Towards an Effective Distance Learning Model: Implementation Framework for Arab Universities

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ABSTRACT

Information and Communications Technologies (ICTs) have drastically affected all aspects of life, and imposed new challenges on various aspects of life including education. The growing use of Internet technologies for distance education opens new educational possibilities that have led to the creation of The Electronic Universities or the “Virtual Universities”. Arab countries have also adopted open and distance learning systems to facilitate learning and to improve their universities academic progress. The objective of this study is to spot the light on the Arab universities experiences in open and distance learning, and to underline the drives and obstacles, as well as to determine the success factors towards its development. The work in this article builds on a number of previous studies by reviewing distance learning design models and accordingly proposed a new Distance Learning Model (DLM). In addition, this article introduces an implementation Framework for the design and implementation processes, and enables opportunities for development and delivery of distance and e-learning systems in Arab countries and e-Universities in the Arab world.

Keywords: Distance learning, e-learning, Modeling, implementations Framework, Arab Universities, ICT.

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INTRODUCTION

The growth in Information and Communication Technologies (ICTs) is rapidly changed the world, and have changed the traditional classroom methods into Technology Enhanced Learning (TEL) systems. Therefore, universities are adapting such technologies for the development of quality education, and to accommodate stakeholder groups to be involved in the teaching and learning activities in their educational institutions. These technologies can be merged within the classrooms, based on blended learning models, or be used to provide remote accessibility to a new teaching environment based on the proposed Distance learning model. Many higher education institutions are seeing the move on to distance learning, also known in another term as “e-learning”, which is believed to save cost by merging traditional courses with online learning opportunities [1]. It will be interesting to see how the increased use of distance learning will fully affect students’ enrolments and acceptance in Arab universities.

Successful implementation of distance learning systems requires an understanding of the role of technology on higher education institutions and on current teaching and learning practices in order to identify critical success factors that have to be addressed in a distance learning strategy. New distance and electronic learning models are emerging as new research findings in the area of e-learning become available in order to develop frameworks to address the concerns of the stockholders and the challenges presented by the technology so that online learning can take place effectively. These models provide valuable frameworks for understanding the integration of technology and pedagogy and may help in identifying the current and desired situation of any university. Using these models in the strategic planning process provides a framework for identifying critical success factors, which help in proper implementation.

Distance and Open Learning

Open education and distance learning, also known as e-learning, can be defined considering its nature of broad meaning. It is the type of education which is characterized by non-direct interaction (physical communication) between the faculty (instructors) and (students) learners, where educational materials are provided through local area network, wide area network, or the internet by the use of the information and communication technologies (ICT) [2]. The Arab League Educational, Cultural and Scientific Organization (ALESCO) has defined distance education as educational system based on the idea of delivering educational materials to students via different techniques of communications, where the learner is distant and separate from the instructor [3]. Virtual universities rely on applying technological systems on processes and automated functions, identical to those applied at traditional universities such as admission, registration, academic advising, and administrative and financial functions, and therefore, its administrative structures is simple, and costs less when compared to traditional universities [3]. For the purposes of this review, we place the following terms “open learning; e-learning, online learning, virtual learning” under the broader umbrella of distance learning.

The documented benefits associated with distance learning include easy access, flexible timing, ability to meet different learning styles, interactivity, and learning without
consideration to location or time zones [4]. Easy access to learning opportunities refers to a learner’s ability to find educational resources anytime anywhere; thus, improving access is a central advantage over traditional learning methods [5]. As in [6], distance learning is also cost-effective and the evidence base supports that learners prefer distance learning over traditional educational venues.

Open education and distance learning have seen several phases during its development. These phases were divided into four, or in other words, four generations. Moore & Kearsley (1996) identify three main evolutionary stages of distance education, the first generation of distance education technology was relying on using postal correspondence, which was considered the early beginning of open education, yet still did not contribute to its development afterwards [7]. That was followed by a second generation, defined by the mass media of television, radio, film production, interactive video (disk and tape), CDTV, audio-teleconferencing, and video conferencing. It was also shaped by the emergence and the use of the internet and the World Wide Web. Then, the third generation was born to introduce interactive technologies: text, image, audio, video, then web and immersive technologies. However, it should be noted that none of these generations has been eliminated over time. Afterwards, the emerging fourth generation with its Flexible Learning Model (FLM) has promised to combine the benefits of high quality CD-ROM based interactive multimedia (IMM), with the enhanced interactivity and access to tools in order to acquire the interactivity between instructors and learners by the social media. In addition, the fourth generation has formed e-classes (virtual classrooms), and the simulation systems of face to face academic classes [8].

Purpose of the Study

The main objective of launching and implementing different international distance learning initiatives is to provide an interactive learning environment to support the traditional HE institutions. This environment is based on a wide range of technologies and computer applications in addition to Internet and web applications and collaboration tools [9]. In addition, distance learning offers the latest learning methods using the most modern communication tools such as computers, networks, multimedia, search mechanisms and digital libraries as well as Learning Management Systems (LMS) in a way that contributes and promotes the transition toward the twenty first century learning [10]. To achieve such an efficient distance learning system, an efficient engineering process must be adopted to efficiently integrate all the different components of the e-learning and communication technologies. By engineering here we mean the right design and implementation of the distance learning component in practical and efficient way and according to the engineering practices [11]. However, due to the fact that there is no single method that can meet all the requirements and design specifications of complex distributed e-learning systems, and due to the multiple-dimensions of distance learning systems, the process of finding a proper implementation methodology forms a real challenge.

In order to achieve the study objectives, we adopted review methods to determine the current situation, issues, and barriers of distance learning, especially in the Arab world. In addition, the authors of this article reviewed and analysed international distance and e-learning models and frameworks, accordingly proposed a new Distance Learning Model (DLM) as a platform to improve the implementation, utilization, and evaluation of electronic universities in the Arab world. Through this model, the universities are more flexible to understand the required
stages to implement efficient distance and e-learning methodologies to improve Arab universities educational processes.

The rest of this paper is organized as follows: Section 2 discusses distance and open learning in Arab Universities, motives, experiences, and obstacles. Section 3 reviews related work from the literature. Section 4 presents the proposed new Distance Learning Model (DLM) that work together for an efficient integration of distance and e-learning environment. Section 5 introduces a proposed implementation framework; whilst section 6 concludes the study and suggests future directions.

ARAB COUNTRIES AND DISTANCE LEARNING

The basic concept of distance and open learning is providing education to learners which are unable to complete their higher education in formal universities [12]. Developed countries have adopted new e-learning systems for their education systems in colleges and universities [13]. Traditional academic institutions as well as newly established online or blended educational institutions in the Arab countries are still in the early stages. While some traditional universities have already started offering a good number of e-learning courses, others are still in the very early stages of setting up online distance learning programs [14]. This section presents a general overview of distance learning in the Arab world. It presents motives, barriers, and challenges in this field. In the following sub-section, we shed lights on some examples and experiences of Arab countries in the open and distance education, and do not seek to confine all the trials.

Arab Universities Experiences

The Saudi Electronic University (https://www.seu.edu.sa) was established in 2011 in Riyadh to provide higher education and lifelong learning. The university has announced that more than 31 thousand students to study bachelor's and master’s degrees for the academic year 2014-2015. The University provides electronic environment through a number of key systems, including: student records management system (Banner); learning management system (Blackboard); and electronic library. These systems are integrated through the gate of student services, through a single sign-on system. In addition, the Egyptian E-Learning University (http://www.eelu.edu.eg) was established in 2008, it is the first Egyptian university that adopts the principle of e-learning in the provision of educational services at affordable price. Furthermore, The Project of Hamdan Bin Mohammed e-University (http://www.hbmeu.ac.ae) was established in 2002 to help pave the way for the Ministry of Higher Education and Scientific Research in the United Arab Emirates to set clear criteria for the adoption of e-learning institutions and to develop a knowledge-based economy. The university also participated in the pilot projects led to the establishment of the Middle East Program to ensure the quality of e-learning, and the project "e-learning initiative to the community," which was launched by the university in 2013.

The Syrian Virtual University (https://www.svuonline.org/SVUIS/index.php) is the first virtual university in the Middle East; it attracted large numbers of students who did not find their seats in traditional universities. The number of students in the fall of 2010 was approximately 10,000 students. The Syrian Virtual University methods in education based on the existence of educational materials available to students electronically, in addition to the presence of simultaneous lectures during which direct communication between the student
and the instructor. Furthermore, the Knowledge International University (KIU) (http://kiu.org/website) located in Riyadh, is a specializing in online degree programs in Islamic studies. They also now offer degree programs in economics, management, and information technology. Arabic is the main language of the study which distinguishes this university from other distance universities in the region.

The Arab Open University (AOU) (http://www.arabou.org.sa) is the most popular institution following the hybrid e-learning model. This model involves having an actual physical building where students go for some administrative work and for meeting faculty members 2 to 4 times a month. Arab Open University seeks to provide higher and continuing education opportunities through distance education using modern information and communication technologies. Its objectives are to allow Arab citizens willing to get a university degree, whether in the cities or even rural and remote areas and in particular for Arab women, within reasonable limits of the additional cost borne by the Arab society. At present the Arab Open University headquarters is in Kuwait, and was associated with other branches of the university in the Kingdom of Saudi Arabia, Bahrain, Lebanon, Jordan, Egypt, Oman and Sudan.

**Implications and Challenges Facing Arab Universities**

Developed countries have adopted new e-learning systems for their educational systems in colleges and universities [13]. However, Arab countries have still suffered to utilize the full features of distance learning systems [14]. Arab Universities have been confronted with numerous changes in their external and internal environments since the year 2000. They are forced to respond to emerging challenges such as the continual developments in information and communication technology (ICT); changing demographics and expectation of learners; and decreasing financial support [15]. There are many factors and reasons imposing the necessity of shifting to applying open education and embracing the development of virtual universities such as geographical boundaries, age, financial and time management [16]. There is no doubt that Arab countries are overtly influenced by these motives, however, the use of open education has become a necessity insisted by both; the local conditions of the Arab countries [17] and the global factors evenly. In addition to that, there are: Social, cultural, geographical reasons; Humanitarian and psychological reasons; Economical and political motives.

Some limitations regarding the implementation of distance learning in Arab countries were reported by [14] such as: lack of a strong telecommunication infrastructure; shortage of technical staff; the poor readiness of students and faculty members; government policies; and financial matters. The financial resources availability is a major challenge in most of Arab countries; however, ensuring the sustainability of its flow is the biggest challenge ever. Another main factor in Arab countries is lack of government interest and policies. A better distance learning system is an efficient solution to address these limitations and provide better platforms for learners. It is effective solutions for HE in Arab universities due to limited resources and opportunities to facilitate students’ enrolments [18]. However, lack of qualified faculty members and their training form big hurdles on open and distance education initiatives in most of Arab universities. Therefore, if Arab Universities are to develop, deliver and administer distance learning programs, instructors must be trained to become competent in this field [19], also a high level of investment in ICT infrastructure is required. Successful distance learning implementation therefore depends on building a strategy that meets the
needs of the learners; meeting goals of the educational institution; and raise the value of the community.

Censorship in some Arab countries is a common practice, which has affected the widely adoption of the internet in the 90s. Governments were concerned about internal and external political influences that might try to manipulate their people, and also concerned about immoral material such as pornography [14]. However, governments eventually realized that they cannot afford to remain isolated from the remainder of the world and that the internet is becoming part of people’s daily life. Ever since internet access became possible, and the Arab region has been experiencing tremendous growth in the number of people going online.

Furthermore, an important reason for the hesitation of many Arab universities to go for online learning is that online degrees are seen to have low public esteem, then less job opportunities compared to traditional degrees [20]. This can be solved by proper implementation of distance learning programs, international affiliations with respected educational establishments, and community awareness. Yet one more cause for the hesitation of many Arab universities into the adoption of distance learning is the great lack of online Arabized educational materials [21]. A great percentage of faculty members may not be capable of creating digital learning material (e-Content). Therefore, faculty needs to be competent in this regard which requires training and workshops to bridge the technology gap and improve faculty acceptance, performance, and self-perception [22].

There are social and cultural implications in regard to distance learning in the Arab world. Tubaishat (2008) conducted a study in Zayed University, which is an all-girl university in the UAE. The study tried to understand the impact of social and cultural limitations on the students. He pointed out that in the Arab region social values and expectations with regard to males and females are different. Female students at Zayed University are not allowed to stay on campus after working hours, and pointed that the utilization of learning management systems (LMS) makes it possible for students to interact with faculty members at any period of the day or night. Female students felt a little shy when participating in in-class discussions when the instructor is male. His results revealed that the 74.2% of the students were more comfortable in posting their opinions on discussion boards as opposed to having to speak-up in the classroom. Additionally 85.6% of the students were satisfied with the online class environment [23].

A 2007 nation-wide study conducted by the Saudi Arabian Communications and Information Technology Commission [24] revealed that only 49% of society members are aware of e-learning, while only 5% of those who are aware have used it. This indicates a very low percentage of acquaintance with e-learning systems at that time. Additionally, learner’s attitude and lack of prior knowledge of IT use are major factors that affect the acceptance of e-learning by students [25].

**RELATED WORK**

This section reviews some distance and e-learning models and framework. Distance learning models have evolved from models that integrate technology and pedagogical issues, which emphasized the role of the technology in providing content, delivery, and other electronic services. Recent models focus on pedagogical issues such as online instructional design and the creation of instruction and online learning communities.
In regard to curriculum development and instructional design, the Dick and Carey model [26] is one of the more versatile models which require process that incorporates all aspects of design and implementation of the curriculum. These steps are: Identify Instructional Goals; Conduct Instructional Analysis; Identify Entry Behaviors; Write Performance Objectives; Develop Assessment Instruments; Develop Instructional Strategy; Develop and Select Instructional Materials; Design and Conduct; Revise Instruction. The steps are often only connected as far as what they do to help figure out what to teach and how to teach it. All steps are connected, and some influence others indirectly while they may influence others directly. Similarly, Kemp et al. (1994) introduced an instructional design model that takes a more flexible approach to design by identifying several development phases, without any particular order within the system [27]. The model adopts a circular structure, rather than the Dick and Carey model which is linear. This circularity is achieved by viewing the nine core elements of the model as interdependent rather than singular.

Accepting technology by faculty and administrators is very important for a successful implementation of distance learning programs. Technology Acceptance Model (TAM) [28], is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. The model was based on reasoned action theory to design and explain virtual behavior. Wahid supported this model with two beliefs to determine the behavioral intention to adopting a particular technology [29]. TAM model has been used to test the acceptance of new technology such as web browser, email, and websites. In respect to technology and its role to deliver educational services, the Demand-Driven Learning Model (DDLM) was developed in Canada as a collaborative work between academics and experts [30]. This model is based on: the learning management system (LMS), content, and service. The technology is seen as support or as a tool to achieve the desired learning. The purpose of the model is to encourage academics to participate in the development and use of technology in the teaching process. It emphasizes the three issues: high quality content, delivery and service. On the other hand, The Community of Inquiry Model (CIM) developed by Garrison and Anderson is an attempt to give educators a deep understanding of the characteristics of e-learning and guidance to facilitate higher-order learning through the use of e-learning [31].

Another model designed by Newton and Ellis (2006) to understand the experiences of e-learning participants in a large workplace [32]. The model identifies key factors, including organizational priorities, instructors’ roles, learners’ needs and the learning environment as contributing to an integrated e-learning culture. An interesting study conducted by [33] in order to specify the Critical Success Factors (CSF) for Online Distance Learning in Higher Education. From their data analysis and the literature review, they grouped the CSF into 1) Institutional management (market research, program framework, operational plan, cost effectiveness). 2) Learning environment (course management system, technical infrastructure, access and navigation). 3) Instructional design (clarify of objectives, content quality, learning strategies, psychology of learning, learning assessment). 4) Services support (training, communication tools, helpdesk). 5) Course evaluation. They suggested that each of these 5 factors is important to enhance the efficiency of the universities online distance learning courses, and lead to achieve the success of the institute’s vision.
Furthermore, Al-Sharhan (2016) introduced a comprehensive model of smart classrooms as a part of a holistic approach to implement an efficient Technology Enhanced Learning (TEL) Environment [34]. In his new model, he pointed that the smart classroom systemically integrates the tools of Information and Communication Technologies (ICT) with the teaching and learning practices as well as the schools management system. He believed that the ICT’s significant impact on the contemporary educational systems is evident due to the vast and rapid development in computer, communication, and internet technologies. He also stressed that the smart classrooms form a great learning initiative that assists the educators in creating skilled and creative generation who is able to utilize the technology, to benefit from the abundance of information and knowledge, and to be efficient self-learner in the teaching and learning process.

A delivery model for the new e-learning environment was introduced by [35]. The delivery environment describes the medium where the learning and teaching process are taking place. The elements of the environment are the learning management system, multimedia equipped classrooms (smart classrooms), and network or the internet. The learning activities can be achieved in the delivery environment using a framework that summarizes the blended learning process. The instructor guides the learning process by utilizing the on-line content where students access the content via the network (Internet), in which the LMS tracks students’ progress.

Our new proposed model, the “Distance learning Model (DLM)”, presented in the following section, extends the Al-Sharhan delivery model [35], and addresses all the factors related to both the internal and external environments for implementing an efficient distance learning systems. By the internal environment we mean the university environment whilst the external environment means the society environment. In addition, the new proposed model integrates critical components, some discussed in this section, that are necessary to be connected together to form a completed distance learning solution for Arab universities.

**THE NEW DISTANCE LEARNING MODEL (DLM)**

The primary objective of the proposed Distance Learning Model (DLM) is to provide a conceptual framework for a proper implementation of distance learning programs for Arab universities. The model construction is based on literature review findings and success factors of different educational institutions. The DLM model is depicted in Figure (1).

The successful implementation of open education and distance learning systems rely on many significant factors and aspects such as technical, administrative, human, and cultural, that interacts and integrate to form one integrated system. This system is working actively to stimulate the role of open and distance education in the community, contributing to the development of the educational process and enabling the most benefits of information and communication technologies in the educational field that help Arab Universities to accomplish their academic goals and social objectives. The implementation of the proposed model should take into consideration all aspects working for the best interest of students, faculty, university administration, and society as a whole. These considerations can be summarized as follows:

- Educational aspect (Pedagogy).
- Technical aspect (Technology).
- Management aspect (Management).
- Instructor design and e-content development.
- Cultural and Social aspect
- Economic side and the labor market.
- Legislative and Administrative aspects.

Figure 1: The New Distance Learning Model (DLM)

The DLM model suggests important points for implementing distance learning programs for Arab universities. The main requirements are proper strategic planning, transformation, and delivery support which requires change management principles. The strategic planning is a process to build a vision for the future and develop important resources, structure, and procedures to achieve the objectives, and to align the existing technology resources and optimum benefits. The Arab universities need strategic planning; clear mission statement; faculty training; proper ICT infrastructure; adaptation awareness; and culture change. The clear mission statement defines the rules and regulation for Arab universities to adopt distance learning concept. For this mission statement, government of Arab countries should provide clear rules and regulations to develop open and virtual campuses for distance learning.

In addition, distance learning centers must be established for Arab universities, and should start with latest ICTs facilities to control and supervise distance learning operations. The centers main responsibilities are to provide physical infrastructure such as servers, learning management systems (LMSs), educational portal, e-content development, cloud computing, smart classroom and video conferencing facilities. Awareness programs and culture change
should be raised to promote the benefits of distance learning among students via proper marketing strategies and awareness campaign such as advertisements, mobile ads, and leaflets. After successful implementation of distance learning systems, there is a need for a systematic planning, and setting evaluation protocols for quality assurance (QA) of the systems.

A successful distance learning system must orchestrate all components such as: an efficient infrastructure based on computer networks and communication technologies, smart classroom technologies such as interactive smart board and multimedia elements, providing an efficient Learning Management System (LMS) [19]. E-learning is an efficient method that can enhance the traditional learning space and create an interactive learning environment by the utilization interactive applications, and collaboration in the learning process [36]. Using these technologies, the face-to-face learning space can be extended to blended learning and virtual learning spaces that provide efficient collaborative tools and enrich the learning activities; and hence, e-learning encompasses all the learning that people undertake, whether formal or informal, through electronic delivery [37]. Today, distance learning comes in different types and formats such as standalone courses, virtual-classroom courses, learning simulations, embedded e-learning, blended learning, mobile learning [37] and virtual reality based learning, which is the latest technology that holds great promises to create efficient learning spaces [38].

Designing and developing on-line digital content (e-content) that can also support Arabic courses is important. This requires software experts, high quality instructional designers to achieve the pedagogical objectives, and applying usability standards, including cultural usability issues. The design and the development of e-content should ensure a high quality complying with the international design standards [39], and must fit with the Arabic culture and traditions [40] in a way to enable Arab e-Universities to contribute to building up the stock knowledge in the Arab world. In addition, any distance learning adoption must match learners’ expectations in terms of the quality and tools in order to keep them motivated and attracted to the system. This can be done by providing faculty with awareness and training programs to raise their competence, then to be able to use this technology and to understand learners’ behaviors and culture. Another challenge is to implement and deploy the integrated platform at a certain level of quality, and with a practical quality of assurance framework [41].

The proposed DLM model illustrated in Figure 1, shows the internal and external environment discussed in this section including: students’ awareness; e-Content development; smart classrooms; blended learning methodology; instructors competency; higher education, data centers; labor market; cultural and management change. It should be noted that, model assessment is one of the most important step that focuses on continuous improvement. An assessment should be made on every phase of the model construction to ensure the accuracy and effectiveness of the model.

INTEGRATED IMPLEMENTATION FRAMEWORK
For the proposed Distance Learning Model (DLM) discussed in the previous section, an efficient integrated implementation framework is required to guarantee synchronized implementation of the different components to form effective distance learning system.
For example, and since the Internet is a vital component especially that it is usually the medium of e-learning courses delivery, an infrastructure component should be efficiently and professionally engineered so that it can serve the numerous number of the students as well as the entire educational society. However, the success is conditional to the factors related to the smart campus, infrastructure, bandwidth, application architecture, networks security, network efficiency, and the centralized Arabic local and regional data center. This means that sufficient bandwidth plays a key role in ensuring smooth delivery. It also guarantees a good wireless coverage and up-to-date tools and protocols in the smart classrooms. Moreover, every student will have his/her mobile device that requires a direct access to the content via the wireless network inside and outside the classroom. It is evident that the faster the network is, the better learning experience is to avoid boredom and hurdles during the case of slow content download. It is worth mentioning here that these issues are tackled in the delivery framework as high-level factors and not from the perspective of technical and low-level design. The framework comprises several areas towards an efficient distance learning implementation in Arab universities, described as follows:

- **Infrastructure component:** This component aims to provide a high-performance local and regional data center at both the central and distributed levels, and the required computing devices in the campuses. It also provides the network facilities entirely for campuses, as well as the head office to work in both centralized and decentralized manners. This component forms the core to create the private distance learning cloud to serve all the schools at the national level. Another alternative for the private is the public cloud which is considered to reduce the cost of designing and building the data centers in addition to the operational cost. For more information about these options, the reader may refer to [42].

- **Learning Management System:** This provides a single-sign on the portal where the students, instructors, the management and the parents will have an access point to a bundle of efficient tools and features available during the modern learning process. The LMS comes as the core system to create Technology Enhanced Learning (TEL), as it is the system responsible for the administration of the online courses, tracking students’ activities, delivery of electronic learning material and reporting the learning process and students’ performance. It also provides a complete hierarchy of public websites for the different stakeholders in the distance learning initiative.

- **Interactive Multimedia-based Content (e-Content):** The main objective of the e-content in the distance learning environment is to digitize the conventional curricula and transferring the curricula into interactive online courses that are hosted on the learning gateway and tracked by the LMS. On the other hand, the digitized courses can be utilized off-line by providing them on CDs, Laptops, or desktop computers. It is worth mentioning here that the digital content must be
developed based on international standards, such as SCORM, and based on a scientific development methodology using an a very well-defined structure. Central e-Content development for Arabic universities will help in creating digital cultural and Arabized content, and storing them as complete e-courses or as cultural re-usable learning objects.

- **Smart Classroom Component**: The main objective of this component is to acquire and implement smart technologies in conventional classroom and transforms it into a 21st smart classroom. This component bridges the gap between modern technology-based and traditional classroom activities in terms of instructor’s and student’s experiences. More specifically, the components of the smart classroom enable the instructor to utilize modern educational technologies to create an effective learning space. All the learning activities can be recorded and hosted on the learning gateway for future consideration. In addition, the smart classrooms component will provide the instructor with efficient tool to manage the class and provide the students with an exceptional teaching and learning experience. Instructors in the Smart Classroom can utilize different smart components inside the class or freely using conventional teaching methods to instruct students in a blended methodology.

- **Mobile Computing Component**: This component aims at providing each student and instructor with a mobile computing device. The optimal goal here is that the mobile computing will be a major tool that student will need in and outside the campus where they can access the interactive digital content of the curricula from their devices using the internet access.

- **Smart Campuses**: With the e-learning era, campuses must be smart in terms of providing a full wireless accessibility, IP telephony and video conferencing. Students may access the portal from their mobile computing via the wireless network while the management, for example, can have a video conference with the head quarter management from his own desk and may invite other educators in Arabic or international universities.

- **E-library Component**: This component is a very crucial one to enrich the learning process and space and support the student-centric learning spaces. The e-library, or digital library, avails huge scientific and international research databases, eBooks and other online resources of which are necessarily required during the learning process. The e-library can be accessed anytime and anywhere, using computing and mobile devices.

- **Instructors’ Readiness Component**: One of the most critical challenges that face a successfully e-learning adoption in the Arab world is the technical skills of the instructors. Naturally, introducing a new technology to a conventional environment
should assess the knowledge and skills of the users prior to dealing with the new technologies and to evaluate the instructors as well the management training areas needed to ensure and affirm the success of the e-learning components’ implementation.

- **Media and Awareness Campaign**: It goes without saying that awareness is a crucial factor for any project to be a success. Awareness has a vital role in distance learning projects to the fact that these projects target different levels in the society and deal with behavior change. Distance learning works directly to introduce new educational models, skills, and attitudes at the level of the campus, managements, and society [43].

It is worth mentioning here that all these components are highly interconnected where the failure in one chain may cause serious problems in the whole implementation. The model is efficient as it takes into consideration all the success factors needed to effective implementation of national Arabic e-learning initiatives. It is based on the national distance learning strategy with a clear vision and mission in addition to the engagement of all the stakeholders; locally and internationally.

**CONCLUSION AND FUTURE DIRECTIONS**

Arab Universities can no longer ignore the emergence of new technological tools, and therefore, distance learning. Computing and mobile devices and the Internet have become an integral part of higher education. How effectively these educational tools will be used to enhance the learning process depends on building distance learning implementation framework that not only allows the use of technology to create learning space for learners but also addresses important pedagogical issues in the information age. Despite the delayed adoption of e-learning within most of Arab Universities, universities finally started realizing its importance. Arab governments are now much more willing to confront these challenges and now applying and introducing technology into the public schools at early years of study. Even though a great percentage of members of society may still be unfamiliar with technical advancements and concepts of e-learning, plans must be placed institutionally, so such technology can become widely recognizable and usable in the very near future. Awareness programs must be considered and faculty raining should be given more attention to increase the perception and acceptance of distance learning programs in the Arab world.

The proposed Distance Learning Model (DLM) presented in this article is a combination of ideas from several authors. The authors of this article have taken the liberty of combining the models to design a model that would meet the criteria for the needs of a typical e-learning Arabic student. The model highlights important issues that have incorporated in a strategic framework by setting an implementation plan suitable for Arab Universities.

As for future work, we would like to see a theoretical evaluation framework to guide our analysis based upon the proposed DLM. The evaluation framework can focus on key variables from people and technology standpoint within context of use, and, on the other hand, to summarize the relevant tasks involved in implementing and designing distance
learning experiences in Arab Universities. In addition, The (DLM) model needs to be tested and further research performed to ensure the model will perform as stated.

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