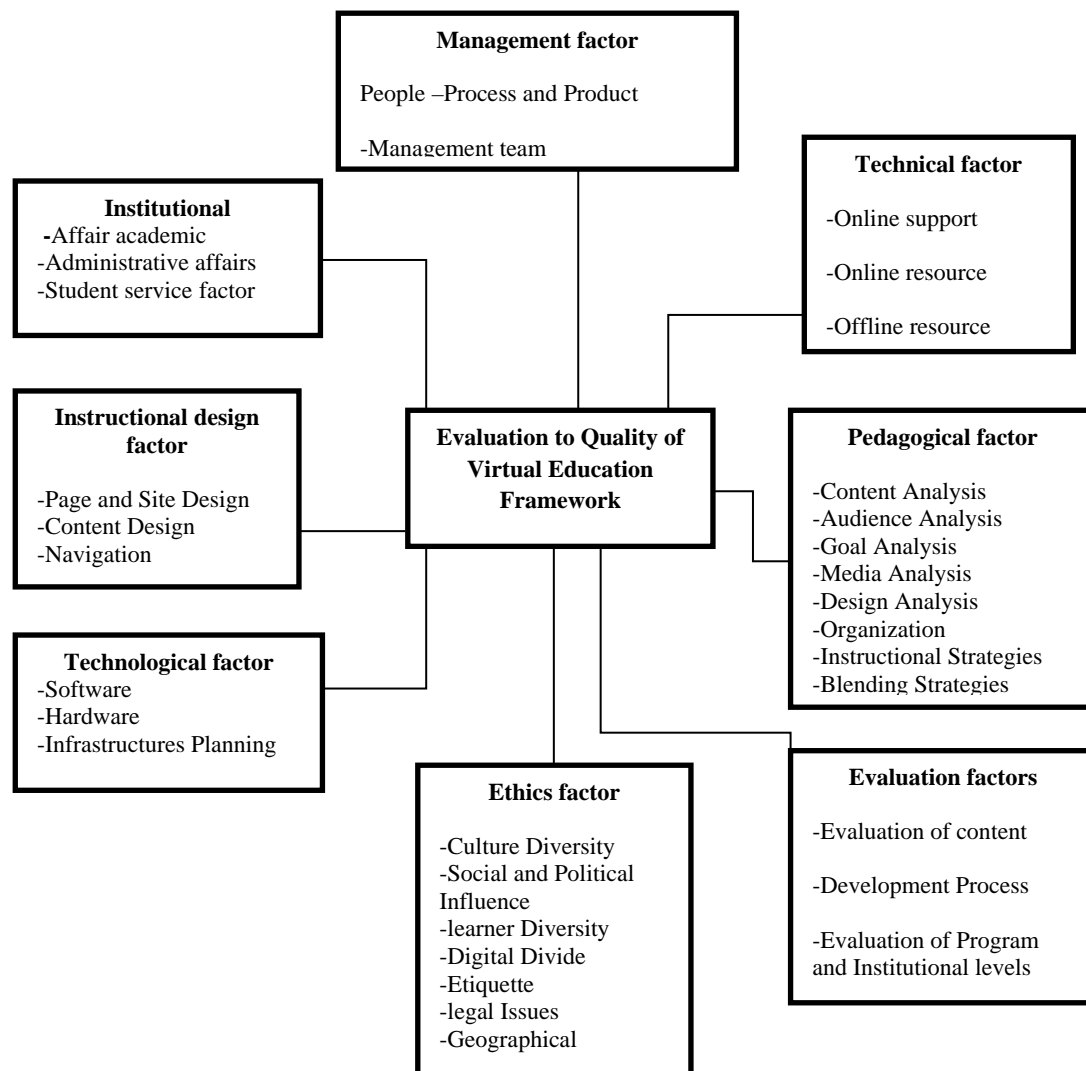
Table 4 indicates the factor Showed Pearson correlation is a measure of liner association between all components of the present model. The value of the correlation range from -1 to +1. The absolute value of the correlation indicate the strength with larger absolute values. Indication stronger relationship between each components of model.

Table 4. Correlation between 8 factors measuring evaluation of virtual education quality.

Factors	1	2	3	4	5	6	7
1	-						
2	./638**	-					
3	./648**	./815**	-				
4	./624**	./739**	./748**	-			
5	./605**	./532**	./627**	./637**	-		
6	./621**	./632**	./626**	./663**	./599**	-	
7	./595**	./504**	./511**	./609**	./603**	./478**	-
8	./490**	./539**	./627**	./671**	./590**	./634**	./590**

Based on the results of our study, the conceptual Model as it shown in figure 2 .It is evident from the figure that for evaluation of virtual education all the components drawn in research model related together.

Figure2. Amended Model to Evaluation of Virtual Education



Conclusion:

With the development of Internet and provide access to it, the virtual university are expanding in the field of education in the country. However, this growth was more quantitative and ensuring about their quality needs accurate and reliable assessment framework so that the assessor can be used this framework to help improve the quality of education in virtual universities. Therefore, in this study regarding the importance of quality assessment activities in virtual training, and some challenges in this regard, it has identified the need to design and provide a conceptual framework for evaluating virtual education universities in Iran. This study presents a conceptual model of elements and components that is discussed in the evaluation of virtual training. For this purpose, at first the previous studies and proposed framework proposed by researchers and experts in the field of virtual education were examined then were identified based on elements of virtual training. Among the proposed models ,the framework by Khan(2005) chosen as the base model because of greater compatibility with cultural, social and educational conditions in Iran and the researcher identified the components of the primary elements within the valuation model virtual training with the experts in this field and the basic model in the form of 8 main factors were presented as (institutional, management, instructional, pedagogical, resource support, ethical considerations and evaluation factor) and 35 sub-components.

In the next step, the primary model has given to 200 outstanding teachers who were in virtual education and their views was measured about the main components and sub-components of each of the eight factors and presented in the final evaluation of virtual training for agencies providing this type of education in Iran. The obtained conceptual model in this study provide the basis for designing and developing the final framework and appropriate means of evaluation activities in the virtual training and the existence of such a model in this field and use it to evaluate the quality of universities and higher education institutions providing this type of education in the country can help to do present and future plans effectively. The advantages of this model is that it includes all the elements of an effective virtual training system and that framework is the native framework and also is based on the conditions, characteristics and requirements of higher education in the Iran's cultural environment.

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