Identifying Success Factors for e-Learning in Higher Education:

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Abstract: The dramatic growth and rapid expansion in providing online courses together with the increasing interest in distance learning and budget restrictions have resulted in increasing adoption of various kinds of online learning systems in Higher Education (HE) institutes. As the technology becomes increasingly reliable, accessible and user-friendly, higher education institutes are looking to exploit the full potential of the Internet. Consequently, it is necessary to identify and understand the factors that contribute to a successful implementation of e-learning programs.
The aim of this paper is to identify several factors that are significant for e-Learning in the context of higher education. The literature was reviewed to determine the factors contributing to the success of e-learning. A total of 68 papers published from 1998-2016 were reviewed in the field of e-learning success factors, quality, and evaluation in the context of higher education. 25 papers used to identify the main dimensions and themes. The similarities and differences among these studies were analyzed. The full set of 68 papers used to determine the corresponding sub-themes of success factors.
The results from data analysis of the factors for e-learning were grouped into ten main dimensions: 1)Planning 2)Readiness 3)Management 4)Support 5)Pedagogical 6)Technological 7)Faculty 8)Institution 9)Evaluation 10)Ethics. Each of the ten dimensions groups together 110 influential factors that can support and enhance the quality of e-learning courses in the context of higher education institutes. The results help to articulate issues that are essential to the successful implementation of e-learning to contribute to design approaches to e-learning programs that address these relevant issues and factors. In addition, the analysis provides valuable guidance to e-learning stakeholders, grounded in literature, which help in gaining a better understanding of issues and aspects of e-learning environments that are vital to the success and the quality of e-learning.
Keywords: Success Factors, Criteria, e-Learning, Higher Education

I. Introduction

E-learning facilitates the process of learning by increasing the accessibility and availability of learning materials, up to date content, personalized instructions, cost effectiveness, self-paced learning, multimedia, and interactivity. It plays a vital role to convert an organization into a learning organization; moreover, it is accelerated in higher education institutes to support effective learning in the context of lifelong learning (Wong and Huang, 2015).
Despite the benefits of e-learning, it still faces obstacles and challenges that impede the success of its programs. It was reported by Oliver (2005) that many e-learning applications have failed to realize their aims and goals, resulting in questions about the quality and capabilities of this type of education. Several researchers pointed to critical problems when implementing e-learning. For example, technology infrastructure, students' confidence, motivation, technology confidence, satisfaction, personal characteristics, cultural and political concerns, support, training (Surry et al., 2005; Raab et al., 2001; Brinkerhoff, 2006; Hussein et al., 2007).
Therefore, it will be of great interest to investigate the aspects and factors that affect the success of e-learning systems to answer the research question "What are the dimensions and factors that influence the success of e-learning in higher education?"
The rest of the paper is organized as follows: Section 2 presents the Problem Statements Section 3 State of the Art Selection; Section 4 Methodology; Section 5 Literature Review; the Results are presented in Section 6, and the paper concludes with Section 7.

II. Problem Statement

Several researchers evaluated e-learning systems and explored a range of issues and factors, in addition to proposing various models and frameworks that affect the quality and success of online learning in higher education. Despite the fact that previous studies offer a valuable contribution, they focus on particular dimensions and overlook others, and there is a need for gathering scattered data and covering all dimensions.

To fill the gap, this study introduces the dimensions found in literature framed within a big umbrella and guided by a better understanding of each dimension and the composing factors.

III. State of the Art Selection

68 papers published in highly ranked conferences and journals from 1998 until 2016 were reviewed. The selection of these papers was made based on their novelty, results confidently, the area of concern. Of the 68 papers, 25 papers were selected as a representative sample to identify the main dimensions (the remaining 43 did not contain material directly relevant to the dimensions). The full set of '68 papers' was used to determine the factors and sub-factors under the ten dimensions.

IV. Method

The objective of this paper is to identify the factors that affect the success of e-learning. The literature was reviewed to determine the dimensions and factors that influence the successful implementation of e-learning in Higher Education. A total of 68 papers published between 1998 and 2016 were reviewed. The topics of interest were e-learning (success factors, evaluation models, evaluation frameworks, quality) in the context of higher education. 25 papers were selected to identify the main dimensions. Surveying these models and frameworks reveals that in each framework certain dimensions are more outstanding than others. The ten dimensions proposed in this study are comprehensive and based upon covering all the found dimensions. Table 1 compares the outstanding dimensions pinpointed in each model. Each of these dimensions comprises aggregated clusters of variables and can be further disaggregated into smaller ones until identified individual variables. Consequently, the second step in this study was identifying the corresponding factors found on the whole set of the reviewed papers. The results were obtained based on compiling the main factors and corresponding sub-factors of e-learning from all the papers studied.

V. A Brief Review of the Studied Papers

Due to the need and great interest in investigating the factors and themes that lead to the success of e-learning, various models and frameworks have been proposed for designing and creating e-learning systems. The global e-learning framework (Khan, 2001) consists of eight categories of success factors namely: technological, pedagogical, institutional, management, interface, support, evaluation and ethical. This model introduced many factors under each category that need to be explored - the more explored issues, the more powerful and meaningful learning environment created. The Virtual University Reference Model (Aoki and Pogroszewski, 1998) emphasised three layers: the organizational layer which provides the structure for the organization and for copyright and quality considerations; the infrastructure layer that includes the technologies required for the implementation of the virtual campus and services; and the content layer that is responsible for the organisation and delivery of the content. In contrast, Aguti et al. (2014) focused on the importance of e-readiness and the course delivery strategy. Another study conducted in an Australian university stated that success factors are technology (accessibility, navigation, interaction and interface design); instructor (attitudes, technical competence, and interaction methods); and students' previous use of technology.

AbuSnieneh and Zairi (2010) exposed a framework that addressed five dimensions: pedagogy, technology, support, faculty, and institution. Selim (2007) classified the key factors for successful e-learning implementation in higher education into four categories: students' characteristics; instructor characteristics; technological infrastructure; and support. Bhuasiri et al. (2012) studied the success factors that influence the acceptance of e-learning systems in developing countries. The results revealed six dimensions and 20 critical factors, concentrating mainly on the importance of curriculum design, technology awareness, motivation and learners' behavior.

Another study conducted by Basak et al. (2016) to identify the critical success factors of e-learning in higher education proposed a framework based on eight subjects: technological; management; institutional; pedagogical; evaluation; resources; social interaction and ethical. This framework was in line with the Technology Acceptance Model and considered the eight major themes as external variables that affect the perceived ease of use and usefulness. In Iranian universities, Darab and Montazer (2011) emphasized the critical role the e-readiness plays in e-learning programs. Based on a survey conducted in Tarbiat Modares University they found that 'law and regulations readiness' and 'management' are the most important factors for the successful implementation of e-learning systems.

VI. Results

25 models and frameworks that addressed the quality success factors of e-learning were studied. Table 1 compares the outstanding dimensions in each one.

	Study Title	Author(s)	Planning	E-Readiness	Management	Support	Pedagogy	Technology	Faculty	Institution	Evaluation	Ethical
1.	E-Learning Indicators: A Multi-Dimensional Model for Planning and Evaluating e-Learning Software Solutions	Fetaji, 2009	×	×	×	✓	✓	✓	×	×	×	×
2.	Why you need an e-learning plan	Bates, 2010	✓	×	×	×	×	×	×	×	×	×
3.	Evaluation of the effectiveness of a web-based learning design for adult computer science courses	Antonis et al., 2011	×	×	×	✓	✓	×	×	×	×	×
4.	Quality in e-learning: A Framework for Promoting and Assuring Quality in virtual institutions	Momeni et al. 2013	×	×	✓	×	✓	✓	×	×	×	×
5.	Quality on the Line: Benchmarks for Success in Internet-Based Distance Education	Phipps and Merisotis, 2000	×	×	×	✓	✓	✓	×	×	✓	×
6.	A Framework for Web-based Learning	Khan, 2001	×	×	✓	✓	✓	✓	×	✓	✓	✓
7.	Critical success factors for e-learning acceptance: Confirmatory factor models	Selim, 2007	×	✓	×	✓	✓	×	×	×	×	×
8.	A taxonomy of factors to promote quality web-supported learning	Fresen, 2007	×	×	×	×	✓	✓	×	✓	×	×
9.	The Sloan Consortium quality framework and the five pillars	Moore, 2005	×	×	×	×	✓	✓	✓	✓	×	×
10.	Critical Success Factors for Distance Learning	Papp, 2000	×	×	×	×	✓	✓	×	×	✓	✓
11.	Critical success factors in Online Education	Volery, 2000	×	×	×	×	✓	✓	×	×	×	×
12.	Using Blended Learning Approaches to Enhance Teaching and Learning Outcomes in Higher Education	Oliver, 2001	×	✓	×	×	✓	✓	×	×	×	×
13.	A Virtual University Model	Whittington and Scluter, 1998	×	✓	×	×	×	✓	×	×	×	×
14.	Successful implementation of e-learning: Pedagogical Considerations	Govindasamy, 2002	×	×	×	✓	✓	×	×	×	✓	×
15.	A framework for evaluating the effectiveness of blended e-learning within universities	Aguti et al., 2014	×	✓	×	×	✓	×	×	×	✓	×
16.	An evaluation framework for E-learning effectiveness in the Arab World	AbuSneineh, 2010	×	×	×	✓	✓	✓	✓	✓	×	×
17.	Impact of E-learning on higher education: Development of an e-learning framework	Khan and Baadi, 2012	×	×	✓	✓	✓	✓	×	✓	✓	✓
18.	Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty	Bhuasiri et al., 2012	×	×	×	✓	✓	✓	×	✓	×	×
19.	A Professional Development Framework for Online Teaching	Baran and Correia, 2014	×	×	×	✓	✓	✓	✓	✓	✓	×
20.	Quality in e-learning: A Framework for Promoting and Assuring Quality in virtual institutions	Masoumi and Lindström, 2012	×	×	×	✓	✓	✓	×	✓	✓	×
21.	E-Learning Planning Framework. Professional Learning	Melhuish, 2014	✓	×	×	×	×	×	×	×	×	×
22.	An Empirical Evaluation of Critical Factors Influencing Learner Satisfaction in Blended Learning	Chen and Yao, 2016	×	×	×	×	✓	✓	×	×	✓	×
23.	Critical success factors for online distance learning in higher education	Cheawjindakarn et al., 2013	×	×	✓	✓	✓	✓	×	✓	✓	×
24.	A Framework on the Critical Success Factors of E-Learning Implementation in Higher Education	Basak et al., 2016	×	✓	✓	×	✓	✓	×	✓	✓	✓
25.	Six Factors to Consider when Planning Online Distance Learning Programs in Higher Education	Levy, 2003	✓	×	×	×	×	×	×	×	×	×

Table 1: Comparison between 25 models and frameworks

A. Proposed Dimensions

Based on thorough understanding and analysis of each study and as a result, the fundamental themes affecting the implementation of e-learning in higher education would include ten dimensions: Planning, E-Readiness, Management and Organization, Support, Pedagogy, Technology, Faculty, Institution, Evaluation, and Ethical, as shown in Fig. 1.

Fig.1 E-learning Ten Dimensions

Each dimension includes several factors that can be explained as follows:

B. Planning Factors

Planning is a vital phase in e-learning which was emphasized by many researchers (Robinson, 2000; Chute et al., 1998; Care and Scanlan, 2001; Berge and Mrozowski, 2001). It is considered one of the most important key success factors behind any project (Gellman-Danley and Fetzner, 1998; Bothel, 2001).

The key factors that should be highlighted on the phase of e-learning planning are: 1.The current context of e-learning in the institute (Anderson, 2008: 97; Bates, 2011; Mariani et al., 2012); 2.Vision, clarity of purpose and measurable goals for the use of technology for teaching (Bothel, 2001; McLendon and Cronk, 1999; Pappas, 2014; Ghirardini, 2011: 21; Bates, 2010; Bates and Sangra, 2011); 3.Innovation in teaching (Clarke, 2003: 16-22; Bates, 2010). Once the institution's current context of e-learning is studied, the requirements are gathered, the goals and purpose for using the technology for teaching are clearly determined, then factor4 (Setting priorities) becomes relevant (Robinson, 2000; Levy, 2003; Kemp, 2000; Broadbent, 2002; Bates and Sangra, 2011) and leads to factor 5 'Faculty Training and Support' (Anderson and Middleton, 2002; Levy, 2003; McNaught, 2002; Bates, 2011; Husmann and Miller 2001; Arabasz and Baker, 2003; Bates, 2010).

After the institutions' decision to enter the mainstream of technology learning or e-learning, many subsequent decisions should be made, and various institutional elements are then influenced to have successful and effective learning. Consequently, Mandates for supporting e-learning is the sixth factor in the planning phase (Bates, 2010) and finally Factor7 (Curriculum) focuses on educational and pedagogic issues (Bothel, 2001; McNaught, 2002; Bates, 2011).

C. E-Readiness Factors

There has been substantial research about e-learning readiness factors and issues that should be addressed to pave the way for successful e-learning implementations. The first step that comes just after the planning and before implementing any enterprise-wide project is to assess and study the requirements that are necessary to establish it and what it takes to deliver it.

As a result of studying literature, e-readiness factors can be classified into: 1.Laws and regulations readiness; 2.Management readiness; 3.Supervision readiness; 4.Communication network readiness; 5.Culture readiness; 6.Content readiness; 7.Support readiness; 8.Assessment readiness; 9.Human Resource readiness (human resource readiness: staff, sufficient manpower, project team and leadership); 10.Educational policy readiness; 11.Standards readiness; 12.Financial readiness; 13.Security readiness; 14.Equipment readiness; 15.Psychological readiness (attitude, awareness, motivation, confidence); 16.Technology readiness (software, hardware, and stability); 17.Institution readiness (university, faculty, and department); 18.Acceptance readiness (perceived usefulness and ease of use); 19.Training readiness; 20.Infrastructures readiness; 21.Skills readiness; 22.Business readiness (alignment with higher education institute strategy, external environment, and higher education institute commitment).

(Darab and Montazer, 2011; Rohayani, 2015; Hussain, 2011; Fresen, 2007; Machado, 2007; Keramati et al., 2011; Blinco et al., 2004; Azimi, 2013; Akaslan and Law, 2011; Omoda and Lubega, 2011; Saekow and Samson, 2011; Mafenya, 2013; López, 2007; Oketch and Achieng, 2013; Bhuasiri, et al., 2012; Basak et al., 2016; Psycharis, 2005; Chapnick, 2000).

D. Management and Organizational Factors

This dimension deals with the managerial issues that address the continuation, for example, that is used to evaluate whether the e-learning atmosphere is performing accurately and the instructions meet the intent. In addition, it deals with issues of security and quality control. The management and organization factors that affect the implementation of e-learning are indicated by many researchers: 1.People, Process, and Product; 2.Management Team; 3.Managing E-Learning Content Development; 4.Managing E-Learning Environment (Khan, 2010); 5.Resources; 6.Physical Security (Khan and Baadi, 2012); 7.Market Research 8.Program Framework (Cheawjindakarn et al., 2013); 9.Managing delivery and maintenance; 10.Time management; 11.Efficiency; 12.Effectiveness; 13.Thinking strategies; 14.Problem-solving abilities (Basak et al., 2016).

E. Support Factors

The benchmarks in this group of factors address the continuous support and assistance throughout the learning journey. Support is a key issue as e-learning will not succeed to achieve its goals without advice and support (Cheawjindakarn et al., 2013).

Results from literature reveal these support factors: 1.Online Support; 2. Resources (online and offline resources) (Khan, 2005); 3.Appropriateness of support services to learners' needs, pedagogical, technological and others; 4.Responsiveness of learner support services and staff to learners' inquiries (AbuSneineh and Zairi, 2010); 5.Institutional support; 6.Student support; 7.Faculty support (Govindasamy, 2001, Oliver, 2001; Antonis, et al., 2011; Fetaji and Fetaji, 2009; Phipps and Merisotis, 2000; Cheawjindakarn et al., 2013).

F. Pedagogical Factors

E-learning pedagogical factors are one of the first issues educators consider when they plan to teach (AbuSneineh and Zairi, 2010) that concentrate on the learning that enhances the mood, for example, learning styles, multimedia tools, the content, pedagogical support (Puri, 2012). Pedagogical factors from the literature are: 1.Goal Analysis; 2.Design approach; 3.Learning Styles; 4.Interaction methods; 5.Responsiveness to learners; 6.Multimedia (Diversity, Relevancy, Consistency); 7.Learners' characteristics; 8.Instructors' characteristics; 9.Content; 10.Instructional design; 11.Teaching/Learning; 12.Communication with learners; 9.Organization; 10.Media Analysis; 11.Learner-centered learning environment; 12.Flexibility of learning time and location (Khan, 2005; AbuSneineh and Zairi, 2010; Fresen, 2007; Antonis, et al., 2011; Mayer et al., 2001; Cheawjindakarn et al., 2013; Basak et al., 2016; Khan and Baadi, 2012; Stone et al., 2001; Fetaji and Fetaji, 2009; Phipps and Merisotis, 2000; Chen and Yao, 2016; Fresen, 2007; Graham et al., 2001).

G. Technological Factors

The amount of literature that studies the technological aspects of e-learning is enormous, and several researchers have highlighted the significant role that technology has in the successful implementation of e-learning. It plays an integral role because of the facilities, flexibility in delivery methods and interactions available in online environments (Selim, 2007). The effective use of technology in delivering courses to learners is essential to the success of e-learning that makes the delivery process as smooth as possible (Cheawjindakarn et al., 2013). These factors are associated with: 1.Infrastructure; 2.Consistency and effectiveness of IT; 3.Reliability; 4.Accessibility; 5.Hardware; 6.Software; 7.Interface Design; 8.IT support and training (for lecturers and students); 9.Appropriateness of technology to the pedagogical content; 10.Ease of use (Selim, 2007; Khan, 2005; Fresen, 2007; AbuSneineh and Zairi, 2010; Bhuasiri, et al., 2012; Chen and Yao, 2016; Volery, and Lord, 2000; Phipps and Merisotis, 2000; Cheawjindakarn et al., 2013; Basak et al., 2016; Khan and Baadi, 2012.)

H. Faculty Factors

A positive direct link exists between the quality of e-learning programs and the role the faculty does in succeeding in its programs. However, introducing e-learning to institutions had caused negative experiences due to the assignment of online courses without proper training, for example for institution, faculty, and learners themselves (Howelle et al., 2004). Consequently, several researchers (Moore, 2005; AbuSneineh and Zairi, 2010; Caplan, 2008; Hartman et al., 2000; Bower, 2001) stated faculty factors that have a significant impact on the successful implementation of e-learning:

1. Faculty competency whether pedagogical or technological;
2. Faculty engagement in e-learning related events and activities;
3. Faculty innovativeness and creation of new methods that enhance the e-learning environment;
4. Faculty recognition of extra load, intellectual contribution, innovativeness, etc.;
5. Faculty success with online learning.

I. Institutional Factors

These benchmarks of factors are associated with issues of administrative and academic affairs and services provided to students that are related to e-learning. Such factors include: 1.Administrative affairs (for example, readiness assessment, organization and change, budgeting and return on investment, partnerships with other institutions, marketing and recruitment, admissions, financial, registration and payment); 2.Academic affairs (for example, accreditation, policy, class size); 3.Student services (for example, pre-enrolment services, advising, services for students with disabilities, library support, students newsletter, internship and employment services) (Khan, 2010); 4.Student advice and consultation (with respect to courses, careers, etc.) (Fresen, 2007); 5.Leadership commitment to effective learning; 6.Appropriateness of processes to the e-learning environment and strategy; 7.Financial sustainability and feasibility (AbuSneineh and Zairi, 2010); 8.Institution and Service Quality (Bhuasiri, et al., 2012); 9.Leadership strategy; 10.Change in study habits; 11.Making people understand how to learn (Basak, et al., 2016).

J. Evaluation Factors

Results from previous studies revealed that this dimension affects the successful implementation of e-learning; these factors are: 1.Assessment of learners 2.Evaluation of instruction and learning environment (Chen and Yao, 2016; Khan, 2010; Basak, et al., 2016); 3.Evaluation of learning processes, outcomes, perceptions (Basak, et al., 2016; Moore, 2005; Oliver, 2001; Fetaji and Fetaji, 2009); 4.Evaluation of instructional material (content) (Basak, et al., 2016; Govindasamy, 2001); 5.Feedback (Antonis, et al., 2011); 6.Summative evaluation 7.Formative evaluation 8.Achieve the objectives (Cheawjindakarn, et al., 2013).

K. Ethical Factors

Several researchers studied ethical factors and revealed the ethical factors that are necessary for the success of e-learning in the context of higher education. These factors are: 1.Social and political influence; 2.Cultural Diversity; 3.Bias; 4.Geographical Diversity; 5.Learner Diversity; 6.Digital Divide; 7.Etiquette; 8.Legal Issues; 9.Social and Political Influence; 10.Info Accessibility; 11.Religious Diversity (Khan, 2010; Basak, et al., 2016; Khan and Baadi, 2012).

VII. Conclusions

The main objective of this paper was to specify the factors that contribute to the successful implementation of e-learning programs in higher education. The study was conducted because existing models and frameworks focus on some dimensions and related factors and overlook other important ones. Moreover, there is a need for a comprehensive, grounded in literature and up to date study that gathers all these factors.

The factors were determined based on extensive review of the literature, related studies and existing models and frameworks related to each dimension. A total of 68 were studied carefully to import the factors. The objective of this study was achieved by finding out ten main groups of factors: 1)Planning 2)Readiness 3)Management 4)Support 5)Pedagogical 6)Technological 7)Faculty 8)Institution 9)Evaluation 10)Ethics and 110 sub-factors.

It is evident from the literature that all these factors are important and have an influence on the implementation of e-learning in higher education. A systematic understanding of the factors helps designers and developers to implement e-learning programs successfully.

References

AbuSneineh, W. and Zairi, M., (2010) “An evaluation framework for E-learning effectiveness in the Arab World”. International Encyclopedia of Education, pp 521-535.

Aguti, B., Walters, R. and Wills, G., (2013) “A framework for evaluating the effectiveness of blended e-learning within universities”. In Proceedings of Society for Information Technology and Teacher Education International Conference 2013 (pp 1982-1987). Association for the Advancement of Computing in Education.

Akaslan, D. and Law, E.L.C., (2011) “Measuring student e-learning readiness: A case about the subject of electricity in higher education institutions in Turkey”. In International Conference on Web-Based Learning (pp 209-218). Springer Berlin Heidelberg.

Anderson, S.K. and Middleton, V., (2002) “You want me to do what? The cultural and psychological struggle of putting a course online. The Technology Source.

Anderson, T., (2008) The theory and practice of online learning. (2nd ed.). Edmonton, AB: Athabasca University Press.

Antonis, K., Daradoumis, T., Papadakis, S. and Simos, C., (2011) “Evaluation of the effectiveness of a web-based learning design for adult computer science courses”. IEEE Transactions on Education, 54(3), pp 374-380.

Aoki, K. and Pogroszewski, D., (1998) “Virtual university reference model: A guide to delivering education and support services to the distance learner”. Online journal of distance learning administration, 1(3), pp 1-15.

Arabasz, P. and Baker, M.B., (2003) Evolving Campus Support Models for E-learning Courses. Educause Center for Applied Research Bulletin, pp 1-9.

Azimi, H.M., (2013) “Readiness for Implementation of E-Learning in Colleges of Education”. Journal of Novel Applied Sciences, 2(12), pp 769-775.

Baran, E. and Correia, A.P., (2014) “A Professional Development Framework for Online Teaching”. TechTrends, 58(5), pp 95-101.

Basak, S.K., Wotto, M. and Bélanger, P., (2016) “A Framework on the Critical Success Factors of E-Learning Implementation in Higher Education: A Review of the Literature”. World Academy of Science, Engineering and Technology, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering, 10(7), pp 2335-2340.

Bates, A.W., Bates, T. and Sangra, A., (2011). “Managing technology in higher education: Strategies for Transforming Teaching and Learning”. John Wiley and Sons.

Bates, T., (2010). “Why you need an e-learning plan”. [online] http://www.tonybates.ca/2011/10/30/why-you-need-an-e-learning-plan.

Berge, Z.L. and Mrozowski, S., (2001) “Review of research in distance education, 1990 to 1999”. American Journal of Distance Education, 15(3), pp 5-19.

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J.J. and Ciganek, A.P., (2012) “Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty”. Computers and Education, 58(2), pp 843-855.

Blinco, K., Mason, J., McLean, N. and Wilson, S., (2004) Trends and Issues in E-learning Infrastructure Development. Altilab04, Redwood City, California, USA.

Bothel, R., (2001) “Bringing it all together”. Online Journal of Distance Learning Administration, 4(1), pp 1-8. [online] http://www.westga.edu/~distance/ojdla/spring41/bothel41.html.

Brinkerhoff, J., (2006) “Effects of a Long-duration, Professional Development Academy on Technology Skills, Computer Self-efficacy, and Technology Integration Beliefs and Practices”. Journal of research on technology in education, 39(1), pp 22-43.

Broadbent, B., (2002) ABC's of e-learning: Reaping the benefits and avoiding the pitfalls. John Wiley and Sons, Inc. San Francisco: Jossey-Bass.

Care, W.D. and Scanlan, J.M., (2001). “Planning and Managing the Development of Courses for Distance Delivery: Results from a Qualitative Study”. Online Journal of Distance Learning Administration, 4(2), pp 1-9.

Chapnick, S., (2000) Are you Ready for E-learning? “Learning Circuits: ASTD’s Online Magazine All about E-Learning”, [online] http://www.learningcircuits.org/2000/nov2000/Chapnick.htm.

Cheawjindakarn, B., Suwannatthachote, P. and Theeraroungchaisri, A., (2013) “Critical success factors for online distance learning in higher education: A review of the literature”. Creative Education, 3(08), p.61.

Chen, W.S. and Yao, A.Y.T., (2016) “An Empirical Evaluation of Critical Factors Influencing Learner Satisfaction in Blended Learning: A Pilot Study”. Universal Journal of Educational Research, 4(7), pp 1667-1671.

Chute, A.G., Hancock, B. and Thompson, M., (1998) The McGraw-Hill Handbook of Distance Learning: A How to Get Started Guide for Trainers and Human Resources Professionals. McGraw-Hill, Inc..

Clarke, C., (2003) “Towards a Unified E-learning Strategy”. Department for Education and Skills, UK, Consultation Document, [online] http://www.dfes.gov.uk/elearningstrategy/strategy.stm.

Darab, B. and Montazer, G.A., (2011) “An Eclectic Model for Assessing E-learning Readiness in the Iranian Universities”. Computers and Education, 56(3), pp 900-910.

Fetaji, B. and Fetaji, M., (2009) “E-Learning Indicators: A Multi-Dimensional Model for Planning and Evaluating e-Learning Software Solutions”. Electronic Journal of e-Learning, 7(1), pp 1-28.

Fresen, J., (2007) “A taxonomy of factors to promote quality web-supported learning”. International Journal on ELearning, 6(3), p.351.

Gellman-Danley, B. and Fetzner, M.J., (1998) “Asking the really tough questions: Policy issues for distance learning”. Online Journal of Distance Learning Administration, 1(1), p.2.

Ghirardini, B., (2011) E-learning Methodologies: a guide for designing and developing e-learning courses. Food and Agriculture Organization of the United Nations.

Govindasamy, T., (2001) “Successful implementation of e-learning: Pedagogical considerations”. The Internet and Higher Education, 4(3), pp 287-299.

Graham, C., Cagiltay, K., Craner, J., Lim, B.R. and Duffy, T.M., (2000) “Teaching in a Web Based Distance Learning Environment”. [online] http://cmapspublic2.ihmc.us/rid=1FWJQH04B-1GZ7Y50-G85/crlt00-13.pdf.

Howell, S.L., Saba, F., Lindsay, N.K. and Williams, P.B., (2004) “Seven Strategies for Enabling Faculty Success in Distance Education”. The Internet and Higher Education, 7(1), pp 33-49.

Husmann, D.E. and Miller, M.T., (2001) "Improving Distance Education: Perceptions of program administrators". Online Journal of Distance Learning Administration, 4(1), pp 66-89.

Hussain, A., 2011. "Infrastructure Requirements for e-Learning Implementation and Delivery". [online] http://blog.commlabindia.com/elearning-design/infrastructure-for-elearning.

Hussein, R., Aditiawarman, U. and Mohamed, N., (2007) "E-Learning acceptance in a developing country: A case of the Indonesian Open University". In German e-Science conference.

Kemp, J.E., (2000) "Instructional design for distance education". Education at a Distance, 14(10), pp 1-5.

Keramati, A., Afshari-Mofrad, M. and Kamrani, A., (2011) "The Role of Readiness Factors in E-learning Outcomes". Computers and Education, 57(3), pp 1919-1929.

Khan, B.H., (2001) "A Framework for Web-based Learning". New Jersey, USA: Educational Technology Publication, Englewood Cliffs. pp 75-98.

Khan, B.H., (2005) E-learning Quick Checklist. Hershey, PA: Information Science Publishing. [online] http://BooksToRead.com/checklist).

Khan, K.U. and Badii, A., (2012) "Impact of E-learning on higher education: Development of an e-learning framework". Life Science Journal, 9(4), pp 4073-4082.

Levy, S., (2003) "Six Factors to Consider when Planning Online Distance Learning Programs in Higher Education". Online Journal of Distance Learning Administration, 2(1) Spring 2003.

Machado, C., (2007) "Developing an e-readiness model for higher education institutions: results of a focus group study". British Journal of Educational Technology, 38(1), pp 72-82.

Mafenya, P.N., (2013) "An Investigation of First-Year Students' Pedagogical Readiness to E-Learning and Assessment in Open and Distance Learning: An University of South Africa Context". Mediterranean Journal of Social Sciences, 4(13), p.353.

Mariani, W., Terra, M. and Pêgo-Fernandes, M., (2012) "E-Learning: from useful to indispensable tool". Sao Paulo Medical Journal, 130(6), pp 357-359.

Masoumi, D. and Lindström, B., 2012. "Quality in e-learning: A Framework for Promoting and Assuring Quality in virtual institutions". Journal of Computer Assisted Learning, 28(1), pp 27-41.

Mayer, D., Mullens, J., Moore, M., and Ralph, J., (2000) "Monitoring School Quality: An Indicators Report". Washington, DC: US Department of Education, Office of Educational Research and Improvement, National Centre for Education.

McLendon, E. and Cronk, P., (1999) "Rethinking Academic Management Practices: A Case of Meeting New Challenges in Online Delivery". Journal of Distance Learning Assessment, 2(1), p.n1.

McNaught, C., (2002) "Quality assurance for online courses: Implementing policy at RMIT. The Technology Source". [online] http://ts.mivu.org/default.asp?show=articleandid=940.

Melhuish, K., (2014) "E-Learning Planning Framework. Professional Learning". [online] http://elearning.tki.org.nz/Professional-learning/e-Learning-Planning-Framework.

Momeni, M., Jamporazmey, M., Mehrafrouz, M. and Bahadori, F., (2013) "Comprehensive Framework for Evaluating e-Learning Systems: Using BSC Framework". International Journal on E-Learning, 12(1), pp 81-98.

Moore, J.C., (2005) The Sloan Consortium quality framework and the five pillars. The Sloan Consortium.

Oketch, H.A., (2013) E-learning Readiness Assessment Model in Kenyas' Higher Education Institutions: A Case Study Of University Of Nairobi (Doctoral dissertation, University of Nairobi).

Oliver, R., (2001) "Assuring the Quality of Online Learning in Australian Higher Education". In M. Wallace, A. Ellis and D. Newton (Eds). Proceedings of Moving Online II Conference. pp 221-231. Lismore: Southern Cross University.

Oliver, R., (2005) "Using Blended Learning Approaches to Enhance Teaching and Learning Outcomes in Higher Education". Proceedings of the International Association of University Presidents' Teaching Showcase.

Omoda-Onyait, G. and Lubega, T., (2011) "E-learning Readiness Assessment Model: A Case Study of Higher Institutions of Learning in Uganda". In International Conference on Hybrid Learning (pp 200-211). Springer Berlin Heidelberg.

Papp, R., (2000) "Critical Success Factors for Distance Learning". Americas Conference on Information Systems AMCIS 2000 Proceedings, p.104.

Pappas, C., (2014) "Why and How to Develop Learning Goals Into your eLearning Course". [online] http://elearningindustry.com/how-to-develop-learning-goals-into-elearning-course.

Peña-López, I., (2007) ICTs for development: from e-Readiness to e-Awareness. Seminar imparted in Barcelona, November 20th.

Phipps, R. and Merisotis, J., (2000) Quality on the Line: Benchmarks for Success in Internet-Based Distance Education. Washington, D.C.: Institute for Higher Education Policy.

Psycharis, S., (2005) “Presumptions and Actions Affecting an E-learning Adoption by the Educational System-Implementation Using Virtual Private Networks”. European Journal of Open, Distance and E-Learning, 8(2).

Puri, G., (2012) “Critical success Factors in e-Learning–An empirical study”. International Journal of Multidisciplinary Research, 2(1), pp 149-161.

Raab, T., Ellis, W. and Abdon, R., (2001). “Multisectoral Partnerships in E-learning: A Potential Force for Improved Human Capital Development in the Asia Pacific”. The Internet and Higher Education, 4(3), pp 217-229.

Robinson, E.T., (2000) Strategic Planning for Technological Change: The Human Component. Syllabus: New Directions in Education Technology, 14(4), pp 5-65.

Rohayani, A.H., (2015) “A Literature Review: Readiness Factors to Measuring e-Learning Readiness in Higher Education”. Procedia Computer Science, 59, pp 230-234.

Saekow, A. and Samson, D., (2011) “E-learning Readiness of Thailand's Universities Comparing to the USA's Cases”. International Journal of e-Education, e-Business, e-Management and e-Learning, 1(2), p.126.

Selim, H.M., (2007) “Critical success factors for e-learning acceptance: Confirmatory factor models”. Computers and Education, 49(2), pp 396-413.

Stone, W.S., Showalter, E.D., Orig, A. and Grover, M., (2001) “An Empirical Study of Course Selection and Divisional Structure in Distance Education Programs”. The Online Journal of Distance Learning Administration, 4(1).

Surry, D.W., Ensminger, D.C. and Haab, M., (2005) “A Model for Integrating Instructional Technology into Higher Education”. British Journal of Educational Technology, 36(2), pp 327-329.

Volery, T. and Lord, D., (2000) “Critical success factors in Online Education”. International Journal of Educational Management, 14(5), pp 216-223.

Whittington, C.D. and Sclater, N., (1998) “A Virtual University Model”. Reproductions supplied by EDRS. In: Web net 98 World Conference of the www, Internet and Intranet Proceeding November 7–12, IR 019 231.

Wong, W.T. and Huang, N., (2015) “The Effects of E-learning System Service Quality and Users’ Acceptance on Organizational Learning”. International Journal of Business and Information, 6(2).