Evaluation of E-Learning Management Models and Providing a Model for Implementation of E-learning.

Dr. Mostafa Ijtihadi[1]Dr. Nadergholi Ghoorchian[2]Dr. Ali Taghi Pourzahir[3]Noor-al-din Mirzee[4]

[1] Member of board in Department of Social Science, Shahid Beheshti University, Tehran, Iran
[2] Member of board in Department of Education management, Science and Research Branch, Islamic Azad University, Tehran, Iran.
[3] Member of board in Department of Education management, Science and Research Branch, Islamic Azad University, Tehran, Iran.
[4] Ph.D. graduate of education management in Department of Education management, Science and Research Branch, Islamic Azad University, Tehran, Iran.

*Corresponding author, Email: Mirza683@yahoo.com

ABSTRACT

The purpose of this research is to survey Evaluation of E-Learning Management Model and Providing a Model for Implementation of E-learningfor universities. The method for research is descriptive and non-experimental and from the point of analysis is correlative.For verifying and measuring the elements of E-learning model, A Researcher made questionnaire with 127 items was used. Validity and reliability of the initial performances were investigated. For The validity of the initial questionnaire, through a survey of 75 experts, was confirmed by 94%. The factor for questionnaire Reliability 0.986 was considered.

From virtual universities 462person from male and female teachers and students were selected as the statistical society. The method of correlation analysis was used in analyzing data. For verifying the elements of E-learning one sample t-test was used and for Reduction of variables factor analysis was used. The most important results of the research are: 19 factors were identified for Integrated E-learning model: (1) policies and strategies (2) educational systems and processes (3) infrastructure (4) characteristics of learners (5) needs and demand (6) services (7) psychological aspects (8) e-learning technical skills (9) knowledge and attitudes of teachers (10) general skills (11) fitness (12) past experience (13) quality (14) monitoring (15)content (16) motivation (17) interaction and communication (18) support (19) goals and priorities.This model is composed of three main layers: (1) objectives and policies (2) structure and process (3) services and support.

Introduction

Ever since a very long time Human life is full of ups and downs to achieve the perfection and progress. And now it has grown increasingly with the help of information technology in various fields of human knowledge. Today, more than ever the human is need to communicate data and information required. Rapid establishment of communication and exchange of knowledge and information is provided more than before by information technology (Picard, 2007).ICT has an impact on all areas of social, political, economic, cultural and particularly educational environments (Keller, 2008). Information Technology has had significant growth not only in the specific field, but it has had an impact on all areas of science, education and planning (Collis, 2005).

Today, everyone can have access to education via IT. Information technology not only provides broad access to education for different social groups, but it has had an impact on teaching practices (Martin, 2010).

New features of electronic media such as the ability to include the multimedia such as text, audio and video simultaneously over the network and intelligent interaction, has differentiated the education of this era from other learning (Oliver 2007).

Media alone cannot lead to better learning, but learning strategies such as providing interactive environments and simulation of environments and the actual patterns of education will lead to better and more effective learning (Hoyer, 2010).

E-learning leads to facilitate the access to resources, access to education from favorite places and times and as a result full support of the students. (Miller, 2006). Due to changes in the social environment, information technology has led to changing needs and priorities. In the information society, roles and skills requirements have changed related to the roles (Martin, 2008).The central role of information technology in modern society has been seen, and it pervades much over the human activities. Information technology has transformed not only the roles but also the processes. (Brown, 2009).

ICT has created new roles in the organizations by providing virtual space. Virtual organizations, virtual employees and customers are results of driven-ICT environment (Anderson, 2003).

E-Learning Models

The basic model of e-learning was more looking for some traditional learning simulations and conventional classrooms in a virtual environment. In other words, early e-learning models emphasized the role of technology in the provision of e-content and services. In 1990s learning centers are influenced by learning

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management system vendors. Based on initiatives of vendors of electronic management systems, e-learning model is composed of three elements: the customer (inclusive), content and technology (Anderson, 2003).

The primary focus was on the use of information technology to create virtual easy learning environments for learners in order to have access to it at any time and place. In this section, instructional design, content development and edition and training the educators and learners was less interested in the field of e-learning. Many technology vendors and educational institutions believed that the e-learning is the same transfer of traditional learning content in a e-method (Kaplan, 2007).

New models of e-learning are considering issues such as politics, pedagogy, the role of teachers and learners, content, quality and standards (Simmons, 2003).

Review of e-learning models and considering the positive and negative aspects of each will help us to develop e-learning strategies and to provide a suitable framework for certain conditions.

1-CST Model (Content - Services - Technology Model)

Eengelbrecht (2003) argues that the educational institutions make use of the model significantly. In this model (because of interaction of learners' needs, learning environments, pedagogic goals and strategies with three elements of the content, services and technology) outputs can be achieved such as increased access, lower costs, flexibility and so on. Quality services are provided simultaneously or non-simultaneously to fulfill the needs and goals of learners, comprehensive reliable, user-friendly content editing, and using communication technology to support teaching and learning as interactive and flexible. Engelbrecht (2003) argues that e-learning planning models include the following: 1 - Needs Analysis 2 - conditions and characteristics and needs of learners 3 - Organizational Support of E-Learning 4 - Pedagogical choices.

2 -Collis and Moonen Model (2001)

Collis and Moonen have introduced the organization, implementation, pedagogy and technology as key elements in online e-learning.

3 - Web-based learning model

Smith (1998) proposed web-based learning model. In this model, education is based via the respective standards based on local area networks (LAN) and World Wide Web. Management tasks in this model are: 1 - Web Administration 2 – student affairs 3 - Providing suitable educational resources 4 – auxiliary resources security

4 – Garrison and Anderson's community of inquiry Model

Garrison and Anderson (2003) have proposed a community of inquiry Model. This model is composed of three main elements that should be considered when designing and implementing an electronic era. Three elements include: cognitive presence, social presence and teaching presence. These three elements will create the right environment to teaching - learning process by providing an appropriate structure and flexible set of discussions and conversations.

This is an example of the works that has been done to develop a deep understanding of the characteristics of e-learning features for teachers and to guide them on critical issues. Both authors believe that the educational content is not only learning quality, but it is also an environment in which teachers hold the course and quality of interaction that will advance the learning process. Eventually they will differentiate the institutions from each other.

5 - Ipek and colleagues Model

AIPAC and colleagues provide a teaching system for integrated e-learning. The education system consists of flexible learning; complex learning, dual learning with three factors of pedagogy, technology and organization.

6 - Kenedy Four-dimensional model for self-directed learning Model

Kenedy introduces a four- component model as follows: 1. self direction or self direction as a personal attribute (personal independence) 2_ self direction as satisfaction and capacity of training conduct (self-management) 3_ self direction as formally organized education (learner control) 4_ self direction as individual and organizational learning opportunities (auto didaxy).

7 –brocket & hiemstra two-dimensional model (1991)

Brocket & hiemstra (1991) present a model with both the process and goals. The process involves the design, implementation and evaluation of learning and objectives implies the demands of learner for accountability in learning. They have combined the personal characteristics and used social context in the model.

8 - Garrison three-dimensional model

According to Garrison, auto didaxy is completed with three remote dimensions that they interact with each other. These three dimensions include 1 - Self management 2 - Self-monitoring 3 – Motivation. Grayson model focuses on the use of resources in the areas of learning, use of learning strategies and learning control in the means of relative participation with other participants in learning and motivation.

9 – parcino et.al four-layer model   (2005)

parcino and colleagues have provided a four-layer e-learning model for the evaluation . The first layer consists of items and questions. Items include the additional information and possible answers and tests that are composed of a set of items. The second layer is the repository of questions that can be searched and access via digital repository system. The third layer is the learning management system. The Requests are made through a digital repository system, ordering and search and it will be given to teacher and student through the learning management system. The fourth layer is the learning management system users that include teacher and student who use the test as a formal activity. parcino and colleagues (2005) believe that each e-learning assessment model is forced to accept the following features: 1 - Flexibility 2 - formalisation 3 reusability 4 – interoperability & sustainability 5 - completeness 6 explicitly typed objects - 7 - reproducibility 8 - neutrality 9 - Compatibility with Standards

10 - Mehlenbacher, B. et al. 5-dimension model (2005)

Mehlenbacher, B. and colleagues (2005) have presented a five-dimensional model of training for all positions, including: 1 - Background and Knowledge of Learner 2 - tasks and activities of learner 3 - social Virg 4 – instructor's activities 5 - Learning Environment and Tools. Background and knowledge of learner: all learners of e-learning environments will bring their general characteristics as a learning experience: 1 – Biological: such as age, gender, nationality and roots 2 - abilities: physical and cognitive, 3 - literacy and education: Computer literacy, Adaptability, Domain, oral, visual 4_ economic – social background , income, geography, Enterprise 5 - characteristics of person: learning style, attitudes, motivation, self-monitoring

Activities and tasks of learner: in any online event, users should do the following: 1 - Setting data goals (specified tasks) 2 – Selecting the topics required 3 – Searching and finding the data 4 - Trying to understand the knowledge

Social dynamics : 1 - cognitive structures 2 - strong and timely feedback 3 – high interaction of instructor and learner 4 - Collaboration and feel well amongst learners

Activities of trainer : Trainer is required the following to apply technology effectively: 1 - content development and learning 2- developing the theoretical understanding and knowledge 3 – Developing an understanding the pedagogy 4 - Understanding the Principles of Learning and transfer them to use as learners, 5 - opportunities to learn the latest research and cognitive discoveries 6 – developing the models for lifelong learning that guide the planning and teaching.

11 - P 3 Model

Khan (2004) has described the roles and responsibilities of all individuals involved in the process of teaching and e-learning. Model P 3 is the chain of people, process and output.

Individuals: includes the planning team, design team, production team, evaluation team, distribution team, training team, support services team, administrative services team, marketing team

process: includes planning, development design, evaluation, distribution and maintenance. Output: Project Plan, primary form of teaching, learning materials, reformed materials, and final learning material.

Learning process in this model includes: planning, design, production, evaluation, distribution, delivery and support, training and marketing (Khan, 2004).

12 - Model Anderson. Anderson introduces FAO C for a successful e-learning:

1 – Culture :e- Learning support by goals, evaluation, properly defined, learning time , encouraging staff and resources are issues that can lead to successful e-learning program in the cultural dimension.

2 - Content: goals, cognitive, emotional, sensory - motor skills, content transmission method, exercises, support and follow-up, amount of interaction and participation are important resources for educational purposes which are effective in terms of content in the successful e-learning applications.

3 – capabilities : Access to a computer, computer-based support of multimedia applications, identification of evaluation, ability to develop the programs or to set the sponsors, ability to develop and implement the continuous programs , monitoring capabilities, technical support from the staff engaged in the e-learning.

4 – Cost: cutting costs by providing learning at any place and time, the ability to create the customized learning paths, enabling informal learning without leaving the home, obtaining the certificates through remote education programs, and an alternative for traditional education.

5 - Clients: learners, staff, officials of e-learning programs

13 – Ovki Model(1998): 1 - Administrative Services 2 - Student Services 3 - 4 Resource Services - Teachers Services

14 - Model of Institute for Higher Education Policy (2000): 1 - Institutional Support 2 – course development 3 - TEACH - Learn Process 4 - Structure of course 5 - Support for students 6 - Support for Teachers 7 - Measurement and Evaluation

15 – Sims Model(2007): 1 - purposes of course 2 - content of course 3 - how to design the courses 4 - levels of interaction 5 - learning assessment and evaluation 6 - levels of student support 7 – consequences

16 - Model of California University (2002): 1 - Organizational Commitment 2 - Pedagogical Infrastructure 3 - Student Service 4 – Development and design 5 - Education Services to Teachers 6 - programs development 7 - fiscal policy - 8 legal requirements 9 - program Evaluation

17 – Gavindasamy Model: 1 - Institutional Support 2 - Development of course 3 - TEACH - Learn 4 - Structure of course 5 - Support for Teachers 7 - Measurement and Evaluation

18 – Frozen Model (2005): 1 - organizational factors 2 - economic factors 3- factors relating to teacher 4 - Factors associated with students 5 - Instructional Design Factors 6 - Pedagogical agents

19 - **Model of North American Council for Online Learning (2006):** 1 - Content 2 - Instructional Design 3 - student measurement 4 - Technology 5 - Management and evaluation of course 6 - Century Skills

20 - **Seok Model (2006):** 1 - teaching effectiveness 2 - Learning Effectiveness 3 - Interaction 4 - Instructional Design 5 - Information Resources 6 - Evaluation 7 - Support

21 - **Shao et al Model (2006):** 1 - Institutional Support 2 - course development and instructional design 3- TEACH - Learn 4 - Resources and Structure of course 5 - student and teacher support 6 - Assessment and Evaluation 7 - Using Technology 8 - products and Services

22 - **Model of University of Illinois Virtual Career Center (2007):** 1 - Instructional Design 2 - communication, interaction and collaboration, 3 - Measurement and evaluation of 4 - Comprehensive support resources and services 5- Web Design 6 - Evaluation of course

23 - Shrill & Shiffman Model (2003): Elements of e-learning in this model are: 1 - Assessment of Needs 2 - Determination of the overall objectives 3 - Determination of behavioral objectives 4 - content analysis 5 – Choosing the media 6 – strategies identification and evaluation 7 - preparation of training materials 8 - developmental evaluation 9 – final evaluation 10 - reforms needed

24 - Leshin & Polook & Reigeluth Model (2003): Learning Design elements in this model are: 1 - Analysis of problem 2 – analysis of scope, 3 - clear learning activities 4 - Analysis of the sequence and content 5 – implementation 6 - Educational Evaluation

25 - Gerlach & Ely Model (2003): Learning Design elements in this model are: 1 - evaluating the inputs behavior 2 - behavioral goals determination 3 - Content determinations 4 - selections of resources 5 - educational strategies determination 6 – devoting the time and place 7 - performance evaluation 8 - analysis and feedback.

26 – Gustafson Model (2002):
E-learning design elements in this model are: 1 – Specifying the Issue 2 - Teaching objectives and organizing them 3 - learner's entry-level skills 4- behavioral goals determination 5 - Setting the Media 6 – Determination of instructional strategies 7 – Choosing the educational materials 8 – implementation 9 - analysis of results 10 – Modifying the learning materials

27 - Dick and Carey model (1996): e-Learning Design elements in this model are: 1 - Analysis of Training 2 - Setting goals for education, 3 - input behavior Determination - 4 behavioral goals Determination 5 - instructional strategies Determination 6 - Determination and choosing the Educational Materials 7 - developmental evaluation 8 – final evaluation 9 - improving the training

28 - Camp Model (2003): e-Learning Design elements in this model are: 1 - character specifications of learner 2 - results and objectives 3 - Pre-Test 4 - behavioral objectives Determination 5 - Analysis of Content 6 - Educational Resources 7 - Teaching 8 - Support Services 9 - developmental evaluation 10 –final evaluation 11 - correction.

29- Law Model (2004): Lowe introduces the strategic system model in use of information technology and communications. Based on this model, Law argues that the use of information technology in education requires action at three levels of the educational system and individual school or college. On the other hand, he has identified policies and strategies and measures the performance factors separately for each level of government and private sectors.

30 - Chapnick Model (2001)
Chapnick provides a tool for evaluating an organization's readiness to deploy e-learning. He has raised its utility as a tool to assess learning needs. His model helps to answer the following questions: Can we do e-learning in the organizations. If we do so, how to do and what result will be got and how to measure it. Chapnick tool has 66 items in 8total factors which include: 1 - psychological factor 2 - sociological factor 3 - environmental factors 4 - human resources 5 - financial factor 6 - Technical Skill 7 -tools 8 – Content

31 - Rosenberg Model
Rosenberg (2001) has raised a questionnaires consisting of 20 questions to assess the readiness of e-learning in organizations in 7 factors: 1 - Business Preparation 2 - attitudes to learning and e-learning in the organization 3 - The value of learning and information design 4 - Management of Change 5 – re-structured learning. 6 – e-Learning industry 7 - Personal Commitment.

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Rosenberg (2001) argues that education consists of four components: 1 - purpose or goal of 2 - a plan is to pace the learning strategies learning needs best and employs the Strategies and measures on teaching 3 - tools of learning such as classroom 4 - Evaluation or presentation capability of the certificate.

Rosenberg has an assortment of e-learning access as the following: 1 - Technical Access: an infrastructure for data connectivity 2 - authority and permission to use and recovery of data 3 - Flexibility: Learner adapts himself with learning 4 - Time: capability to devote time to learn, review and absorb the information

32 - Anderson Model (2003)

Anderson has presented a model consisting of five factors titled 5 C and he provides questions for assessing e-learning readiness of organizations. Anderson model parameters are:

1 - Culture: This is a relevant factor in supporting organizational culture from e-learning and attitude towards development of individuals.2 - Content: it is related to what content is appropriate for learning.3 - Capability: it is suitable for hardware platforms, infrastructure and support.4 - Cost: This factor refers to the ability of organization to pay for e-learning.

5 - Clients: This factor refers to the amount and usage of e-learning learners.

33 - Haney Model (2004): Haney presents the evaluation of an organization's readiness for e-learning as follows: human resources, learning management systems, learners, content, information technology, finance and sellers.

34 - Graham et al Hybrid model (2003): Graham and colleagues have proposed three types of combination as hybrid learning which include: combination of transmission media, combination of educational models, combination of verbal and non-verbal learning. Graham and colleagues present the following reasons for using a combination of e-learning: educational enrichment, access to modern knowledge, social interaction, personal management, effectiveness of costs, review reduction, improvement of training, increased availability, flexibility and efficiency.

35 - Cooper Model (2003): Cooper believes that an e-learning includes three parts: input, output and processing.

1 - Input: learning artifacts, learner, his former knowledge, staff and their knowledge, their financial goals and objectives, infrastructure

2 – System: Management, products, learning technology, maintenance, Adaptation , input boundary, Output Boundary.

3 - Output: artifacts of learning, learner, new knowledge for the learner, acquiring the new certificates for learner, staff, new knowledge and experience for employees, compensation and benefits for employees, order effects, satisfaction, reputation.

Cooper also provided a model for designing the learning that includes the following elements:

1 - role of learner and teacher 2 - method includes the learning objectives 3 - activities include learning activities and support activities 4 - Environmental services and learning objects.

Cooper has classified the educational organization features into two categories: Structural features such as Formality, privatization, standardization of work processes, hierarchical, complexity, restrictions, professionalism

Contextual characteristics: goals and strategies, environment, size, technology and culture.

36 - Song, L. (2007)& Hill, J. R. (2007) Model

Song, L. (2007)& Hill, J. R. (2007) presented a conceptual self-centered model for learning. Elements of this model include:

1_ character features that are shaped by learners based on their knowledge and experience, including motivation, use of resources and cognitive strategies.2 – Processes include the planning, monitoring and evaluation. 3 - Design includes the nature of task, the resources structure 4 - Support includes the feedback and co-cooperation 5 - Inputs include the model, prior knowledge and

experiences 6 – Output includes the Outcome of learning models, learning and satisfaction.

37 - Reference Model

Instructional design elements of this model include: analysis, design, development, implementation, and evaluation. This model is a model of instructional systems design family. This model includes models such as the model of Dick and Carey (2004) and the model of camp. Although the concept of education has existed since the early 1950s, but the reference model emerged in 1975. This model was used by the "Center for Educational Technology" at the University of Florida for America's Army and then rapidly throughout world.

The main steps of this model: 1 - analysis of the learning environment and goals 2 - Designing a training program 3 - Development of educational activities 4 - Design Implementation 5 – assessing the effectiveness of design and learner development

38 - Richards Model (2004): Richards believes that we must make a distinction between the e-learning model and more coherent strategies that are beyond the mere content to provide the possibility of more efficient and interactive learning.

Richards believes that in the e-learning we need a more integrated approach to lead the learning from mere content transfer design to the efficient and more interactive learning. But he believes that the most valuable work in any classroom is to create opportunities for learners to interact and cooperate with each other.

39 - the Institute for Higher Education Model

Based on the results of quality in online education by The Institute for Higher Education Policy, factors affecting e-learning include: organizational support, developing the curriculum, process of learning – teaching, course structure, student support services, support services from members of the scientific board, evaluation.

40 - McDonald's demand-driven learning Model

The demand-driven learning model was developed in collaboration with the private sector, academics and practitioners in Canada. The primary purpose of this model was to encourage the use of technology in the teaching process. This model focuses on three consumer demands: high-quality content, presentation practices and services. Content should be reliable and competitive. The presentation manner provided in electronic form shall provide the services requiring the learning resources, management and technical services through a Web-based network. The model showed that the traditional teaching simulation in the online and virtual environment cannot be effective alone but it should also pay attention to the needs of learners and changes required in teaching methods.

41 – author Model:

This model includes 19 factors: 1 - Processes and systems 2 - policies and strategies for teaching 3 - Infrastructure 4 - Characteristics of Learners 5 - Need and Demand 6 - Services 7 emotional dimensions 8 - technical skills of e-learning 9 - knowledge and attitudes of teachers 10 - general skills 11 - readiness 12 - Past experiences 13 - quality 14 - Inspection 15 - Content 16 - motivation 17 - interactions and relationship 18 - Support 19 - objectives and priorities.

This model is composed of three main layers: (1) objectives and policies (2) structure and process (3) services and support.

Conclusions

E-learning models provide the framework for implementation of e-learning. E-learning model can help learners to learn effectively and teachers and training executives to teach educational programs efficiently. So above mentioned cases are necessary due to reasons such as cost reduction, increased productivity, competitive advantage, and preservation and conservation of organizations, providing the various forms of training and flexibility, ease of access, eliminating the constraints of time and place for implementing and developing the e-learning. Better Implementation of e-learning is depends on the recognition of e-learning environment and its all elements, identifying ,

determining and defining the role of each of the elements as well as learners, teachers and educational executives.

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