

## Providing a Model for Web-based Curriculum

Maryam Golshahi<sup>1</sup>, Javad Soleymanpour<sup>2</sup>

<sup>1</sup>M.A. Student of Curriculum Planning, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran

<sup>2</sup>Department of Curriculum Planning, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran

---

### ABSTRACT

The purpose of the present study is, producing a web-based model curriculum. The current study is a descriptive-analytic one and an applied study. The participants consisted of 308 teachers and 58 pedagogical experts from Lahijan, Iran. Having reviewed and investigated the previous studies and related theories, the items of the web-based instructional program were identified and elicited, then developed as a likert-based questionnaire entailing 72 questions. The validity and reliability of the questionnaire was determined and calculated by Cronbach's alpha coefficient ( $r=0.946$ ). Factor analysis was done for data analysis. Also the KMO (Kaiser-Meyer-Olkin measure of sampling) and Kroit Test were used for investigating the construct validity of the questionnaire. Factor analysis was conducted based on the analysis of the main components, the results revealed that, web-based model curriculum, contains 6 main components which can be modeled. These main components, totally, determine the 51.280% of the variance of variables. By circulation of the factorial matrix, simple structure of factorial such as "objectives", "content", "learning-teaching methods", "implication" and "evaluation" were termed. Due to these factors, a conceptual model for Web-based educational program designed, and then the proposed model was provided.

**KEYWORDS:** Educational program, Web, Model Curriculum.

---

### INTRODUCTION

Increasing use of newfound web-based technologies has made a remarkable change on the new era teaching approaches and methods. Electronic learning (E-learning) is one of the phenomena of modern world establish in information era in knowledge-based society having remarkable speed in its short history. The report of international commission of UNESCO under the title of "learning, inner wealth" gives the path of development in the twenty first century. Nowadays, education and learning have been accompanied by methods, instruments, and new communicative environments (UNESCO, 1998).

Electronic education entails various domains of education, particularly, Web-Based Training (WBT) (Fareghzadeh, 2008). Generally, web-based training is any educational program in which the educational procedure, information, and educational strategies are designed based on web (Tir, 2004). This education includes online synchronous and asynchronous models (Dehghani, 2007, p. 2). Tarkel says, "learners, because of being in the ever-changing environment caused by new technologies, should change". The environment has been integrated with technology and is utilized by general public (Emamjome, 2003). Multimedia environment provides an opportunity for learners in the web-based training to connect the internet everywhere, at any time to utilize educational materials. Learners can learn materials and subject matter due to their own speed and capabilities. One of the advantages of this method is that there is an ample time and opportunity to work on each learner.

Web-based training uses the elements with different formats such as text, video, voice, and animation, graphic and virtual or simulated environments for producing content. The elements of educational web-based program include objectives and needs, accessibility to learning materials and content educational material, determining and organizing of learning opportunities, teaching-learning methods, the quality of performance and evaluation. Individuals or groups such as policy makers, the minister of pedagogy, regional and provincial managers, teachers' council, parents and trainers association, educational policy makers, universities and development and research centers, students and teachers, affect on the educational program. In the web-based educational program in addition to these individuals and groups other people such as information technology expert, graphic designer and media expert have significant role in designing the elements of educational program. Unlike prevalent conception that embodies the role of teacher in the web-based educational program subsidiary the teacher has pivotal role in these educational programs which is more remarkable than traditional educational program (Seraji, 2007, p. 69). Safavi(2008) considers the guidance and directions effective for teacher and student at beginning of the course.

---

**Corresponding Author:** Maryam Golshahi, M.A. Student of Curriculum Planning, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran. E-Mail: maryam.golshahi@yahoo.com

Lots of information and knowledge is accessible through the internet. Information technology and communication facilities are the main objective of education for everyone, in everywhere, at anytime (Ghorchian, 2004, p.43). Since remarkable changes are happening in educational environments, therefore the capabilities of the new technologies, particularly the web-based educational program, should be taken into account. The increasing demand of education from one hand and financial restrictions from the other gives birth to the new strategies for developing the education. Many studies done in the realm of web-based learning, have indicated that, caveats in the syllabus design irrespective of individual differences and various needs of learners lead to the debacle of this method of learning. Therefore, the web-based model curriculum is considered as the substantial domain of electronic education regarding the learning theories.

In web-based curriculum, which is the integration of the web technology with educational program, learner as the knowledge-constructor, is the center of attention. Besides, considering learning activities in web-based educational program is essential (Gharebaghi, Soltanmohammadi, 2010). The most significant capabilities of web-based curriculum entail the dynamicity of content, creating multimedia environment, customization of education, environmental independence, synchronic and asynchronic manners, saving the time and cost, universal accessibility, cooperation and collaboration, learning new technologies, learning management by learners with his own pace, (learner-based learning), also obtained improvements provide lots of opportunities for students in web technology. Several studies indicated the role of web-based educational program, in developing qualitative education and learning. The study that was carried out by Lee and Choi (2008) as "management training in classroom through the web" revealed that the web-based education is very fruitful encouraging students to follow methods and solutions. In another study conducted by Ng (2008) under the title of "educational modification and improvement in Singapore from quantity to quality" has been stated that from 2004 onwards the educational department of Singapore has worked by the slogan "less teaching more learning" that the basis of this slogan emphasizes on learner-based learning, constructive evaluation and self-evaluation and learning about learning, requiring accessibility to great recourses via internet and web. In the framework of Khan's electronic learning method (2005) eighth components are served as effective in learning; organizational factors, managerial factors, technological factors, pedagogical factors, moral factors, interface design factors and evaluation factors. He categorizes examples of electronic learning under the network-based learning, internet-based training and advance learning. Holmes and Gardner (2006) believe that electronic training provides accessibility to resources which enhance learning in everywhere and at any time. This education can be accompanied with teacher's guidance, done by computer or both of them. Seraji (2007) argues that elements of web-based educational programs include objectives, content organization, selection and organization of learning opportunities, methods of teaching-learning and evaluation, which should be taken into account in proposed pattern. Besides, all mentioned factors "quality of implementation" should also be targeted.

Representing the very advanced technology in education, web based educational program emphasizes the individual growth, self-regulatory, active learning and mutual relationship. Chen et.al (2006) in "comparing the electronic learning culture of American and Asian students" concluded that Americans prefer teamwork to individual and they consider short communicative curriculum and content-based is appropriate. The Asians have group behavior and send longer messages containing emotional statements. George (2009) in study under the title of "electronic education: six important wh- words" come up with the six efficient words what, which, why, where, when, who, in the initial implementation of electronic education and, believing that providing electronic education supplies opportunities for students to exploit the technology for promoting education and learning. However, it is necessary to investigate all aspects for developing the education as such. Ma'soomy (2009) studied the cultural foundations of electronic-learning design on the eastern countries and Iran. The findings of this study revealed that in the culture of these countries, which is oral culture, text-based tools such as chat, is trivially applied for communication purposes in virtual environments. For instance, in eastern societies (cultures), due to avoiding of doubt for doing important affaires, hardly did e-mail is used. In many countries, authorities still find it important to sign. Daniel and et.al (2010) in studied under the title of "electronic education using effective learning environment" stated that, thinking about perception, computer literacy, motivation, learning styles, availability of infrastructure, and gender distribution largely run success of e-learning is useful and significant relationship between motivation and effort in this environment was seen and finally appropriate use of learning resources has been considered as a part of the under the control competency. In web-based curriculum also learning resources is one of the essential elements. Anarnejad and et.al, (2009) seven electric learning approach including specific e-learning programs, scales approach e-learning with traditional teaching methods, research tools evaluation approach for evaluating e-learning, evaluation return e-learning investment approach, leveling (improved-adaptive) approach to product evaluation, approach to operation evaluation identified. In this paper, common components were selected as the main factors that are: organization, management, and technology, aspects of educational, designing to producing environment, back up service, evaluation and moral consideration. Shirmohammady (2005) embarked upon by investigation for designing appropriate open educational and from distance in senior high school. This model is composed conceptual and functional such as web-based educational model, principles, theories and aims that constitute the

main elements of the conceptual model, functional components including policy areas, supplying, implementation and evaluation that also implementation components and evaluation seeing in the web-based educational program. Life skills curriculum have been purposed by Kornoghaby & Sharify (2005) in order to design appropriate for curriculum high school students. The results showed that the curriculum includes objectives, content outline, the kind of content, teaching methods and evaluation procedures. In addition to all cases in the web-based educational "run element" is also. In the Tree Anderson model e-learning, two methods (participatory research community and learning community models) was used and main role players model include learners, teachers, their interaction with each other and the content there are. In the web-based curriculum model, interactions are formed by learners which are appropriate combination of teacher and also content in order to achieve efficient learning (Anderson, 2008). In foundation design for online learning, educational process begins from students and leads to learning. This model has learner-based approach and all factors are in the service of the learner (Davis and et.al 2008).

The main objective of this study is producing a model for preparing web-based curriculum, according to theoretical bases and background of previous studies on one hand and the nature of subject on the other hand there are following research question:

- 1- What view points and opinions are there about web-based curriculum?
- 2- What factors have formed web-based curriculum?
- 3- How comprehensive web- is based curriculum?
- 4- How much is the validity and reliability of each component of web-based curriculum?

## **2. RESEARCH METHOD**

This is an applied and descriptive-analytic study. This study intends to represent web-based curriculum in which its main part is planning a conceptual framework for web-based curriculum. Having used theoretical resources, investigation of all documents, internal/ external accessible resources and also a set of models/ methods in curriculum studies, the web-based curriculum was proposed. These procedures were conducted in a descriptive manner. The validation of its components analytically was done due to the viewpoints of teachers, syllabus designers and pedagogic experts. After that, the web-based curriculum was proposed. The population size of this study consisted of 524 teachers, 58 pedagogical experts of Lahijan, Iran. From these numbers 308 teachers and 58 pedagogical experts were selected as participants.

The Likert-based multiple –choice questionnaire was used for data collection. Objectives include 11 components, content includes 16 components, learning opportunities consist 10 components, and learning methods, quality of implementation, evaluation include 14, 10, 11 components respectively. These components were based on web-based curriculum. The questionnaire was reviewed by syllabus design experts. After been modified, the validity of the questionnaire was confirmed. Reliability coefficient of the questionnaire was calculated by Cronbach's alpha  $\alpha=0.946$ , denoting its validity. For analyzing collected data, from descriptive and inferential statistics were used.

## **3. Findings**

In this study regarding to data and information, finding based on research questions are represented.

### **First research question**

- 1- What viewpoints and opinions are there about web-based curriculum?

In the field of web-based curriculum variety opinions and views represented. Behaviorism theories for designing of e-learning indicate that mere behaviorism attitude is a barrier for ideal e-learning environment. Since behaviorism approach provides a correct response to given stimulus, they cannot be expected to reach high level of critical thinking and solving problem. By highlighting important information, cognitivism- led e-learning leads to the concentration and accuracy of learner. It also leads to content difficulty level be matched with cognitive level of learner, say, complicated and easier contents have been adapted to new information in order to be used in various levels. Pretest is used for activating the prerequisite background knowledge which is necessary for learning the new content. Due to the flexibility of e-learning, students with different background knowledge can select suitable path for reviewing perquisite learning before presenting new information (Anderson & Olomy). In cognivism, inaccessibility of e-learning can make problem for educational policy maker. Cognitive activities are analyzed for distinction the activities and micro activities. The learner is analyzed for designing distance education which learner understands the information easier. Learning environment and activities are also analyzed which indicate each barrier that cause significance learning should be limited. But in e-learning environment learners are not recognizable and accessible easily, so learning environment is often various or unknown. Philosophical viewpoint of electronic-education is based on constructivism theory and cooperation. In psychological constructivism, the learner promotes his/her knowledge actively, and they have interaction with environment constantly. Therefore, it is assumed that, knowledge is related to the learner, and /s/he obtains various knowledge in the same conditions. Generally, the

constructivism-based method is student-based which active participation of learner in acquisition of knowledge is emphatic (Mesrabady & et,al, 2005). The theory of constructivism has a firm framework that has an important role in formation, leading the reviews and new educational activities. Matioos (cited in Seif, 2002), state that constructivism is divided two trends, individual and social. Individual constructivism creation of knowledge and concepts is under of the shoulder of learner. Social constructivism emphasizes on the significance of learners' group in the classrooms or in larger groups which create knowledge. Hence, in this viewpoint the student is encouraged to rely on him or herself in learning. Previous knowledge is taken to account and even is criticized; interaction between teachers and students is also formed easily. Therefore in constructivist learning environment, opportunities are given to students to discuss the opinions, belief and generally comment on them (Seif, 2002). Constantly changes, is the obvious characteristics of present time. Hence for adapting to these changes thinking of learner should be developed. To prepare such skills various opportunities should be given to learner who can negotiate to peer group, teachers through the interaction and collaboration, and pose new solutions if necessary balance and modify the pose. .accessibility to computer networks and information technologies, such as internet, and its facilities such as chat, e-mail, create learning environment which is in accordance with constructivism theory (James & Stibb, 2006).

Each of behaviorism, cognitivism, constructivism, have role in producing web-based curriculum in a various manners. Using these theories for producing e-learning content will continue. Behaviorist strategies can be used for educating the realities (what's). By the same token, cognitivist strategies are use for training the principles and procedures (how). Finally, constructivist strategies can be used for education of the real-life, personal applications, and basic learning. In the light of constructivist learning, learners are given opportunity to build their individual meaning via information taken from web-based education. Due to increasing the flexibility, and reuse of the content, and meeting the individual needs, it will be common to utilize the content in the future. The e-learning content will be produced in small regular parts. It should be prepared in such a way that has the capability of re-design and re-produce for learners in different fields. Since learners and learning environment are numerous in electronic education, an integrated approach which consists of behaviorist theory, cognitive and constructivist theories under the learners needs seems to be the best approach.

**Second research question:** what factors are included in web-based model curriculum?

Having reviewed and analyzed the previous studies and related theories, due to the before-mentioned opinions in specific literature in web-based educational program domains, objectives and needs, learning sources and content, teaching –learning methods, learning opportunities, performance, and evaluation are taken into account for designing web-based model curriculum. The conceptual/theoretical framework of proposed curriculum, the web-based educational program components are as follow:

**Determine the objectives and needs:** the present component denotes the analysis of objectives, needs and the values of educational organization. In the light of objectives and needs, this design includes the needs of society, generating knowledge according to educational objectives, the cultural –scientific values existing in pedagogy, meeting the needs of caused from missed opportunities, accordance to perspectives and missions in pedagogy, construction development, economical development, cultural and social development, the quality of result, training elite members, the analysis of need analysis, identification of weak and strong points, threats and opportunities. The final purpose of this educational system is, changing the students' educational program. The perspective of electronic educational centers, express the expectations and activities of these centers. In this section, the attitudes of teachers and learners are also determined.

**Learning resources, content determination and organization:** the main goal of education is, learning the knowledge from the information and existing content. The method of presenting the content and materials should be incongruence with the wills of learners. Web and electronic learning environments have appropriate capacities for organizing the integrated educational program. Connecting to electronic libraries, materials and various documents, cooperating with the individuals, and getting access to different contents, and simulations, approaches the electronic contents to the real world. However, the organization of network–based content, presupposes different issues. Due to this component, the facility of content and its appropriateness to students' individual differences in electronic education is very significant. Syllabus designers, teachers, and students prepare different contents which are applied for reaching the lesson or course objectives. In design procedure, different methods of design, such as content presentation via hyper text, hyper media, through download and run ,webcasting by flash technology, PowerPoint, live broadcasting in a predetermined timetables, video conference, are used. In this regards, teachers design and produce the content and save it in the database.

Having been investigated and accepted in the database, learners get access to the content. In this case, all input and output and their effects on the content of educational websites in online database are stored in the server and are utilized in the further educational backgrounds for evaluation manners.

**Determining and organizing learning opportunities:** information transfer to receiver (learner) is considered as one of the common features of educational systems. Some of them can process the messages of students. These systems are simply called cooperative media. The cooperation among students, learners, and other

experts, in web-based educational program creates social relations and enhance the comprehension and reasoning of students. Web-based learning environments, is an activity-based environment, in which, many tasks and activities should be designed in order to encourage learner to learn more. Having specified the content, Syllabus designer paves the way and instigates learner to think, cooperate, and participate actively. Active participation of learners in learning process, the investigation of similar and different materials, a preparing report by students, organizing and combining the materials, help learner to use various learning opportunities and arrive at high level of analysis, integration, and judging skills.

**Teaching-learning methods and teaching methodologies:** in the teaching strategies, some principles are very important which are as follow:

The congruence between educational objectives and instruments, web-based educational facilities, such as virtual classes, conference hall, video projector, easy transfer of message between teacher and students, using educational web-based technology and tools for enhancing the cooperation and communication among students, developing and extending the IT and ICT usage culture, paying attention to the need-based activities, encouraging group learning, development and flexibility in various educational methods, learner-based learning, considering teacher as a controller (supervisor), using problem solving methods, creating opportunities for question and answer, congruence between curriculum and field of study, creating learning opportunities, participation in discussion, and individual differences.

**Implementation:** implementing the educational program is preparing an educational program based on predefined and predetermined document. It is expected; by using teaching-learning methods and learner's educational progression evaluation, teacher achieve predetermined objectives and come up with the educational program objectives. Surveillance by provincial representatives and regional pedagogical officials, administering the recommendations of consolors and educational advisors, the effect of implementing the approved educational programs of high consul of institute, the quality of implementing the regulations, instructions in educational centers, controlling the pedagogical program and educational programs by researchers, modifying the program by internet, the significance of teachers' role implementation, modifying and reforming based on analysis of implementation, the effect of teachers, and producing strategies of web-based educational program are very effective in implementing web-based educational program.

**Evaluation:** evaluation is essential for improving the quality and effectiveness of web-based educational program and testing the design hypotheses. This factor intends to investigate the achievement of the objectives for modification and reassessment of educational program based on information taken from teachers and learners. The evaluation strategy of program or course is necessary for maintaining its quality. Evaluation is essential for improving the quality and effectiveness of web-based educational program and testing the design hypotheses. Anyway, there is lots of cost for course evaluation which should be taken into account in technological-based programming. Educational program evaluation by teachers in teaching-learning process gives suitable feedback for educational programmers and syllabus designers. According to analysis of the feedback of implementation and effectiveness of educational program taken from performance analysis of educational program by teachers and learners, set the ground for reassessment and modified measures. Having been approved in educational programming and curriculum developmental centers, these modified measures can be administered. Any education would be invalid without evaluation. Due to the importance of education, several methods can be used for measuring the level and proficiency of learners such as, formative evaluation, continues evaluation, test, quiz, online evaluation, and traditional evaluation.

**Third research question:** how is the comprehensive web-based curriculum?

Web-based curriculum, as a sub-system of all remote educations, due to the provision of educational experience is more flexible than traditional education in terms of time and place. At present, World Wide Web is almost ubiquitous in developed countries. The facilities of these media support the independence of learning in terms of time and place. The idea of cooperation, in electronic learning environment is much more complex than that traditional educational. Without cooperation, learners not only de-motivate but also learning doesn't occur as well (Andersson & Ollumi, 2001). Web-based curriculum includes all educational activities which is done by individual or groups, in the following manners: online and offline, synchronic and asynchronic, independent computer networks, and other electronic devices. Synchronic cooperation is a kind of cooperation which individuals, (teachers, students, experts, consolors, ...) can communicate lively, and synchronically. This is web-based face-to-face communication in which are done via personal computers networks. Generally, world wide web-based curriculum is a multimedia environment, having great potential for serving numerous students who has been scattered (Andersson & Ollumi, 2001, p. 252).

In order to effective integration of electronic learning, specifically comprehensive web-based curriculum with common methods of learning, we need a series of regular standards at various levels of pedagogy, organization, and technical. Here, the main focus is on the provision of optimum facilities for learning by using various methods. Web-based curriculum is one sort of these methods. Comprehensive Web-based curriculum approach, hence, tries to integrate the common education, remote education, skill learning while doing tasks. Therefore, this curriculum, serves as an integrated media; namely it is the integration of various educational

methods, having its own features such as cost, availability, impact, efficiency, attraction and other issues. These multimedia learning is regular; namely the particular integration of afore-mentioned methods based on systematic procedure of education (Yokhim, 2011). By applying the systematic approach for analysis of educational changes, educational views can fully be united and integrated. For any likely change in educational system, the whole educational system should be investigated. In this prospect, the concept of electronic learning is not simply addition of one of components to the educational system, but, it is the implementing the innovation in education. For giving any solution for an educational problem, the organizational, educational and technical aspects should be coordinately managed. When technical tools and strong organizational management are applied for implementing any approach, that project will likely succeed. That is why, the more organizational, and support-based, the more effective will be the education in electronic learning for learners (Yokhim, 2011, p. 22). For producing the web-based curriculum, first the factors of web-based curriculum were identified, and then the proposed curriculum was provided. Identifying the educational objectives and needs provides better learning opportunities for students by suitable resources and appropriate content. New methods of teaching lead to improving the qualities of implementation of curriculum. Designing content and materials is for educational purposes. Creating appropriate content and applying suitable and new teaching methods and their implementation provides learning opportunities for students. Evaluation provides a testing process for these opportunities. Teaching-learning methods provide the appropriate content, create learning opportunities, and improve the quality of implementation. The quality of implementation depends on the course content, teaching-learning methods, learning opportunities, and evaluation. Teaching-learning methods and learning opportunities are evaluated.

**Fourth research question:** what are the reliability and validity for each component of web-based-curriculum?

In the present study, the Lizrel8.5 was used for factor analysis. Based on factor analysis, 6 factors were extracted. The model with following features has been confirmed.

-the numerical value of KMO depicts the validity of sampling. For more consistency, the sum of variables in correlation matrix was calculated and its result according to table.1 was 0.880 which is acceptable.

-Bartlett test sphericity was used for calculating significance. According to the table.1, the significance of this test is confirmed (sig=0/000). The factor value for each variable in factorial matrix and rotation matrix should be at least 0.3.

According to these two criteria it can be concluded that implementing the analysis of factorial matrix due to correlated matrix will be justifiable. Besides, this is the numerical correlation matrix-no-zero, which shows that based on these data factors can be extracted. Having used main factorial analysis (PC) for factor analysis, it was determined what has been targeted by the questionnaire. Because of correlation among all questions in the questionnaire, no question was omitted. After been confident from the minimum acceptable correlation among questions, the main component analysis was used for factor analysis.

Table1. The KMO Kroit and Bartlett

Level of sig.	df	B	KMO
0.000	2556	8349.756	0.880

Factorial analysis tries to identify the main variables or factors for determining the pattern of correlation among the variables. Factorial analysis has an important role on identification of latent variables or factors via extracted variables (Mo'meni& Fa'al Ghayomi, 2011, p.190). The extracted has been turned by Olbimin circulation in order that the shape of variables and their distribution to be distinguishable. Olbimin, a non-diagonal rotation method, factors are easy to interpret, but gained factors would not be independent. The rotated factorial matrix in table 2 shows that the factor numerical values for some questions were positive and for some other were negative. It is obvious that the negative values show the bipolarity of these factors. According to results taken from implementing the PC Method, it was necessary to keep all questions of the questionnaire due to having the adequate factorial value. According to the p-value of 72 multiple-choice questions, it can be shown that the best model for achieving the high objective is a six factorial value which have the factorial value of 0.3. Table 2 shows that, the numerical value of these 6 factors is bigger than one; the percent of common variance among variables for these 6 factors is 51.280 which denotes the variables' variance. In these conditions, the first factor with numerical value of 21.177 and 29.413 and variance of variables is determined. It is important to note that, in order to investigate the nature of relationship among variables and reaching to the definition and naming the factors, the coefficient more than 0.3 and 0.4 were selected as zero. In the present study, the amount was considered 0.3. There is no doubt that the more the factorial value, the more the impact of that question in determining the factor of questionnaire. It should be considered that, since the current questionnaire is a new one in terms of content, it is essential to take care in the analysis and omission of the items and questions. For omission or keeping the items or factors in the final stage the 0.3 has been considered. Description and naming of the factors has been done due to the numerical value of factors.

**Table2. Statistics of the questionnaire through the analysis of pivotal components (pc)**

no	Specific value table			Sum of rotation of factorial value				no	Specific value table		
	p-value	variance	Cumulative percentage	p-value	variance	Cumulative percent	After rotation		p-value	Variance	Cumulative value
1	21.177	29.413	29.413	21.177	29.413	29.413	13.156	37	.428	.595	96.986
2	4.805	6.674	36.087	4.805	6.674	36.087	10.186	38	.389	.540	97.525
3	3.124	4.339	40.425	3.124	4.339	40.425	5.682	39	.366	.508	98.034
4	2.920	4.055	44.481	2.920	4.055	44.481	10.560	40	.331	.459	98.493
5	2.538	3.524	48.005	2.538	3.524	48.005	10.882	41	.321	.446	98.938
6	2.358	3.275	51.280	2.358	3.275	51.280	6.465	42	.311	.433	99.371
7	2.270	3.153	54.433					43	.274	.380	99.751
8	1.993	2.769	57.202					44	.245	.341	100.000
9	1.941	2.696	59.898					45	.235	.327	100.000
10	1.834	2.548	62.446					46	.213	.296	100.000
11	1.601	2.224	64.670					47	.201	.279	100.000
12	1.556	2.161	66.831					48	.198	.275	100.000
13	1.505	2.090	68.921					49	.167	.232	100.000
14	1.441	2.002	70.923					50	.151	.210	100.000
15	1.309	1.818	72.741					51	.142	.198	100.000
16	1.243	1.726	74.467					52	.124	.173	100.000
17	1.237	1.719	76.185					53	.097	.135	100.000
18	1.210	1.680	77.865					54	.085	.118	100.000
19	1.083	1.504	79.370					55	.072	.100	100.000
20	1.057	1.468	80.837					56	.053	.074	100.000
21	.990	1.376	82.213					57	.047	.066	100.000
22	.965	1.340	83.553					58	.015	.021	100.000
23	.929	1.290	84.843					59	.005	.008	100.000
24	.905	1.257	86.100					60	-.021	-.030	99.970
25	.823	1.142	87.243					61	-.027	-.038	99.932
26	.807	1.121	88.364					62	-.047	-.065	99.868
27	.714	.992	89.355					63	-.069	-.096	99.772
28	.684	.949	90.305					64	-.073	-.102	99.670
29	.665	.924	91.229					65	-.078	-.109	99.562
30	.632	.878	92.107					66	-.108	-.151	99.411
31	.612	.850	92.957					67	-.123	-.171	99.240
32	.555	.771	93.727					68	-.132	-.183	99.057
33	.513	.713	94.440					69	-.169	-.234	98.823
34	.490	.681	95.121					70	-.235	-.327	98.496
35	.479	.665	95.786					71	-.300	-.417	98.079
36	.436	.605	96.391					72	-.491	-.682	100.000

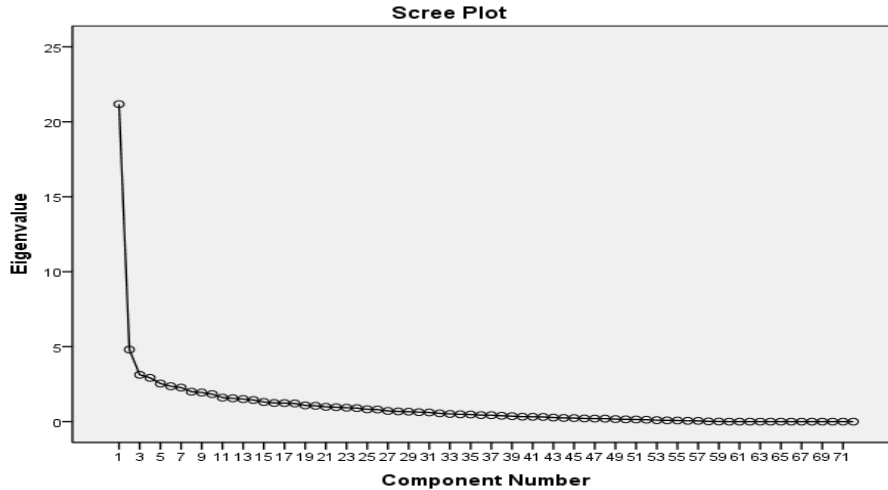
The specific value of these six factors, the explanation percentage, variance and the concentrated percentage has been depicted in the following table.

**Table3. concentrated percentage, variance, specific value**

Factor	specific value	variance%	concentrated percentage
1	21/177	29/413	29/413
2	4/805	6/674	36/087
3	3/124	4/339	40/425
4	2/920	4/055	44/481
5	2/538	3/524	48/005
6	2/358	3/275	51/280

The information depicted in the table 3 depicts that, the theoretical components in the questionnaire are six factors. These six factors embrace the 51.280 % of the distribution. After the rotation, the factors and the variance have been represented and nominated for each factor as follow.

For first factor, the specific value and variance were 21.177 and 29% respectively.  
 For second factor, the specific value and variance were 4.805 and 6.674% respectively.  
 For third factor, the specific value and variance were 3.124 and 4.339% respectively.  
 For fourth factor, the specific value and variance were 2.920 and 4.55% respectively.  
 For fifth factor, the specific value and variance were 2.538 and 3.524% respectively.  
 For sixth factor, the specific value and variance were 2.358 and 3.275% respectively.  
 In the Scree graph these six factors has been represented.



Graph1. Scree plot for the determination of these six factors

In the Scree plot, it is observable that the first factor is larger than the other factors, besides it is inferable that the numerical distance of factors after the sixth factor will be little. Due to these and also the workability and appropriateness of analysis only the six factors are selected as the main factors. In the next stage, the factorial values, the correlation coefficients and factors which gained after rotation via Olbimin method have been analyzed. Then, due to theoretical foundations and the content of items the nomination of factors has been done as follow:

First factor: the components of this dimension entail the questions related to teaching-learning methods, learning opportunities, content, and the quality of implementation that has been named "teaching-learning methods" because of its emphasis on related components.

Second factor: the components of this dimension include the questions related to needs, educational objectives and content in which has been named "learning materials and content" due to its emphasis on this components.

Third factor: the components of this dimension consist of the questions related to teaching-learning methods, evaluation and learning opportunities in which has been named "evaluation" due to its emphasis on educational evaluation components.

Fourth factor: the components of this dimension include of the questions related to learning opportunities, teaching-learning methods, content, evaluation and implementation in which has been named "learning opportunities" due to its emphasis on learning opportunities' components.

Fifth factor: the components of this dimension entail of the questions related to implementation, evaluation, teaching-learning methods, content, evaluation and learning opportunities in which has been named "implementation" due to its emphasis on learning this component.

Sixth factor: the components of this dimension include the questions related to implementation, needs, objectives and learning opportunities in which has been named "objectives" due to its emphasis on this component. In the next stage the value of each component has been calculated according to the table.4.

Table5. The value percentage of components

Component	Factor	Specific value	Percent
Teaching method	1	21.18	57.35
Content	2	4.8	13.01
Evaluation	3	3.12	8.46
Learning opportunities	4	2.92	7.92
The quality of implementation	5	2.54	6.86
Needs and objectives	6	2.36	6.4



As it was shown, the patterns of data are calculated according to specific values of sixth components. In this table the percentage of each component is given. According to the taken information, "teaching methodology" has the highest effect on the web-based curriculum, having 57.35 %. Similarly, "content", "evaluation", "learning opportunities", "the quality of implementation" and "objective" are respectively in the next ranks. Having validated this curriculum, and extracted the statistical model, a web-based curriculum was produced. Web-based curriculum has a system that the elements and components are interconnected and has interactive relationships on web-based curriculum.

### DISCUSSION AND CONCLUSION

The result of this study is producing a web-based curriculum through a scientific research. In this curriculum, constructionist theory for learning has been used. Taking the changes in educational program into account, Web-based curriculum set the ground for progression in the methods of education. For making more effective, this curriculum has been given to pedagogical experts and teachers for validation. According to the results of field study-web-based curriculum has been validated. The purpose of this curriculum is producing a web-based curriculum framework. Elements, components, and the construct applied in the web-based curriculum a have been taken from the general curriculum and the schools' programs. These elements are: objectives and needs, learning materials and contents, learning opportunities, teaching –learning opportunities, implementation, and evaluation. The features of elements in web-based curriculum are:

- 1- Objectives and needs: educational objectives, congruence with the mission and strategies of schools, congruity with the fundamental values of pedagogy, congruity with the economical, social, and cultural development of the country.
- 2- Learning materials and content: principles such as appropriateness of content with educational objectives, syllabus, and content dynamicity, the quality of instruments and media, and updating the educational materials against the latest scientific achievements should be taken in to account.
- 3- Determining and organizing the learning opportunities necessary interactions in the web-based curriculum, using digital libraries, videos studies, preparing research reports b students should be regarded as a cornerstone in education.
- 4- Teaching-learning methods: using cooperative methods, problem solving methods, providing learning opportunities for students and using the web-based educational elements, pave the way for a better understanding for students.
- 5- The quality of implementation: in this section, congruity with educational objectives, careful control of schools by provincial representatives and pedagogical officials, administration of the plan by the provincial supervisors, and the exact following of the regulations also should be considered.
- 6- Evaluation methods: in the evaluation of web-based educational program, comprehensiveness, effectiveness, congruity with learning objectives, giving feedback, having clear scoring criteria, considering to evaluation strategies as a part of learning experience should taken into account.

After analysis, we-based curriculum was given according to figure .1.

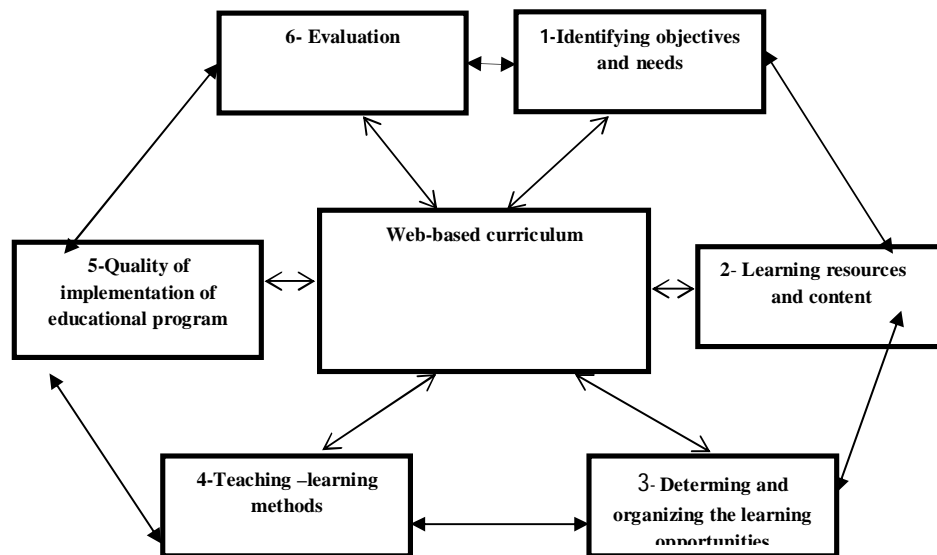


Figure1. Proposing a web-based curriculum

It is observed that the components have been depicted by rectangle and the relationship among them also represented by arrow. There is a relationship among the elements of web-based curriculum. Also these elements have mutual relation with web-based curriculum. This curriculum is in congruence with other studies; this studies is in congruence with the study of Daniel et.al (2010), stating that using learning materials is regarded as a part of under supervision competence and considers it very essential in electronic education. There are common elements such as objectives, syllabus, type of content, instructional and evaluation methods Kordnoghi & Sharify's study (2005) whose aim was designing appropriate curriculum for high school students. There are also common points between the present study and the study which was done by Seraji (2007) such as objectives, organizing the content, teaching –learning opportunities and evaluation. Like Jorge (2009) study, selection and organization of learning opportunities - encourage learner to utilize potentially from the technology and improve the learning- has also been emphasized in the current study. There is also congruity with Shirmohamadi (2005) in implementation and evaluation components. According to Holmes & Gardner (2006), electronic education facilitates the availability and accessibility to learning materials everywhere at anytime. According to Devis et.al (2009) on-line learning begins from students and ends to learning. This model is learner-based approach and considers all factors at the service of learner. According to Anderson's (2008) model, the main role players are learners, teachers and their interactions with content. The interactions which are done by learners are the appropriate combination of interaction among students, teachers, and contents for efficient learning. According to Chen et.al (2008) using the messages and interactions between learners are effective ion learning. According to Ma'somy (2009), text-based instruments have less application in virtual environments. A Li& Choi (2008) showed that web-based education is very effective and encourages the students to trying different methods and solutions. According to Ng(2008) this trend emphasizes on the autonomy of learner. According to Khan's model (2005) electronic learning is embodied in the network-based learning, internet-based learning and advanced learning.

## REFERENCES

- Anarinezhad, A., Saketi, P., Safavi, S., A.(2010). Designing the conceptual framework of evaluation program in electronic learning in higher education institutes, *education technology journal*. 4(3)
- Anderson, T. & Allomi, F.(2001). *Electronic learning, from theory to practice*. Translated by Eshratzamani&Azimi, Tehran, Madares hoshmand publication.
- Anderson, T. (2008).Towards A theory of online learning.pp:45-75.(At:Anderson, Terry(2008). The Theory andpractice of online learning.AU, press.
- Asgar pour, A. ,(2004).The role of electronic education in the procedure of education Second conference of education.
- Charles R.Greer,(1995). Strategy and Human Resource: A general Managerial Perspective: united States, 1995.
- Chen, M,P.(2009).An Evaluation of the ELNP e-learning Quality Assurance Program: Perspectives of Gap Analysis and Innovation Diffusion. *Educational Technology & Society*,12(1),18-33.
- Davis; Alan, Little; Paul, Stewart; Brian(2008).Developing an Infrastructure for Online Learning.(At: Anderson, Terry(2008). The Theory and Practice of Online Learning.AU, Press.
- Dehghani, A. (2007). Investigating the electronic education model, *Iran scientific, documentary, research journal*.
- Ebadi, R. (2000). Electric learning and pedagogy, Tehran. Nashre afteb.
- Emamjome kashan, T. Mallinezhad. A(2007). The integrated comparative analysis of some countries and producing a curriculum for Iran, *educational Innovation quarterly*.6(19), 31-72.
- Fareghzade, N., (2008). The role of information technology in distribution and publication of educational course book and investigation of the standards for producing electronically contents. The international conference of 'academic course book'
- George S. Mouzakitis.(2009). E-Learning: The six important "Wh...?".Available online at [www.sciencedirect.com](http://www.sciencedirect.com). Procedia Social and Behavioral Sciences 1 (2009).Pages 2595– 2599.

- Gharebaghi, Sh., Soltanmohammadi, Z., (2011). Learning activities discussion; a new approach in virtual educations, *educational strategies*,1(3), 35-39.
- Ghorchian, N., (2004). Primary educational information technology program for teacher education. Tehran, metacognitive thought.
- Helic, .D, Krottmaier. H., Maurer H., Scerbakov, .N.(2003). Implementing project-based learning In Proceedings of E-Learn 2003, pages 2189- 2196, AACE, Charlottesville, USA, 2003.
- Holmes,B. and Gardner,J.(2006).e-learning :Concepts and practice. London, Sage.
- Khan, B.H(2005).Managing e-learning :Design delivery ,implementation and evaluation *Hershey,PA, Information Science Pub.*
- Kordnoghi, R., Pashasharifi, H., (2005). Syllabus design for life skills for students of high school. *educational Innovation quarterly*.4(12).11-34
- Lee, K. Choi, I. (2008). Learning classroom management through web-based case instruction for early childhood teacher education. *Early Childhood Education*, vol. 35: 495-503
- Masumi, Davoud & Lindstrom; berner(2010).Quality in E-learning :A Framework for Promoting and Assuring the Quality in Virtual Institution .*journal of Computer Assisted Learning*.
- Mesrabadi, J. et.al(2005). The effectiveness of presentation, individual and group construction of conceptual map as a educational strategy. 4<sup>th</sup> . *educational Innovation quarterly*.31
- Mo'meny,M., Fa'alghyami, A.,(2010). Statistical analysis by SPSS, Tehran, Ghayomi publication, p.344
- Ng, PT. (2008). Educational reform in Singapore: from quantity to quality. *Education Research Policy Practice*, vol. 7, 5-15.
- Safavi,A .A(2008). Developing Countries and e-leraning Program Development.*journal of global information Technology Management*,Vol 11,No.3.pp47-65.
- Sebastian,T.(2004) development and application of ELearning software for education in energy technology, Helsinki University of technology department of mechanical engineering,
- Seif, A.,(2001). Psychological pedagogy, psycholinguistic and education. 6<sup>th</sup> . Tehran, Nashre agah publication
- Seraji.,F. (2007). Web-based curriculum, a step to deconcentration and syllabus design. *The slyabus quarterly*. 4
- Shirmohammadi, Z.,(2005). Designing the open educational system and distance education for high school, Phd dissertation, Azad islamic university,Tehran,science research branch.
- Stieb. J. A. (2006). Moral Realism and Kantian Constructivism. *Ratio Juris*. Vol. 19 No. 4 (402–420).
- Stricker,D. Weibel, D., Wissmath.B(2010). Efficient learning using a virtual learning environment in a university class.Available online at www.sciencedirect.com Computers & Education.Pages 1-37.
- Unesco,(1997), Inner wealth, translated in the international department of pedagogy ministry, Tehran, Tazkie.
- Yokhim, V., Vanmarinor, Y., Koper,(2011). The comprehensive organization of electronic learning(educational, technical, organizational essentialities. Tehran,SAMT.