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FORMING AN E-LEARNING PROPOSED MODEL. A CASE STUDY OF PALESTINE

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Abstract

Nowadays, e-learning systems play an important role in our life; they help instructors in the process of teaching and help the students and learners to access knowledge. e-learning is the concept that refers to the use of computerized and smart tools and designed systems in the learning process. Also, the interest in e-learning has started to increase dramatically, and researchers everywhere have become more interested in how to develop e-learning in all aspects. Therefore, the aim of this study is to present a model that includes the most important necessary variables required to provide and implement e-learning systems according to international standards for the students of Palestinian universities. This study undertook an in-depth review of literature concerning the success of e-learning implementation and focusing on the aspects of technology, infrastructure, scientific materials and services provided. The proposed model in this study will be the first building block that universities can focus on in designing, building and developing their own e-learning system and will be a cornerstone and the basis in the development of e-learning in Palestine over time.

JEL classification: I23

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Introduction

Computers and systems have been used as part of the learning process since the early 1960s (Bernhardt, 1960). Since then, the use of computerized systems in education and training activities has increased significantly (Jouda, 2020). According to a study conducted by the US Department of Education (2010), there has been an increase in participation in online courses by 65%. Nowadays, education and courses that use an electronic system have become an important tool for education and training in universities and institutes within organizational contexts. Also, there is tremendous growth in e-learning and e-learning markets around the world (OECD, 2018). E-learning boils down to two main concepts, learning and technology. Where learning is a process that seeks to achieve knowledge and increase achievement, and technology is the tool through which the educational process and the learning process can be implemented, and it can be said here that it is like a pencil, notebook or whiteboard and other traditional tools that are used in the educational process. Although this sounds quite simplistic and logical, traditional tools such as pencils are a more technologically transparent tool, so its use may seem more natural and favored by students and other people. Moreover, technology supports new trends and services that are provided by service institutions, which include different dimensions (Jouda et al., 2020).

E-learning systems combine many tools, such as audio and video recording techniques, educational activities, simulations, direct communication technologies, and multiple digital contents. For these reasons, researchers and scientists have sought to transform e-learning systems into a technically transparent tool, largely emulating the traditional system. There is an increase in e-learning literature on a large scale and researchers and those interested in developing e-learning are continuing their research to reach the best solutions to provide these services in a distinctive way (Aparicio, Bacao, & Oliveira, 2016). Based on the investigation conducted by (OECD, 2018) there is growth in the adoption and use of e-learning systems in all countries. According to statistics, the growth rate of online training courses has reached 65% (Means et al., 2009), and some studies indicate that at the government level, policies that increase and enable e-learning should be promoted over a wide range (Kong et al., 2014). As Hart, (2018) says, "By reviewing the work of others, you will be able to define methodological assumptions and research strategies." For these reasons, researchers should pay attention to reviewing the literature on e-learning as it is a valuable guide for researchers. However, there is no clear and integrated description of e-learning in the current literature. Consequently, the contribution of this study to this topic will be summarized in three main pivots. First, we will define and clarify all concepts of e-learning. Secondly, the different angles of e-learning will be presented; Some studies have focused on how to provide this service by examining the platforms' work. On the other hand, some researchers focus on developing educational content for the classroom, while others focus on the attitude of students and interaction with the e-learning system. This study will provide a broad literary review. Finally, based on the literature review, we will provide a comprehensive conceptual framework for e-learning systems.

Methodology

In this research, the literature search extended to numerous scientific articles from information systems, education and business journals, as well as a few conference records. To identify published articles related to e-learning, this search included various databases (for example, Science Direct, Wiley, Emerald, IEEE, Elsevier, Taylor & Francis, ACM,) and many related key terms and search terms (including e-learning, technology-based learning, technology-mediated learning, technology-enhanced learning, virtual learning, online learning, distance learning, distance education, virtual education, and ICT-based education) with a combination of synonyms that express the general meaning; For example, issues, problems, challenges, difficulties, success factors, barriers, failure, or success. Selected articles represent a wide range of reputable scholarly journals. Additionally, Google's search engine was used to search for other articles that might not otherwise be accessible in online databases. Initial developments in this field of research were greatly influenced by practitioners, so the literature review includes both academic resources (peer-reviewed journal publications, working papers, and conference papers) and official reports and surveys. Hence, to ensure the inclusion of the rapid developments in this field, the period of review extended from January 2010 to January 2021. The search resulted in 105 related publications, of which 95 were published in scientific journals and the rest were scientific conference publications. These articles applied different research methods and referred to different geographic regions with the aim of gaining both expertise and information.

Literature review and e-learning definition

The rapid growth in technology has led to the emergence and development of e-learning over the past decades and consequently, many definitions have emerged that define the concept as well as the various features of e-learning, but the vast majority of these definitions have agreed on the characteristics and features. Some of them are essential, for example, the use of online tools, multimedia, and video to produce materials for education, and for educating learners (Fry, 2001). Some researchers claim that the concept of e-learning expresses a variety of different digital technologies that are used in educational processes (Heinz & Koehler, 2015). Other scholars define e-learning as the use of ICT for educational offerings to display and distribute content in an asynchronous and decentralized manner, as well as for communication and interpersonal interaction (Garrison & Anderson, 2003). Likewise, Sadeghi (2018) claims that the definition of e-learning involves using a computer in some way to provide learning and teaching materials. Some definitions focus on the applications and technology tools that are used in learning and teaching processes in a dynamic and challenging learning environment (Garrison, 2011). Some authors argue that e-learning refers to the key learning and teaching frameworks that are enabled in one way or another through information and communication technology tools to provide a wide range of solutions with the goal of enhancing knowledge and performance (Mason & Rennie, 2006) As mentioned above, e-learning or "electronic learning" presents a wide range and variety of online technologies to introduce and produce learning materials to enhance learners' knowledge and performance and also to enhance the learning process. Also, these definitions focus on communicating via social networks, some of which are on applications and electronic tools used in learning and teaching processes in a dynamic environment. For instance, in the UK the Open and Distance Learning Quality Council (ODLQ) defined e-learning as "the effective learning process created by combining digitally delivered content with support and services" (Masoumi, 2010). "E-learning is learning based on information and communication technologies with pedagogical interaction between students and the content, students and the instructors or among students through the web" (Sangrà et al., 2012).

Another definition was introduced by the Ministry of Communication and Technology of New Zealand and defined e-learning as "… learning facilitated by the use of digital tools and content that involves some form of interactivity, which may include online interaction between the learner and their teacher or peers" (Sangrà et al., 2012). Furthermore, The Consortium of Online Learning presents e-learning based on characteristics; the first "they include definitions at both the course level and the program level" and the second "they incorporate three key parameters: instructional delivery mode, time, and flexibility" ("E-Learning Definitions," n.d.). Therefore, these characteristics present electronic learning as a form based on educationally oriented definitions. Thus, we can say that the e-learning process is using a PC, smart tools, and social networks to support the student in enhancing their knowledge and educational processes together (Ellis et al., 2009). It is noted that many definitions of e-learning focus heavily on the side of the tools that are used in e-learning as well as on the new environment in the era of digital development that changes the nature of the learning process and creates an environment of student-centered learning and educational practice, which leads to the creation of modern and flexible learning methods (Shopova, 2012). Because some of the definitions focus on the technology base rather than the pedagogy, it has been stated that "describing e-learning in terms of the enabling technologies is not useful as this does not distinguish between the types of design features".

Research problem

In light of the emergence of the Coronavirus, it has begun to appear to the whole world that there is a strong weakness in some important aspects of our life, and one of the most important of these aspects is learning that cannot be dispensed or postponed, and they have tried to resort to e-learning as an alternative, but they found the truth that e-learning is not ready, and they cannot rely on it as an alternative to traditional education. Moreover, there is a great demand in the countries of the world, in the developed countries alike for e-learning projects, but a major failure has begun to emerge and this is due to many reasons and the most important of these reasons is the quality of e-learning projects and the way these projects are carried out (Shailaja & Sridaran, 2014). Therefore, to avoid the failure of e-learning projects like such as New York online University UK, the success of the e-learning process depends directly on understanding the current environment and the quality of required materials, and the context of the e-learning practice as demonstrated by The Global University Alliance (Sadeghi, 2018).

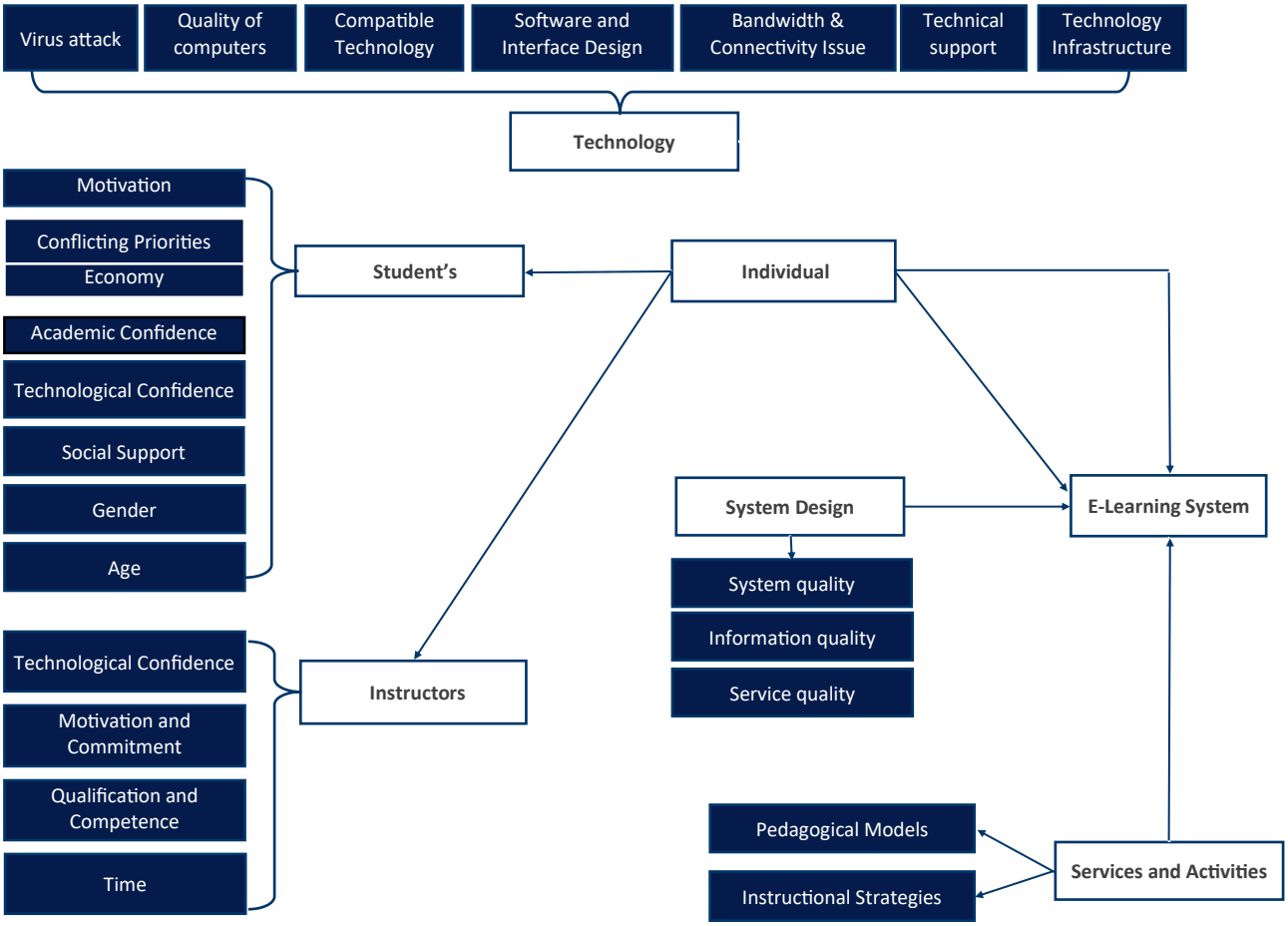
The conceptual framework for e-leaning

Initially, an important question can be asked, which is how we can help to develop e-learning by assisting the individuals or experts in management to develop effective visions, plans, and strategies that can achieve an important result in developing e-learning.

In the next section, the comprehensive conceptual framework for e-learning and the leading and management of e-learning will be described, and factors related to the development of e-learning will be discussed across the entire organization. Reference will be made to the research that contributed to the development of this framework, as these studies came after a review of the e-learning literature. In the following framework, we will try to introduce guidance to universities, managers, and those responsible for managing and leading e-learning, by determining the important factors and critical dimensions related to e-learning and those that a leader and manager may need to develop their strategies and to implement the e-learning process. A framework "classifies the important factors in information systems development which can imply that these factors are causally connected with successful systems development" (Gregor et al., 2006). In this study framework (Figure 1), the researcher offers the main dimensions for IS adapted to e-learning systems. This framework is a theoretical generalization (Carroll & Swatman, 2000) resulting from a review of the literature of the e-learning system and the dimensions. The study's conceptual framework for e-learning systems contains the four main components of IS. These components are technologies, individual, system design, services, and activities. E-learning technologies allow the interaction direct or indirect between different groups of individuals. In this study, we adapted seven factors from (Ali et al., 2018) related specifically to technology issues: technology infrastructure, technical support, bandwidth, and connectivity, software and interface design, compatible technology, poor quality of computers, and virus attacks. Therefore, we revised and adopted the unique factors relating to technology concepts and components of the e-learning system which were deemed to be of value for the study. Individuals interact with e-learning systems according to (Andersson & Grönlund, 2009) who stated many factors relating to the individual (student or teacher).

Firstly, eight factors relating directly to the student, i.e. motivation, conflicting priorities, economics, academic confidence, technological confidence, social support, gender, and age. Secondly, for the teacher the factors are technological confidence, motivation and commitment, qualification and competence, and time. The system design is an important part of the e-learning process, where a good design that includes integrated content and ease-of-use can form the basis for the successful use and spread of e-learning. The system design consists of three dimensions. The first one, the system quality dimension, measures desirable characteristics of the e-learning system such as responsiveness, user-friendliness, security, ease of use, stability, and speed. The second one, the dimension of information quality, is used to evaluate the content and materials related to length, usefulness, currency, organization, and presentation. The third, the dimension of service quality, is used to evaluate and measure the interactions between instructor-student on attributes such as availability responsiveness, promptness, competency, and fairness. The services and activities design consist of two factors. The first one, pedagogical models, is the learning theory basis because it came from the acquisition of knowledge. From an educational point of view, these models are mechanisms that link e-learning practice to e-learning theory (Dabbagh, 2005). Whereas, there are many forms of pedagogical models in e-learning that are knowledge-building communities, communities of practice, learning societies, for distributed learning, and open learning. The second one, instructional strategies, activate pedagogical models, where strategies consist of general approaches to the learning model, i.e. educational. (Jonassen et al., 1991) present, in fact, five educational strategies that are plans and techniques that the teacher uses to engage learners - in other words, educational strategies are factors that help to learn. The authors state that educational strategies differ from learning strategies since learning strategies are mental tools that students use to understand and learn more (Jonassen et al., 1991). The authors state that each educational case must meet a different educational strategy. All activities are integrated in the e-learning services and correspond with instructional strategies and pedagogical models. The complex mix of interaction is direct or indirect work with e-learning systems. Meanwhile, the e-learning systems introduce the services and activities according to the specific strategies. Therefore, we can claim that the e-learning services specifications are the activities that align with the instructional strategies and e-learning pedagogical models.

Figure 1: The proposed research model



Source: Own elaboration.

The literature on successful implementation of e-learning systems is broad, but so far there is no framework that effectively promotes the literature on interconnection of the factors of e-learning implementation. The aims of the conceptual framework proposed in this study are to organize the literature related to the factors of implementing e-learning by conducting an in-depth qualitative review of the e-learning literature. Through reviewing the results of more than 105 articles and scientific research published in scientific journals with high credibility and all of these articles related to e-learning, and from multiple areas of learning (i.e. training, institutional training, higher education, and vocational training), researchers identified some unique e-learning implementation factors that contribute to the success of e-learning. These factors are categorized into four categories of concepts (such as technology, individual, system design, and services & activities) adapted from (Andersson & Grönlund, (Andersson & Grönlund, 2009),(Holsapple & Lee-post, 2006),(Aparicio et al., 2016).

Consequently, this conceptual framework has been proposed to help set the context for the current e-learning activity and support responsible people as well as the decision-makers in the universities and institutes to better understand the factors that influence e-learning implementation. Despite the great effort made to include the largest group of important scientific articles in this field, researchers are proud of this work and do not claim that the conceptual framework is "integrated", "distinct", and/or " exhaustive" and we believe that there is nothing complete. While the authors developed the conceptual framework, they noticed a shift in e-learning literature from a concentration on the factors that related to technological issues, towards a wider range of variables, factors, dimensions, and models. If the specific changes are updated regularly or allocated within a specific learning area, it

will help managers and decision-makers understand the difference in the importance of implementation factors as a result of changes in e-learning environment, technology/infrastructure/government support. As mentioned previously, the proposed conceptual framework is based on a qualitative analysis of the literate, so researchers appreciate the need in the near future as well as over time, for a quantitative assessment of model structures, systematically formulated and continuously tested as well as adding any new changes that occur and presenting suggestions that are compatible with the changes in the environment of e-learning. Consequently, the authors suggest preparing a practical questionnaire to support the quantitative assessment of the proposed conceptual framework, to assist managers and decision-makers in looking at how factors are appropriate and exploring the researcher suggests that over a set of studies, multiple statements must be tested for each factor, ensuring that only effective burden phrases are used in the final practical questionnaire to identify issues in both the implementation and re-engineering of e-learning systems. More additional work is required to maximize the practical application of the conceptual framework, however, identifying some unique factors, and the structure of these factors into the conceptual framework categories helps decision-makers and managers alike in education by highlighting current critical e-learning factors. The framework helps in highlighting implementation success factors, from both academic and commercial e-learning studies, and acts as a conceptual framework consolidating identified research; allowing researchers and practitioners to appreciate the interplay of implementation success factors.

References

Ali, S., Uppal, M.A., & Gulliver, S.R. (2018). A Conceptual Framework Highlighting E-learning Implementation Barriers. *Information Technology and People*. Vol. 31, Issue1, 156-180. DOI: https://doi.org/10.1108/ITP-10-2016-0246.

Andersson, A., & Grönlund, Å. (2009). A Conceptual Framework for E-Learning in Developing Countries: A Critical Review of Research Challenges. *The Electronic Journal of Information Systems in Developing Countries*, *38*(1), 1–16. DOI: https://doi.org/10.1002/j.1681-4835.2009.tb00271.

Aparicio, M., Bacao, F., & Oliveira, T. (2016). An E-learning Theoretical Framework. *Educational Technology and Society*, *19*(1), 292–307.

Bernhardt, K.S. (1960). Review of The Undirected Society and Automatic Teaching: The State of the Art [Review of the books *The undirected society,* & *Automatic teaching: The state of the art,* by G. Vickers & E. Galanter, Eds.]. *Canadian Journal of Psychology/Revue canadienne de psychologie, 14*(1), 60–61. https://doi.org/10.1037/h0083460.

Carroll, J.M., & Swatman, P.A. (2000). Structured-case : a Methodological Framework for Building Theory in Information Systems Research. *European Journal of Information System*s Volume 9, Issue 4, 235–242.

Dabbagh, N. (2005). Pedagogical Models for E-Learning : A Theory-Based Design Framework. *International Journal of Technology in Teaching and Learning*, *1*(1), 25–44.

E-Learning Definitions. (n.d.). Retrieved July 30, 2020, from https://onlinelearningconsortium.org/updated-e-learning-definitions-2/.

Ellis, R.A., Ginns, P., & Piggott, L. (2009). E-learning in Higher Education: Some Key Aspects and their Relationship to Approaches to Study. *Higher Education Research & Development*, Volume 28, Issue 3, *303-318*. DOI: https://doi.org/10.1080/07294360902839909.

Fry, K. (2001). Part Two – E-learning Markets and Providers : Some Issues and Prospects. *Education and Training*, *43*(4), 233–239.

Garrison, D.R. (2011). *E-learning in the 21st Century: A Framework for Research and Practice*. Taylor & Francis.

Garrison, D. R., & Anderson, T. (2003). E-learning in the 21st Century: A Framework for Research and Practice. London: Routledge/Falmer. DOI:10.4324/9780203166093.

Ali, S., Uppal, M.A., & Gulliver, S.R. (2018). A Conceptual Framework Highlighting E-learning Implementation Barriers. *Information Technology and People*. Vol. 31, Issue1, 156-180. DOI: https://doi.org/10.1108/ITP-10-2016-0246.

Andersson, A., & Grönlund, Å. (2009). A Conceptual Framework for E-Learning in Developing Countries: A Critical Review of Research Challenges. *The Electronic Journal of Information Systems in Developing Countries*, *38*(1), 1–16. DOI: https://doi.org/10.1002/j.1681-4835.2009.tb00271.x.

Aparicio, M., Bacao, F., & Oliveira, T. (2016). An E-learning Theoretical Framework. *Educational Technology and Society*, *19*(1), 292–307.

Bernhardt, K.S. (1960). Review of The Undirected Society and Automatic Teaching: The State of the Art [Review of the books *The undirected society,* & *Automatic teaching: The state of the art,* by G. Vickers & E. Galanter, Eds.]. *Canadian Journal of Psychology/Revue canadienne de psychologie, 14*(1), 60–61. https://doi.org/10.1037/h0083460.

Carroll, J.M., & Swatman, P.A. (2000). Structured-case : a Methodological Framework for Building Theory in Information Systems Research. *European Journal of Information Systems* Volume 9, Issue 4, 235–242.

Dabbagh, N. (2005). Pedagogical Models for E-Learning : A Theory-Based Design Framework. *International Journal of Technology in Teaching and Learning*, *1*(1), 25–44.

E-Learning Definitions. (n.d.). Retrieved July 30, 2020, from https://onlinelearningconsortium.org/updated-e-learning-definitions-2/.

Ellis, R.A., Ginns, P., & Piggott, L. (2009). E-learning in Higher Education: Some Key Aspects and their Relationship to Approaches to Study. *Higher Education Research & Development*, Volume 28, Issue 3, *303-318*. DOI: https://doi.org/10.1080/07294360902839909.

Fry, K. (2001). Part Two – E-learning Markets and Providers : Some Issues and Prospects. *Education and Training*, *43*(4), 233–239.

Garrison, D.R. (2011). *E-learning in the 21st Century: A Framework for Research and Practice*. Taylor & Francis.

Garrison, D. R., & Anderson, T. (2003). E-learning in the 21st Century: A Framework for Research and Practice. London: Routledge/Falmer. DOI:10.4324/9780203166093.

Gregor, S., Martin, M., Fernandez, W., Stern, S., & Vitale, M. (2006). The Transformational Dimension in the Realization of Business Value from Information Technology. *The Journal of Strategic Information Systems*, *15*(3), 249–270.

Hart, C. (2018). *Doing a literature review: Releasing the research imagination*. London: Sage.

Heinz, H.F.L.H.M., & Koehler, K.M.T. (2015). How to Identify E-learning Trends in Academic Teaching: Methodological Approaches and the Analysis of Scientific Discourses. *Education*, *11*(4), 287–301.

Holsapple, C.W., & Lee-post, A. (2006). Defining , Assessing , and Promoting E-Learning Success : An Information Systems Perspective. *Decision Sciences Journal of Innovative Education*, *4*(1), 67–85.

Jonassen, D.H., Grabinger, R.S., & Harris, N.D.C. (1991). Analyzing and Selecting Instructional Strategies and Tactics. *Performance Improvement Quarterly*, *4*(2), 77–97.

Jouda, H. (2020). Expanding Tam And Investinh The Factors That Effect Consumer Intention To Adopt Mobile Banking In Palestine. *Financial Internet Quarterly,* Vol. 6, no. 3, 29-50. DOI: https://doi.org/10.2478/fiqf.

Jouda, H., Abu, A., Obaid, T., Abu, S., & Awaja, A. (2020). Mobile Banking Adoption : Decomposed Theory of Planned Behavior with Perceived Trust, 1–10. Retrieved from https://doi.org/https://ssrn.com/abstract=3660403.

Kong, S.C., Chan, T.-W., Griffin, P., Hoppe, U., Huang, R. (2014). E-learning in School Education in the Coming 10 Years for Developing 21st Century Skills: Critical Research Issues and Policy Implications. *Journal of Educational Technology & Society*, *17*(1), 70–78.

Mason, R., & Rennie, F. (2006). *Elearning: The key concepts*. London: Routledge.

Masoumi, D. (2010). *Quality in E-learning Within a Cultural Context*. *Educational Sciences*, Vol. 266. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Quality+in+elearning+within+a+cultural+context:+the+case+of+Iran#0.

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). Evaluation of Evidence-Based Practices in Online Learning. *Structure*, 66. Retrieved from www.ed.gov/about/offices/list/opepd/ppss/reports.html.

OECD, (2018). *Financing SMEs and Entrepreneurs 2014*. OECD. DOI: https://doi.org/10.1787/fin_sme_ent-2014-en.

Sadeghi, S.H. (2018). *E-learning Practice in Higher Education: a Mixed-method Comparative Analysis*. Springer International Publishing.

Sangrà, A., Vlachopoulos, D., & Cabrera, N. (2012). Building an Inclusive Definition of e-Learning: An Approach to the Conceptual Framework. *International Review of Research in Open and Distributed Learning*, *13*(2), 145–159.

Shailaja, J., & Sridaran, R. (2014). Taxonomy of E-Learning Challenges and an Insight to Blended Learning. DOI: https://doi.org/10.1109/ICICA.2014.70.

Shopova, T. (2012). E-Learning in Higher Educational Environment. *International Conference The Future of Education*, 16–17.