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The American University in Cairo

School of Global Affairs and Public Policy (GAPP)

**CRITICAL SUCCESS FACTORS FOR E-LEARNING
IMPLEMENTATION IN EGYPTIAN PUBLIC UNIVERSITIES: A
STAKEHOLDERS' ANALYSIS**

A Thesis Submitted to the

Public Policy and Administration Department

**in partial fulfillment of the requirements for the degree of
Master of Public Policy**

By

Hoda Salaheddin AlAdl AlShabrawy

Spring15

The American University in Cairo
School of Global Affairs and Public Policy
Department of Public Policy and Administration

CRITICAL SUCCESS FACTORS FOR E-LEARNING IMPLEMENTATION IN
EGYPTIAN PUBLIC UNIVERSITIES: A STAKEHOLDERS' ANALYSIS

Hoda Salaheddin AlAdl AlShabrawy

Supervised by Dr. Ghada Barsoum

ABSTRACT

Higher education is witnessing major change worldwide and new methods of learning are emerging. Modern technologies are affecting the way educational institutions address learning challenges through presenting innovative solutions. E-learning is a form of education to which attention has increased worldwide. Flexibility provided by e-learning is makes it possible for universities around the world to enroll an increased number of students to meet the needs of all learners. The higher education system in Egypt faces several challenges which hinder it from development. It has become important for Egypt to strive to use new technologies to develop and strengthen higher education. Nevertheless, the take-up and use of e-learning in Egypt is still in its early stages and many difficulties and challenges need to be addressed in order for e-learning to be widely adopted. The present thesis studies the current situation of e-learning implementation and adoption at Egyptian public universities. The study analyzes the prospects of benefiting from e-learning in Egypt to minimize the problems facing the higher education system. The study further points out challenges that hinder the take up of e-learning and highlights the critical success factors needed in order to implement e-learning successfully in Egypt. Qualitative data was collected through conducting face-to-face semi-structured interviews with 21 top management officials, strategic planners, information technology experts, instructional designers, and professors teaching e-learning courses from different public universities. The thesis concludes with a set of policy recommendations in order to successfully implement e-learning in the higher education system.

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Last but not least, I would like to express deep appreciation to my love, my husband, for his thoughtfulness, continuous support, encouragement and understanding. May God bless our little angel, Lily.

Hoda
May, 2015

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I. Introduction

The education landscape worldwide is experiencing a major change in the ways higher education is taught and the ways students learn due to the advent of modern technologies. New ways of teaching and learning have emerged globally. E-learning is a form of education to which attention has increased worldwide. A report entitled “Going the Distance – Online Education in HE, 2011” indicates that over six million students worldwide are currently completing at least one class online. There seems to be universal agreement that the e-learning market will show fast and significant growth over the coming years (Docebo, 2014). Accordingly, how e-learning can serve the higher education process has become a significant and timely issue.

Today, e-learning services provide opportunities to learn anywhere, anytime and from anyone. This flexibility is essential for non-traditional learners and will enable a shift change in the engagement of higher education institutions in lifelong learning and continuing professional development (Vassiliou & McAleese, 2014). Such increased flexibility makes it possible for universities around the world to enroll an increased number of students to meet the needs of all learners.

The higher education system in Egypt faces several challenges which hold it back from development. It has become important for Egypt to strive to use new technologies to develop and strengthen higher education. Nevertheless, the take-up and use of e-learning in Egypt is still in its early stages. Many difficulties and challenges need to be addressed in order for e-learning to be widely adopted.

The present thesis studies the current situation of e-learning implementation and adoption at Egyptian public universities. The study aims at analyzing the prospects of benefiting from e-learning in Egypt to minimize the problems facing the higher education system. The study further points out challenges that hinder the take up of e-learning and highlights the critical success factors needed in order to implement e-learning successfully in Egypt. Following the review of relevant literature, qualitative data was collected through conducting semi-structured interviews with different stakeholders and beneficiaries of e-learning in Egypt.

The emergence of the information and communication technologies (ICTs) and related networks has had and will increasingly have radical effects on the transformation of education in all sectors (UNESCO, 2002). Such growth in technologies and internet usages worldwide has led to rapid expansion and radical changes in the learning and teaching experience (Jacky, 2006). The engagement of educators and learners with new technologies has become inevitable in order to allow them to teach and learn through modern tools and web-designed materials (Dowling, 2003). More people are gaining access to the internet, the cost of computer ownership is decreasing, and overall computer literacy is increasing worldwide (Huynh et al., 2003 as cited in Wagner et al., 2008). The increasing need for new technologies to be embedded in the learning system is causing educational institutions to reexamine the way education is delivered and identify potential benefits from these changes so as to improve teaching and learning environments. In response to this changing environment, e-learning is being implemented more and more frequently in higher education, creating new opportunities for educational institutions, educators and students (Wagner et al., 2008).

E-learning is nowadays viewed by many governments and educational experts as a feasible solution to the challenges of traditional education worldwide. The UNESCO states that e-learning is approaching acceptance within mainstream education and training in such a way that it will have radical impact on educational institutions in the future (UNESCO, 2002). Currently, increasing number of universities and educational institutions are adopting e-learning to enhance the effectiveness of their operations, and the concept of e-learning is expected to continue developing as technology advances. This is due to the capacity of e-learning services to provide innovative solutions to higher education problems such as overcrowded classrooms, high prices of traditional educational books, transportation problems, need for continued education, while also offering ways of interaction with the international educational community. E-learning can further overcome many of the challenges involved in reaching underserved students (Abdon et al., 2007). Arkorful & Abaidoo (2014) stated that using e-learning, every student has the luxury of choosing the place and time that suits him/her. In addition, while offering opportunities for maximum number of learners, e-learning is cost effective in the sense that there is no need for learners to travel and no need to build new buildings.

The impact of e-learning is already significant in many developed countries, and a great majority of developing countries are seeking to enjoy its benefits despite difficulties and constraints.

Egypt is one of those developing countries that are still walking their early steps toward enjoying the benefits of e-learning. There is a strong belief that promoting e-learning through modern information and communication technologies constitutes one of the prominent solutions for educational challenges in Egypt. Some attempts for implementing e-learning have been taken by the Egyptian Government in collaboration with international organizations working in Egypt, yet the effect is not tangible. However, when compared to the more established e-learning systems in the Western world, e-learning in Egypt can still be considered in its infancy stage.

II. Statement of the Problem

Adopting e-learning in Egypt with a population of more than 89million (CAPMAS, 2015), among which 60% of its citizens are under 30, and 32% of tertiary aged population are enrolled in higher education (Amin, 2014), needs clear understanding of the needs, constraints, and role of all actors in the e-learning platform. There has been a wave of e-learning initiatives in Egypt, however, little is known about e-learning implementation and procedures and what factors guarantee its success. Additionally, literature is rich with studies regarding e-learning potentials and how e-learning is adopted in developed countries, and how this would be beneficial for solving educational challenges present in developing countries. However, research on e-learning implementation in Egypt involving the major key success factors in the process is limited.

The adoption of e-learning in Egypt can provide an economic and more suitable solution to the higher education problems by filling in the gap between the number of university places available in Egypt and the growing demand for higher education (El Gamal and Abd El Aziz, 2011). However, the effectiveness of e-learning systems is associated with the standards and approaches used in its development and how these approaches have considered the learner's needs and characteristics (El Zayat, 2010). Understanding the nature of these factors is critical to assist educational institutions in Egypt in promoting the use of information and communication technology in education and to enable decision makers to address the stakeholders' needs more fully.

The purpose of this study is to learn about the current status of e-learning implementation in the Egyptian higher education system and capture the opportunities and constraints of implementing e-learning in Egypt. The study further highlights challenges that hinder the take up of e-learning in the Egyptian higher education sector. Critical success factors needed in order to implement e-learning successfully in Egypt are identified.

In order to achieve this purpose, the researcher undergoes in depth literature review followed by discussions with the different stakeholders and beneficiaries of e-learning. In this context, this study is seen significant in terms of expanding the probability of developing e-learning in Egypt and minimizing the risks of failure due to ignorance of the needs and concerns of various e-learning stakeholders.

III. Research Questions

The main research question of this study is how to implement e-learning in higher education in Egypt successfully. In order to answer this question, the study tackles the following investigative questions:

1. What is the current status of implementing e-learning in the higher education system in Egypt?
2. What are the constraints and challenges that face the implementation of e-learning in the higher education system in Egypt?
3. What are the roles and needs of all actors in order to implement e-learning successfully in the higher education system in Egypt?
4. What are the critical key factors needed to implement e-learning successfully in the higher education system in Egypt?

IV. Background

i) The Situation of the higher education system in Egypt

Egypt ranks among the highly populated countries of the world and is the most populous among the African countries as well as the Arab countries. The country's population has reached over 89 million with an annual increase of 2 to 2.5% according to the Egyptian Central Agency for Public Mobilisation and Statistics (CAPMAS, 2015). Such influx of population poses pressure on the educational system, negatively affecting the provision of adequate services.

Egypt, also, has one of the largest higher education systems in the MENA region encompassing 23 public universities (established and run by the government), 22 private universities (established and run by private consortiums sometimes in collaboration with foreign higher education colleges or universities), and 150 private higher education institutes, all operating under the umbrella of the Ministry of Higher Education (MOHE) (ElSayad, 2014). Most of these universities are located in larger cities, and this is one of the problems that face students when joining university. Large numbers of students enrolled in universities are living in locations that are far from major cities, and consequently they face many difficulties concerning transportation, accommodation and time management (El Zayat, 2010).

According to CAPMAS, number of graduates from public universities in 2012/2013 reached 325358 and 13787 from private universities. Number of students enrolled in public universities in 2012/2013 reached 1654455 whereas those enrolled in private universities reached 94488 students (CAPMAS, 2015).

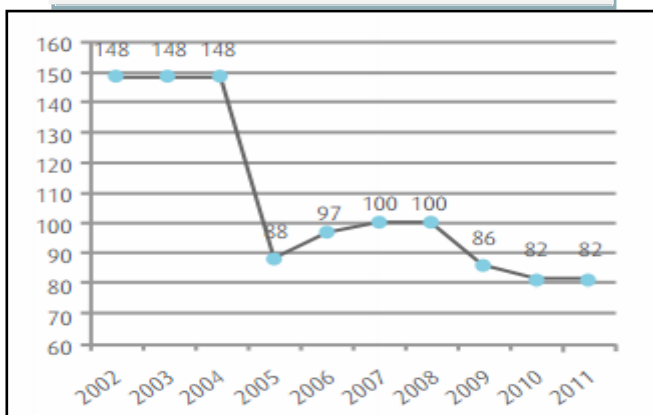
Observing these figures, it is evident that the majority of students in Egypt are enrolled in public universities which in turn are obliged to accept large numbers of students that exceed their capacities. Given this fact, the thesis will focus on the implementation of e-learning in public universities as a tool for alleviating the problems of the higher education system in Egypt.

ii) Current Status of Information and Communications Technology (ICT) Usages in Egypt

The higher education system is mostly monitored and controlled by the government through the Ministry of Higher Education (MOHE). Accordingly, most initiatives concerned with the enhancement of e-learning are managed by the government. During the last decade, there has been significant advancement of new technologies and rise in the use of internet in Egypt. Egypt adopted several strategies to increase the diffusion of the internet in society. One strategy was reducing the internet price level extensively through the period (2002 – 2011). Based on dial up per minute price rate and ADSL price level, internet price index decreased by 66 points showing an improved affordability of internet prices in Egypt (Fig. 1).

The Egyptian Ministry of Communications and Information Technology (MCIT) launched the "Internet Initiative" where a nearly free internet access nationwide has been maintained since 2002, and more than 15,000 ports serving around 2 million internet users have been set-up, with users paying only for local dial-up phone tariffs (Baraka, 2005).

Fig. (1) Internet Price Index (2002-2011)

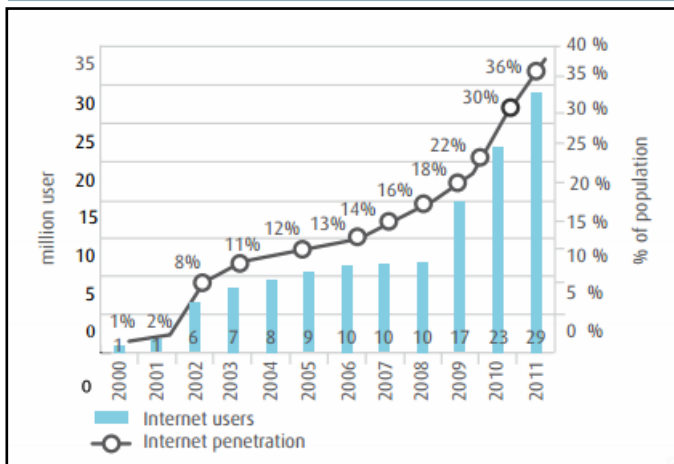


Source: MCIT, 2014

This has been reflected in a significant increase in internet penetration and the number of internet users. Data from the Ministry of Communication and Information Technology (MCIT) shows that the number of internet users increased from 0.65 million users in year 2000 to reach 29 million users in year 2011. As a result, internet penetration hiked from

1.01% in year 2000 to 35.8% in year 2011 with average annual growth rate of 3.2% during this period (Fig. 2).

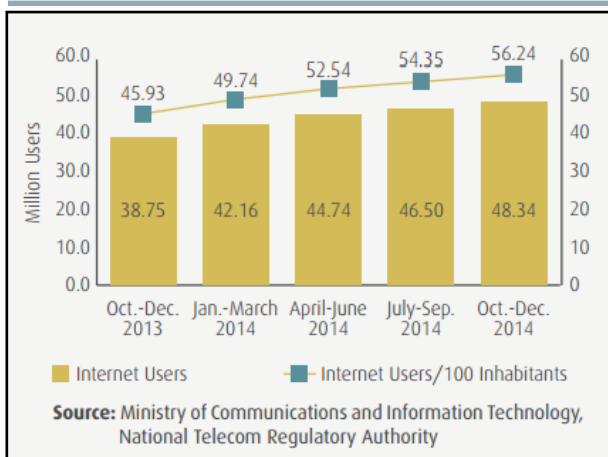
Fig. (2) Internet Users and Internet Penetration 2000-2011



Source: MCIT, 2014

By the end of October- December 2014, the estimated number of internet users increased to 48.34 million users compared to 38.75 million users by the end of October-December 2013, representing an annual increase of 9.59 million users and an annual growth rate of 24.75%. Internet penetration increased to 56.24% by the end of October - December 2014, compared to 45.93% by the end of October - December 2013, representing an annual growth rate of 10.31% (Fig. 3).

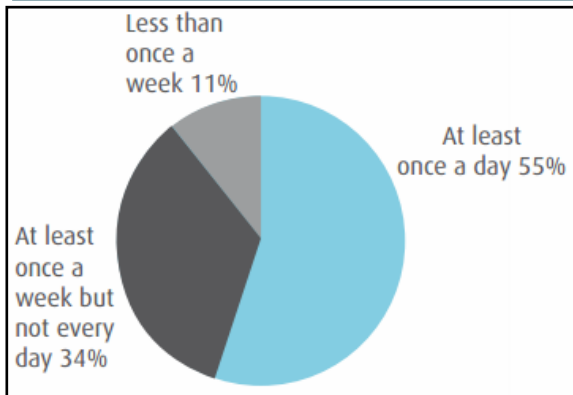
Fig. (3) Internet Users and Internet Penetration 2013-2014



Source: MCIT, 2014

Data also showed that among internet users, more than half (55%) access the internet at least once a day in 2011 while 34% of users access the internet at least once a week (Fig. 4).

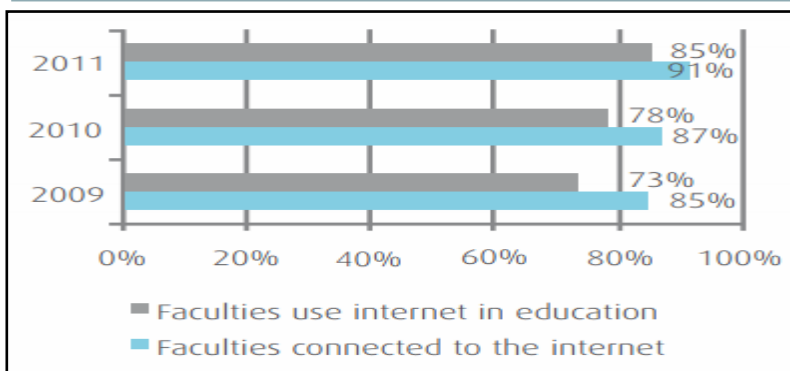
Fig. (4) Frequency of Individuals Accessing the Internet



Source: MCIT, 2014

Most of Egyptian universities are connected to the internet and use it for education purposes. The proportion of faculties and institutes connected to the internet increased by 6% during the period (2009–2011) to reach 91% in year 2011, compared to 85% in year 2009. The proportion of faculties and institutes using internet in the education process increased by almost 12% during the period (2009 – 2011) to reach 85% in year 2011, compared to 73% in year 2009 (Fig. 5).

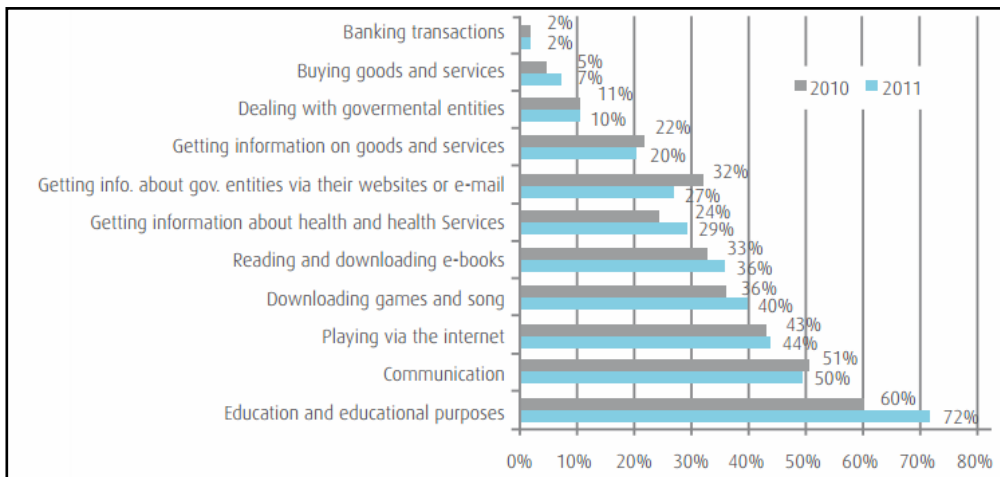
Fig. (5) Proportion of Faculties Connected to the Internet and Using it in Education



Source: MCIT, 2014

Another interesting indicator is that among IT clubs which are available in Egyptian governorates, educational purposes are the most common internet activities performed by IT clubs' visitors (72%) (Fig.6).

Fig. (6) Internet Activities Performed by IT Clubs' Visitors



Source: MCIT, 2014

The above figures are significant and point towards the possibility of implementing successful e-learning initiatives in Egypt. In other words, information and communication technologies, properly used, can contribute to enhancing the quality of higher education in Egypt.

Another initiative adopted by the government was the "Personal Computer Initiative" where affordable PCs and laptops have been made available to students and professionals within a monthly installment plan that could be also financed up by a low interest loan (Abdel-Wahab, 2008).

V. E-learning in Egypt

i) Previous Initiatives

Several initiatives were adopted in Egypt to pave the way for the implementation of e-learning in the higher education system. In September 2004, the E-Learning Competence Center (ELCC) was established as an initiative by the MCIT in cooperation with Cisco Systems, a leading global communications company whose activities include the provision of e-learning services that present a wide base for knowledge and training seekers. The aim of the center is to contribute to Egypt's economic growth by enhancing workforce performance, boosting the skill development of the workforce and supporting efforts to educate youth in the use of technology. The center focused on the area of e-learning through converting part of the Ministry of Higher Education curriculum into an e-learning format and engendering the first wave of facilitators and e-trainers into the market (ELCC, 2015 and Megeid, 2014).

In 2008, the National E-Learning Centre (NELC) was established with the aim to 'promote and support the development of e-learning in Egypt by improving the development of the learning content to the highest maturity level, to achieve strong presence both locally and regionally'. The center offered for the first time a wide range of services and support facilities for university staff members to begin engaging with e-learning. The main goal of this centre is to manage and monitor the establishment and development of e-learning systems in Egypt's universities. It focuses on putting standards and regulations to establish a national e-learning enabling infrastructure in the Egyptian universities. The Centre manages and monitors the development of 17 e-learning units established in Egyptian universities across the country (NELC, 2015 and El Zayat, 2010).

Egypt also launched its first non-profit private, electronic university in order to put some light and support to the e-learning modules. The Egyptian E-Learning University (EELU) is a private non-profit University established in 2008 to provide distance education through 24-hour online learning with a vision to be a leading university providing e-learning nationally, regionally, and internationally. EELU gives educational opportunity to learners who cannot attend a campus university (EELU, 2015).

ii) Why E-Learning in Egypt?

Education in Egypt is one of the Egyptian government's highest priorities, where reform is attempted at all education levels (Amin, 2014). For some time, policy makers have realized the need to restructure the education system, to make it more responsive to the needs of the rising population and a competitive economy. The mushrooming of the number of students enrolling in the higher education system in Egypt is continuously posing pressure on educational institutions and negatively affecting the quality of education. The higher education system in Egypt faces a number of problems including over-crowded classrooms, high price of traditional educational books, soaring prices of private tutors, chance for handicapped & special needs students, transportation problems, adult education & specialized training, chance for talented students, active participation in the International educational community, and enhancing the level of national education and graduates (Fayek, 2004 as cited in ElZayat, 2010). Overcrowded classes results in poor facilities and do not create an environment conducive to learning (Loveluck, 2012). In response to such problems, Egypt is struggling to adopt radically new educational initiatives that would enable the development of the higher education sector.

With the changing environment, educational institutions are forced to reconsider the methods in which they deliver their educational services. They now need to serve more students, yet, they have to shrink their budgets. This creates a calling need for e-learning, which creates new opportunities for both educational institutions and students. Abou El-Seoud et al. (2013) mentioned that web-based education can provide solutions to problems of education such as over-crowded classrooms, high prices of traditional educational books, transportation problems, need for continued education and specialized training, interaction with the international educational community and the enhancement of the level of national education.

Using e-learning services in public universities in Egypt could offer solutions for challenges facing the higher education sector including overcrowded classrooms and transportation from remote areas. E-learning can also fill in the gap which exists between the number of university places available in Egypt and the growing demand for higher education (El Gamal and Abd El Aziz, 2011).Some initiatives have already taken place by the

government to enhance the usages of e-learning nationwide. The outcome of such initiatives was not concrete enough to face the challenges of the higher education system.

Welsh et al. (2003) states that educational entities use e-learning when they are pushed to deliver training to many people quickly because e-learning classes are not constrained by instructor and classroom capacity, which means more people can be trained in less time. Afifi (2011) supported this idea through a study on e-learning in Egypt where 93% of the interviewees believed that applying e-learning will mostly ease off the overloaded classes in the Egyptian colleges.

A study was conducted by Abdelaziz et al. (2011) to evaluate the effect of using electronic learning versus traditional lectures on the Faculty of Nursing students of Ain Shams University in Egypt. Results revealed that the lack of computer skills affected the students' abilities to communicate effectively with the instructor and they failed to participate in a variety of online communication methods. Despite this fact, students found the e-learning method effective and had deepened their understanding of the subject. They also reported an increase in their technology and computer skills following the completion of the e-learning program. Overall, students in the study group were satisfied with the e-learning program as a teaching method, but they did not wish to take another e-learning program except if they had computer and Internet at home and had acquired more computer skills. Until then, they still preferred face-to-face instruction.

To be able to implement e-learning successfully in Egyptian universities, it is necessary to ensure that the needs and concerns of the stakeholder groups involved are addressed. A paper by Wagner et al. (2008) investigating "who is responsible for e-learning success in higher education" summed up that it is a shared responsibility between the various e-learning stakeholders. Students and instructors should participate as proactively as possible; provide feedback to improve future experiences, and communicate the learning possibilities that e-learning creates. Institutions should provide the technical infrastructure and support needed to enable comprehensive solutions. Content and Technology Providers should provide high quality, interoperable solutions that consider learning principles. Accreditation Bodies should provide and enforce clear guidelines for this new form of learning delivery. (Wagner et al., 2008).

iii) Egypt E-Readiness

In Egypt, there is growing interest in using modern technologies to deliver instruction and facilitate the process of teaching and learning. E-learning is being rapidly adopted by many universities and is destined to become a larger part of the educational experience of students.

Sadik (2007) developed an instrument to assess the state of readiness of academic staff at South Valley University in Egypt to develop and implement e-learning in university teaching. Responses suggested that the staff have adequate pedagogical knowledge and skills and inadequate technical software-specific knowledge and skill, particularly with the latest information technology resources, web-based interaction tools, and authoring packages. In addition, the staff demonstrated inadequate e-learning experience in terms of frequency of computer and technology use, formal training received, and real practice in e-learning. Although the staff are not inordinately anxious about the new technology, but rather confident in their abilities and appreciative of the importance of e-learning in facilitating learning, they are little encouraged to develop and implement e-learning in their university teaching due to institutional and individual barriers.

Lorenzi and Riley (2000) as cited in ElGamal and Abd El Aziz (2011) stated that the main success factors to system success are behavioral more than technical. In Egypt, the lack of knowledge and skills and the negative attitudes toward the use of technology are the main reasons faculty resists using e-learning materials in university teaching. This creates a threat of mismatch between student expectations and staff skills if academics are not able to learn about technology resources available mismatch. Accordingly, universities need to offer good and flexible opportunities for their staff to develop IT skills. (Haynes, Saintas, Stanier, & Palmer, 2004). From another perspective, a study by Afifi (2011) revealed that 79% of the interviewees assumed that currently, academics have sufficient skills to prepare their own materials (Afifi, 2011). Supporting the same idea, Lominé (2002) advocates that the thought that e-learning requires a high level of IT skills and knowledge is a myth.

ElGamal and Abd El Aziz (2011) studied the perception of Egyptian students as the customer in the e-learning process. They identified students' education preference, perception regarding e-learning mode effectiveness, and their e-readiness to its adoption by answering

'What is the preference of the Egyptian students' regarding HE mode in Egypt?' and 'What is the students perception regarding the effectiveness of e-learning as a higher education mode of learning in Egypt?'. Results revealed that students prefer the traditional on-campus learning mode as a way to avoid uncertainty. A variety of reasons have lead to students' doubt about the new educational platform such as the lack of normal college environment, asynchronous interaction and feedback between learners and instructors, and technological infrastructure problems such as Internet speed and bandwidth besides the familiarity of the structure routine of traditional on-campus education. El Gamal and Abd El Aziz (2011) noted that an interesting feature of the Egyptian situation is the clear concern regarding learning via electronic forms, and yet are very frequent Internet users. They seem to trust the technology, and even use it frequently and yet do not trust the system and its power in solving improving the higher education in Egypt.

VI. Literature Review

Literature reviewed for the scope of this research includes identifying the different definitions of the term e-learning, its benefits, limitations and challenges. Attention is also dedicated to review research conducted on the use of e-learning in higher education. In addition, previous studies on factors affecting the development of e-learning and accountable for its take up are thoroughly reviewed.

A. What is E-learning?

i) E-Learning Definitions

E-learning, or electronic learning, is one of the educational outcomes that emerged from the development of Information and Communication Technologies (ICTs). The term e-learning has been defined in a number of different ways in the literature according to different contexts. Generally speaking, e-learning is a generic term used to describe a type of distance learning in which training or educational material is delivered electronically to remote learners (Anaraki, 2004) via the use of electronic media including computers, multimedia presentation, internet, intranet, extranet, satellite broadcast, audio/video tape, interactive TV, and CD-ROM" (Urdan & Weggen, 2000).

Khan (2005) as cited in Al-Qahtani & Higgins (2013) defines e-learning as ‘an innovative approach for delivering well-designed, learner-centered, interactive, and facilitated learning environment to anyone, anyplace, anytime by utilizing the attributes and resources of various digital technologies along with other forms of learning materials suited for open, flexible, and distributed learning environment’. E-learning includes a wide range of applications of electronic technologies in study environments, with a special emphasis on learning through the web (Guri-Rosenblit and Gros, 2011) covering a spectrum of activities from blended and hybrid learning to learning that is entirely online (distance learning) (Dutta et al., 2011). This combination of web-based tools provides facilities that can enhance traditional classroom learning experiences (Cisco, 2001 as cited in Chin & Kon, 2003). E-learning can be synchronous (real-time) or asynchronous (flex-time). Synchronous e-learning includes technology such as video conferencing and electronic white boards, requiring students to be present at the time of content delivery. Asynchronous applications include

programmed instruction and tutorials that allow students to work through the screens at their own pace and at their own time (Wagner et al., 2008).

ii) E-learning in Higher Education

It is now evident that the internet has become an essential tool assisting higher education students in learning. A number of studies have investigated the effect of e-learning on the students' achievement in higher education. Jones (2002) stated that college students are heavy users of the internet compared to the general population. Use of the internet is a part of college students' daily routine, probably because they have grown up with modern technology. It is integrated into their daily communication habits and has become a technology as ordinary as the telephone or television. Jones (2002) further examined the internet's impact on college students' daily lives and the impact of that use on their academic and social routines. Results pointed out three main findings; college students are early adopters and heavy users of the internet; college students say the internet has enhanced their education; and college social life has been changed by the internet.

Zhao (2008) as cited in Zhao& Jiang (2010) highlighted through a study that three common approaches by university students for information retrieval are: logging on various search engines (75.9%), using electronic database offered by school library (44.8%) and looking for references from physical library (44.1%). Zhao& Jiang (2010) observed that more and more students adopt the internet as an efficient tool to attack difficulties encountered in learning. For instance, they often consult instructors, classmates and even professors from other institutions via Internet. Among those interviewed, more than half (59.5%)students prefer seeking answers to questions through search engines, while those consulting other students from class or discussing with them face to face and those looking for references from library account for 49.8% and 47.9% respectively.

Higher educational institutions worldwide have been using the Internet and other modern technologies to develop education for several years. However, e-learning offers the prospect of a radical new approach of the higher educational process especially for those unable to attend on-campus and face-to-face traditional learning and also for lifelong learners (Chitiba, 2011). Within the last 20 years, the proponents of learning via computers have challenged the view that the traditional lecture is necessarily the most appropriate means of

facilitating learning in a university environment. The revolution of computer technology, the explosion of the World Wide Web, and the trend of university teaching to become more learner centered have popularized electronic delivery as an alternative or an adjunct to traditional lectures (Stephenson, Brown, & Griffin, 2008). The evolution of e-learning in higher education places new demands on the training and support capabilities of universities. Whether supporting the use of new technology in lectures or assisting in the delivery of e-courses, universities face big challenges in meeting the e-learning needs (Sadik, 2007).

iii) E-learning Benefits

E-learning provides an opportunity for a different form of interactivity between the teacher and the student outside the classroom. Through e-learning, part of the learning content can be delivered through “self-administered” e-learning, while educators can concentrate on their role as mentors, developing with students the skills of understanding, questioning, critical thinking and knowledge application. In this context, e-learning can contribute to problem-based learning which has been demonstrated to encourage greater student engagement and leads to better learning outcomes (Biggs, 2012 as cited in Vassiliou & McAleese, 2014).

Information technology in teaching and learning has created a need to transform how university students learn by using more modern, efficient, and effective alternative such as e-learning (Selim, 2007). E-learning can guarantee freedom from the constraints of time and place with greater access to more opportunities for education. It can break geographical boundaries allowing remote learners to interact with the subject matter, subject material, and with each other in the form that could not be achieved for learners without technology. The role of technology is to get remote learners into a position to learn as though they were in-campus. (Dutta et al., 2011). Students are even able to obtain globally recognized qualifications from established universities worldwide while still continue to live and work in their home country.

E-learning can solve challenges many people meet with work or family commitments; due to the high flexibility in time and place it offers. This could increase the number of students providing them with learning opportunities at minimum cost especially for those who are distant from educational institutions (Al-Qahtani & Higgins, 2013). Sanderson

(2002) stated that the benefits of e-learning including cost-effectiveness, enhanced responsiveness to change, consistency, timely content and flexible accessibility.

E-learning is also believed to provide solutions to problems such as large numbers of students per classroom, transportation problems especially for students living at remote areas resulting in the development of education nationally (Fayek, 2004). Dutta et al. (2011) viewed that e-learning can further achieve better educational outcomes and interaction and more cost-efficient methods of bringing the learning environment to the learners. This can be achieved through providing an infrastructure that integrates learning material, tools, and services into a single solution in order to quickly, effectively, and economically create and deliver educational content (Anaraki, 2004). El Gamal and Abd El Aziz (2011) believed that e-learning could dramatically increase access to education and improve quality of education by accessing global academic resources and by offering training to academics.

E-learning also creates an interactive environment for teachers and students, as well as the opportunity for discussion and clarification of class content at any time and from any place. It also enables educational institutions to target learners who are unable to participate in traditional-learning environments. The internet is seen as a rich source of information with different perspectives in research and countless resources to improve student work. E-learning also enables participants to choose the course scope, appropriate time, access up-to-date content and even customize it (El Gamal and Abd El Aziz, 2011).

E-learning offers the opportunity to tailor the needs according to the learner rather than to the needs of the instructors, or the educational institutions. Learning is self-paced and gives students a chance to speed up or slow down as necessary. They can also control the pace at which they progress through the materials. In other words, as e-learning is self-directed, this allows students to choose content and tools appropriate to their different interests, needs, and skill levels (Abdelaziz et al., 2011). Hameed et al. (2008) stated that in e-learning lecture setting material can be accessed several times and at any time if something is forgotten which allows students to remember most of the information delivered that they are required to learn in particular course.

iv) E-learning limitations

Despite the multiple benefits of e-learning, some research suggests some negatives associated with its application. One of the drawbacks of e-learning is that the learner might suffer from isolation and the lack of direct social interaction leading to a major shortage in the students' social abilities (Afifi, 2011). A learner with no social interaction might need more motivation to and time management to be able to focus (Hameed et al., 2008). Accordingly, this might result in restrictions in communication skills of the learner (Akkoyunlu & Soylu, 2006) and it is even possible sometimes to misinterpret what was meant (Abdelaziz et al., 2011). E-learning may also lack the privilege of nonverbal clues resulting from observing the interactions of others (Hameed et al., 2008). In a study on e-learning in Egypt, 71% of the interviewees stated their apprehension concerning the lack of interaction when using e-learning. From their point of view, such deficiency makes e-learning less attractive and less useful (Afifi, 2011).

Technologically speaking, a problem that may encounter learners is slow internet connections or non efficient computers which may make accessing the course materials difficult and cause the learners to get frustrated and give up (Abdelaziz et al., 2011). A study which pointed out some of the drawbacks of using the internet as a tool for e-learning argued that it drives students to be dependent on the internet and in turn restricts a student from gaining knowledge through research (Madhukar, 2002 as cited in Alhomod & Shafi, 2013).

Some concerns also exist that e-learning may drive academics to focus on delivering information, forgetting that education involves more than information provision.

v) Relevant Technology-Based Learning Tools

Relevant to the study of e-learning and the use of modern technologies to advance the education process worldwide, some relevant concepts and tools have been reviewed for the purpose of this study.

Blended Learning

An important concept in the field of using modern technologies in education is “Blended Learning” which is also referred to as hybrid learning. Blended learning is a

combination of learning involving face-to-face traditional learning and web-based learning aiming at providing the strengths of each. Many studies argue that blended learning has the capacity to benefit from ICTs usage and new technology while addressing the problems of implementing fully e-learning education. DeLacey and Leonard (2002) reported that by adding the online classes to the course already taught at Harvard Business School faculty, students not only learned more but their interaction and satisfaction improved as well.

Megeid (2014) concluded in a study on accounting students that the inclusion of face-to-face sessions within blended courses provides students with continuous access to the instructor, receives immediate support, guidance, and management of the course especially that they lack the fully online learning skills.

Massive Open Online Courses (MOOCs)

Over the past few years, *Massive Open Online Courses (MOOCs)* have emerged rapidly on the higher education landscape. The term 'MOOC' was coined in 2008 by Dave Cormier, Manager of Web Communication and Innovations, at the University of Prince Edward Island. They were responding to an online course called Connectivism and Connective Knowledge which was led by George Siemens and Stephen Downes, well-known educational researchers in the field of online learning (Lim, 2015).

A MOOC is an online course that is free and open to anyone who wants to register. MOOCs provide virtual courses that are taught by well-known professors from different distinguished institutions worldwide. The courses are designed for massive enrollment, and some have already attracted more than 100,000 students (Butler, 2012). MOOCs are considered a development in online education targeting unlimited participation and open access to participants via the Web (Curtis et al., 2015). The expansion of the use of MOOCs enabled the exchange of high quality learning content among learners, universities and institutions with no limitations of time or place. So far no institution is offering academic credit for taking a MOOC, though some are offering certificates of participation, and others may offer more official credentials in the future, likely at a cost to students (Butler, 2012).

Flipped Classrooms

Another concept that alters the traditional thinking about the learning process and calls for the use of innovative modes of education is the “*flipped classroom*”. Flipped classrooms “actively transfer the responsibility and ownership of learning from the teacher to the students” and develop them into “active learners rather than receptacles of information” (Bennett et al., 2011 as cited in Driscoll, 2012).

In the “flipped classroom” mode of learning, educators transfer the learning experience into the individual learning space with the aid of modern technologies. Educators start flipping their classrooms through recording and narrating their work and creating videos of themselves teaching which are available for students to access whenever and wherever it is convenient for them; at home, during study hall, on the bus, and as many times as they like, enabling them to come to class better prepared (Musallam, 2011). The role of students in the flipped classroom is to use self-directed learning methods to review and critically consider materials outside of class, and then actively apply what was learned in a collaborative class environment (Estes et al., 2014). In this learning environment, students become the agents of their own learning rather than the object of instruction enabling a shift from teacher-driven instruction to student-centered learning. Educators in this context can utilize class time on checking on each student’s understanding of the learned content, individualizing instruction, reviewing concepts, collecting assessment data, and developing lessons that promote collaboration and application of knowledge (Driscoll, 2012). Flipped classrooms can help busy and struggling students, increase teacher-student and student-student interaction, be friendly to students with diverse abilities, and enable customizable and flexible instruction (Bergmann and Sams, 2012 as cited in Estes et al., 2014).

Papadopoulos and Roman (2010) studied the effect of using flipped learning techniques in an electrical engineering class. Results revealed that students progressed through material faster, understood topics in greater depth, and found that additional content could be covered without sacrificing the quality of the course as a whole. Additionally, they found that 75% of students frequently or always helped other students in the class. In terms of student performance, test scores exceeded those in the traditional learning environment. On a pre-test, students in an inverted class answered about the same proportion of questions correctly, compared to their counterparts in a traditional classroom. At posttest, the difference

in scores for the two groups was statistically significant, with students in the inverted class answering 31.2% of questions correctly, and those in a traditional class answering 24.1% of questions correctly.

B. Factors Affecting E-learning Development

The term Critical success factor (CSF) first appeared in the literature in the 1980s when there was interest in why some organizations seemed to be more successful than others, and research was carried out to investigate the success components (Ingram, Biermann, Cannon, Neil, & Waddle, 2000). Critical Success Factors (CSFs) are viewed as those constituents that must be addressed in order to ensure successful competitive performance for the individual, sector, or organisation.

The success factors of e-learning have been mentioned in a wide variety of literatures. It has been found that a number of factors have effect on the success of e-learning. However, although there are a large number of research articles on e-learning in Egypt, few of them address the critical success factors for implementing e-learning.

Higher education in developing countries face unique challenges compared to developed countries. This drives a necessity to understand what drives e-learning implementation to succeed. A deep understanding of these challenges allows stakeholders to take appropriate steps and action to ensure e-learning system success (Bhuasiri et al., 2012). Bhuasiri et al. identified the critical success factors that influence the acceptance of e-learning systems in developing countries through data collected from questionnaires sent to eighty-two participants in developing countries. Results showed that the most important factors influencing e-learning success in developing countries were related to increasing technology awareness and an attitude toward e-learning, enhancing basic technology knowledge and skills, improving learning content, requiring computer training, motivating users to utilize e-learning systems, and requiring a high level of support from the university.

Alhomod & Shafi (2013) identified important factors that can help in identifying the success factors of e-learning programs. The factors identified as success factors are: Sufficient Users Training, Organization Commitment, Management Support, Technical

Support, Positive attitude of users, Easy To Use tools, Sufficient Training to Engineers, Sufficient e learning initiatives, Sufficient Manpower, Availability of Info on E learning Website, Support from other Departments. The study concluded that the focus of e-learning programs should be on the learners and users rather than the introduction of new technology.

Ozkan & Koseler (2009) identified the stakeholders of e-learning as: the learners, faculty, administrative and technical staff, and employers. Wu & Lee (1999) identified computer literacy of the stakeholders and the users of e-learning as a major factor in the success of any computer mediated communication program.

El Gamal and Abd El Aziz (2011) stated that technologies cannot be adopted regardless of the stakeholders' nature, perception, and preferences and that in order to make e-learning more popular in Egypt, and to successfully adopt this technology, it is required to understand the users' perception, and preferences. Student perspective is important, as many higher educational institutions endeavor to attract and retain students and to adopt e-learning courses or programs (Masrom et al., 2008).

Selim (2007) specified e-learning CSFs as perceived by university students through surveying 538 university students. The results revealed 8 categories of e-learning CSFs, each included several critical e-learning acceptance and success measures. The specified e-learning CSF categories were based on students perceptions and included: instructor characteristics (attitude towards and control of the technology, and teaching style), student characteristics (computer competency, interactive collaboration, and e-learning course content and design), technology (ease of access and infrastructure), and support. All indicators of the instructor's attitude towards and control of technology indicated high levels of criticality to measure the posited category. The most critical indicators were instructor's attitude towards interactive learning and teaching via e-learning technologies. Similarly, student motivation and technical competency measures indicated high levels of criticality. In the technological dimension, the ease of use of the course web was the most critical factor.

Soong et al. (2001), using a multiple case study, concluded that the main CSFs of e-learning are: human factors, technical competency of instructors and students, constructivist mindset of instructors and students, level of collaboration, and perceived information technology infrastructure.

Volery and Lord (2000) identified three critical success factors in online delivery: technology (ease of access and navigation, interface design and level of interaction); the instructor (attitudes towards students, instructor technical competence and classroom interaction); and the previous use of the technology from a student's perspective. Findings from this study indicate that the internet can be a powerful tool in education. This tool has the potential both to support effective education programmes and to expose students to the implications of computer networks. The study also revealed that lecturers need to upgrade their technical skills in order to keep in touch with the technological developments that are taking place.

In an attempt to provide a pedagogical foundation as a prerequisite for successful e-learning implementation, Govindasamy (2002) discussed seven e-learning quality benchmarks namely, institutional support, course development, teaching and learning, course structure, student support, faculty support, and evaluation and assessment.

VII. Methodology

The study employs qualitative methods to address the implementation of e-learning in the Egyptian higher education system. Qualitative research was used to seek answers to questions by examining various social settings and the individuals who inhabit these settings (Berg, 2004). The research was conducted through interviewing 21 top management officials, strategic planners, information technology experts, instructional designers, and professors teaching e-learning courses from different public universities. Participants were selected either through purposive sampling focusing on e-learning stakeholders and beneficiaries or through snowball sampling through recommendations from interviewed e-learning experts. Interviews are believed to provide rich qualitative data especially given that the interviewees have the ability to state whatever they see as related to the research topic while the interviewer can explain any ambiguities and correct any misunderstandings related to the interview questions.

Data was collected from participants through the use of semi-structured in-depth interviews. Semi-structured interviews involve the implementation of a number of predetermined questions and special topics. These questions are typically asked in a systematic and consistent order, but the interviewers are expected to probe far beyond the answers to their prepared standardized questions (Berg, 2004). This kind of interviews guides the conversation, but allows for participants to provide information that is important to them but not necessarily reflected in the interview questions (Seidman, 1998 as cited in Williams, 2008). Before conducting the interviews, a set of interview questions (Appendix A) was used as a guide for the interview flow. Open-ended questions were used to allow for individual variations and to evoke responses that are meaningful and explanatory in nature. All interviews took place at offices of the interviewees in order to provide easiness and comfort for participants.

The thesis proposal was submitted and approved by the AUC's institutional review board (IRB) (Appendix B). An informed consent form was drafted and participants were briefed on the nature and the purpose of the study before being asked to sign the form (Appendix C). Interviewees were also informed that participating in the study was completely voluntary and that they had the right to stop the interview and withdraw at any time. All participants agreed to participate and were reassured that their information would be treated

as confidential and would not be used for any other purpose without their consent. Permission was taken to record the interviews and all participants agreed. This helped the researcher to limit the note-taking during the interview and focus with the interviewee.

VIII. Challenges and Opportunities of E-Learning Adoption

This section discusses the responses of the interviewees participating in the thesis. The data collected from the interviewees' responses were grouped into categories in order to facilitate the analysis process and deriving the findings of the study which will be highlighted in the following section. The analysis begins by exploring the perceptions and attitudes of participants towards e-learning. This is followed by an analysis of the challenges and opportunities of e-learning implementation and critical success factors needed in order to adopt e-learning are highlighted.

Perceptions and Attitudes towards E-learning

The progress and development of e-learning in Egyptian universities is the core of this research. Interviewees were first asked to express their view about the current status of e-learning and if they see any progress that took place throughout the past few years.

Most of respondents stated that there was progress in adopting e-learning and that using e-learning services in Egyptian universities developed through the last few years. A participant mentioned:

“I believe that the last five years witnessed a remarkable leap in the field of e-learning in Egypt. Now, some universities are getting stronger and stronger in this field.” [Professor at the Egyptian E-Learning University (EELU)]

The interviewee mentioned that we cannot deny the progress that took place in the field of e-learning and most public universities now have e-learning units which deliver e-courses to be taught to students. He believed that e-learning adoption is getting stronger every year and universities are getting more eager to utilize e-content in the learning process.

Progress of e-learning was also related to the establishment of the National E-Learning Centre (NELC) to promote and support the development of e-learning in higher education, a growing number of courses are being converted to e-content. The NELC puts standards, manages and monitors any e-course delivered in Egyptian universities. E-courses

are produced through 17 e-learning units affiliated to NELC across Egyptian universities. Interviewing a high rank official at the National E-learning Center (NELC), he stated:

“The National E-learning Center (NELC) has produced 550 e-learning courses till now and we have managed to reach 80,000 students who can now use e-learning courses.”[A high rank official at the National E-learning Center (NELC)]

The participant mentioned that the number of e-courses delivered across the e-learning units affiliated to NELC has increased significantly and that it was the first time that semester (Fall 2014) for the NELC to service such a large number of students (80,000) from various universities. He also added that these e-courses can be shared among any university in Egypt to be taught at any faculty at their request.

Interestingly, nearly all respondents who answered the first question, ***“How do you see the progress and development of e-learning in Egyptian universities?”***, with a positive attitude expressing their view that there is progress in e-learning, elaborated in their talks mentioning that the problem is that the effect there is little tangible effect for this progress in terms of alleviating the problems of the higher education system. It seems that at a glance there is an indisputable progress apparent in the field of e-learning in Egyptian universities. However, when respondents pause to evaluate this progress, they fail to capture tangible outcomes that have altered the learning process in the higher education system.

“We started e-learning in Egypt when the NELC was established in the Supreme Council of Universities. This means that after these years of experience we have reached the ability to develop e-content and manage their implementation in universities. However, the status and progress of e-learning implementation in Egypt is still not good enough.” [Executive Director, Higher Education Development Project affiliated to the Ministry of Higher Education]

The interviewee pointed out that although there are efforts that cannot be denied in developing the use of e-learning services in public universities, however, e-learning is still far away from being successfully implemented. The reasons for this lagging behind were due to

problems and challenges facing the adoption of e-learning which will be raised throughout the analysis.

Some of the participants mentioned that there are hardly any outcomes that the progress of e-learning is not visible at all. They believed there were never serious steps towards utilizing e-learning services to create any progress in the higher education system in Egypt.

“In my opinion, there is no e-learning in Egypt. Everyone is talking about implementing e-learning but there is no adequate system for implementing e-learning, only personal initiatives.” [E-learning expert and former high rank official at the Ministry of Higher Education]

The interviewee believed that all what is related to the implementation and adoption of e-learning in the higher education system in Egypt is only talk with no effective action taking place. In his opinion, e-learning is like the ***“jacket pin that everyone wants to wear but nobody actually cares about its progress.” [E-learning expert and former high rank official at the Ministry of Higher Education]***

The majority of participants agreed with the same opinion and stated that e-learning has never been appropriately implemented in Egyptian universities but only appears in the form of occasional initiatives whether by the government or personal initiatives by interested academic staff.

“Any progress in implementing e-learning is restricted to individual efforts. If there is any progress then it's due to personal initiatives of some professors who want to use e-learning techniques to advance their delivery and educational outputs. Other than that, no regulations or rules regulate the process of e-learning implementation in universities.” [E-learning expert and former high rank official at the Ministry of Higher Education]

The interviewee clarified that even if there is progress in the adoption of e-learning it is mainly a result of the passion of some professors and their keenness to utilize modern technologies and embed new methodologies in the learning process. Other than that, he

believes that there are no serious government initiatives or attention to issue rules and regulations that advance the implementation of e-learning in the higher education system.

Interviewees were asked how they think the society perceives an online degree. The majority of participants mentioned that an e-learning degree is not appreciated by society in Egypt. A participant said:

“The society sees an e-learning degree as a shame. It’s not accepted. This is the opposition of a society to something unknown”. [Professor at the Egyptian E-Learning University (EELU)]

The interviewee mentioned that people consider an e-learning degree a ***“shame as if it is not a higher education degree at all”***. He believed that the reason behind the rejection of e-learning is that people do not know enough information about e-learning services and its benefits. It is the tendency of people to reject something unknown or obscure to them.

When participants were asked if they believe that people see technologies, computers and internet tools as means to entertainment rather than learning and education, many interviewees answered that this idea is still prevailing especially for elder people. They also believed that this is the case in rural areas in Egypt more than urban areas.

Favoring Blended Learning

Nearly all participants favored blended learning than fully implementation of e-learning when they were asked which they see a more efficient way of education. Participants were asked if they believe that there are certain subjects or learning material which needs to be taught using traditional face-to-face and others that can be converted to e-learning content or else e-learning can be utilized and implemented in any field regardless of its nature.

There was consensus among interviewees on the support of the use of blended learning to achieve the benefits of both traditional face-to-face techniques and e-learning services. Some of the supportive comments stated by interviewees were:

“If you skip face to face you are risking that student loses interest if he never sees and interact with his tutor”. [Professor at the Egyptian E-Learning University (EELU)]

“Blended learning is more useful in the case of practical faculties and fully e-learning can be applied in theoretical universities”. [Executive Director, Higher Education Development Project affiliated to the Ministry of Higher Education]

“I prefer blended learning because there are other things to be learnt other than teaching like ethics, behavior, and face to face interaction”. [Instructional Designer at the National E-learning Center (NELC)]

“Some courses need face-to-face teaching, maybe due to its practical nature. In this case, using blended learning is better”. [Professor at the Egyptian E-Learning University (EELU)]

Concerns were raised about adopting fully e-learning throughout the interviews and the following were some of the reasons mentioned:

- risking that student loses interest in the learning process if he never sees and interact with his educator
- there are other things to be learnt other than teaching like ethics, behavior, and face to face interaction that are not present in full e-learning
- fully e-learning might not be appropriate for practical courses

Participants viewed that e-learning is better used in teaching theoretical courses but not practical ones which need the presence of professors and students personally in class. This comes in accord with what Algahtani (2011) suggested that e-learning might be more applicable in social science than in some scientific fields, such as medical science and pharmacology where practical skills need to be developed.

An interviewee mentioned:

When teaching practical subjects, we cannot do without labs. E-learning alone would not be sufficient in this case for the student to learn practical skills. [A professor teaching an e-learning course – Faculty of Pharmacy]

A professor teaching an e-learning course at the Faculty of Pharmacy believed that e-learning cannot replace labs and practical sessions providing hands-on-experience are absent. Those kinds of learning need face-to-face teaching and the physical presence of both the teacher and student. However, some participants mentioned that the use of e-learning in faculties of practical nature to teach theoretical courses can save time for practical sessions to take place in class.

“Due to the practical nature of the faculty of medicine, using e-learning in teaching the theoretical content of the curricula enabled us to save more time for students to further engage in practical classes in university such as labs and dealing with patients which is essential for them to be good physicians.” [A professor teaching an e-learning course – Faculty of Medicine]

A professor teaching an e-course at the Faculty of Medicine mentioned that when they used e-learning to teach the theoretical courses in the faculty, this saved time in class to be utilized in practical sessions which students need to attend physically to gain experience and practice.

From another perspective, one of the Directors of the E-learning Centers affiliated to the National E-learning Center (NELC) stated that faculties of practical nature welcomed the inclusion of e-learning courses in their learning process. She mentioned:

“Faculties with a practical nature are even more welcoming to develop and use e-learning content. Most of e-learning courses in the University are taught in practical faculties. Maybe this is because e-learning offers an alternative to the high-cost equipment and the space needed through the use of technological methods such as online simulations.”[Director of an E-learning Center affiliated to the National E-learning Center (NELC)]

The participant highlighted that practical faculties see e-learning as an opportunity they can utilize to teach students some practical courses which on campus might need many resources, expensive equipments and large space in order for all students to receive the

training. She stated that staff academics believed that this assisted them in teaching their courses.

Challenges Hindering the Adoption of E-learning

Interviewees were asked about the challenges which hinder the advancement of e-learning in higher education in Egypt. Responses were categorized and grouped under the following themes in order to highlight the main problems encountered from the view of the participants.

E-learning is not always welcomed by Staff Academics

The majority of participants stated that many professors do not show interest in adopting e-learning in their teaching. They related this attitude to a number of factors; the long and tiring process of converting courses to e-content, the fear of loss of income from book royalties, centralization of follow up on e-courses and technological inexperience and resistance of elder staff academics.

1. Long and tiring process

Some participants mentioned that one reason behind the reluctance of staff to use e-learning is the long and tiring process which they need to deal with in order to convert their course to e-content. One of the interviewees stated that:

“Professors are reluctant to spend much time in developing e-learning content because it takes effort and they are not interested enough.”
[Executive Director, Higher Education Development Project affiliated to the Ministry of Higher Education]

Another professor teaching an e-learning course at the Faculty of Medicine agreed that the process was long and tiring but at the end it was worth it.

“I think that e-learning is useful but the process of producing e-learning content is tiring and the application is long and exhausting and professors mostly do not have such patience. I myself had fun producing

the e-learning content although it was tiring.” [A professor teaching an e-learning course – Faculty of Medicine]

The participant said that professors do not welcome the process of converting a course into e-content because it is a process that takes a lot of time and effort. He added that professors prefer to continue teaching using their traditional methods rather than going through tiring procedures. He also clarified that the process of producing an e-course requires several meetings with the instructional designer which is very tiring and time consuming.

2. Centralization of follow up on e-courses

Another problem introduced is the centralization of the evaluation and follow up on e-courses which takes place at the National E-learning Center (NELC). Although there are e-learning units in different universities which are affiliated to the NELC, professors who produce or teach an e-learning course are requested to deal with these units in any inquiry or problem they face but at the same time they have to wait for these units to get back to the NELC even in minor issues such as students' passwords recovery. Most of the interviewed professors who are teaching an e-course complained that this is an exhausting and time consuming process.

“We always face a problem with the long process we have to pass through whenever we encounter any problem. We have to contact people who seem not directly in charge or responsible for solving the problems and they have to get back to other entities which results in a delay in solving the problems and meeting our needs.” [A professor teaching an e-learning course – Faculty of Pharmacy]

A professor at the Faculty of Pharmacy teaching an e-learning course expressed his experience whenever he faces any problem concerning his course. He said that when he contacts the e-learning unit in his university they always respond that they have to contact the NELC and come back to him. This process takes time and causes unnecessary delay. It is noteworthy that when officials at the NELC were asked through the interview if the e-learning units have to get back to them in any problem concerning the e-courses taught at universities, there answer was yes because any issues concerning the e-courses has to be dealt with at the NELC.

3. Fear of losing a main income stream

A major drawback of the higher education system in Egypt is that many professors depend on book royalties to supplement their income. These professors compel their students to buy their books and can even penalize students with bad grades if they do not buy them (Docherty, 2005). In this context, the majority of participants referred to the problem of the reluctance of professors to use e-learning services fearing the loss of their earnings from book sales. Many participants argued this idea during their interviews:

“Professors fear that implementing e-learning will result in low sales for their books which they see as a main source for their income The professors want to sell their books to students. So, there is a conflict of interest because you are asking the person who loses money if e-learning is implemented to use e-learning.” [E-learning expert and former high rank official at the Ministry of Higher Education]

“The staff is resistant to implementing e-learning because they believe they will lose their primary financial resource, their books, which they sell to students.”[Professor at the Egyptian E-Learning University (EELU)]

“It’s like we are competing with the professors’ book sales and this hinders the implementation of e-learning in many faculties.”[A high rank official at the National E-learning Center (NELC)]

Participants said that professors simply fear trying any new methods of teaching that could threaten their income which is mainly based on book sales. Accordingly, they reject using e-learning and prefer to keep using their traditional methods of education.

4. Resistance of elder staff academics

Another problem related to staff members is that elder generations in most cases are not acquainted with modern technologies and their usages. A participant mentioned:

“We have a problem that many of the elder staff members at universities have little information about using computers and the

internet.”[A high rank official at the National E-learning Center (NELC)]

The interviewee believed that elder staff members are reluctant to learn new technologies. They do not want to change their traditional face-to-face methods of teaching and they resist any change.

An interviewee stated:

“Most elder generations do not accept e-learning. I recall that when I used to teach using PowerPoint presentations in class, one of the departments head considered that I was spoiling the educational process in the university.” [E-learning expert and former high rank official at the Ministry of Higher Education]

The participant recalling his personal experience mentioned that even the most modest forms of technology use was rejected from elder staff. He recalled that when he used PowerPoint presentations in teaching his class, the department head said that this was ruining the education process in the faculty. This comes in accord with what Moerschell (2009) suggested that the resistance of faculty to changes in utilizing technology in higher education and managing that resistance may be among the most pressing challenges for leaders in academia (Moerschell, 2009 as cited in Khalil, 2013).

Gaps in Rules and Regulations

Nearly all participants stated that the rules and regulations of higher education hinder the take up of e-learning. An interviewee stated:

“All what rules and regulations care about is that the professor and students are present in class in person. Electronic exams are not accepted, only traditional paper-oriented exams are acknowledged in universities Rules and regulations of faculties do not approve the use of e-learning techniques. All they want is exams and paper.”[E-learning expert and former high rank official at the Ministry of Higher Education]

The participant argued that the higher education rules and regulations do not support the adoption of e-learning. On the contrary, all what they care about is the physical presence of learners and educators together. Any forms of electronic exams are not accepted.

Rules and regulations do not even include the use of modern technology as requirement for staff promotion. An interviewee commented:

“Using new technology techniques such as e-learning in teaching is not listed as a requirement for promotion of the faculty staff.” [A professor teaching an e-learning course – Faculty of Pharmacy]

A professor teaching an e-learning course at the Faculty of Pharmacy mentioned that rules and regulations do not state that using modern technologies such as e-learning in teaching takes part in the promotion process of staff members. This does not encourage academics to advance in this field or concern themselves about embedding e-learning methods in their teaching.

Inequality in Services Provision

The absence of equal distribution and the availability of technological services especially for students who cannot afford to access computers and internet from their homes was a challenge raised through the interviews.

A participant mentioned:

“It is more about resources rather than the readiness of people. We don’t have enough computers for students, especially large numbers living in the University City and many students do not have computers or internet facilities.” [Executive Director, Higher Education Development Project affiliated to the Ministry of Higher Education]

The interviewee believed that there is a problem in the resources available for students. He added that the number of computers available is not enough and does not match the large numbers of students especially that those living in the University City mostly do not have access to internet or computers.

Another interviewee agreed with this idea stating:

“Before disseminating the experience of e-learning on all subjects and faculties, we need to take into consideration that equal opportunity is available for all students to access computers and the internet which is not the current case”. [A professor teaching an e-learning course – Faculty of Pharmacy]

The participant argued that it has to be put into consideration that before disseminating the use of e-learning in universities, we have to ensure that all students have access to computers and internet. He added that this is not the case now in public universities where most students have no access to such facilities.

There is also inequality in services provision as technological facilities are not provided to people on equal basis. A participant expressed this problem of inequality in services provision stating:

“There is a problem of discrepancy between technology facilities available to students at home due to discrepancy between society classes. You cannot ask a student owning a pc and internet at home and a student that lacks such services to study from the same e-learning platform and take their online exams. This would not be fair”. [E-learning expert and former high rank official at the Ministry of Higher Education]

The participant argued that it is not fair to request the same learning task or test students through online examinations while computers and internet are not available for students on equal basis. He added that technology is not equally distributed and are available for urban residents more than rural ones.

Shortage of Funds

Interviewees were asked about the funds allocated for the enhancement and development of e-learning in the higher education system. Nearly all participants stated clearly that the funds assigned for education as a whole is not enough and that more funds

should be allocated for the enhancement of e-learning and its dissemination in public universities.

Some of the responses stated:

“The budget allocated for education as a whole is very little”. [Executive Director, Higher Education Development Project affiliated to the Ministry of Higher Education]

“We tend to hire junior graphic designers and instructional designers because the market price salary for more professional ones will be difficult for us to cover using the allocated funds ... We asked that since the top graded students in each faculty are automatically offered government jobs, they can join the e-learning centers across the governorates in order to achieve better outputs.” [Director of an E-learning Center affiliated to the National E-learning Center (NELC)]

Interviewees mentioned that the budget of e-learning is very limited and that they cannot hire any experienced or professional graphic designers and instructional designers because they cannot afford their market price salaries.

Concerning the cost of owning technology utilities (computer and internet) required for e-learning, most respondents answered that it is affordable for low or middle – income citizens in Egypt. Few interviewees, however, believed that the cost of owning technology utilities is not that cheap and cannot be affordable for low income students and this needs the interference of the government.

Promising opportunities for the take off of E-learning

In order to explore how the above mentioned challenges could be addressed so that e-learning could be implemented and adopted in higher education, opportunities available need to be highlighted. The main promising opportunities that were highlighted by participants were the widespread usage of modern technologies and its existence in the everyday life of people and the well-established technological infrastructure available in public universities.

Widespread usage of modern technologies

Interviewees were asked if they believe that people are ready to use technology in learning. Most interviewees agreed that people now use modern technologies in many aspects of their daily routine in different forms including mobile phones, computers, internet, GPS services ...etc. They mentioned that students use computers and internet services in their everyday lives and that they are willing to use e-learning services in their education as well. They also believe that families and parents would not resist the use of technologies in education for their children as long as they see positive outcomes.

Some of the comments stated:

“I think that many students nowadays use the internet in everyday activities and I don’t think that the family would oppose the use of e-learning especially when they see that this will reduce the costs of transportation, accommodation and time for students”. [Executive Director, Higher Education Development Project affiliated to the Ministry of Higher Education]

“I don’t see that there is any problem concerning the students. They are used to using technology in everyday life and they are very good at it”. [Professor at the Egyptian E-Learning University (EELU)]

Participants agreed that students use many sorts of modern technologies including computers and internet in their daily life and it has become embedded in their regular routine. They stated that parents would not reject any beneficial mode of learning as long as they see positive results in the progress of their children’s education level. They added that e-learning will be further welcomed by families when they see how it can save time and money as it reduces the need for transportation and accommodation for remote learners.

Some interviewees ensured that the provision of e-government services for people through the use of internet facilities also played a role in shaping the perception of people and their attitude towards modern technologies. A participant stated:

“Today the society appreciates technology and internet services and everyday life made people see its useful facet. E-government services

provided for citizens via the internet such as knowing your voting station or your traffic violations made people trust the internet more and see it as a useful means of information. Such services must grow more to eliminate the digital illiteracy of Egyptians”. [E-learning expert and former high rank official at the Ministry of Higher Education]

The interviewee expressed his view that using e-government services facilitated many tasks people used to perform and this made them further appreciate modern technologies and realize the change it can drive into their lives.

Readiness of the Technological Infrastructure

Participants were asked about the technological infrastructure in universities in Egypt and whether it is ready for implementing e-learning. Most interviewees stressed that the technological infrastructure in Egyptian universities is good enough and ready to implement e-learning.

One participant stated:

“In my opinion, there is no problem concerning the technological infrastructure of universities, in fact, they are ready to offer and implement e-learning services. The technological infrastructure in governmental universities is ready for the implementation of e-learning”. [E-learning expert and former high rank official at the Ministry of Higher Education]

He believed that the technological infrastructure in public universities was well-established and there would be no problems if e-learning usages would be widespread among them.

Key success factors needed

According to the analysis of challenges and opportunities of e-learning adoption from the view of participants in this study, some key success factors could be derived in order to properly adopt e-learning in the Egyptian higher education. The analysis results highlighted

that the main success factors are establishing rules and regulations for e-learning adoption, raising awareness for e-learning benefits, and conducting training for e-learning users and beneficiaries.

Establishing e-learning rules and regulations

The majority of the interviewees argued the critical need for establishing special rules and regulations for the adoption of e-learning in higher education. They mentioned that the government must be serious about the idea in order to take tangible steps towards the implementation of e-learning in universities.

An interviewee stated:

“I see that if the government wants to apply any system, it can. Take for instance the ICDL, everyone was obliged to take the ICDL and this is why it succeeded. My mother is a 50 yrs old teacher and she kept asking me to teach her how to use a computer because the ministry obliged them to take this certificate and she cannot fail.” [Instructional Designer at the National E-learning Center (NELC)]

The participant argued that if the government is serious about applying a certain issue they are capable of enforcing its implementation. She provided an example of the initiative of the government that all employees were to receive the International Computer Driving License (ICDL) certificate as an employment condition. She recalled that at that time her mother, a 50 yrs old teacher came and ask her for the first time to teach her how to use a computer.

Interviewees argued that any system in Egypt does not work properly unless there are proper rules and regulations, especially at the beginning of any new initiative or project when people are not welcoming the idea yet.

A participant agreed with this opinion and stated:

“I think in the Egyptian educational system, obligation through rules is the only solution until people get to want to do everything by

themselves”. [Instructional Designer at the National E-learning Center (NELC)]

The interviewee ensured that in order for e-learning to take serious steps forward, proper rules and regulations have to be in force in the higher education system.

Participants agreed that there has to be a link between staff using modern technologies and e-learning techniques and getting promoted in order to encourage the development of this field. Many participants suggested that e-learning has to be one of the promotion requirements which need to be fulfilled for staff to get higher degrees.

An interviewee stated:

“I think if e-learning becomes a condition for promotion of faculty staff, this would encourage them to use these technologies, especially younger generations who are eager to use new technologies and also to get promoted”. [A professor teaching an e-learning course – Faculty of Pharmacy]

The participant believed that if academic staff had to use modern technologies and teach using new and innovative methods ways in order to get promoted, this would encourage the implementation of e-learning in Egypt. This is especially the case with younger generations of academic staff members who are still keen to get promoted and at the same time do not have rejection to the use of technology.

A participant mentioned:

“Staff promotion needs to be linked to their use of technology and implementation of e-learning in their teaching. This has to be monitored and evaluated well. [Professor at the Egyptian E-Learning University (EELU)]

The interviewee, a professor of e-learning working at the Egyptian E-Learning University (EELU), stressed that staff promotion should be connected to their use of modern technologies and new methods of teaching using e-learning techniques. He added that this should also be carefully monitored and evaluated.

Participants believed that students too need to be encouraged to use e-learning. An interviewee mentioned:

“We need to engage students to use e-learning methods more, maybe by linking this to their degrees”. [A professor teaching an e-learning course – Faculty of Medicine]

The interviewee suggested that encouraging students to use e-learning should take place through connecting their grades with their usage of e-learning services.

Raising awareness and highlighting e-learning benefits

In addition to establishing rules and regulations, interviewees were asked what is needed to further encourage people to engage in using modern technology and to engage in using e-learning services.

Most participants referred to the necessity for raising the awareness of stakeholders and users to the benefits of e-learning and how it can alleviate many of the problems of the higher education in Egypt. They further stated some of the benefits of e-learning which can be used to raise their awareness:

“Instead of spending hours in transportation to attend a class, the student will save this time and use it for actual studying at home or from any place”. [Executive Director, Higher Education Development Project affiliated to the Ministry of Higher Education]

“I think that e-learning offers comfort for students and easiness as they have the opportunity to access the lecture anytime they want”. [A professor teaching an e-learning course – Faculty of Medicine]

Interviewees listed some of the benefits of e-learning that should be used to raise people’s awareness including time-saving, limiting transportation problems, and providing students with flexibility in terms of time and place.

Encouraging students to use the e-content available for their courses should also take place. A participant stated:

“We try to encourage students to use the e-learning content. We even communicated with labs that are available in the University faculties that any student who uses the internet at the lab for accessing an e-learning course does not have to pay the lab hourly charge and stay as long as he needs.”[Director of an E-learning Center affiliated to the National E-learning Center (NELC)]

A director of an E-learning Center affiliated to the National E-learning Center (NELC) highlighted an initiative adopted to further encourage students to access e-learning courses in their faculties. She mentioned that the e-learning unit agreed with the university labs that any student who uses the internet at the lab to access an e-learning course does not have to pay the lab hourly charge and could also stay as long as he needs.

Need for Training

Interviewees were asked about their opinion of the e-content development in Egypt. Most participants stated that although there are qualified people who can produce good and promising e-learning materials, the capacities of instructional and graphic designers need to be developed and their skills needs to be continuously updated through training.

A participant expressing his opinion stated:

“In my opinion, instructional designers in Egypt fall on level 4-5 on a 9 digit scale. The reason is that they are only imitators and they have lost the ability to think and innovate. The content must be interactive and provided in an appealing attractive way so that students would be eager to learn. If you provide the e-learning material with the same content and interface of the face to face it will not attract the student. For example, if you just upload a video for the lecture taught in classroom, it would be even more boring for students”. [E-learning expert and former high rank official at the Ministry of Higher Education]

The interviewee mentioned that instructional designers are good but the problem is that they tend to imitate work available on the internet which reduces their creativity.

Instructional designers need training to enhance their capabilities and acquire knowledge on the latest technologies. A participant stated:

“The problem is that we as instructional designers are not up to date. We do not receive enough training so the quality of our e-content does not exceed 60-70%”. [Instructional Designer at the National E-learning Center (NELC)]

An interviewee, an instructional designer mentioned that they are not up to date in the field and stressed that there is a pressing need for providing training for instructional designers in order to improve the e-content delivered.

Future Perspectives

Interviewees were asked about their view of the future of e-learning in Egypt. Most participants expressed their aspirations that e-learning implementation would improve and more attention would be dedicated to its adoption. Some comments were:

“I’m optimistic that in the near future professors will know that using e-learning techniques will make teaching easier and will not be an extra load as they think”. [A professor teaching an e-learning course – Faculty of Medicine]

The interviewee, a professor teaching an e-learning course at the Faculty of Medicine expressed her wish that staff academics change their attitude towards e-learning and learn more about its benefits in the learning process. She said that she is optimistic that e-learning would be adopted on a wider scale in the near future.

Other comments were pessimistic if proper conditions were not provided for successful implementation of e-learning. A participant expressed his view stating:

“If we do not adopt a strategic plan, change and impose new rules and regulations, e-learning will not have future in Egypt. If I were the Minister of HE for 24 hours I would not build one more school or university, but expand the access to e-learning instead”. [E-learning]

expert and former high rank official at the Ministry of Higher Education]

The interviewee said that he does not expect e-learning to have a bright future in Egypt except if a strict strategic plan was adopted and proper rules and regulations were placed for e-learning implementation. He added that no more schools or universities should be built and the government should expand the usage of e-learning services in education instead.

IX. Findings

This chapter introduces the findings and results derived from the analysis of the interviews data. The findings were categorized and grouped in order to facilitate the interpretation of the challenges, opportunities and success factors of e-learning adoption in the Egyptian higher education.

Attitudes towards E-learning

Academics interviewed viewed that an e-learning degree is still not accepted or highly appreciated by society in Egypt. They believed that the main reason behind this is due to people's ignorance of the benefits e-learning can provide. However, participants still agreed that some initiatives such as the provision of e-government services through the use of internet facilities played a role in shaping the perception of people and their attitude towards the benefits of modern technologies and might change their attitude towards e-learning accordingly.

Participants shared the same view that students use computers and internet services in their everyday lives and that they are willing to use e-learning services in their education as well. They also believed that families and parents would not resist the use of technologies in education as long as they see positive outcomes.

Consensus among participants in the research was in favor of the use of blended learning to achieve the benefits of both traditional face-to-face techniques and e-learning services. Results revealed that e-learning solely cannot compensate the absence of labs and practical sessions which provide hands-on-experience. Participants highlighted that those kinds of learning need face-to-face teaching and the physical presence of both the teacher and student.

Challenges of E-learning Implementation

Results revealed that although the adoption of e-learning has witnessed development and progress in higher education in the last few years, nevertheless, participants in this study suggested that no tangible outputs can be seen to alter the learning process in the higher education system. They agreed that e-learning adoption takes the form of occasional and

personal initiatives of interested academic staff rather than strategic plans adopted by the government.

Participants believed that one of the main challenges facing e-learning is that the higher education system provides little attention to establishing proper rules and regulations that advance the implementation of e-learning. They argued that the higher education rules and regulations do not support the adoption of e-learning and only accounts for physical presence of learners and educators and traditional paper exams.

Another critical challenge revealed through the analysis is the reluctance of staff academics to adopt e-learning in their teaching. Participants argued that there are several issues behind this reluctance. One of the reasons is that converting a course into e-content is a process that takes a lot of time and effort which makes staff academics unwilling to go through the process.

Another reason is the centralization of evaluation and follow up on e-courses at the National E-learning Center (NELC) which is time consuming and raises many problems for academic staff using e-content. Academics teaching e-courses highlighted that they are requested to deal with the e-learning unit at their university which is affiliated to the NELC. They complained about the exhausting and time consuming process they go through whenever they have an inquiry or face a problem as they have to wait for these units to get back to the NELC even in minor issues such as students' passwords recovery.

Book royalties was another problem highlighted by the interviewees. They argued that many professors depend on book royalties to supplement their income and are reluctant to use e-learning services fearing the loss of this income stream. Additionally, participants believed that elder generations of staff are sometimes not acquainted with modern technologies and their usages and are reluctant to learn new modes of education or change their traditional face-to-face methods of teaching.

Another challenge raised through the interviews was the inequality of provision of technological services and facilities to students. They mentioned that the problem is critical because many students cannot afford to access computers and internet from their homes and the resources available is not enough and does not match the large numbers of students. They

argued that technology is not equally distributed and are also available for urban residents more than rural ones.

Concerning the funds allocated for the enhancement of e-learning and its dissemination in higher education, nearly all participants stated clearly that the funds assigned for education as a whole is not enough. Accordingly, they stated that the budget of e-learning is very limited and that more funds should be allocated for e-learning implementation.

Opportunities of E-learning Implementation

Opportunities for better implementation of e-learning were discussed throughout the interviews with the participants in the research. They highlighted that the widespread usage of modern technologies and its existence in the everyday life of people is a promising opportunity for e-learning to be adopted. They mentioned that students use computers and internet services in their everyday lives and that they are willing to use e-learning services in their education as well. They also believed that families and parents would not resist the use of technologies in education positive results in the progress of their children's education level. They further highlighted that provision of e-government services for people through the use of internet facilities also played a role in shaping the perception of people and their attitude towards modern technologies making them appreciate modern technologies and realize the change it can drive into their lives.

Another opportunity stated by participants was the well-establishment of the technological infrastructure in universities in Egypt and its readiness for implementing e-learning. Most interviewees stressed that the technological infrastructure in Egyptian universities is good enough and ready to implement e-learning.

Critical Success Factors of E-learning Implementation

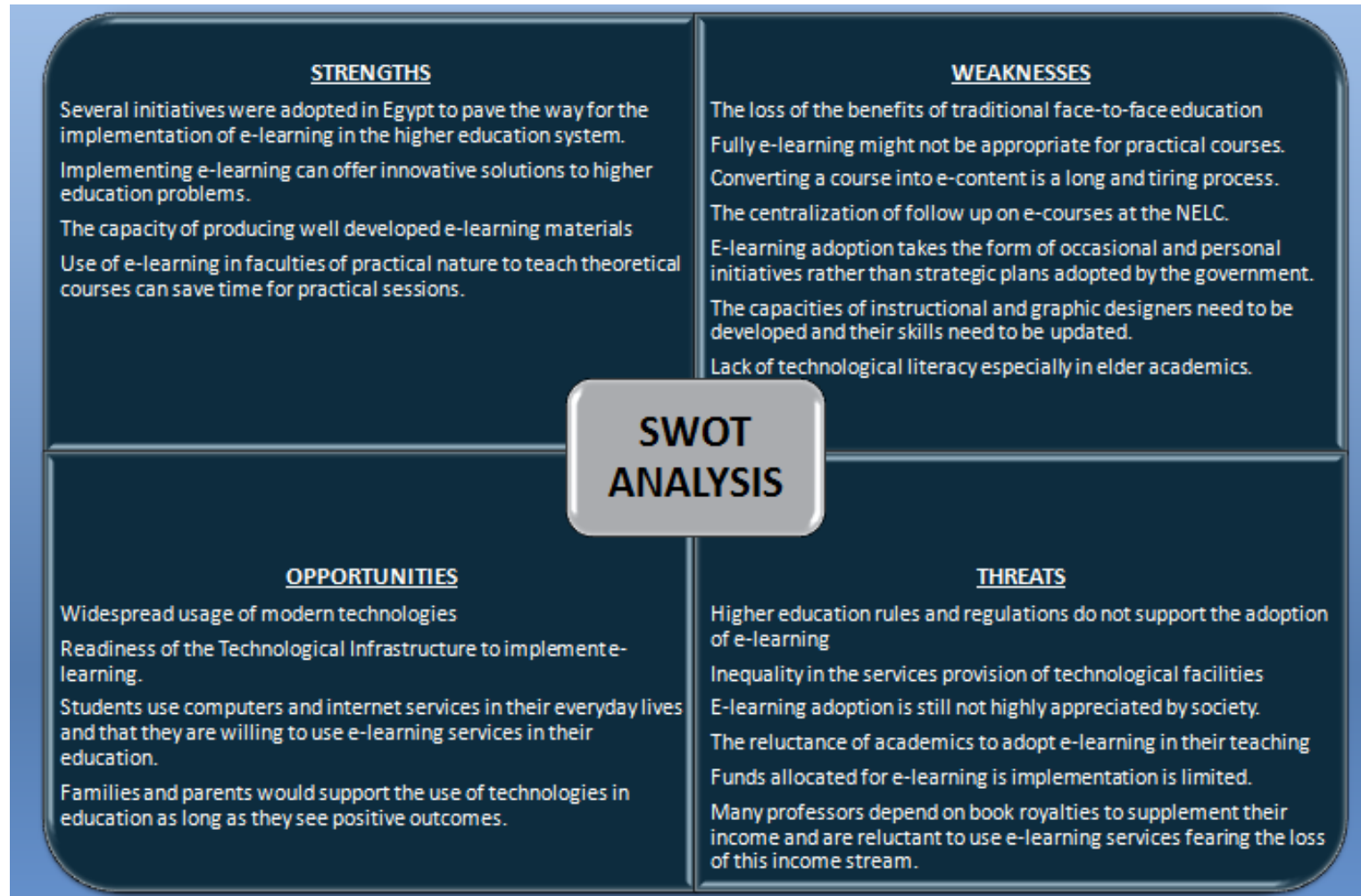
Challenges and opportunities of e-learning adoption from the view of participants were analyzed in order to derive the key success factors needed in order to properly implement e-learning in the Egyptian higher education.

A main success factor was the need for establishing proper rules and regulations for e-learning adoption within the higher education system. This need derived from the view of participants that rules and regulations do not encourage enough the adoption of e-learning. They highlighted the need that rules and regulations include the use of modern technology as requirement for staff promotion to encourage them to advance in the field and embed e-learning methods in their teaching. They stressed that the government must be serious about the idea in order to take tangible steps towards the implementation of e-learning in universities. Interviewees suggested that students too should be encouraged to use e-learning through connecting their grades with their usage of e-learning services.

Most participants referred to the necessity for raising the awareness of stakeholders and users to the benefits of e-learning and how it can alleviate many of the problems of the higher education in Egypt. They highlighted that advantages of e-learning should be communicated to beneficiaries and users to capture their attention and raise their awareness towards the use of e-learning.

Concerning the e-content developed, most participants stated that although there are qualified people who can produce good and promising e-learning materials, the capacities of instructional and graphic designers needs to be developed and their skills need to be continuously updated through training.

X. SWOT Analysis for E-learning Implementation



XI. Policy Recommendations

Based on the analysis of the interviews and the findings of the study, the thesis proposes a set of policy recommendations for e-learning to be widely adopted in the higher education in Egypt.

In order to advance in the implementation of e-learning, the integration of digital technologies should form an integral element of the Egyptian higher education system strategies. E-learning initiatives should take part in the higher education system strategic plan and specific tangible goals and objectives should be set. Rules and regulations for e-learning adoption should be established within the higher education system in order to enhance its implementation. Rules and regulations should consider including the use of modern technologies in teaching and utilizing innovative methodologies as a criterion for staff promotion.

The Government should dedicate enough funding to support efforts to integrate new modes of learning and teaching across higher education.

Technological facilities and services need to be provided on equal basis and the inequity between urban and rural needs to be addressed.

A campaign should take place to raise the awareness of people about the advantages of embedding modern technologies in the daily routine and how e-learning can drive benefits into their lives especially in the education field. This should also include success stories for e-learning implementation and sharing for positive outcomes to encourage people to participate.

Concerning the operational process of e-learning in universities, e-content providers and concerned entities should facilitate the process of converting a course into e-learning material in order to encourage staff academics to adopt e-learning in their teaching. Additionally, the evaluation and follow up on e-courses which is currently centralized at the National E-learning Center (NELC) should be decentralized in order to save time and properly address problems encountered by staff academics.

Training in the field of e-learning and the use of new technologies in education is essential. All staff teaching in higher education should receive training in relevant digital technologies to provide them with the necessary skills they need to adopt e-learning. Elder generations of staff members need to receive special training and must be addressed differently taking into consideration psychological perspectives. Instructional and graphic designers should receive regular training to update their knowledge and enhance their skills and become competitive in the market.

XII. Thesis Limitations and Recommendations for Future Research

The present thesis investigates the implementation of e-learning in the Egyptian higher education system. The thesis findings were derived from interviews conducted on public universities. However, the higher education system in Egypt includes both public and private universities. The role of private universities in the higher education cannot be disregarded especially that they have more flexible systems that can enable them to adopt e-learning more easily and with less complications requested by public universities. Accordingly, it is recommended that future research in this field would study the implementation of e-learning in private universities in Egypt.

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