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An Investigation of Electronic Learning in Higher Education: The Egyptian Context

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the requirements of the University of
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for the degree of
Doctor of Philosophy

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ABSTRACT

The current study investigated e-Learning acceptance, adoption and implementation in the Egyptian higher education. The study also explored the attitudes and perceptions towards the acceptance and readiness for e-Learning from a variety of perspectives. The degree of meeting local needs and the main factors of improvement that e-Learning could provide to the Egyptian higher education sector are also investigated. The study achieved its aim through answering the following research questions:

1. What are the various stakeholder perspectives regarding e-Learning adoption in Egypt?
2. What are the opportunities for improving Higher Education in Egypt through the adoption of e-Learning programmes?

A pragmatic research approach using mixed methods with a range of stakeholders was employed. The investigations included higher education students, employers, academics and government representatives from both public and private sectors. Investigations were conducted in two cities; Cairo and Alexandria.

A total of 398 higher education students were surveyed through structured questionnaires. Two separate questionnaire forms were designed to investigate on-campus higher education students, as well as e-Learning higher education students. Quantitative data was analysed through a range of statistical techniques: patterns of frequencies were used to allow the comparison between students groups, median calculations to determine the range of opinions towards e-Learning adoption criteria, besides correlation and regression analysis to determine the strength and shape of relations between the main variables the study intended to investigate.

Twenty four semi-structured interviews were conducted with a range of stakeholders that include academics, employers and higher education government representatives. Interviews were interpretively analysed through the deriving of common themes from each group of stakeholders highlighting the differences and

similarities found between investigated groups.

The contribution to knowledge presented in this research work emerged from the development of a conceptual framework that bridges the gap between societal acceptance and the adoption of e-Learning in Egyptian universities. Although the investigation has one country in focus, but still the analytical methodological framework could be generalised.

The research identified the following:

- main factors that affect e-Learning adoption;
- potential obstacles faced by online degree holders in Egypt;
- the role of organisational culture in e-Learning adoption, as determined by the perspective of academics, employers, government authorities and students at public, private and e-Learning universities

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DEDICATION

I dedicate this work to my mother, who did not live to see the outcome of this work, may ALLAH rest her soul.

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DECLARATION

I declare that the work contained in this thesis has not been submitted for any other awards and that it is all my own work. I also confirm that this work acknowledges opinions, ideas and contributions from the work of others.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the School Ethics Committee.

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Date:

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3. El Gamal, S. and Abd El Aziz, R. (2011), '*The Perception of Students' Regarding E-Learning Implementation in Egyptian Universities*', The Fifth International Conference on Digital Society(ICDS 2011), Gosier, Guadeloupe, France.
4. El Gamal, S. and Abd El Aziz, R. (2010) '*Students' perception towards e-Learning adoption in Higher education: The Case of Egypt*', IBIMA Proceedings, Cairo, Egypt.

1. INTRODUCTION

The introductory chapter of this study gives a brief background about the higher education system in Egypt and its main drawbacks and how introduction of e-Learning can contribute to solving some of these problems in the token of cognitive development. The chapter also discusses some of the main challenges of e-Learning as motivation, readiness and technology adoption and how these challenges could affect the acceptance and adoption of e-Learning in the Egyptian context.

The chapter ends by explaining the problem of the research and its importance that helped the researcher reach the research idea and contribution to knowledge.

1.1 Research Background

The higher education (HE) sector in Egypt includes 21 public universities with 325 faculties, 33 private universities with 72 faculties and 100 higher education institutes serving four million students (Elshayeb, 2012). Education in general and higher education in particular suffer from a lot of problems. The higher education quality in Egypt has been declining due to the rapidly growing enrolment rate that started in the 1970s and 1980s, which lead to a large number of students per class (Richards, 1992; Rossiter, 1997; Beckstorm, 2004). The main reason behind this was the free admission to universities that started during Nasser's regime. As a result, Egyptian university classrooms became overloaded with some lecture halls reaching up to 1500 students.

The underfunding of universities in Egypt is another prime reason for a lot of quality problems. As a result, university buildings are not in a good condition, classrooms may also have poor or insufficient equipment corresponding to the number of learners. The underfunded university libraries made most students and instructors depend on just the basic textbook for studying, causing learners to memorize what is in the textbook only without going through other secondary materials. Professors teaching in Egypt's public universities are neither paid enough nor graded on their performance or the rates at which their students pass or fail results. There is nearly no motivation to attain a standard of teaching excellence. Consequently, setting up private tutoring programmes in universities is

a common method for extra income. On the other hand, the current Egyptian public university system in Egypt does not prepare students for career opportunities. Numerous graduates lack strong quantitative skills and/or do not have much knowledge on the use of technology applications. As a result, graduates lack preparedness for the job market and current market requirements (Richards, 1992; Holmes, 2008).

According to the mentioned conditions of higher education in Egypt, it could be assumed that the increased flexibility provided by the broad variety of e-Learning techniques could be the solution to a lot of higher education problems in Egypt (El-Zayat, 2008). The Oxford Dictionary defines e-Learning as: *“learning conducted via electronic media, typically on the Internet. Successful e-Learning depends on the self-motivation of individuals to study effectively.”* The e-Learning industry describes e-Learning as the effective integration of a range of technologies across all areas of learning. e-Learning technologies are designed to support learning by including a range of media, tools, and environments. It allows both synchronous and asynchronous learning environments. An important characteristic of e-Learning is its interactivity, which is possible through interactive multimedia. Interaction enables learners to perform their tasks through the various levels of interaction starting from basic levels to real-life simulations (Tausend, 2008).

Higher education institutions seek to implement e-Learning in higher education Institutions due to its potential advantages in education all around the world (Akaslan and Law, 2011). Due to the speed and efficiency of the Internet, e-Learning is assumed to take a competitive advantage over traditional methods (Intel, 2012). McKeogh and Fox (2009) divided the perceived benefits of e-Learning into seven broad categories; enhancing reputation, developing information skills, widening access, supporting disabled learners, improving the quality of teaching and learning, increasing flexibility, and reducing cost.

e-Learning is as effective as traditional learning, but educates more efficiently (Hjeltnes and Hansson, 2005). Learning time can be reduced by as much as a third, often more when using e-Learning (El-Dakroury, 2008). In the same essence, Abouchedid (2004) mentioned that monitoring e-courses can be done more easily than traditional ones through the e-mail facilities that would give the same level of

communication with instructors resulting in cost savings. e-Learning could develop the quality of education by accessing global academic resources. It also encourages learners to take an active role, work with their colleagues/instructors from a variety of locations through collaborative groupware (Yieke, 2005.) The creation of an interactive environment for teachers and students is also facilitated through e-Learning, as well as the opportunity for discussion and explanations of class content (Khaled, 2008).

On the other side, interactive environments have their drawbacks as well as their advantages, which could negatively affect the educational experience. The motivational state of learners plays an important role in acquiring the potential benefits of interactive environments. Less face-to-face contact with tutors, response to enquiries and assignment feedbacks could be demotivating to some students and tutors as well. Tutors may depend on the body language of students to determine the extent to which they comprehend the educational material taught. While, students may understand a certain point better through the direct reaction of their instructors. Interactive environments may also require users (students/instructors) to have high ICT skills. Instructors may be demotivated to deliver courses in an electronic format and students may realise the requirement of better ICT skills than the level they have acquired. Thus, the motivational state of learners must be frequently known to their tutors throughout the learning period.

According to the advantages of e-Learning, the Egyptian higher education authorities launched Egypt's first Electronic University (EELU) in 2009, as a starting point for introducing new modes of online educational services for the higher education sector, which is assumed to help in solving part of the problems that higher education suffers from. The readiness of the Egyptian society for accepting and adopting e-Learning versus focusing on further main developments in the current on-campus traditional higher education instead is a debate that has raised a lot of questions in the context of the introduction of e-Learning in Egypt context (Khaled, 2008).

e-Learning as an educational mode of study has proven its efficiency and effectiveness worldwide, this fact has forced a lot of educational institutions to change their ways of delivering higher education into a more cost effective solution.

However a lot of challenges limit its adoption and spread.

As the definitions of e-Learning imply, interactivity and self-motivations are two main characteristics. The advantages that interactive learning environments as e-Learning have been a major topic in a lot of studies that have proven its efficiency and effectiveness in student's learning (Kim, 2005; Fitzgerald et al., 2007; Zaidieh, 2012).

Accordingly, e-Learning could be considered as a special case of education, capable of supporting cognitive developments through simulations, online interactive case studies, and Web-based learning environments. Learning through simulations helps students to have real experiences that are difficult to set-up in normal conditions. If the software supports the student in thinking like an expert, then cognitive apprenticeship is applied that is further guided by the instructor's coaching and support. However, for learners to successfully proceed in their learning activities, motivation (Wolters, 1998; Wolters, 1999; Zimmerman, 2001; Pintrich, 2004) and self-regulation are crucial factors (Zimmerman, 2001).

Schunk and Zimmerman were the first to discuss the link between motivation and self-regulation by saying that each strengthens the other (Collins, 2009). On the other hand, Zumbrunn et al. (2011) listed a number of factors that could be used by instructors to facilitate self-regulated learning; goal setting, planning, self-motivation, attention control, flexible use of learning strategies, self-monitoring, appropriate help-seeking and self-evaluation.

Motivation also plays a significant role in technology acceptance and use. The relation between motivation and technology acceptance and use has been illustrated in a lot of models. The Unified Theory of Acceptance and Use of Technology model known as UTAUT (Venkatesh et al., 2003) is one of the commonly used models aiming to explain user intentions to use an information system and the usage behaviour. The most significant factors addressed by the model that would determine user's acceptance and usage behaviours are performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh et al., 2003).

Although the UTAUT model seems to be generic in which it could determine user's acceptance and usage behaviours in most application, additional researches have been done to adapt the model to determining user's acceptance and usage behaviours in e-Learning. Cultural factors (Keller et al., 2007), social influence (Du et al., 2012), top management support and resistance to change (Sargent et al., 2012) are important to consider in explaining the influencing factors of students' acceptance and technology adoption in e-Learning.

The assessment and enhancement of student's motivation is not the only factor that would contribute to the successful adoption of e-Learning. Readiness of higher education society including all stakeholders involved is also a necessity. It is important to evaluate their readiness to utilize technology in order to achieve successful implementation and adoption that would realize the desired cognitive advantages of e-Learning according to the cultural context. Readiness for e-Learning is defined as "*mental or physical preparedness for that organization for some e-Learning experience or action*" (Saekow and Samson, 2011:p.126), therefore perceptions of a society dealing with e-Learning, are also considered, that would affect its readiness. Determining the extent to which a society is ready for e-Learning helps in setting up strategies effectively.

Numerous models have been designed to assess readiness for e-Learning (Chapnick, 2000; Anderson, 2002; Bean, 2003), which have considered the views, needs and experiences of different stakeholders such as policymakers, administrations, lecturers and learners. Similarly, investigating the perceptions and attitudes of higher education stakeholders in Egypt is important, especially in the context of introducing Egypt's first e-Learning university. Stakeholder's perception and readiness is expected to affect the adoption and use of e-Learning in Egypt. As discussed earlier, e-Learning has the potential for improving the higher education experience through its various benefits compared to traditional on-campus education. However, social and cultural aspects can have a negative influence on accepting and adopting this mode of education in Egypt if local needs are not addressed. Determining the extent of opportunities that e-Learning could provide to the Egyptian higher education system from stakeholder's perspectives in the Egyptian context is important for setting up framework strategies reflecting local needs.

1.2 Problem Domain: Perspectives of Stakeholders towards e-Learning

Although Egypt has one of the largest university systems in Africa, and the developing world, higher education in Egypt currently suffers from a decline in the quality of education (Ghazal, 2012). In terms of the quality of teaching and learning, the higher education quality in Egypt has been declining due to many drawbacks. Large numbers of students per class, underfunding of universities, poor buildings and equipment, inadequate academic resources and out of date curricula are the top of the reasons (Richards, 1992; Rossiter, 1997; Beckstorm, 2004; Ghazal, 2012).

These conditions show that there is a great potential for Egypt to expand in e-Learning activities (Elbadrawy & Abd El Aziz, 2011). The higher education system in Egypt could possibly benefit from the flexibility provided by the broad variety provided by e-Learning techniques; which could be a partial solution to a number of higher education problems in Egypt (El-Zayat, 2007). Controlling costs, attracting students, and fulfilling customers' needs are some benefits that may be experienced (Weinert, 2005).

In the context of the efforts done by the government to introduce new modes of online education services for higher education (Mourad, 2010), Egypt's first electronic non-profit university was established in 2009. The government assumed that an e-Learning university could provide an economic and more suitable solution to higher education problems by filling in the gap between the number of university places available in Egypt and the growing demand for higher education (Khaled, 2008).

As any new technological innovation is introduced, there is a debate between its acceptance and resistance from the context to which it is introduced (Lauer & Rajagopalan, 2003; Mansoor and Kamba, 2010; TC & Janetius, 2012). Culture has been a major factor that affects the structure of business and society (Adler 1983a, 1983b, 1986; Jaeger 1986; Hofstede and Bond 1988).

Hofstede (1980) defined culture as "*the collective programming of the mind which distinguishes the members of one human group from another*" (1980: p.260), while Kroeber and Kluckhohn (1952) suggested a broader definition: "*culture consists of*

patterns, explicit and implicit of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiment in artefacts; the essential core of culture consists of traditional ideas and especially their attached values..." (Yeganeh, 2011: p.106). According to Hofstede (1980), the Egyptian culture as a part of the Arab world is characterised by special features. Large power distance, uncertainty avoidance and collectivism rather than individualism are on top of the list (Hofstede, 2013).

Thompson and Strickland (2001) defined a stakeholder as the constituency of any organization. Following this definition, e-Learning stakeholders are those affected by it. Students, instructors, educational institutions, employers and others are considered to be some of the main stakeholders of e-Learning. Therefore, the acceptance and success of e-Learning in Egypt depend on the degree to which the needs and concerns of its stakeholders are met depending on cultural background (Wagner, 2008). Consequently, the potential developments that e-learning can provide to the Egyptian higher education are affected directly by the perceptions and attitudes of its stakeholders. Thus in order to adopt a new technology in Egypt, stakeholders cannot be ignored (Abd El Aziz, 2012); as they are the real persons in dealing with the system (Wagner, 2008).

Although e-Learning seems to be an optimal solution that would solve some of the higher education problems in Egypt, still it is not utilised according to its capacity (Hegazy and Radwan, 2010; Afify, 2011; El Gamal, 2011). Thus, in order to make e-Learning more familiar, and to successfully adopt this technology in higher education, it is necessary to understand some of the e-Learning stakeholder group's perception, readiness and preferences in the Egyptian context.

A number of studies have investigated the perception of e-Learning and social awareness. Unfortunately previous studies have come to their conclusions based on sampling only students as the main e-Learning stakeholders and end users (El-Zayat, 2007; Abdel-Wahab, 2008; Hashem, 2009; Berteau, 2009; Hegazy and Radwan, 2010). According to Wagner (2008), students are not only the significant e-Learning stakeholders. Instructors, employers and government representatives should be also taken into consideration in order to build a complete picture that represents the Egyptian context.

1.3 Research Questions

The emphasis of stakeholders towards the acceptance and success of introducing new technology depends on the degree to which local needs and concerns are met depending on cultural background. Considering the success of e-Learning institutions worldwide, the recent introduction of e-Learning institutions to the Egyptian context, and the weaknesses of conventional higher education, the following research questions were developed:

- *What are the different stakeholder perspectives regarding e-Learning adoption in Egypt?*
- *What are the opportunities for improving higher education in Egypt through e-Learning programmes?*

Answering the above questions should help in understanding the perspectives present in the Egyptian context from different angles presented by the investigated stakeholder groups. Answers should also provide areas for the effective utilisation of e-Learning programmes in the Egyptian context through the proposed research framework.

1.4 Aims and Objectives

The main subject of the research is to investigate how the differences in perceptions of the diverse higher education stakeholder groups would affect its adoption in the Egyptian context, in addition to the opportunities in which e-Learning would improve higher education and hence promote the quality of teaching and learning. The study aims at answering the research questions through surveying four of the main higher education stakeholder groups; students, academics, employers and higher education decision makers. The survey will reach the answers of the research questions through investigating trends of e-Learning perceptions, technological and individual readiness for e-Learning and their effect on e-Learning adoption. Hence, determining the potential improvements that e-Learning institutions could add to higher education.

Data were collected through:

- questionnaires distributed to on-campus higher education students at public

and private universities besides e-Learning students studying at an e-Learning university, and

- personal interviews conducted with senior academics, employers and higher education government representatives.

The contribution to knowledge envisaged in this PhD work will come from building a full view that helps in representing the Egyptian context perspective concerning adopting e-Learning in Egypt, providing highlights and directions to decision makers concerned with planning for the development of higher education in Egypt in aspects related to e-Learning.

The aims of this PhD research are:

1. Substantive Research Aim: to understand how various higher education stakeholders view e-Learning, the extent of technological and individual readiness, and the criteria desired for e-Learning adoption, besides the possible opportunities of e-Learning in providing an improved higher education experience.
2. Theoretical Research Aim: to test the relations between technology acceptance, readiness and adoption variables to evaluate how various higher education stakeholders view e-Learning and their effect on potential higher education improvement opportunities. The study aims at finding the relations between variables to develop a proposed research framework for the effective use and spread of e-Learning in the Egyptian context.
3. Methodological Research Aim: to use the proposed research framework in combination with statistical methods (frequency patterns, median calculations, correlations and regression analysis) to analyse questionnaires data and interpretive methods to analyse interview data aiming at getting a multi perspective view of the research area to derive the design of the questionnaire and interview.
4. Personal Aim: to extend understanding of various e-Learning perspectives towards e-Learning in the Egyptian context, establish a specialist area of knowledge, publish in the field and further the researcher's academic career.

1.5 Research Design

In order to investigate the problem domain in detail, with a range of stakeholders, a pragmatic research approach was used. This approach seems appropriate to the nature of the research since it is consistent with the perspective of problems occurring in group contexts using a mixture of methods for various aspects of the study. Using a variety of data sources could be a way to better understand the problem and to eliminate or decrease bias during conducting the research.

1.5.1 Research Methodology

A mixture of methods using a pragmatic research approach was used to collect and analyse both quantitative and qualitative data in order to further understand the problem. Structured questionnaires, statistical analysis using Statistical Package for the Social Sciences (SPSS), semi-structured interviews and interpretive analysis were used for addressing the research questions.

Structured questionnaires were used as they are suitable for surveying a relatively large number of higher education students in both sectors public and private as well as e-Learning students, which allowed the production of data that were statistically analysed. Patterns of frequencies were used to allow the comparison between student groups, median calculations to determine the range of opinions towards e-Learning adoption criteria, as well as correlation and regression analysis to determine the strength and shape of relations between the main variables the study intends to investigate. On the other hand, semi-structured interviews allowed more investigations with a smaller number of stakeholder groups such as senior academics, employers and government representatives, where reactions experienced by informants were targeted.

1.6 Research Process

The research was designed to be conducted over four to five years starting in 2008. The research commenced by the approval of the initial project from the school committee followed by the ethical approval procedures prior to data collection.

During the data collection phase which started by mid 2009 and continued to 2010, the political situation in Egypt has changed. The Egyptian revolution which started early in 2011 limited the number of interviews that were intended to be conducted with higher education government representatives. This limitation was taken into consideration when building up the final conclusion.

The stages of the research process included the following:

- Survey the topic of e-Learning in Egypt using secondary data,
- Developing conceptual framework,
- Designing and assembling questions for interviews and questionnaires,
- Conducting and analysing pilot study,
- Reformulating research problem and focus,
- Modifying questionnaire and interview questions according to piloting results,
- Developing a new questionnaire to cover higher education e-Learning students,
- Distributing questionnaires and conducting interviews in Alexandria and Cairo,
- Analyzing questionnaires, transcribing and analyzing interviews,
- Integrating findings, proposing the final framework and formulating conclusions, and
- Writing the final version of the thesis.

1.7 Summary

The introductory chapter of the research at hand highlighted the problem of research through presenting a brief background about the situation of higher education in Egypt and benefits that e-Learning could offer. The importance of investigating the challenges of e-Learning that influences its adoption has been highlighted, which contributes to the understanding of attitudes and perspectives of e-Learning stakeholders in Egypt in relation to the Egyptian culture.

The next chapter (Literature review and theoretical background) will give an extensive literature review about the higher education sector in Egypt and present its major drawbacks in conjunction with experiences of other countries concerning

the adoption of e-Learning in higher education and its effects. Literature about e-Learning readiness theories and technology acceptance models are also included and highlighted the link between them helping in building the research framework.

2. LITERATURE REVIEW AND THEORETICAL BACKGROUND

The Literature Review and Theoretical Background chapter consists of two parts. The first part starts with an overview over the use of technology in education. It will then focus on e-Learning with special emphasis being given to psychology of learning, technology adoption and e-Learning considerations. The second part covers the higher education sector in Egypt including the current situation and challenges, e-Learning attempts, perceptions and readiness of e-Learning in Egypt.

2.1 Background of Technology in Education

The system of learning has been attracting the attention of thinkers in various fields from which it is seen from different perspectives (Goel, 2011). Consequently, a number of learning orientations has emerged, four of which are considered. Behaviourists as Watson and Skinner viewed learning as a change in behaviour that produces a change in a desired direction. Cognitive theorists as Kohler, Piaget and Bruner perceived the learning process as an internal mental process that includes insight, information processing, memory and perception which is intended to develop capacity and skills. Maslow and Roger, the Humanist psychologists, considered the learning process as a personal act to fulfil certain potential that would allow learners to become more self-actualized and independent. In addition, the social and situational theories of learning developed by theorists as Bandura, Lave and Wenger and Salomon focused on the interactions between people as the primary mechanism of learning. The basis of learning here is the observation of others in a social environment which requires full participation in communities of practice and use of resources (Smith, 2003).

Information and communication technologies (ICT) had a revolutionary impact on the way people live, work and educate. The ways services are delivered to users have changed and automated applications were noticeable even in learning systems due to the penetration of technology and computers in many different sectors including education (Abd El Aziz, 2012). Globalization and the information society experienced nowadays have set new standards for all areas of social life

including higher education. These standards forced educational institutions, in particular, to reconsider the ways education is delivered (Wagner, 2008). The Internet for example, has provided various ways of learning through the web (Ramaha et al., 2012). As a result, the adoption of e-Learning has been significant in higher education (Yieke, 2005).

The integration of technology in education has developed over the years. Learning Management System (LMS) is defined by Ryann (2009), as *"a software application for the administration, documentation, tracking, reporting and delivery of education courses or training programmes,"* while Parikh and Verma (2002) described Learning Management System (LMS) as an integrated set of networked and computerized tools that support online learning. LMS tools have common characteristics; delivery of course material, running of on-line tests, operation of discussion groups and live chat sessions. Thus, the conduction of group and team work besides the submission and return of assignments is facilitated between both students and educators. Table (2.1) shows the development of the significant Learning Management Systems models.

Table (2.1) Development of Learning Management Systems (Ellis, 2009; Green, 2010)

Duration	Model / System	Description
1940s	Hypertexts	Hypertexts were invented.
1950s	Computer-based training (CBT)	Based on approaches of Skinner of "programmed instruction" and mastery approach to learning.
1970s	Computer-assisted instruction (CAI)	Alternative to e-Learning nowadays. Referred to as web-based training (WBT) or e-instruction. Contents are divided into sections of text coupled with graphics and multimedia presentations.
1980s	Computer-based learning (CBL)	Teaching focused on theoretical and field-specific problem solving techniques, depending on constructivist and cognitivist theories. Technologies as simulations and hypertexts were preferred.
1990s	Computer-mediated communication (CMC)	Digital communication and networking became popular through using the World-Wide Web (WWW) facilities through which the interaction between students and instructors is facilitated.
2000s	Mobile technologies	Provides education with tools sustaining learning communities and associated knowledge management tasks and curriculum management.

2.2 Fundamentals of e-Learning

e-Learning is one of the most popular and commonly used educational systems due to its flexibility, perceived benefits and support to cognitive development of learners. The Oxford Dictionary defines e-Learning as: *“learning conducted via electronic media, typically on the Internet. Successful e-Learning depends on self-motivation of individuals to study effectively.”* The e-Learning industry describes e-Learning as the effective integration of a range of technologies across all areas of learning. e-Learning technologies are designed to support learning by including a range of media, tools, and environments.

As the definition implies, e-Learning depends on two main components; technology and motivation. Self-motivation of learners is essential to guarantee effective studying, especially in an electronic learning environment. The following section discusses the dimensions of e-Learning besides the development of pedagogical concepts through e-Learning generations. Motivation and its importance in the success of e-Learning environments will be discussed further in this chapter.

2.2.1 e-Learning Dimensions

Starting with technology, numerous factors describe the variation in the extent of course delivery of e-Learning technology. An e-Learning course component can be described by indicating which dimension is applicable.

The first dimension to e-Learning courses is synchronicity. e-Learning courses are either asynchronously or synchronously delivered. Hrastinski (2008) compared asynchronous and synchronous e-Learning modes. In his article, asynchronous (non-real time) e-Learning was described as a key component of flexible e-Learning, in which it supports communication between learner and teachers even when participants cannot be online at the same time. Learning is facilitated through media such as e-mails and discussion boards. Learners are able to log on to an e-Learning environment at any time and download and/or send messages to their instructors or colleagues. On the other hand, synchronous (real-time) e-Learning has the ability to support students in the development of learning communities, in which video conferencing and chat facilities are mainly used

between instructors and students. These real time communications help students feel less isolated, yet are less flexible as learners are tied to schedules of meetings.

Wagner et al. (2008) discussed another three dimensions that would be used to define e-Learning course delivery. The location of the e-Learning course is the first factor to be considered. Applications used by students were either at the same place or at distributed places from their instructors and peers. The independence of the e-Learning course is the third factor that distinguishes course delivery. Students have the option to work individually on a task, and/or in collaboration with others. Discussions forums are effective in discussing and sharing ideas. e-Learning courses are not totally electronically delivered, where all content is delivered through technological facilities. In this case there is not a face-to-face component. e-Learning could be used to support traditional classroom learning. This is called blended mode of course delivery, in which class lecturers are aided with computer exercises.

Although technology has facilitated the ways people learn, to the extent that learners could choose the time and location from which their learning activities take place, the absence of continuous face-to-face contact and close supervision with instructors, colleagues and normal learning surroundings could be discouraging for some learners. Thus, keeping students motivated and determining the techniques that could enhance self-motivation of students is a critical point.

2.2.2 Perceived Benefits of e-Learning

Educational institutions worldwide aim at finding out how to implement e-Learning due to its potential advantages in education and training all around the world (Akaslan and Law, 2011). Due to the speed and efficiency of the Internet, e-Learning is assumed to take a competitive advantage over the traditional methods (Intel, 2012). e-Learning has the ability to contribute to different features of educational development and effective learning: expanding access, promoting efficiency, improving the quality of learning, enhancing the quality of teaching, and improving management systems (Chandra, 2009). McKeogh and Fox (2009) divided the perceived benefits of e-Learning into seven broad categories;

enhancing reputation, developing information skills, widening access, supporting disabled learners, improving the quality of teaching and learning, increasing flexibility, and reducing cost.

Literature shows that e-Learning is as effective as traditional learning, but educates more efficiently (Hjeltnes & Hansson, 2005). Learning time can be reduced by as much as a third, often more when using e-Learning (El-Dakroury, 2008). In the same token, Abouchdid (2004) mentioned that monitoring e-courses is more easy than traditional ones through e-mail facilities that would give the same quality of communication with faculty members resulting in cost savings. e-Learning could develop the quality of education by accessing global academic resources.

An important characteristic of e-Learning is its interactivity, which is facilitated through interactive multimedia. Interaction enables learners to perform their tasks through various levels starting from basic levels to real-life simulations (Tausend, 2008). It also encourages learners to take an active role, work with their colleagues/instructors from a variety of locations through collaborative groupware (Yieke, 2005; Khaled, 2008).

It could be expected that in order to substitute the level of interaction found in conventional education, ICT methods are used instead which could be suitable for only a certain sectors of learners, mainly those used to dealing with computers and technology. Thus, e-Learning could be assumed to be an alternative learning mode to conventional education, however the acquired ICT skills could be a major constraint.

2.2.3 Generations of e-Learning

e-Learning technologies have developed over the years. These technological developments resulted in the classification of e-Learning according to generations, in which each generation indicates which technology was used to connect instructors and/or students. Technology is not the only factor that separates e-Learning generations from each other, pedagogical perspectives also changed with technology. Gülch et al. (2012) classified the generations of e-Learning according to technology. Accordingly, three main generations emerged that ranged from the use of Learning Management Systems and emails to blogs,

forums and chat rooms.

On the other side, Anderson and Dron (2011) classified e-Learning generations according to pedagogy. Three main generations were explained; cognitive-behaviourist, social constructivist and connectivist pedagogy, as shown below in Table (2.2).

Table (2.2) Comparison between the learning generations (Adapted from Anderson and Dron, 2011)

Generation	Cognitive presence	Social presence	Teaching presence
<p><i>First generation:</i> Cognitive-Behaviourist (CB):</p> <ul style="list-style-type: none"> –Individual's responses to stimuli leads to change in behaviour. –Limited technology. 	<ul style="list-style-type: none"> –Focuses on objectives of instruction. –Learning materials aimed to focus on learning stimulations. 	<ul style="list-style-type: none"> –Absence of social presence (individual process). –Very high levels of student freedom. 	<ul style="list-style-type: none"> –Minor teaching presence through printed texts. –Lecturing through televisions and films were popular.
<p><i>Second Generation:</i> Social-Constructivist:</p> <ul style="list-style-type: none"> –Depends on adding new knowledge to the existing. –Teacher's role changed from instruction to guidance. –Interaction was synchronous and asynchronous. 	<ul style="list-style-type: none"> –Depended on real-world situations. –Role modelling imitation through student-student and student-teacher interactions and computer simulations. 	<ul style="list-style-type: none"> –Synchronous and asynchronous modes support interaction. 	<p>High level of teaching presence is required to evaluate how learners are doing in building the right knowledge from experiences.</p>
<p><i>Third Generation</i> - <i>Connectivist</i></p> <ul style="list-style-type: none"> –Learners should have the ability to find and apply knowledge whenever 	<ul style="list-style-type: none"> –Providing a sense of self-efficacy to learners. –Interaction of learners with alumnus and professionals 	<ul style="list-style-type: none"> –Creating and keeping up networks of current and previous learners and others with knowledge 	<ul style="list-style-type: none"> –Building learning routes of knowledge sources to support interactions. –Collaboration with students to create and update learning contents.

needed through networks of information.	on networks enriches cognition.	relevant to the subject of interest (Blogs).	
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From the previous table, it is clear that e-Learning has developed across its generations technologically and pedagogically. Since technology increased from one generation to another, taking into consideration the previous technology used and adding to it, it could be assumed that e-Learning encompasses more than one learning paradigm that could support different learning styles. As the technology used becomes more advanced, the extent of teacher presence decreases and cognitive development increases. Therefore, e-Learning supports cognitive development and could be assumed as a special case of social and situated learning.

It could be predicted that the future trends of e-Learning education are expected to be more technologically advanced. Since e-Learning environments have the ability of cognitive development, an important question could be raised here concerning the location of e-Learning in the previously described learning paradigms. Characteristics as cognitive development, self motivation and interactivity may lead to an answer. It is clear that e-Learning provides a variety of advantages due to its technological orientation. However, technology has its limitations as well as its advantages. Motivation, self-regulation and resistance to change are factors that affect learner's psychologies either positively or in a negative manner.

Section (2.3) discusses the psychology of learning in terms of the social and situational learning theories. The support of e-Learning to cognitive development of learners as well as the constraints that learners face when dealing with technology will be further investigated.

2.3 Psychology of Learning

Motivation is one of the significant pillars of social learning theories. Bandura's work focused on the concept of observation of other's behaviours from which learning takes place (Merriam & Caffarella, 1991). These observations either consciously or sub-consciously cause inhibitory effects from which learning occurs

(Cooper et al., 2007).

Later, the concept of intrinsic reinforcement (pride, satisfaction) was introduced as an important factor for enhancing the learning process. Learning does not mean that there will be a change in behaviour, it depends mainly on the intrinsic motivation of learners. Bandura's theory which to some extent contradicted the behaviourist's theory of learning was presented in a 4-step model which included: attention (observation), retention (remembering), reproduction (practicing) and motivation (punishment/reinforcement) (Bandura, 1977).

According to Bandura, multiple factors influence behaviour. Reciprocal determination is one of the factors that suggest that some determinants influence the others among individuals and their environment. For example, external rewards and punishments as well as internal beliefs and expectations are all factors that affect individuals. If one aspect changes the others consequently change as well. Bandura referred to self-efficacy as person's beliefs of having behavioural competence in particular situations which are often stressful. Therefore, self-efficacy judgments demonstrate the ability of individuals in undertaking particular goal-oriented activities. Performance accomplishments, sensational experience, verbal influence and emotional arousal are all sources of self-efficacy (Pervin & John, 2001).

Lave and Wenger (1991) changed the concept of situated learning. They claimed that learning is unintentional and situated within reliable activity, context, and culture. Participating in practices is more effective in learning rather than obtaining models to understand the world. Therefore, social participation is a necessity for cognitive development. The concept was developed by Brown, Collins & Duguid (1989), who claimed that learning something and doing it cannot be separated. They suggested that learning is more effective when it includes expert-like strategies in tasks performed by students, supporting designs that encourage students to apply the strategies, and group-based activities which support active engagement, discussion, evaluation and reflective thinking towards a directed outcome. The role of the instructor is to guide students to apply them (Brown et al., 1989), which enables students to change their state from minor to major

participation (Hung and Chen, 2001).

Through simulations, online interactive facilities, and Web-based learning environments, instructional technologies support the concepts of social/situational learning, which have proven to be significant for cognitive development (Kim, 2005; Fitzgerald et al., 2007; Zaidieh, 2012). Learning through simulations, online interactive case studies and web-based learning environments help students to have real experiences that are difficult to set-up in normal conditions. If the software supports the student in thinking like an expert, then cognitive apprenticeship is applied that is further guided by the instructor's coaching and support (Brown et al., 1989; Stieff and Wilensky, 2003; Vincini, 2003).

Since expert-like strategies, active discussions and collaboration activities are supported by e-Learning, it could be assumed that e-Learning is a special case or exception to social/situated learning where the normal learning setup is different yet the targets of learning are realised. However, still e-Learning students are required to have high levels of self-efficacy in order to keep them motivated in the context of less supervision and interaction.

The advantages that interactive learning environments as e-Learning could add to situated cognition have been a major topic in a lot of studies that have proven its efficiency and effectiveness in student's learning (Kim, 2005; Fitzgerald, et al., 2007; Batson, 2011; Zaidieh, 2012). Integrating technology in education has proven to have a lot of advantages concerning academic achievement. Visual representation can facilitate advanced concepts using graphics and simulations besides providing any other information required through interactive dictionaries and encyclopaedias. Supporting a variety of learning needs is another advantage of using technology in education. The use of emails for communication and the Web for research can help a lot of students with special needs. While other advanced students can work at their own rate and explore subjects in more depth than the basic curriculum (Ranasinghe, 2009).

Despite all the learning benefits described earlier in the token of situated social learning, and how interactive learning environments as e-Learning contributes to better cognitive development, it was noted that the psychology of student's

learning is not totally explained. For learners to successfully proceed in their learning, especially in ICT environments, a number of considerations may be highlighted. Motivation, self-regulation, resistance to change and technology adoption are examples of critical factors among others that must be taken into consideration (Wolters, 1998; Wolters, 1999; Zimmerman, 2001; Pintrich, 2004).

In the same essence, Hung (2001) argued that e-Learning could be a possible platform for situated learning, where varying learning styles could be supported due to the absence of location and classroom limits. Motivation was also highlighted in Hung's article as one of the important factors mentioned in his proposed framework. Besides, the other factors introduced as situatedness (rich contexts of practice through the internet), commonality (sharing interests/tasks through collaborative tasks), interdependency (narrowing choices to match interests and varying needs and gaining knowledge from peers), and e-Learning environments could be more motivating to students by providing rules and accountable mechanisms.

2.3.1 Motivation

Motivation to learn is defined as a "*student's tendency to find academic meaningful and worthwhile and try to derive the intended academic benefits from it*" (Brophy, 2004: p.249). Importance of student motivation in education has changed over the years. Recently, research topics investigating motivation have focused more on students. The role of motivation has been considered as a primary focus behind the ways and reasons of student's success or failure in schools (Pintrich, 2003; Urdan and Schoenfelder, 2006).

2.3.1.1 Self-Regulation

The relation between motivation and self-regulation has been a topic of argument in research. Schunk and Zimmerman were the first to discuss the link between motivation and self-regulation by saying that each strengthens the other (Collins, 2009). Self-regulated learning is defined as "*learning that results from student's self generated thoughts and behaviours that are oriented systematically towards the attainment of their goals*" (Zimmerman, 2001). The relation between self-regulation and motivation is a two-way relation, which means that any of them

could be a result of the other. Motivation could affect the process of self-regulation or could be a result of it.

On the other hand, Zumbunn (2011) argues that self-regulated learning occurs when students aim for achievement of information or skills. Research shows that self-regulated students are more engaged in their learning. They set better learning goals, implement more effective learning strategies, and exert more effort and determination (Labuhn et al., 2010). Consequently, they achieve better results in tests (Schunk & Zimmerman, 2007; Zimmerman, 2008) compared to students who did not receive self-regulated instruction (Labuhn et al., 2010). Therefore motivation is a critical factor that guides self-regulation (Kurman, 2001; Ommundsen et al., 2005; Wang & Holcombe, 2010).

As the name entails, self-regulated learners are those who “*direct their learning processes and attainments by setting challenging goals for themselves..., by applying appropriate strategies to achieve their goal and by enlisting self regulative influences that motivate and guide their efforts*” (Zimmerman et al., 1992, p. 664). Therefore, students become more active and effective learners. That is why self-regulation has been used as a judge of academic success in traditional education (Cobb, 2003). However, it can be used to explain the reasons learners spend their time and effort in e-Learning environments. Since the main difference between e-Learning and traditional learning is the levels and means of interaction, learners may experience a sense of isolation. Therefore, in order to succeed e-learners must depend on their personal abilities to guide their learning, using self-regulated learning strategies. A lot of authors contributed to the factors that help students to self-regulate. Goal orientation and self-efficacy were on top of the list (Sharma et al., 2007; Zumbunn et al., 2011).

McWhaw and Abrami (2001: p.313) defined goal orientation as “*the reasons or goals students have for engaging in learning tasks.*” Goal orientation can be perceived as consisting of intrinsic goal orientation and extrinsic goal orientation. Dweck and her colleagues (Dweck & Leggett, 1988; Elliott & Dweck, 1988) found that children have two different goal orientations towards developing and demonstrating their abilities. Children who subscribe to an extrinsic goal orientation (performance goal orientation) focus on the end result, they are

anxious about failure and how others would judge their performance. Where possible, they choose tasks that allow them to demonstrate their skills when learning something new. On the other hand, intrinsic goal oriented students (learning goal orientation) focus on challenging tasks that allow them to develop their skills. They experience a lower level of anxiety towards mistakes.

Research in the field of motivation and self-regulation continued until Dweck and Master highlighted the ways in which students could be motivated in order to become self-regulated learners. They said that the way students learn is biased by their self-theory of intelligence either according to the entity theory of intelligence or the incremental theory of intelligence. A student who believes that intelligence is fixed and tends to exert more effort in learning subscribes to the entity theory of intelligence (Dweck and Master, 2008). Students with entity theory tend to adopt extrinsic goal in learning, show their abilities in relation to others, and protect their ego by showing that they have sufficient intelligence. The focus of students here is to look smarter (Abdullah, 2008). On the other hand, students who believe that they have the ability to be better learners subscribe to the incremental theory of intelligence (Dweck and Master, 2008). They tend to adopt intrinsic goal orientation in learning by engaging in learning to develop their understanding, skills and knowledge. These students are interested in mastering new things and developing novel skills and abilities (Abdullah, 2008).

Dweck discovered that incremental theory students often perform better in advanced courses. They tend to regulate their interests and motivation taking into consideration the processes needed to learn successfully. Through the “Brainology” workshop, Dweck and Master found that students became more motivated learners when they were given sessions about how the brain works and how it can work better. Students became responsible of their minds and how they develop (Dweck and Master, 2008). Dweck and her colleagues linked intelligence to efforts and development through practice (Hong et al., 1999; Dweck, 2006). The outcome is an increase in self-efficacy (Seijts et al., 2004).

Although Dweck’s theories emerged from case studies that included school students, the same strategies could be adapted and applied in Higher Education. The process of learning is the same in both stages. Bandura (1997) defined Self-

efficacy as “*beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments*” (p.3). From this definition, it could be concluded that self-efficacy is important in goal setting theory. People with high self-efficacy are more committed to assigned goals, find and use better strategies to accomplish the goals, and respond more positively to negative feedback than do people with low self-efficacy (Locke and Latham, 2002).

Therefore, in an e-Learning environment student’s sense of self-efficacy which is their own beliefs about their abilities in dealing with ICT may be one of the contributors to their learning achievements. A learner’s confidence in his ability to learn through e-Learning, may be the main predictor of performance (Sharma et al., 2007).

As discussed earlier, motivation has a great influence on students’ learning in classroom environments. It is expected that this influence will be even greater and more crucial in the case of learning through ICT as e-Learning (Ryan and Deci, 2000; Conati, 2002), which is needed to promote self-regulation and self-efficacy. Motivation is considered as the real challenge especially in asynchronous e-Learning environments where students feel isolated and the level of interaction is low (Ramaha, 2012). Therefore, if ICT learning environments have the ability to modulate learners styles to adopt an incremental learning style, learners are expected to gain self-efficacy in their skills thus become self-regulated. Then, it could be expected that motivation throughout the learning journey could be guaranteed.

2.3.1.2 Technology Adoption and Resistance to Change

For a long time, motivation in e-Learning has been considered from the side of design only. If suitable instructional design and learning activities are present, then this is enough to engage all learners (Cocea, 2006; Smith, 2008; Ramaha, 2012). The ARCS model introduced by Keller is an example of motivational models that were used as a design principle in order to enhance the instructional process which consisted of four categories that are necessary for learners to be fully motivated (Keller, 1988). Malone and Lepper (1987) developed the intrinsic motivation model. They focused on translating motivational theory into ways to design environments that are intrinsically motivating. Table (2.3) compares both

models and the factors included in each.

Table (2.3) Comparison between ARCS and Intrinsic motivation model (Adapted from Keller (1988) and Malone and Lepper (1987)).

	ARCS	Intrinsic motivation
Criteria	<i>Attention</i> - has to be encouraged and sustained through sensation seeking and inquiry arousal.	<i>Challenge</i> - activities that provide a favourable level of challenge to learners.
	<i>Relevance</i> - linking between given material and learner's interest and goals.	<i>Curiosity</i> - Sensory curiosity and cognitive curiosity are essential for motivation.
	<i>Confidence</i> - providing learning requirements, success opportunities are useful to ensure the potential success of the task at hand.	<i>Control</i> - learners are more motivated when they have a feeling of control in their learning environments
	<i>Satisfaction</i> - consistency between the outcome of learners effort and their expectations triggers motivation.	<i>Fantasy</i> – the richer learning environments are those that allow learners to connect new learning to previous knowledge.

Although each model was concerned with a different perspective of motivation in the e-Learning field, both perspectives are essential for sustaining the motivational level of learning. The principles of designing e-Learning environments are crucial for their success, but at the same time could be meaningless if learners are not intrinsically motivated to complete their learning journey. Thus, both perspectives are equally essential for the success of e-Learning programs.

However, keeping students motivated for the whole learning period is the real challenge. If the motivational state of the learner is known, learning contents could be customised to boost learner's motivation. The main purpose is to direct instructors towards the implementation of motivational issues during tutoring (Soldato and Boulay, 1990).

Implementing motivational techniques requires representation and modelling of student's reactions through detections of student's motivational state and reacting with the purpose of motivating distracted, less confident students or keeping the status of already motivated students. Although detecting the motivational state of

learning is obviously very beneficial in tutoring, it is constrained by interface limitations. Student's facial expressions and body language are forms of understanding learner's motivational state (Lepper et al., 1993).

A number of methods could be used for detecting the motivational state of the learner. Questionnaires could be applied at the start of the initial interaction to define the learner's evaluation of his/her own self confidence, challenging situations and motivation to study. Since the learner's motivational state may change during the program, questionnaires may not be the most appropriate tool to use due to their static nature. Instead, direct communication with learner could be an alternative, where a set of standard expressions could be used to avoid the lack of natural language interface. Students request for help and urgency to complete the task at hand could reflect the level of independency and confidence. Learners self-evaluation of their own motivational state is another possible way of assessment through providing a continuous input guide that can be updated frequently by students. This method depends on features of the interface and should be independent of prompt provided by the tutor (Soldato and Boulay, 1995).

These motivational tactics could be implemented through the application of production rules to a database consisting of information about the state of the learner. These rules react according to the student's motivational state in order to sustain the motivation of the learner using "MOtivational REactive plan" known as MORE. Developing this database requires defining a set of dynamically manipulated instructional primitives to represent objects and actions in a teaching interaction (Beaudry et al., 2008).

Del Soldato and du Boulay (1995), developed a motivational planner, which deals with the e-learner's motivational state that consists of three parameters to present motivation:

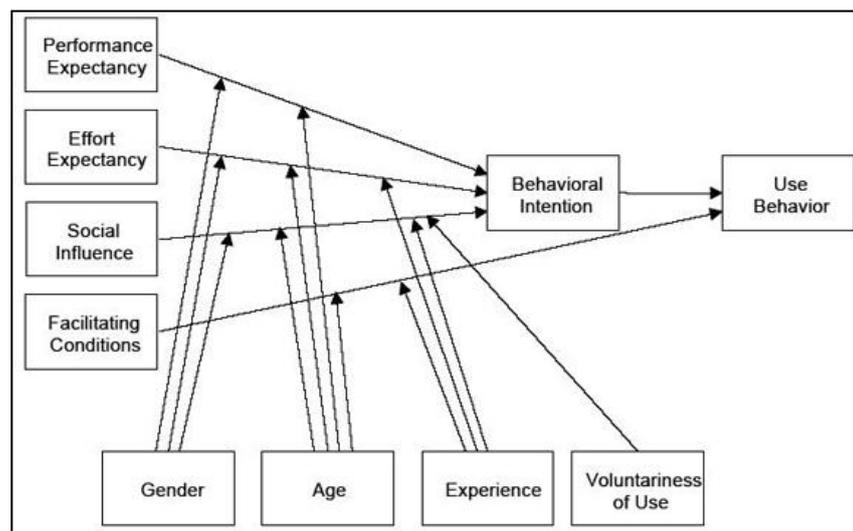
- Effort: is considered as a direct indicator of motivation (Keller, 1983). If learners are motivated they tend to exert more effort on the task they are performing (Shuell, 1992).
- Confidence: deals with learners' beliefs on their efficacy to perform the instructional task. Learners with a low sense of efficacy for completing a

task may avoid it, whereas those who believe they are more capable participate more willingly (Schunk, 1989).

- Independence: is linked to learner's feeling of the level of tutor intervention desired to complete a task. The relation is inversely proportional, where the sense of independence decreases when the level of tutor intervention increases and vice versa (Del Soldato & du Boulay, 1995).

Motivation also affects technology acceptance and use. This relation is illustrated in a number of models. The Unified Theory of Acceptance and Use of Technology model known as UTAUT (Venkatesh et al., 2003) is one of the commonly used models that aim to explain user intentions to use an information system and usage behaviour. The model was based upon conceptual and empirical similarities across user acceptance models (Sargent et al., 2012), which included the theory of reasoned action, technology acceptance model, the theory of planned behaviour, a combined theory of planned behaviour/technology acceptance model, a model of PC utilisation behaviour, innovation diffusion theory and social cognitive theory (Maldonado et al., 2009). The most significant factors addressed by the model that would determine users' acceptance and usage behaviours are performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh et al., 2003).

Figure (2.1) UTAUT Model (Taken from Venkatesh et al. (2003))



Although the UTAUT model seems to be generic in which it could determine user acceptance and usage behaviours in any application, additional research has been done to adapt the model to determining user acceptance and usage

behaviours in e-Learning. Keller (2007) suggested that cultural factors are important to consider in explaining students' acceptance of e-Learning environments as well as being important in implementation strategies. Maldonado et al. (2009) added a new construct of e-Learning motivation for predicting the role of e-Learning motivation in e-Learning adoption and use. They proved that motivation in e-Learning is different from conventional learning motivation by adding technology characteristics (effort expectancy) to the traditional motivational construct. Liao (2011) also discovered that individual factors as performance expectations, effort expectancy, and perceived behavioural control as well as group factors as incentive and social influence have a positive effect on behavioural intention. Sargent et al. (2012) suggested that additional constructs such as top management support and resistance to change may be added to the model as they have been identified as influencing factors of technology adoption.

On the other hand, resistance to change is one of the important causes of failure of more than half of IT projects in organizations. According to Markus (1983), explanation of resistance to change is important since resistance guides individuals' use of IT and influences its implementation in organisations. Hultman (2003) defined resistance as "*a state of mind reflecting unwillingness to change in the ways people think or behave*" (p. 693). Similarly, resistance to use IT is a behaviour intended to prevent the implementation and/or use of IT. Getting to know the reasons behind resistance to use ICT could help in planning to address the main points contributing to resistance to change (Alhogail et al., 2011).

Learners experience a number of difficulties when dealing with e-Learning. These difficulties lead to resistance to change the way they are used to learn through (Nawaz, 2012). The necessary hardware and skills needed to use online information appropriately may be considered as obstacles to students. Some students may lack experience and confidence in using technology. Students may also find it very difficult to understand their contents if the language used is not compatible with their culture. The independent nature of e-Learning programs requires students to change their ways of thinking, behaviour and habits to successfully learn through ICT's (Al-adwan et al., 2013).

Resistance to use ICT in education is not only experienced with learners,

academics also play an important role. Although educators acknowledge the importance of e-Learning, problems such as low rates of participation, learner resistance, high non-completion rates and poor learner performance continue to reappear in the adoption process showing a critical gap between perceptions, theories and practices of teachers. The lack of incentives and rewards; lack of feedback towards higher levels of decision and policy-making, and little impact on strategy definition and implementation sometimes push academics to refuse to change curricula and pedagogic approaches to electronic format and take part in delivering e-Learning courses (Nawaz, 2012). Having less control than before over their working lives; fear of lower quality of e-courses; fear of lack of official recognition for work with new technologies; and worries about intellectual property rights and ownership of materials produced may be other reasons behind academic resistance to ICT's in Higher Education (Alhogail, 2011).

Institutions planning to offer e-Learning tracks also face a number of financial and strategic challenges that may rationalize their resistance to change. The development and maintenance of proper equipment, 24/7 technical support and staff are on top of the financial constraints. Institutions also face constraints in convincing academics to deliver e-Learning contents. The doubts about the success of e-Learning, especially regarding issues such as workload and loss of control and quality might be some of the reasons (Al-Adwan et al., 2013). Although cost efficiency is one of the benefits commonly known to educational institutions adopting e-Learning, still other costs are associated with e-Learning course delivery. Therefore, cost efficiency is not fully guaranteed compared to conventional higher education.

Corbeil (2012) suggested a number of strategies that would help in implementing successful change in institutions. Resistance is likely to decrease if the academic staff are fully involved in the design, development and understanding of the need for change. They need to understand their new roles which ensure their involvement and commitment (Alhogail et al., 2011). Therefore, institutions may seek to hire new experienced academics that support the delivery of on-line contents. This could encourage other faculty members to try using the same route. Incentives should be awarded to the development of new online classes in key

areas to maximize their impact. Lastly, including e-Learning as an essential approach for enhancing the quality, accessibility and affordability of institutional programs may be added to the mission statement of the universities.

The use of e-Learning in higher education has changed the role of students and instructors. Instructors' roles have changed from mainly giving all the information required to students (sage on the stage) to guiding students on the topics required for completing a course (guide on the side.) Consequently, students have to adapt to their new role as being a main stakeholder in the learning process after being used to being passive content receiver (Nawaz, 2012). Therefore, it is important to manage the shifting in roles in order to guarantee successful acceptance and adoption of e-Learning. Failures in managing this shift are one of the major threats of adopting e-Learning in higher education (Tinio, 2002; Gray et al., 2003; Nawaz & Qureshi, 2010b).

Therefore, implementing or adopting an e-Learning environment requires many organizational changes within institutions that involve nearly all stakeholders (Al-Adwan, 2012; Corbeil, 2012). If proper e-Learning environments are created, user resistance can be transformed into a collaborative learning workplace (Nawaz, 2012).

It is clear that, the adoption of e-Learning systems has its advantages as well as its challenges. Although literature showed that e-Learning technology supports situated learning through interactive and simulation tools, motivation seems to be one of the main challenges that would contribute to the success of the system. As motivation increases, resistance to change decreases. Learner's motivation is not the only aspect of motivation that educational institutions should consider in e-Learning adoption, promoting motivation of faculty members including administrators and instructors is of the same importance during learning (Conati, 2002). Therefore, the following section discusses the concept and models of change management and its importance in the field of ICT's in education.

2.4 e-Learning Considerations

Although the main aim of e-Learning is to improve the learning experience through the use of information technology which enables opening new opportunities for

students and teachers, new technologies are always accompanied by common challenges (Sahay, 2004). One of these challenges is the ability of the society represented in its stakeholders to accept and adapt to the use of technology in education in order to gain the potential benefits from using technology. Therefore, shifting from a traditional learning system to an electronic alternative requires following systematic steps in order to decrease the negative impacts associated.

2.4.1 Change Management

Developing technology, changing needs of stakeholders and economic pressures have contributed to push organisations worldwide to modify the way things are done (Oakland and Tanner, 2006). Change management is one of the most important pillars needed when introducing e-Learning into education that affects its successful implementation and use.

Kotter (2011) defines change management as "*the utilization of basic structures and tools to control any organisational change effort.*" (p.3) Change management aims at changing the state of organisations from the unwanted 'before' to the wanted or favourable state 'after' (Ragsdell, 2000), using its principal diagnostic tools known as "*change goals.*" These tools aim at describing the differences between the current and the desired state (why), what needs to be in place to reduce the transform goals to zero (what) and the ways of accomplishment (how) (Mackenzie-Robb, 2004).

Therefore, the goal of change management is to maximize an organization's benefits, minimize the change impacts and avoid distractions (Kotter, 2011). Oakland and Tanner (2006) mentioned that many change programmes fail to meet their expectations despite the efforts and costs put in these programmes. Resistance to change and cultural dimensions are some of the factors that may influence behaviours. According to Aaron et al. (2004), there is a direct proportional relationship between technology and cultural change; the greater access to technology, the more cultural change required. This cultural change creates stress to stay in line with the rapid changes occurring; otherwise individuals dealing with technology may have the fear of becoming nonconforming to the technological environment (Sasseville, 2004). The more an organization is able to manage such factors, the more successful it will be (Mackenzie-Robb,

2004). If management of change is seen to be crucial in common situations, it is expected to be more important when dealing with education since it involves a variety of stakeholders, starting from academics and students reaching to employers and the job market.

The introduction of ICTs in education cannot be a single step approach. The media of transferring technology, aims and effects on education should be known to stakeholders first. Otherwise, ICT's could negatively affect the educational mission and goals instead of pushing it forward (Tinio, 2002; Sahay, 2004).

Lewis and Goodison (2004) highlighted that developments in education need to be driven by pedagogy not only technology. Similarly, Tinio (2002) added that pedagogy, curriculum, institutional e-readiness and technological literacy are all important factors that contribute to the success of e-Learning (Gray et al., 2003). Therefore, human and cultural aspects are needed as critical success factors, which forces developers to take in the needs of all stakeholders by involving in academic computing staff, faculty and administrators together in order to satisfy all needs and get over cultural issues (Nawaz, 2012).

In order to implement change plans successfully, certain steps must be followed. The first step is the effective and efficient directions from leadership. These directions may include defining the areas of change and what is needed to reach desired results. People involved in the changing process are the key players. Therefore, communication between individuals is essential for implementing a successful change process. External help (consultants) may be also used to provide the knowledge required about the structure and benefits of change (Islam and El Araby, 2007).

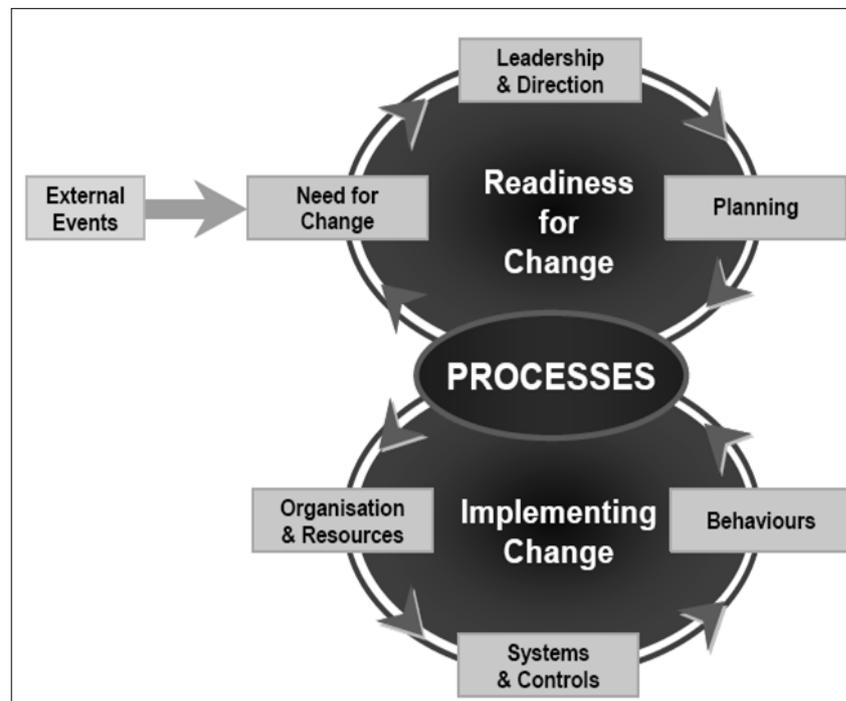
There are a lot of change management models in literature that help in the successful implementation of change in organisations (Baekdal et al., 2006).

Generally, change happens in two dimensions; the organisation and the human dimension. Both dimensions are essentially needed to guarantee change to happen. Desire of the organisation, definition of goals, development and implementation of new systems are needed for organisations to implement change successfully through human dimensions (Prosci, 2006). The following frameworks

were chosen as they encompass most of the aspects regarding e-Learning implementation. Therefore, they could be adapted easily when integrating ICT in education is needed.

The first framework was introduced by Oakland and Tanner (2006), which is essential for the effective implementation of change throughout an organization. Figure (2.2) shows the division of the framework into two stages; readiness for change and implementing change. Both stages are linked through different processes within the organization.

Figure (2.2) Change management model through organisations (Taken from Islam and El-Araby (2007))



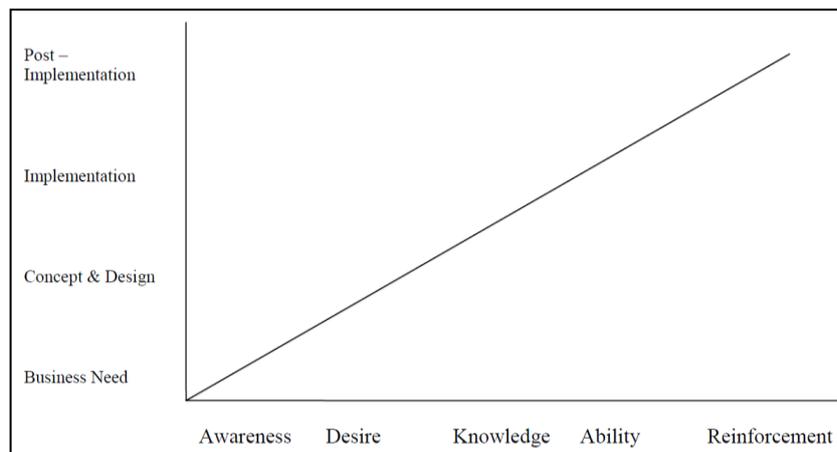
The first stage - readiness for change stage starts with an external event or driver that starts the idea of a need to change. Drivers of change are not always external factors as customer requirements, demands from other stakeholders, regulatory demands, market competition and shareholders, internal drivers to organisations could also trigger organisations to implement a change management procedure as improving operational efficiency, need to improve the quality of products or services and process improvements (Islam and El-Araby, 2007). As soon as the need for change is proved; leadership and management start planning for the processes that will lead to the desired change.

For the second stage – implementing change processes should be subject to suitable resources, systems, rules and controls in addition to individual’s behaviour within an organization.

Research shows that problems related to human dimensions of change are the most common reasons for the failure of change projects (Al-Mashari, 1999; Arthur et al., 2005). The ADKAR model is one of the models that deal with human dimensions, by helping in identifying the reasons why certain changes fail through undertaking the necessary steps that will lead to success. The model also helps in identifying where the problems occur and focus on them.

As shown in Figure (2.3), the model is based on a five stage process that leads to successful change: Awareness, Desire, Knowledge, Ability and Reinforcement. Communication is considered as a pre-requisite for any organisation desiring change to promote awareness of the need for change. Desire for taking part in the change process is the goal of management (resistance management). Knowledge about how to change and what the change will be is the goal of training. Ability to implement the change regularly triggers reinforcement of change (Hiatt, 2006).

Figure (2.3) ADKAR Model (Taken from Mackenzie-Robb (2004))



From the models previously mentioned, it could be concluded that introducing e-Learning in higher education could be done in two phases. The first phase requires a driver or trigger either external or internal. This driver could be the need to provide more educational opportunities for students and instructors for example. Following this, higher education authorities and educational institutions (leadership and direction) start their planning stage through establishing the required

processes. These processes should contain the necessary rules, regulation and policies that are appropriate to the culture in which the change is required to take place. By accomplishing this phase, the necessary infrastructure and foundation to start introducing e-Learning will be ready. However, getting society or individuals ready to accept this change is not yet approached, which is the target of phase 2.

In this phase (phase 2), organisations implementing change or educational institutions and higher education authorities in the field of education should implement strategies and plans for increasing the awareness of e-Learning concepts to learners. Advantages of e-Learning, differences between e-Learning and traditional on-campus education and benefits for learners should be highlighted to increase the desire and acceptance to change. The skills needed from learners must be highlighted as well, which may help in increasing the knowledge about how to change and reduce the resistance to change factor.

Abuhanieh (2013) argues that the net forces that influence change must be evaluated first before taking action. These forces are divided into driving forces that promote change such as customer demands and restraining forces that work against driving forces as resistance to change. If the two sets of forces are equal, then change will be static and will not take place. Therefore, the benefits and advantages that e-Learning systems could add to educational systems in general and learners in particular must be clear to all stakeholders. Students, academics, employers and educational authorities must take part in the process of change. The advantages of dealing with technology in education as well as the pedagogical advantages must be highlighted by educational institutions and higher education authorities in order to increase perception, awareness and readiness of society and guarantee successful acceptance and adoption. However, cultural differences between nations could either ease the implementation of change or oppose it. Therefore, cultural dimensions are important factors that must be highlighted when considering the shift from traditional education to e-Learning.

2.4.2 Cultural Dimensions

Cultural dimensions that affect behaviours are one of the pillars of implementing change management strategies. Due to the fact that online courses and online

degree programmes are now a major part of higher education; there is a potential that learners from different cultural backgrounds refuse to engage in online degrees. Therefore there is an urgent need to study how culture affects online education (Edmundson, 2007) in order to implement successful change strategies.

Barakat (1993) defined culture as “*representing the complete design for living of a community of people inhabiting a particular environment,*” (p.42) while Boldley (1994) stated that culture involves what people think, what they do, and the material products they produce (AL-Hunaiyyan, 2008). Therefore culture involves the common thoughts and perceptions of a common environment. Language, social, political, economic, and religious issues and technology are examples of cultural differences that could constrain the change process and consequently affect the adoption of ICT’s in education (Al-Hunaiyyan, 2008). Accordingly, individual cultural backgrounds contribute substantially to the usability of most online learning systems (Adeoye & Oni, 2010).

Different cultural backgrounds forced researchers to identify the significant cultural dimensions that separate nations. Hofstede identified six cultural characteristics from which nations are identified. Particularly, Arab cultures are characterised by high power distance, collectivism rather than individualism, masculine society and high preference for uncertainty avoidance (Hofstede, 2013).

Similarly, readiness of Arab countries for change as compared to other societies has been investigated which was found to be different from other Western countries (Alia and Labib, 2007). Change in the Arab world is not considered as a linear process; it is oriented towards a certain goal rather than a specific destination. That is why authorities planning for change are normally proactive in directing change in ways that serve their interests as well as the interests of their society. Thus, change is better represented by a zig-zag pattern, which is implemented in stages. Therefore, the main aim of change here is to maintain stability (El Araby and Islam, 2007).

Resistance to change, high power distance and rejection of initiatives that are not Arab originated were the main reasons behind the differences in change

implementation in the Arab world (El-Araby et al., 2006). Islam and Labib (2007) and Heggy (1998a) agreed on adding more characteristics to Arab cultures that affects its ability to change as self-praising, stereotypes and conspiracy theory. The consequences of such negative characteristics on attitudes have resulted in a number of factors that might be a main reason behind low willingness of Arab societies to contribute and improve individual performances and rejection to new ideas (Islam and Labib, 2007).

Rao (2010) stated that high power-distance cultures prefer to have experts on the subjects they wish to learn to spread learning information. High uncertainty-avoidance cultures prefer to have any approach to training that reduces the uncertainty in mastering new content. e-Learning is considered risky due to problems that learners may encounter in the learning process, such as technological or navigational problems. Collectivist cultures prefer a group approach to learning as it satisfies their shared interest in learning and also shows concern for the entire group's learning outcomes. Consequently, a strong group focus on group harmony is exhibited. They prefer a deductive reasoning style, in which they are usually trained on concepts from general to specific principles and thus prefer collective learning.

These findings might act as main constraints in the acceptance of e-Learning in Arab countries, since it is less participative in its orientation, where participation occurs mainly through interactive software. Unless authorities that have the upper hand in offering the new educational platform provide the necessary foundations, infrastructure, rules and regulations and motivating learning environment, the acceptance of e-Learning might be a problem.

Following the fact that Egypt is one of the main developing countries in the Arab world that is characterised by the same cultural dimensions as the rest of the Arab region, it would be helpful for the aim of this study to discuss the higher education system in Egypt, readiness, perception and acceptance of the Egyptian society to technology in general and e-Learning in specific. Some important questions could be raised here concerning the perception and readiness of the Egyptian higher education stakeholders in adopting e-Learning, in addition to the possibility of taking advantage of the benefits that e-Learning programmes could bring to the

Egyptian higher education system.

2.5 Higher Education in Egypt

Political evolutions in Egypt have always affected the development of education. Educational systems have always been changing starting from the European-style which was introduced by the Ottoman rulers. Since then, public schools remained free until the British occupation (loveluck, 2012). Education then became an important part of modern projects during Nasser's regime. Free education was offered to all Egyptians, starting with schools then merging into higher education. This shift resulted in increasing the demand for education generally in the 1970s and 1980s (Richards, 1992; Rossiter, 1997; Beckstorm, 2004) stretching the available resources, causing the quality of publicly provided education to deteriorate (Richards, 1992; Rossiter, 1997; Beckstorm, 2004; loveluck, 2012).

Higher education in Egypt is considered one of the world's oldest educational systems which dates back to 988 AD since the creation of Al-Azhar University by the Fatimids (Elshayeb, 2012). The governmental educational system in Egypt is divided into: basic education which covers the first nine years of education (six years as primary schools and three as preparatory schools); secondary stage which is divided between three-year general academic secondary schools and three to five years vocational schools; and higher education level (El Sebai, 2006). The formal education stage in schools ends with a general exam that is similar to that of High School Graduation Exam in many countries known as *Emtehan Thanaweyya Al-Amma*. This exam is national and allows students to move from secondary to higher education, or to continue in technical and vocational education (Elshayeb, 2012).

Higher education is classified into two main sectors the public (governmental) sector and the private (non-governmental) sector. The Governmental university sector is more dominant and larger than the private one, in which the latter consists of fewer students enrolled (El Sebai, 2006).

Governmental higher education in Egypt is also classified into two parallel educational systems (Loveluck, 2012): the secular system which includes 21

public universities (EACEA, 2012) with 325 faculties and 100 higher education public non-university technical Institutes and colleges and the religious system presented in *Al-Azhar* university which encompasses 64 faculties and 420,000 students (NAQAA, 2012) specialised in offering academic degrees in Islamic Theology, Islamic Law and Jurisprudence, Arabic Grammar, Islamic Astronomy and Early Islamic Philosophy (Elshayeb, 2012). This makes 22 public universities, including *Al-Azhar*, available in Egypt.

On the other hand, private higher education consists of 33 universities (Elshayeb, 2012). Non-governmental higher education started with the establishment of the American University in Cairo (AUC) in 1919 (AUCEgypt, 2012). However, Egypt only legalized Egyptian private universities in 1992 allowing the establishment of more private universities. The first four private universities were open to students by 1996 (Johnstone, 2007). Private universities can be divided into two main categories. The first consists of highly prestigious, and extremely expensive private universities, which are commonly developed under particular agreements between the Egyptian government and the government of another country or a partnership between Egyptian investors and a prestigious non-Egyptian university. The second group consists of less expensive and of lower quality universities. As a result, less than three percent of total university students enroll in private universities (Johnstone, 2007). Besides, private higher education is seen by many institutions as *sellers* of higher education certificates to those who could only afford it (El Sebai, 2006), which contradicts with the principle of equal access to educational opportunities for all citizens, in which the ability to pay fees should not restrict access to higher education.

Therefore, governmental higher education institutions in Egypt are considered to suffer from more pressures than private higher education institutions. These pressures force institutions to try to overcome significant challenges coming from attempts to compromise between delivering reasonable educational services and the high demand on higher education. Opening alternative e-Learning tracks could be considered as a solution that would make a dream come true. The electronic nature of online education gives a good chance for offering an educational opportunity without the pressures associated with conventional higher education.

However, the skills required to design and deliver an e-Learning course as well as the skills desired by students to deal with ICT could act as a barrier to e-Learning higher education.

2.5.1 Challenges of Higher Education in Egypt

The lack of quality in most of the Arab countries' educational institutions stands behind most of the problems experienced (Issa, 2012). The Arab Human Development Report highlighted the main reasons behind this phenomenon. Lack of development to improve the quality of life required facilities and lack of clear vision and policies that drive the whole educational process were the top reasons (UNDP, 2003).

Although literature has emphasised free governmental higher education as a major cause of the increasing demand on governmental institutions, other factors have contributed to the occurring drawbacks. Demographic increase in the total number of population, enrolment in higher education as an escape from the high unemployment rates, and the desire of increasing social class rather than experiencing handicraft jobs (considered as a lower social rank) are other causes of the drawbacks experienced. Thus, an incremental rise in governmental higher education enrolment rates occurred (El Sebai, 2006).

In the same essence, the World Bank's Higher Education Enhancement Project (2000) added a number of challenges that higher education faces. Obsolete system-wide governance and management; low quality and relevance at the university level; low quality and relevance at the middle technical level and limited financial sustainability of publicly financed enrolments were the top reasons discovered. These drawbacks were reflected in the Competitiveness Report 2012/2013's rankings for the quality of public higher education institutes in which Egypt is in the 139th place out of 144 countries (Schwab, 2013: p.159).

It could be concluded that the underfunding of universities in Egypt is one of the prime reasons for a lot of quality problems (Richard, 1992). The available funds are diverted to fields of humanities and social sciences instead of science and engineering or practical fields which cost more. This misallocation of public funds

implies that higher education institutions are not receiving adequate maintenance and updating of infrastructure due to modest and decreasing appropriations for investments, which lead to a high ratio of students per teacher (Fahim, 2009), with some lecture halls reaching up to 1500 students (Richards, 1992).

Due to these financial constraints, students are faced with insufficient classrooms facilities (El Sebai, 2006). Publicly owned institutions are subject to high centralised authorities, in which all funds are driven from the government (El Sebai, 2006; Loveluck, 2012). As a result, university buildings are not in a good condition and classrooms may also have poor or insufficient equipment corresponding to the number of learners. The underfunded university libraries made most students and instructors depend on only the basic textbook for studying, causing learners to memorise what is in the textbook only without going through other secondary materials (Holmes, 2008).

The underfunding of public universities also affected academic staff. According to Fahim (2009), about 75 percent of public current expenditure in higher education goes to wages. The ratio of academic to non academic staff is relatively high (1:0.7), which shifts a big share of current expenditures away from academic staff. Consequently, professors are neither paid enough nor rated on their performance or the grades at which their students pass or fail results. There is nearly no motivation to attain a standard of teaching excellence, thus leading to a low quality level of teaching and learning. Learners are consequently faced with insufficient guidance and supervision (El Sebai, 2006). Alternatively, setting up private tutoring programs in universities is a common method for mutual benefits. It is an alternative route for gaining extra income for educators and achieving a better educational service for students (Richards, 1992; Holmes, 2008).

Low funding levels into university also limited the ability of institutions to play their role in spreading education and knowledge. Therefore, the levels of expertise have been limited to specific fields only (Loveluck, 2012), which can be seen in the ratios of graduates from humanities disciplines to those of applied scientific disciplines (Issa, 2012). Arab universities in general suffer from low level of marketing their services for the community which makes universities lose

important sources of self-financing (Issa, 2011). Therefore, Arab countries such as Egypt should implement a new funding strategy to guide decisions about the desirable levels of public funding, possible venues for resource diversification, increased cost sharing and efficient ways to distribute public resources among institutions and students (OECD, 2010).

Looking at the ability of higher education institutions to equip its graduates with the skills required by the job market, the current Egyptian public university system seem to unprepare its graduates for career opportunities (Issa, 2012). The degree to which the higher educational system satisfies the need of competitive labour market is low (Fahim, 2009; Iveluck, 2012). Numerous graduates lack strong quantitative skills and/or do not have much knowledge of the use of technology applications (Richards, 1992). As a result, graduates lack preparedness for the job market and current market requirements (Holmes, 2008).

Following these conditions, it could be assumed that financial conditions and the quality of educational services are highly related. In order to experience a relatively acceptable educational level, learners are faced with one of two routes, either to enrol in private institutions or depend on private tutoring.

Literature demonstrated a lot of noteworthy benefits that technology added to education. These benefits have the ability to get over some of the problems experienced worldwide (Andersson, 2009). The adoption of e-Learning in higher education could be assumed to be one of these attempts. In the same token, the adoption of e-Learning in higher education in Egypt has the potential of overcoming major drawbacks. e-Learning could be considered as a compromise solution between low quality governmental education and high tuition fees of non-governmental institutions that is less constrained by student enrolment rates. However, introducing technology in education in general and e-Learning in specific is constrained by a number of factors. Motivation, resistance to change and other cultural factors are some examples.

Speaking about the adoption of e-Learning in Egypt in the essence of cultural aspects, it could be expected that e-Learning may not be easily accepted by the Egyptian society. The availability of valid governance strategies and controls to e-

Learning may facilitate its acceptance and adoption. The following section demonstrates the governance and controls of higher education followed by the e-Learning attempts in the higher education sector in Egypt.

2.5.2 Governance and Control of Higher Education

According to the Higher Education report published by the European Commission (Elshayeb, 2012), four authorities are responsible for authorising and controlling higher education in Egypt. The Ministry of higher education controls higher education institutions through supervision and coordination of all post-tertiary education through planning, establishing policies, and quality control.

The Supreme Council of Universities, founded in 1950 creates the general policy of university education and scientific research in universities, specifies the number of students to be admitted to each university faculty and coordinates public universities. It is presided over by the Minister of Higher Education and State Scientific Research.

The Private Universities Council develops the overall policy of private university education and determines the number of students to be admitted to each university faculty, the maximum tuition to be charged, and admission criteria. Lastly, the supervision and administration of the Al-Azhar higher education system is the responsibility of the Central Administration of Al-Azhar Institutes, which is a department of the Supreme Council of Al-Azhar that is responsible for the development of the general policy and planning to enable the propagation of Islamic culture and Arabic language through Al-Azhar higher education system.

Despite the presence of specialised higher education authorities in Egypt, that is expected to control and work on enhancing the higher education experience, the Egyptian government frequently admitted its inability to support the Egyptian higher education system without the active support of the private sector as well as the adoption of new open access online education services (Mourad, 2010). There are numerous attempts in the Egyptian higher education sector to improve its conditions described previously through a variety of ways. One of the ways is the introduction of innovative programmes that focus on problem-solving and applied work in which e-Learning tracks are to be considered (Richard, 1992). As a result, efforts were made by the government to introduce new modes of open access

online education services not only for higher education but also for secondary schools (Mourad, 2010). Section 2.6.1 discusses e-Learning attempts in Egypt.

2.6 e-Learning Attempts in Egypt

e-Learning is believed to be one of the main elements expected to support the formation of modernisation in the Arab Region. It is seen as an important tool for enabling Arab citizens to gain access to quality higher education (Abouchedid, 2004). The adoption of new technologies in education is considered as an important turning point from the point of view of different higher education institutions, mainly public ones (Mourad, 2010). Section (2.6.1.1) discusses some of the experiences of different developing countries concerning e-Learning adoption in higher education.

In order to meet the needs of the increasing numbers of students and fulfil the requirements of the job market in a period of communication and knowledge revolution; the Egyptian government considered introducing e-Learning, especially in higher education, where most of problems originate (Abdel-Wahab, 2008; Khaled, 2008). Although e-Learning seems to be a promising opportunity for educational equality, the acceptance of stakeholders is an important factor that could limit further e-Learning developments.

e-Learning has been applied in Egypt in a number of projects that took place mainly in basic and undergraduate education (Fayek, 2004; El shenawi, 2005), which adopted parallel distance learning tracks to the main present regular systems. The concept of establishing a complete e-Learning university was not available in Egypt until 2009 when the Egyptian Ministry of Higher Education has made its first attempt to launch Egypt's first electronic non-profit university. It is assumed that introducing e-Learning in Egypt could eliminate problems such as overcrowded classrooms and limited resources. The adoption of the new learning platform in Egypt can provide an economic and more suitable solution to the higher education problem by filling in the gap between the number of university places available in Egypt and the growing demand for higher education (Khaled, 2008).

The Arab Open University (AOU) is one of the important projects in Egypt that

offers degrees through distance learning relying on course lectures laid out in textbooks, CD-ROMs, audio and video cassettes, etc. Students are not required to attend face-to-face lectures, instead they are required to self-study their courses and visit the university campus only for examinations.

Due to the nature of open learning, most of the graduates granted an open learning higher education certificate are either unaccepted or under estimated by the job market. They are considered as less educated graduates that could not be considered as reliable employees. These reactions forced open university graduates to protest for their rights in the equal acknowledgment and hiring opportunities as traditional graduates from the side of employers and syndicates.

It could be expected that although e-Learning is different in its orientation and nature, there is a potential for e-Learning to gain the same level of acceptance and if sufficient awareness is provided to the Egyptian society by decision makers and educational institutions.

Although the described conditions of higher education in Egypt create a significant potential for the adoption of e-Learning, attitudinal factors, perceptions and awareness of society in addition to technological readiness could be major constraints for the acceptance and use of the new technology in education. Thus limiting the developments that e-Learning could contribute towards enhancing the higher education experience in Egypt. These conditions shed light on some significant inquiries regarding the perspectives of Egyptian society towards e-Learning and the opportunities of e-Learning in improving higher education in Egypt.

Literature highlighted some challenges concerning the adoption of e-Learning in the Egyptian context. According to Abouchdid (2004), financial, pedagogical and attitudinal factors are the main limitations for adopting e-Learning technologies in the Arab region. El Shenawi (2005) added that the accreditation and evaluation criterion of e-Learning certificates is a major issue that is needed to guarantee the programmes success and excellence. In the same context, El-Khayat (2010) argued that e-Learning programmes should be designed to adapt with lots of the

social characteristics of Egyptian students to promise its success. Unawareness, resistance to change, and computer/Internet illiteracy are seen to be the major challenges of adopting e-Learning in Egypt (El-Sebia, 2006; Abdel-Wahab, 2008). Attitudes towards e-Learning usefulness, ease of use, pressure to use, and the availability of resources needed to use it are all predictors in modelling students' adoption intentions (El Gamal, 2012).

From the few e-Learning attempts described, it could be concluded that the Egyptian society might have various perceptions towards introducing e-Learning in education. Literature demonstrated a wide range of factors that seemed to be the main causes of the low awareness levels discovered. Building rigid and factual perceptions towards e-Learning is the starting point that has the ability to encourage the Egyptian society towards more e-Learning practices. Determining the factors that influence perceptions should consequently help in raising the awareness level among the Egyptian society and thus increase acceptance, adoption and use of e-Learning in higher Education.

2.6.1 e-Learning Implications in Developing Countries

Although increasing access to higher education especially marginalized groups in rural areas; cost effectiveness and flexibility are the top e-Learning drivers for e-Learning adoption, e-Learning faces many challenges especially in developing countries.

The great dependence on traditional ways of teaching and learning specifically in higher education has been a major reason behind the lack of essential e-Learning enablers such as computer devices and IT skills needed Interactive learning environments, such as e-Learning, require active participation of the student, which is uncommon in developing countries. Students are still more oriented towards gaining knowledge mainly from their instructors and used to studying from textbooks and notes, which is not the case in e-Learning environments, where the role of instructors is mostly guidance. Since e-Learning is a concept that has originally emerged in the West, where countries are more developed and students are more oriented towards individual learning styles (Andersson, 2009), it is

essential to discuss the difficulties that developing countries experienced during and after their e-Learning practices.

Akbar (2005) identified the main challenges and the key role players in promoting e-Learning in developing countries such as Bangladesh. The first concern was the infrastructure of e-Learning facilities and resources. National strategies and plans for e-Learning established by the government has to be the starting point, ensuring the development of ICT infrastructure, developing expertise on e-Learning teaching modalities for professional development, establishing partnership and cooperation among stakeholders. The quality of the e-Learning programmes offered was also another major concern in the same study. Ensuring the quality of e-Learning materials in collaboration with governmental institutions and academics, certification of the programmes and promoting awareness of e-Learning facilities among learners were on top of the challenges discovered.

Although the factors raised by the previous studies are significantly important to the establishment of e-Learning programmes, promoting awareness of e-Learning concepts and facilities is equally important. The awareness of e-Learning concepts should be considered as the main starting point responsible for altering false perceptions into more rigid concepts. Learners' readiness to use e-Learning as presented in the contributing and inhibiting factors associated should also be considered.

These results were not far from the recommendations given by Mohamed (2008) who presented a framework strategy for implementing e-Learning in Egyptian higher education institutions. The study recommended that analysing an institution's capabilities and opportunities is critical before the adoption of e-Learning. The strategy included guidelines for the availability of: leadership and organization, overall direction and objectives, courses and programmes, markets and marketing, instructional development and faculty issues, finances, quality assurance and improvement and partnerships.

The presence of appropriate institutional capabilities and opportunities is essential for the efficiency of the entire educational process. However, the high readiness

levels of institutions to deliver e-Learning programmes cannot be considered beneficial without adapting the corresponding culture (presented by its stakeholders) first. Thus promoting awareness and raising e-readiness is a prior step.

Individual and contextual differences were the main challenges identified by Andersson (2009) who studied the major challenges for e-Learning in general, and the differences between developing countries and developed countries. The study identified four main categories of challenges: course challenges, challenges relevant to individuals' characteristics, technological challenges and contextual challenges. Although all points revealed were also relevant for developing countries, factors related to individual's characteristics such as orientation towards students' activities, self-learning and motivation in developing countries were less important. These results highlight the main differences between developed and developing cultures. Adopting e-Learning in developed countries and especially in the Arab world requires the establishment of more effective strategies from decision makers to gain societal acceptance and get over the barriers that could cause demotivation of stakeholders.

Similarly, Ssekakubo et al. (2011) conducted a survey through interviewing key e-Learning personalities involved in e-Learning programmes in five different universities in Africa. The study aimed at identifying the underlying causes of failure in Learning Management Systems (LMS). The study discovered that the failure of LMS supported e-Learning initiatives in developing countries is not mainly in technology, but rather more with the ways institutions are using the LMSs to improve, support and facilitate student learning. Some of the most probable causes of failure identified were: high ICT illiteracy rates among the student community, low comfort levels with technology, usability issues of learning management systems, poor marketing strategies, ineffective maintenance strategies and insufficient user/technical support. The study recommended that if LMSs have the potential to accomplish their potential benefits in the developing world, future research and development efforts should be aimed at overcoming barriers discovered.

With the increase of social media nowadays, it could be expected that technological illiteracy rates have decreased due to the high dependence on ICT in communication and getting the latest updates. Accordingly, the fears of using technology have decreased to a certain extent. However, the fears of using ICT in education cannot be guaranteed due to the scarce experiences especially in higher education.

In the same essence, Bhuasiri et al. (2012) identified the critical success factors that influenced the acceptance of e-Learning systems in developing countries among two stakeholder groups, ICT experts and faculty. Six dimensions for implementing e-Learning systems in developing countries were discovered, including learners' characteristics, instructors' characteristics, institution and service quality, infrastructure and system quality, course and information quality, and extrinsic motivation. Based on the results, the most important dimension for ICT experts was learners' characteristics whereas infrastructure and system quality were the most important dimensions from the faculty perspective. These results demonstrate the differences in the most important criteria required by different stakeholder groups regarding the development of e-Learning systems. Therefore, decision makers developing e-Learning strategies are required to take all factors into consideration to guarantee acceptance and use.

Although the previous studies were developed at different contexts, there are common features found in all the frameworks proposed. The first point was the availability of the necessary ICT infrastructure needed to support e-Learning activities. The availability of clear visions and leadership from institutions and government were also emphasised. The quality of the e-Learning programmes offered were also another main concern of most frameworks. On the other hand, despite the cultural differences individual characteristics and contextual challenges were not a main concern in all strategies proposed.

The frameworks presented may also show that different stakeholder groups prioritise different characteristics that would help in the acceptance and adoption of e-Learning programmes. It could be concluded that the adoption of new technology, such as e-Learning, requires the development of a complete strategy.

This strategy should help in assuring society about the quality of learning proposed through the new route by considering all stakeholder groups perspectives and perceptions. This throws the responsibilities on the shoulders of governmental authorities and educational institutions that have the upper hand in establishing necessary strategies, thus promoting awareness and high adoption levels.

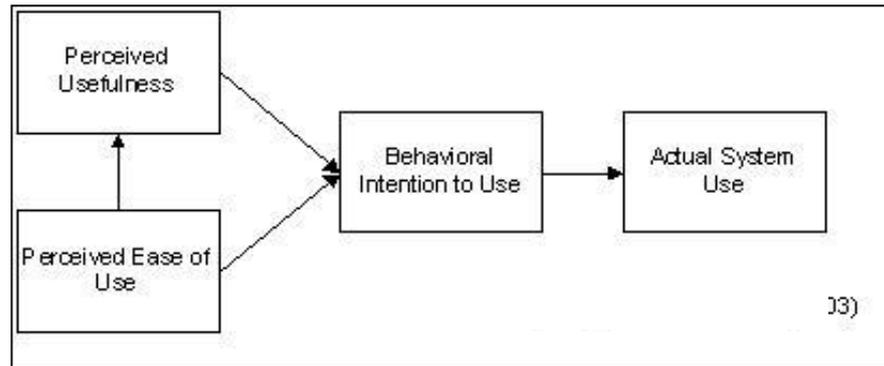
2.7 Perceptions towards Technology

Since perceptions and attitudes are critical to technology adoption, developers and deliverers of online learning need more understanding of how different stakeholders perceive and react to e-Learning besides methods of applying these approaches most effectively to enhance learning (Smart, 2006).

The technology acceptance model (TAM) developed by Davis is one of the famous theories of technology acceptance used to understand the perceptions of users (Davis, 1986; Mathieson, 1991; Taylor and Todd, 1995; Venkatesh et al., (2003). TAM was built upon Fishbein and Ajzen's (1975) theory of reasoned action (TRA) which claimed that beliefs could influence attitudes, lead to intention to use and actual usage behaviour. The TAM model describes that a person's behavioural intention to use e-Learning is determined by perceived usefulness and perceived ease of use. Although TAM's goal is actual usage, it could also be used to explain why individuals may or may not accept a particular technology such as e-Learning (Tagoe, 2012).

The Technology Acceptance Model (TAM) is an information systems theory that models how users come to accept and use a technology. In 1989, Davis suggested that successful adoption of an application depends primarily on the functions it performs, and secondarily on how easy it is to perform these functions. Davis believed that users' acceptance is the biggest barrier to the success of new information technology. Several research studies have replicated Davis's original work in order to provide empirical evidence of the relationships that exist between usefulness, ease of use and system use (Davis, 1989; Segars & Grover, 1993; Subramanian, 1994; Szajna, 1994).

Figure (2.4) TAM Model (Taken from: Venkatesh et al. (2003))



Markus and Kitayama (1991) have criticised the individualist orientation of TAM. They believed that human behaviour is not simply a matter of individuals acting in isolation, but emerges in interaction and collaboration. Although group, cultural, or social processes can be integrated into TAM by considering individual differences between cultures, TAM is mainly regarded as a framework for explaining decision making by individual persons. In 2003, Venkatesh et al. clearly mentioned that decisions and usage are initiated by individual reactions to using information technology (Venkatesh et al., 2003). Even, when "*social influence processes*" have been introduced into TAM, the practice has been to treat social influence in the limited senses of either a constraint or force on the decision maker (Moore and Benbasat, 1991; Venkatesh, 2000).

Therefore, for e-Learning to be easily accepted and used in the Egyptian context, two main factors must be considered. Firstly, highlighting the benefits that e-Learning could add to the Egyptian higher education system and the opportunities available in getting over some of the significant obstacles experienced is a necessity. The benefits should also include the ability of e-Learning to equip its graduates with the skills required by the job market, which is also one of the drawbacks of higher education. Secondly, the ease of using e-Learning platforms either by students using the system for learning or instructors designing educational material or using the system for interacting with their students should be highlighted.

Students, instructors and employers are part of the higher education stakeholders present in the Egyptian society. Therefore, to facilitate the use and adoption of e-Learning in Egypt, the perception of all stakeholder groups must be taken into

consideration starting from students who are considered to be the end users of the system, academics who play an important role in the delivery and design of educational material in addition to interaction with students and employers whose perception towards e-Learning graduates will significantly have a great influence on learner's choices of educational modes.

Since the Egyptian society is characterised by experiencing a large power distance culture, resistance to change and uncertainty avoidance, it could be expected that higher educational authorities might have the upper hand in providing society with the necessary e-Learning guidelines that might help in increasing awareness and support of valid perceptions around e-Learning in higher education. Thus, if the perceived benefits of e-Learning and its ease of use are introduced to the Egyptian society by higher education authorities, acceptance and use might be facilitated taking into consideration primary stakeholder groups.

The adoption of technology in education such as e-Learning is directly affected by the attitudes and perceptions of its various stakeholders. These perceptions and attitudes could have enough strength to encourage or discourage new innovations offered by institutions. Therefore, it is quite important to discuss some of the perceptions/attitudes towards e-Learning adoption and acceptance in higher education from the perspective of some of the primary stakeholders involved.

2.7.1 The Decision-Makers' Perspectives

Technology, demography, governmental policy and economic factors are the main external drivers for change. These factors have forced higher education institutions to operate in a more competitive world than before. Consequently, dealing with greater market forces became a must due to the decrease in public funding, rising expenses, changing needs and expectations of students which shed light on the demand for new and different programs and services. In this context most higher education institutions are seeking to apply new technologies in the delivery of education to reach new student markets and by doing so expand enrolment (Boezerooij, 2006). Opening alternative e-Learning routes to the existing traditional on-campus higher education is one of the steps taken by institutions.

As institutions adopt e-Learning, significant issues appear. Reliability of technical infrastructure to support e-Learning activities, technical skills possessed by students and instructors to use e-Learning and redesigning course materials to integrate e-Learning effectively into pedagogy are highlighted (Arabasz, 2003). These factors have triggered a lot of authors in literature (Tinio, 2002; Gray et al., 2003; Sahay, 2004; Nawaz, 2012) to highlight the need for higher education institutions to take some factors into consideration before and during the integration and implementation of e-Learning in order to guarantee its success. One of these important factors is the effective leadership within institutions. Leadership is necessary for creating a level of strategic thinking and planning for the university which plays an important role in encouraging the adoption of e-Learning (Coimbra group, 2002). Strategies are also needed to effectively educate students for the new social context (Weiler, 2003).

However, implementing strategies alone is not enough. The perceptions and attitudes of the rest of higher education stakeholders such as students, academics and employers are equally critical for the successful adoption of e-Learning in higher education. Their needs/expectations, concerns and challenges must be taken into consideration during strategy planning and implementation.

2.7.2 The Students' Perspective

Students' attitudes towards e-Learning are directly connected to several factors. Technical abilities, time dedicated to computer use and computer experience (Bertea, 2009), age, gender, technology acceptance and individual learning styles are major predictive factors when discussing acceptance of technology by students (Keller and Cernerud, 2002). Osei (2010) discovered that e-Learning is most preferred by learners older than 30 years and married student population due to the flexibility of time and location and work commitment.

A number of studies have showed that students are willing to use e-Learning and admit its benefits (Vrana, et al., 2006; Tasir et al., 2011; Tagoe 2012). Self-paced and multimedia instructions are examples of the driving forces that could encourage students (Liaw et al., 2007). These, driving forces may not be welcomed in all cultures and especially in developed cultures. However, wrong

perceptions and significant challenges may have a strong influence on a student's choices of the learning mode. Concerns regarding the provision of punctual feedback on assignments by instructors, lack of enough study facilities and difficulties with self explanatory learning materials were raised. Perceptions towards e-Learning are affected by the flexibility of technology in knowledge management, time management and widening access to information. These factors also shed light on the role of educators as well in identifying the appropriate strategies needed to manage these factors during course design and delivery (Aixia, 2011).

Tagoe (2012) discovered that although most students have admitted that e-Learning will enhance teaching and learning, yet their fears concerning access to computers, inadequate bandwidth and lack of IT skills resulted in decreasing adoption rates. Similarly, Varna (2006) added that although students totally affirm that the introduction of ICT enhances education and could add to the development of more efficient educational processes; it seems that they are not ready to accept it. More information should be provided to learners officially in order to modify their perception. Information on the provision of quality assurance in design, ensuring the timely development and delivery of quality course materials and student support services must be adopted and announced in order to increase student's awareness and raise perception levels (Ojo, 2006).

It is critically important for educational institutions to be fully aware of student's needs and fears related to their learning environment in order to achieve high academic achievement (Tasir et al., 2011). Providing sufficient training in all areas related to e-Learning, availability of adequate and suitable technology infrastructure, supporting teamwork technologically and subjectively, as well as highlighting the role, responsibility and workload of e-instructors must be announced to learners to make sure that motivation remains high throughout the learning period (González, 2011). Academics must play a significant role to equip all students with the skills and resources to access learning opportunities and share knowledge at a time and place that fits learners' culture and lifestyle (Aixia, 2011).

2.7.3 The Academics' Perspective

The willingness of the academic staff to redesign and deliver e-Learning courses is also a significant point that could reveal their perceptions towards e-Learning. Their readiness in taking part in e-course delivery may affect adoption rates. Previous researches revealed that the lack of technical support, adequate equipment, and the increased amounts of preparation time required were the most commonly found barriers towards e-Learning from the perspective of educators (Mishra, 2007). Although the same reasons are still valid, recent studies have added to them.

Confidence to use e-Learning in terms of getting the training needed is one of the main factors desired for e-course delivery, which should be taken into consideration before implementation (Agboola, 2006). Rolfe et al. (2008) added that the lack of technology awareness resulted in unclear definitions of e-Learning among academics. Therefore e-Learning strategies were recommended to raise the awareness of technology and its benefits. Similarly, Scott (2004) discovered that academics were reluctant in delivering e-Learning courses. They were concerned about teaching a lower standard course content by not delivering the same curriculum as traditional face-to-face teaching.

On the contrary, Liaw et al. (2007) stated clearly that instructors have highly positive perceptions towards using e-Learning. Their behavioural intention to use e-Learning is influenced by perceived usefulness and self-efficacy. Educators felt that e-Learning was a tool that matched their teaching and learning needs in terms of flexibility, interactivity and accessibility despite a significant level of lack of competence in the technology (Handal et al., 2011).

As a result, offering incentives and rewards besides the announcement of clear strategic plans and visions to academic staff involved in e-Learning could act as significant drivers to encourage staff members to be involved in delivering e-Learning programmes (Newton, 2003). The assessment of educators in using contemporary technologies to prepare e-content for their courses is also significant (Krishnakumar, 2011). The diverse perspective of academics mentioned in the above discussion shows that the use and acceptance of e-Learning tracks are

related to culture context that varies between developed and developing countries.

Since governmental higher education universities in Egypt suffer from lack of resources, it could be expected that even if educators perceive the benefits of developing online tracks, limitations of financial, software, hardware and technological resources available besides resources needed for training needs before implementing online tracks might be considered as a main obstacle. Higher education institutions in Egypt may be forced to develop suitable plans and strategies in order to encourage the design and delivery of online courses to academics. These strategies should take into consideration all trainings needed in order to facilitate the ease of use, design and delivery of e-Learning platforms and hence encourage e-Learning spread and adoption.

2.7.4 The Employers' Perspectives

The job market represented in employers and human resource personnel is one of the most important stakeholders in education in general and e-Learning in specific. Their hiring decisions and practices directly affect the weight of the certificate granted (Columbaro, 2009).

Despite the increase of e-Learning programmes offered worldwide (Columbaro, 2009), the future expectations of its graduates depend on the perceived usefulness of the qualifications gained by students in terms of hiring opportunities or acceptance into higher level degree programmes. Therefore, the attitudes of employers towards distance education certificates compared to those of traditional or conventional programmes is highly important and is also expected to affect the adoption rates of e-Learning programmes.

In an extensive literature study concerning employers' perceptions towards online degrees, an overall negative perception about online degrees was discovered through employers. However, the extent of these perceptions differed according to fields of specialisation. In the healthcare field, results were mixed between equally weighting both routes of higher education and bias towards traditional degrees. While in the hiring process for faculty positions, traditional degrees were preferred than online alternatives except for community colleges, which displayed openness

to online degrees of potential candidates and job opportunities (Udegbe, 2012).

There seems to be a clear discrimination between distance learning and traditional graduates, in which distance education graduates were less preferred. Traditional on-campus certificates were considered better and more rigorous providing better qualifications to students. Distance learning students were considered as those who failed in gaining an opportunity into regular programmes. Consequently, traditional graduates were rated higher on employability, competence, potentials for high job performance, career success, career growth and long service (Udegbe, 2012). Although collaborative software packages, chat rooms, forums and computer simulation used nowadays have solved a lot of the challenges of online courses, online courses are seen by employers to provide less valuable skills such as teambuilding and networking despite its convenience, flexibility, and cost savings for both students and institutions. However, responsibility, self pacing, and technology skills are not learned in traditional classroom but gained through e-Learning courses (Seibold, 2001).

Therefore, despite the perceived benefits of e-Learning in gaining pedagogical development and technological skills, there seems to be a clear discrimination between traditional on-campus graduates and online degree graduates. e-Learning graduates are considered as second degree employees that are hardly accepted by the job market.

This discrimination shows that the benefits that e-Learning can add to the technical and cognitive skills of its graduates are not perceived by employers despite the increase of e-Learning institutions worldwide. If the future of online degree graduates continues to depend on individual perceptions of employers, then there is a probability of decreasing the adoption rates of e-Learning programmes. The availability of adequate official plans to develop and implement e-Learning strategies might help in increasing the awareness and perceptions of the job market thus help in encouraging more students to accept e-Learning tracks. These strategies must work on decreasing the gaps found in the perceptions of employers between the qualities of traditional on-campus graduates and online degree graduates. Highlighting the benefits that e-Learning could add

to the skills of graduates and how employers might benefit from these skills might help in decreasing the gap.

Since Egypt is taking its first steps in adopting e-Learning in higher education, it could also be expected that accepting online graduates by the job market might not be an easy task. Similarly, official plans and strategies must be adopted and announced in order to increase the awareness of the Egyptian society including the job market towards e-Learning and its benefits. These plans should take into consideration the rules and regulations on which e-Learning tracks are built and followed by online universities. Assuring the job market on the quality of e-Learning graduates may have the potential of getting over the cultural factors. Students may be willing to accept e-Learning if the acknowledgment and appreciation of employers is guaranteed and vice versa.

2.8 Technology Readiness

The Business Dictionary (2013) defines readiness in general as "*State of preparedness of persons, systems, or organizations to meet a situation and carry out a planned sequence of actions. Readiness is based on thoroughness of the planning, adequacy and training of personnel, and supply and reserve of support services or systems*" (Business Dictionary, 2013). Then, in order to adopt a certain technology, the society to which the technology is implemented must be prepared first in terms of perceptions, training and skills.

Attitudes towards technology are determined by a combination of positive contributors: optimism and innovativeness and negative inhibitor forces: discomfort and insecurity. These attitudes push individuals to or from adopting and using technology. A user's technology readiness is a combination of all these four dimensions (Chang and Kannan, 2006).

On the other side, in the Information and Communication Technology (ICT) field, readiness is the degree to which a community is prepared to participate in the Networked World. It is measured by assessing a community's relative developments in the areas that are most critical for ICT adoption and the most important applications of ICTs. These elements besides planning provide a strong

base for the assessment of a community's readiness. The value to a community of assessing its readiness lies in evaluating its unique opportunities and challenges (Dada, 2006).

Therefore, e-readiness (electronic readiness) is *"a measure of the degree to which a country, nation or economy may be ready, willing or prepared to obtain benefits which arise from information and communication technologies"* (Dada, 2006:p.1). This measure is usually used to assess how a country is ready to participate in electronic activities such as e-commerce, e-government and e-Learning (Dada, 2006). Generally, e-readiness represents the e-maturity of the organisation and its learners. It includes the availability of infrastructure, clear training objectives, trainer support and guidance, and knowledgeable leadership. Therefore, e-Learning not only requires readiness from the learner but also from the trainer and the organisation (Gandellini, 2011).

e-readiness is presented in terms of indices and scales, where countries are rated in various IT areas. Developing countries can use e-readiness assessment to help them measure and plan for ICT integration. It can help them focus their efforts, and identify areas where external support or aid is required (Dada, 2006). In regards to Egypt, the latest figures given by the Global Competitiveness Report (2012/2013) highlighted that there is an encouraging potential concerning technological readiness (Schwab, 2012). Egypt ranked the 91st place out of 144 countries with an average score (3.4/ out of 7) (p. 158), yet had a low percentage of individuals using the internet (35.6%) and a high score concerning Internet bandwidth (6.8 out of 7).

According to the latest figures given by the Global Competitiveness Report (2012/2013), it could be concluded that Egypt is half way through being e-ready for technology adoption in terms of Information and Communication Technology, where the only encouraging factor is the high Internet bandwidth. These conditions shed light on significant question concerning: the readiness of the Egyptian society as represented by the prime stakeholders towards e-Learning adoption, the forces dominating Egyptian society contributors and/or inhibitors in the context of technological readiness and cultural dimensions. Section 2.9 demonstrates some

of the practices of e-Learning in Egypt.

2.8.1 e-readiness Models

Bimar (2009) stated that there is a limited number of tools used to assess e-readiness and this fact forced a lot of governmental and international organisations to use e-readiness assessment tools for countries (Al-Solbi, 2005). However, a number of models for e-readiness assessment of countries have been developed by different organizations. Each model measures how ready a society or economy is to benefit from information technology in various fields. These models mainly are categorised in four categories as: ready-to-use tools available on the web, case studies, third party surveys and reports which rank and rate countries and other e-readiness assessment models (Hourali, et al., 2008).

Therefore, it could be expected that an assessment model is unlikely to cover all topics and deliver a whole set of required data. Generally, e-Readiness assessment models cover one or more of the following topics: physical infrastructure, ICT use, human capacity, policy environment and ICT economy (Zaied et al., 2007). Table (2.4) shows a number of proposed e-readiness assessment models and tools developed to measure a country's e-readiness. The models shown have similar purposes yet different indicators to measure e-readiness.

Table (2.4) Comparison of e-readiness models (Adapted from Zaied (2007))

Model	Purpose	Indicators
APEC (2000)	Provides a general framework.	Basic infrastructure and technology, access to necessary services, current level and type of the internet, promotion and facilitation activities, skills and human resources and positioning for the digital economy.
Bridge.org (2001)	Builds an e-readiness assessment model	Number of users or computers, infrastructure, access, affordability, training, relevant content, poverty, IT sector, geography, race, age, religion, gender and disability.
Economist Intelligence Unit (2001)	Used to assess and rank a country's e-readiness.	Connectivity (30%), Business environment (20%), E-commerce consumer and business adoption

		(20%), Legal and regulatory environment (15%), Social and cultural infrastructure (5%), Supporting e-services (10%).
United Nations Economic Commission for Europe (2002)	Recommends interdependent and mutually reinforcing categories of indicators to assess e-readiness.	Network access, networked society, network policy, media, networked economy, networked learning, intellectual capital, labour force, research and development and education.
Applied Research and Communications (ARC) (2002)	Assess the Bulgarian e-readiness.	Network access, e-education e-society and e-economy.
Center of International Development at Harvard University (2002)	Develops an e-readiness assessment model	Network access, networking learning, networked society, networked economy and network policy.
Ifinedo (2005)	Classifies the indicators of e-readiness assessment.	Demand forces, measuring the supply forces and societal infrastructure
Peters (2005)	Summarises the criteria used in assessing a country's e-readiness	Legal and regulatory environment for ICT use, appropriateness of ICT, affordability of ICT in the local context, ICT capacity and training, availability of locally relevant content and services, use of ICT in business, integration of ICT into peoples' lives, physical access to ICT, socio-cultural factors that affect ICT use, security and peoples' trust in ICT, macroeconomic environment affecting ICT use; and Government's role in driving e-readiness.

Very few studies have been conducted to identify the practical factors that most contribute to an e-readiness assessment for developing countries, especially Arab countries (Al-Solbi, 2005; Alghamdi et al., 2013). Each country has its own unique cultural characteristic that affects its e-readiness factors. National policies regarding information infrastructure and technological developments have often been noticeably similar, however each nation should identify its own e-readiness factors (Al-Solbi, 2005).

e-readiness models have been subject to a lot of criticisms. The indices of countries indicating their readiness do not reflect the magnitude of the problems existing. The lack of standardisation is another problem; each tool has its own advantages and disadvantages. The individual characteristics of each country are not considered. Therefore, there is a large gap between theoretical frameworks and practical implications. Measures used in determining e-readiness for countries often do not represent the real situation. Therefore, final results of e-readiness are not always accurate and misunderstood by policy makers (Dada, 2006).

Therefore, from the critiques found in the literature concerning e-readiness models, it could be concluded that a country may have the entire required infrastructure that enables it in gaining a high e-readiness rank, yet its society is not yet ready to use a specific technology. The analysis of the literature shows that most of the reviewed articles deal with infrastructure and technology, people and human skills and accessibility and connectivity. This perspective was reflected in the study of Altman (2002), the high rank of e-readiness in Latin America did not match the actual users of e-government services. Similarly, in spite of the high levels of e-readiness in Hong Kong, the majority of the society rejected the adoption of technology, therefore did not achieve its benefits (Chu and Tang, 2005).

Similarly, despite the intermediate technological readiness present in Egypt in terms of the percentage of individuals using the Internet, the high ranks of Internet bandwidth available could be an encouraging factor for technology adoption. Since e-readiness models are criticised by not reflecting real country readiness for technology, there is a probability that the Egyptian society is either more or less ready for technology adoption than it seems to be. Therefore, there is a need to have a deeper look in order to analyse the readiness of individuals in the Egyptian context towards e-Learning adoption in terms of driving forces (contributors) and opposing forces (inhibitors).

2.8.2 Readiness for e-Learning

An e-Learning readiness evaluation is critical to the success of an e-Learning strategy, identifying issues that should be considered before and during an e-

Learning intervention (Lopes, 2007). According to Saekow (2011), readiness for an organization intending to adopt e-Learning can be defined as the “*mental or physical preparedness for that organization for some e-Learning experience or action*” (p.126). Since the number of institutions adopting e-Learning is increasing, it is important to assess their readiness and match learning strategies with local needs to which they are implemented, which is why a number of countries have developed their own strategies to implement e-Learning in their educational systems. However, there is still a great demand to discover ways to blend e-Learning into organizations, especially in higher education institutions (Mckeogh and Fox, 2009).

2.8.2.1 e-Learning Readiness Models

Many authors emphasised the need to adopt e-Learning with careful planning to prevent failure (Aydin and Tasçi, 2005). Chapnick (2000), Anderson (2002), Bean (2003) and others designed several models to assess individuals’ or organizations’ readiness for e-Learning, which have been mainly developed for commercial organizations rather than higher education institutions. These models consider views, needs and experiences of different stakeholders such as policymakers, administrators, lecturers and learners.

Generally, according to Rosenberg (2000), e-Learning readiness is defined by six main components: business readiness, technology readiness, training process readiness, culture readiness, human resources readiness and financial readiness.

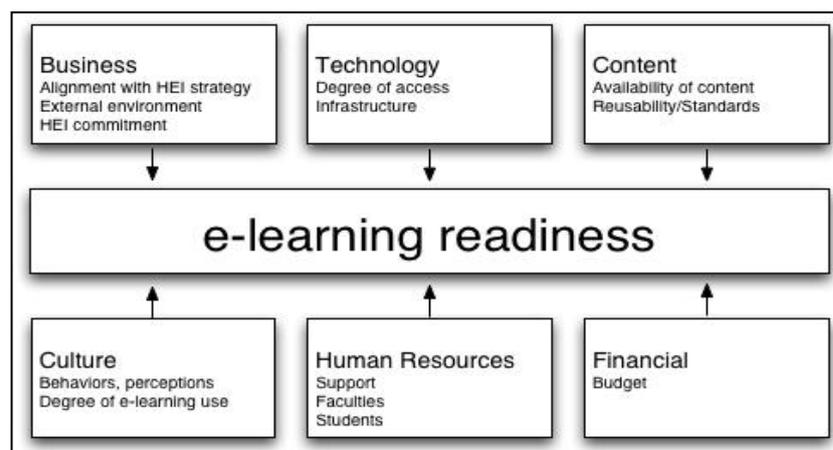
Rosenberg’s model was criticised by Saekow (2011). The model was found to be missing some key elements in order to facilitate e-Learning adoption in Thailand. Directions from executive level, developing high quality content and support for e-Learning systems, strong financial support from the government, faculty support is essential in supporting new ideas; and instructional technology support to help faculty. Contributions done to the model may suggest that e-Learning readiness models may have to be adapted to the context in which they are to be implemented.

Similarly, Chapnick (2000) developed an instrument for assessing organizational

readiness for e-Learning that includes 66 factors grouped into eight categories: psychological, sociological, environmental, human resources, financial readiness, technological skill, equipment and content readiness. The model provides a simplified way of determining whether e-Learning can be implemented successfully, besides the obstacles that must be addressed (Chapnick, 2000). In the same token, Haney (2002) suggested that organizations should ask themselves 70 questions for assessing their readiness for e-Learning. Questions were grouped into seven categories: human resources, learning management system, learners, content, information technology, finance, and vendor.

Lopes (2007) developed a model to evaluate e-Learning readiness of a higher education institution. The model adapted Borotis and Poulymenakou's (2004) model which was based on four predefined models (from Rosenberg, Chapnick, Haney and Workknowledge) and resulted in seven basic dimensions: business, technology, content, training process, culture, human resources and financial. The study raised concern about the lack of student's access to computers and to the Internet as a measure of readiness for e-Learning. On the contrary, the need for significant improvement of the technological infrastructures; professors' need of ICT training and technological support; and acknowledgement of professors' interest and openness towards e-Learning were significant measures of e-Learning readiness.

Figure (2.5) e-Learning readiness dimensions (Taken from Lopes (2007))



Al-adwan (2012) studied the factors affecting implementing e-Learning in the Jordanian higher education system. The results discovered that the lack of student readiness is one of the significant barriers affecting e-Learning

implementation. Lack of ICT skills, inappropriate infrastructure and fear of independent study mode could be some of the indicators.

From the readiness models demonstrated, it could be concluded that there is not a unified model agreed upon concerning the assessment of e-Learning readiness. Each model represents the context to which it was aimed; which emphasises the importance of e-readiness assessment and matching it with learning strategies and local needs. Therefore, it was expected that cultural dimensions would appear more frequently in the previously described models. However, cultural differences were not found to be a major indicator in most readiness models. Although there seems to be a positive relation between perception and readiness to technology such as e-Learning, perceptions were basically added in cultural dimensions in some models.

In order to assess readiness for e-Learning, different perceptions of the context to which it is introduced must be taken into consideration. Learning strategies developed by policy makers should reflect local needs and cultural characteristics through collecting different perspectives from different societal groups. Therefore, assessing various perceptions and determining their effect on readiness for technology in the Egyptian context is critical since e-Learning higher education is recently introduced.

2.9 Perceptions and Readiness of e-Learning in Egypt

Literature illustrated limited practices and studies aimed at assessing the perception and readiness for introducing e-Learning in different educational tracks in Egypt. The studies varied between assessing perspectives after the implementation of some e-Learning practices in different educational tracks and other perceptions gained through surveying opinions only. However, different evaluations were gained.

Beckstorm (2004) illustrated a positive response to Egypt's readiness despite the poor perception of e-Learning in many parts of the Arab region (Abouchedid, 2004). In the same token, El-Zayat (2007) assessed e-Learning in Egypt through the perceptions of Egyptian university students. The study discovered some of the

barriers that might discourage e-Learning adoption. Although the indicators showed that there is an acceptable potential for e-Learning adoption, the awareness of e-Learning in the sample investigated was very low. Learning through technology seems to be mistrusted and face to face learning was more preferred. The same study suggested that governmental authorities must play an important role in the validation of e-Learning programmes by giving official recognition to e-Learning tracks to facilitate their acceptance, gain success and prove their efficacy and effectiveness.

These results contradicted with Abdel-Wahab (2008) who measured students' intention to adopt e-Learning in Mansoura University. Results revealed that 79.8% of students intended to adopt e-Learning. However, these results were significantly different from the study done by Osmane (2010) who argued that there is a problem in adopting e-Learning programmes in Egypt through her experience in the Alexandria University online master e-degree that started in 2009. The study found that students underestimated e-learning, there are doubts about the possibility of verifying certificates of distant students.

Hussein (2010) measured students' e-readiness for e-Learning at the college of Tourism and Hotels in Egypt, in order to promote the use of IT in teaching and learning and also apply e-Learning effectively in this field. The target of the programme was to provide qualified students ready for the job market. Technical skills, learning skills and time management behaviour were the dimensions used in the assessment. Results have showed that there is a shortage and insufficient e-readiness for students at the faculties under investigation. Thus, the study recommends that for students to benefit from e-Learning, their skills must be developed to meet the requirements of e-Learning systems. Galal (2011) proposed that more investigations are required to study the ways in which students perceive the advantages and disadvantages of e-Learning and compare them with those of academics to try to draw a complete picture representing the Egyptian society. e-Learning cannot be actually promising in Egypt until readiness for e-Learning and perceptions of society have been taken into consideration (El-Gamal, 2011).

2.10 Summary

e-Learning as a special type of situated learning has shown its ability in promoting self-efficacy and self-regulation. These factors were also shown to be critically needed to guarantee effective learning experiences. Although the advantages that e-Learning can bring to the field of education are numerous, a number of obstacles accompany interactive learning environments as e-Learning. Learner's motivation, stakeholder's perception and readiness for e-Learning are significant issues to be considered before technology adoption (Sangra, 2011).

Perceptions are directly affected by the ease of use and perceived benefits of the technology being introduced, while readiness is divided into individual and technological readiness. Every culture is characterised by certain contextual characteristic, which could be reflected in the perceptions of different groups from the same society. Therefore, it could be assumed that contextual dimensions directly affect perceptions towards technology.

Stakeholders cannot be ignored (Abd El Aziz, 2012), they are the real persons to deal with the system (Goode, 1995) and contribute to its success or failure. Students, educators, employers, technology developers, higher education authorities and educational institutions and others are examples of stakeholder groups that affect and at the same time are affected by the educational system introduced. Therefore, their perceptions towards the introduction of e-Learning into higher education are a significant issue that has to be taken into consideration before and during implementation.

A direct relation could also be drawn between perception and readiness of individuals, in which true perceptions could affect the contributing factors that influence individuals' readiness and vice versa. Although literature demonstrated different models for assessing a country's readiness, these models were criticised for not reflecting the real life situation and their lack of ability in helping policy makers develop adequate e-readiness strategies that reflect local needs. Since every group of stakeholders have different requirements, strategies should take into consideration the perspectives, perception and e-readiness of all stakeholders involved, thus reflecting local needs to which technology is implemented and

helping in increasing adoption rates.

However, little research in this field has been found in Egypt. Studies done so far in this area were focused on assessing student's perceptions and readiness towards e-Learning which showed contradicting results. The perceived usefulness and ease of use of online degrees seem to be still vague to the Egyptian culture and inhibiting forces seem to be stronger than contributors. Although Mohamed (2008) provided a framework strategy for implementing e-Learning in the Egyptian higher education institutions, the study did not take into considerations contextual and individual dimensions that reflect Egyptian culture, besides the groups used in data collection were not clear.

There seems to be a gap in the availability of a complete framework strategy built on the perceptions and individual e-readiness of the key stakeholder groups in Egypt. Since Egypt has started to take its large steps by launching its first e-Learning university, research is still needed to provide policy makers and higher education authorities in Egypt with a complete view that represents the main e-Learning stakeholders. This view is expected to demonstrate the key success factors of e-Learning implementation and acceptance in the Egyptian context taking into consideration the cultural differences experienced.

In summary, despite the relatively low rank of technology readiness in Egypt and the contextual challenges that have the potential to affect the acceptance and adoption of e-Learning, the perceived usefulness and contributors outweigh the disadvantages if the awareness levels of stakeholders increase in order to get over any cultural factors and mistaken perceptions.

The coming Chapter - *Research Methodology* shows the conceptual framework suggested in this research work that investigates the relations between e-Learning perceptions, e-Learning readiness, e-Learning adoption, higher education improvement and enhancing quality in the Egyptian context. The stakeholder groups investigated and the data collection methods used area also shown.

3. RESEARCH METHODOLOGY

This chapter discusses the research methodology, methods and research process used in the research at hand. The design of the conceptual framework, questionnaires, and interviews are explained, including the ethical considerations followed. The pilot study done and its reflections on the research focus are also demonstrated in order to provide a solid foundation for the quantitative and qualitative data analysis chapters.

The chapter aims at using the research methods and methodology to investigate how the differences in perceptions of the diverse higher education stakeholder groups would affect e-Learning adoption in the Egyptian context, besides the opportunities in which e-Learning would improve higher education and hence promote the quality of teaching and learning. The study aims at reaching its targets through the following research questions:

1. What are the various stakeholder perspectives regarding e-Learning adoption in Egypt?
2. What are the opportunities for improving higher education in Egypt through the adoption of e-Learning programmes?

3.1 Research Approaches

Crotty (1998) suggested four main factors for researchers to take into consideration when designing research; the epistemology, theoretical perspective, methodology, and the methods used. The same factors have been conceptualised by Creswell (2008) to address three elements of inquiry; knowledge claims made by the researcher, including a theoretical perspective, strategies of inquiry that will inform the procedures and the methods of data collection and analysis used. These elements combine to form different approaches to research, which could be used to identify either quantitative, qualitative, or mixed methods approach to inquiry.

Setting a knowledge claim means that researchers start a project with certain assumptions about how and what they will learn during their research. Creswell (2009) identified four categories of knowledge claims: *Postpositive knowledge*

claims (postpositivism), used when there is a need to test causes that affect outcomes, such as in experiments. Researchers begin with a theory, collect data either with or against the theory and then make necessary revisions before more tests take place. *Socially constructed knowledge claims*, people build meanings as they connect with the world they are dealing with. Researchers seek to understand the background or context of participants through visiting their context and gather data personally. Open-ended questions are used by qualitative researchers in order to assist participants to express their views. *Advocacy/Participatory knowledge claims*, begin with an important issue about problems in society, focus on bringing change in practice through establishing political debates and discussions. Finally, *Pragmatic knowledge claims*, focus on the applications and solutions to problems, where the problem is a main concern. Researchers can use all possible approaches to better understand the problem. It applies to mixed methods research because the researcher moves freely between quantitative and qualitative assumptions in the research and chooses the methods that best meet the research's needs. Pragmatist researchers look to the "what" and "how" in the research based on its intended consequences and where they are heading with it.

3.2 The Current Study

The primary interest of this study is in the development of specific new technology introduced to the Egyptian higher education sector, namely e-Learning. But technology adoption and acceptance is unpredictable; it depends on people's reaction towards technology, and this will differ according to their awareness, skills, interests, and knowledge. The perceptions, readiness and adoption trends will possibly differ by the change of the stakeholder group. Thus, the stakeholders investigated in this research include not only students, but academics, employers and local government authorities. The study aims at discovering the opportunities for improvement that e-Learning could add to higher education, besides the local needs desired in order to utilise e-Learning efficiently. Referring to the research questions mentioned, the research at hand aims at building a conceptual framework based on gaining multi-perspectives of Egyptian higher education stakeholders towards e-Learning use.

According to Meissner et al. (2011) and Johnson, Onwuegbuzie, & Turner (2007), mixed research approaches could be used when practical contextual

understandings at multi-level perspectives and cultural influences are needed. The same approach is also considered when the integration of different methods is needed to draw on the strengths of each: using rigorous quantitative research to assess magnitudes and frequencies of constructs; and rigorous qualitative research to explore the meanings of constructs. Thus, enabling the framing of investigations within philosophical and theoretical positions.

Therefore, a mixed research approach using a pragmatic knowledge claim is used in this research, which enables the researcher to focus on the problem of the research as a main concern. This research approach also helps the researcher in gaining a better contextual understanding from multi perspectives presented through investigating different stakeholder groups, besides facilitating the use of all possible approaches to better understand the problem, keeping in mind that every method has its own limitation.

Mixing different approaches enables triangulation, which involves using a variety of data sources (data triangulation), multiple perspectives to interpret the results (theory triangulation) and multiple methods to study the research problem (methodological triangulation). These different triangulation strategies help the researcher by using different methods of data collection in order to gain multi perspectives from different respondents in order to solve the research problem, besides using different theoretical perspectives in data analysis and interpretation of quantitative and qualitative data.

Another reason for choosing mixed methods is its support for different strategies of investigation. Data could be collected either simultaneously using concurrent procedures or sequentially using sequential procedures to best understand research problems (Creswell, 2008). Therefore, the researcher is free to choose the method of data collection to start with and the most appropriate strategy of investigation that best realises the research aims. Section 3.2.1 discusses the quantitative and qualitative strategies used within this research work.

Statistical analysis of questionnaires is used in testing the relations between technology acceptance, readiness and adoption variables to find how various

higher education stakeholders view e-Learning and their effect on potential higher education improvement opportunities. Then, interpretive analysis gained from face-to-face interviews is used to further investigate the results gained from questionnaires through investigating other stakeholder groups. The study uses the relations between variables in the development of a conceptual framework aiming at the effective use and spread of e-Learning in the Egyptian context.

Yin (2009) discussed the five primary strategies used in social sciences. The conditions of deciding on one strategy in research depend on the type of research question, the degree of control that the researcher has over the study, and whether the study has its focus on contemporary events. These include experiments, surveys, archival analysis, histories, and case studies. Table (3.1) shows relevant situations for the different research strategies.

Table (3.1) Relevant situations for different research strategies (Taken from: Yin (2009))

Strategy	Form of Research Question	Requires Control Over Behavioural Events	Focuses on Contemporary Events
Experiment	How, Why?	Yes	Yes
Survey	Who, What, Where, How Many, How Much?	No	Yes
Archival Analysis	Who, What, Where, How Many, How Much?	No	Yes/No
History	How, Why?	No	No
Case Study	How, Why?	No	Yes

Referring to Table (3.1) shown above and depending on the fact that surveys do not require control over behavioural events but focus on contemporary ones instead, a survey strategy is used in this research work to collect data from various stakeholder groups. On the other hand, an experiment is not considered in this study because there is no intention to investigate cause/effect relations, which an experiment is often used for. Another reason for not selecting experiment is that it demands control over behavioural event, which does not match the research aims. Although case studies require no control over behavioural events and focus on contemporary events, case studies are not the best option to be used when exploring a wide range of views.

Sapsford (2007) defined surveys as *“a detailed and quantified description of a population – a precise map or a precise measurement of potential. Surveys involve the systematic collecting of data, whether this is done by interview, questionnaire or observation methods.”*(p.3) Gray (2009) divided surveys into two main groups. Analytical surveys, which take many of the features of experimental, deductive research and so place an emphasis on reliability of data and statistical control of variables, sample size, etc. Analytical surveys allow for the generalization of the results. In contrast, descriptive surveys tend to use an inductive approach, often using open-ended questions to explore perspectives. If a theory does emerge, it may be tested, subsequently, using more structured research instruments.

Following this, the research design follows an exploratory descriptive survey approach. Since the introduction of e-Learning in the higher education sector is new to Egypt, more perspectives are needed to reflect different perspectives of e-Learning adoption and its opportunities in improving higher education. An exploratory survey is selected since it takes place during the early stages of research into a phenomenon helping in building a theory (Gray, 2009), when the target is to achieve introductory insight on a topic, and provides the basis for more in-depth survey (Forza, 2002).

3.2.1 Research Methods in the Current Study

“Research methods are all those methods/techniques that are used for conduction of research” (Kothari, 2004: p.7). In other words, all those methods which are used by the researcher during investigating the research problem are termed as research methods. Therefore, research methods could include methods of data collection, statistical techniques used and methods used to evaluate the accuracy of the results obtained. On the other hand, Research methodology is *“a way to systematically solve the research problem”* (Flick, 2011: p.3). It is considered as the science of studying how research is done in a scientific manner. Research methodology has many dimensions and research methods represent a part of the research methodology. Therefore, the extent of research methodology is wider than that of research methods. Thus, research methodology considers the logic behind the methods used in the context of the research study and describes the rationale behind using a particular method or technique in order to allow the

evaluation of results gained.

Mixed research methods used in this study incorporate collecting and analysing both quantitative and qualitative data in order to expand the understanding of the problem from one method to another. Findings will be used to highlight similarities and differences in data coming from different sources. The methods used for addressing the research questions include the following:

- Conceptual framework design;
- structured questionnaires;
- statistical analysis using SPSS and Microsoft Excel;
- semi-structured interviews;
- interpretive analysis.

3.2.1.1 Questionnaires

Structured questionnaires are designed and distributed among a number of Egyptian higher education students in two of the main cities in Egypt, namely Cairo (capital of Egypt with the highest population density) and Alexandria (second largest city). These cities are especially selected since they contain the main private and public higher education universities compared with other cities in Egypt and at the same time they have high population density. The questionnaires will target three of the main higher education sectors in Egypt, namely public, private and e-Learning students. Data collected will be statistically analysed using the SPSS statistical package and Microsoft Excel. Patterns of frequencies are used to allow the comparison between students groups, median calculations to determine the range of opinions towards e-Learning adoption criteria, besides correlation and regression analysis to determine the strength and shape of relations between the main variables the study intends to investigate.

Questionnaires are preferred due to their ability in reaching a maximum number of student respondents in a relatively fast time compared with other data collection tools. They are considered to be an effective data collection method when opinions, attitudes, views, beliefs and preferences, are investigated (Denscombe, 2010), which is the case of this research study.

Due to the division of the higher education sector into private, public and recently

e-Learning there is a need for collecting standardised data from relatively identical questions among different student groups that would help in finding out similarities and differences. Due to time limitations of respondents during data collection, fast inflow of data from respondents is required, which could be achieved through the use of questionnaires. Although questionnaires allow informants to complete their responses at their own convenience (Gray, 2009), the researcher was allowed a limited time to distribute and collect back questionnaire forms. Ethical considerations as to the anonymity of respondents and lack of interviewers' bias were considered through coding of data first before the start of the analysis stage.

Two different types of questionnaires are used in this research, face to face and Internet questionnaires. Questionnaire forms distributed through face-to-face contact by the researcher facilitated the collecting of a large number of completed forms from on-campus students, besides providing any clarifications needed by informants while answering questions. However, the researcher was constrained by lecture durations. On the other hand, Internet questionnaires were sent to e-Learning student respondents as an attachment to emails. Due to the nature of email questionnaires, respondents, needed to open, complete and save an attachment and then reattach it to the email reply, which constrained the final number of responses collected.

3.2.1.2 Interviews

Data collected from questionnaires are further investigated using deep exploratory interviews in order to gain direct face-to-face verbal responses from informants. In general, the conduction of interviews helps in providing more exploratory insights into opinions, feelings, and experiences from other stakeholder groups such as academics, employers and government representatives (McNamara 2009; Gray 2009; Denscombe, 2010).

Interviews may be unstructured or semi-structured. Unstructured interviews are usually conducted in an everyday conversational style, in which participants take the lead in telling their experiences and opinions, rather than the researcher directing the interview. While semi-structured interviews are used to facilitate more focused exploration of a specific topic, using an interview guide. Interview guides usually contain a list of questions designed to lead the interview in a focused, yet

flexible and conversational, manner (Fossey et al., 2002). The study at hand uses semi-structured interviews in order to reach other important higher education stakeholders in the Egyptian culture besides students. This approach to data collection is characterised by ensuring sensitivity to participants' language and privileging their knowledge (Fossey et al., 2002). Senior academics and employers in both private and public sectors are considered besides higher education representatives.

Due to the nature of respondents interviewed, topics discussed are expected to vary from one group of interviewees to the other, thus semi-structured interviews are preferred due to their ability in allowing open discovery in order to reveal new aspects of the topic under investigation (Easterby-Smith, Thorpe & Lowe, 2002). Although one of the drawbacks of semi-structured questions is the difficulty to exactly repeat a focused interview (Yin, 2009), the probing of views and opinions encouraged respondents to expand on their answers without constraints in the questions asked. Although the whole process was time consuming, such probing also allowed for the diversion of the interview into new pathways which, while not originally considered as part of the interview, helped towards meeting the research objectives (Gray, 2009).

Fears about the loss of interest from respondents towards the research topic if data was collected through questionnaires, where interviewees had to commit themselves in writing made conducting interviews a much more preferable option. Since all respondent groups are experienced in their own fields, it is assumed that they would enjoy talking about their experiences, opinions and preferences rather than filling in forms. The semi-structured design of the interviews also allows comparisons between different groups under investigation, thus helps in understanding the research problem better. Interpretive analysis was conducted after translating and transcribing interview notes which helped in finding similarities, differences, and main themes that emerged from the discussion.

Unlike questionnaires, semi-structured interviews depend on the skill of the researcher. Interviewers must be very careful in order to avoid giving out unconscious signals or cues that could guide respondent in providing answers expected by the interviewer. However, the personal nature of interviews may make

findings difficult to generalise, thus the depth of qualitative information gained may be difficult to analyse (Yin, 2009).

The compatibility of qualitative and quantitative approaches and the follow up from one research method to the other highlighted the strength of using a mixed method approach, which facilitated understanding the research problems better and reaching better final conclusions and recommendations.

3.2.1.3 Conceptual Frameworks

In order to determine the assumed relationship between the key research variables being studied, a conceptual framework is designed and tested. The design relies on the relations built from reviewing the literature in which potential relations were discovered between e-Learning perceptions, readiness, adoption and higher education improvements. Statistical (frequency patterns, median calculations, correlation and regression analysis) analysis techniques as well as interpretive analysis techniques are used to test the relations between various framework factors.

Research conceptual frameworks could be imagined as a series of intellectual 'bins' containing key events and behaviours (Gray, 2009). The development of a conceptual framework forced the researcher to specify which variables are to be studied, which will be omitted, and the assumed relationships between key variables. Statistically speaking, the conceptual framework describes the relationship between specific variables identified in the study. It also outlines the input, process and output of the whole investigation. The conceptual framework is also called the research paradigm (Marshall, 2011).

Conceptual frameworks are based on the research theoretical framework, where all the theories underpinning the research topic lie. Theoretical frameworks provide a general representation of relationships between things in a given phenomenon. While conceptual framework, on the other hand, represents the specific direction in which the research will have to be undertaken.

The conceptual framework design will help the researcher in demonstrating ideas

on how the research problem will be explored. The framework design of this study targets higher education decision makers in order to help in the establishment of appropriate strategies that reflect local needs, thus utilise e-Learning efficiently in the Egyptian context. The framework design is based on appropriate literature that covered the main key variables of the research under investigation; psychology of learning, perceptions towards e-Learning, individual and technological readiness, technology adoption and potential improvements to the Egyptian higher education System. Section (3.2.3) shows the details of the theoretical and conceptual framework designs.

3.2.2 Research Process in the Current Study

Literature has shown that the steps followed by social science researchers are nearly the same (Trochim, 2006; Fraenkel and Wallen, 2007; Creswell, 2008; Gray, 2009). Research usually starts with a broad idea for research, focusing on the required information through the method selected. Then the research expands in the form of discussion and results. Therefore, it could be represented in the shape of the hourglass (Fraenkel & Wallen, 2007). The major steps in conducting research are: identifying broad area for research, selecting topic and reviewing literature, deciding research approach, formulating research plan, collecting data, analysing and interpreting data and presenting findings.

In the current research, the steps undertaken are similar to most of the research processes mentioned in literature. The only differences lie in gaining ethical approval from the school committee and conducting a piloting study before the final data collection. The research steps were as follows:

1. Studying the psychology of learning and the fundamentals, considerations and applications of technology in education;
2. Surveying the higher education sector in Egypt using secondary data;
3. Developing the research framework and assemble questions for interviews and questionnaires;
4. Designing questionnaires for higher education students;
5. Designing interview questions for senior academics, employers, parents and higher education authorities;

6. Gaining ethical approval from school committee;
7. Conducting pilot study;
8. Transcribing and analysing pilot study results and making necessary changes to research focus and framework;
9. Redistributing new questionnaires forms and collecting data from higher education students (including e-Learning students);
10. Reformulating interview questions and carrying out interviews with other stakeholder groups;
11. Analyzing questionnaire data;
12. Transcribing and analyzing interview data;
13. Integrating results and findings;.
14. Formulating conclusions and writing the final version of the thesis, including recommendations for higher education authorities in Egypt.

Mapping between the results achieved from the statistical analysis of the questionnaires and interpretative analysis of interviews is used in building a conceptual framework that would help decision makers in utilising e-Learning effectively. The proposed framework helps in finding the gaps between local needs and the available strategies, illustrating the differences and similarities of the Egyptian context, besides illustrating how different perspectives towards e-Learning can affect the potential opportunities for improvement in higher education. Reflections on the research process followed are mentioned in Chapter (7) section 7.4.4.

3.2.3 Theoretical Framework

With the success and expansion of online universities worldwide, e-Learning seems to be the dream that could help in getting over most of the higher education system drawbacks. e-Learning was introduced to the Egyptian higher education sector by governmental authorities as a logical solution that would help in getting over some of the popular experienced weaknesses. However, the success of any new technology introduced in general depends on the acceptance of its stakeholders and the degree to which the needs and concerns are met depending on cultural background (Wagner, 2008). Since the Arab region (including Egypt) is characterised by special cultural aspects that are different from the Western world

(Hofstede, 2013), Egyptian higher education stakeholders cannot be ignored (Abd El Aziz, 2012) when considering the introduction of e-Learning; as they are the real persons to deal with the system (Wagner, 2008).

In particular, the success of e-Learning depends on a number of factors that relate to the psychology of learning and how people learn in the first place. Since the configuration and dimensions of online education are different from conventional ways of learning basically regarding the level of interaction between learners and instructors, a number of factors should be considered.

Among the four main learning orientations, social and situational theories of learning developed by theorists such as Bandura, Lave and Wenger and Salomon focused on the interactions between people as the primary mechanism of learning. The main condition for learning here is the observation of others in a social environment which requires full participation in communities of practice and use of resources (Lave & Wenger, 1991; Smith, 2011). Learning is more effective when it includes expert-like strategies in tasks performed by students. These tasks include collaborative and group-based activities that support active engagement, discussion, evaluation and reflective thinking towards a directed outcome. The role of the instructor is mainly guidance (Brown, Collins & Duguid, 1989).

Through simulations, online interactive case studies, and Web-based learning environments, e-Learning could be considered as a special case of situational cognition since the role of the instructor is mainly guidance, thus cognitive development is triggered. However, for learners to successfully proceed in their learning activities, motivation (Wolters, 1998; Wolters, 1999; Zimmerman, 2001; Pintrich, 2004) and self-regulation are crucial factors (Zimmerman, 2001).

Motivation is considered as the real challenge especially in asynchronous e-Learning environments where students feel isolated and the level of interaction is lower than traditional learning environments (Ramaha, 2012). Self-regulated learning occurs when students aim for the achievement of information or skills (Zumbrunn, 2011). Therefore, it is expected that the influence of motivation on self-regulation will be even greater and more crucial in case of learning through ICT, such as e-Learning (Ryan & Deci, 2000; Conati, 2002).

Research shows that self-regulated students are more engaged in their learning (Labuhn, Zimmerman & Hasselhorn, 2010; Labuhn et al., 2010). According to Molden and Dweck (2006), if students become aware of the benefits that an e-Learning environment could offer through promoting their situated cognitive styles, it could be assumed that they would be more motivated and turn to self-regulated learners. A number of authors contributed to the factors that help students to self-regulate. Goal orientation and self-efficacy were on top of the list (Sharma et al., 2007; Zumbrunn et al., 2011).

On the other hand, a number of studies have investigated the perception of e-Learning and social awareness. Studies have come to their conclusions based on sampling mainly students as the main e-Learning stakeholders and end users (El-Zayat 2007; Abdel-Wahab, 2008; Berteau, 2009; Hashem, 2009; Hegazy & Radwan, 2010). According to Wagner (2008) students are not only the significant e-Learning stakeholders. Instructors, employers and government representatives should be also taken into consideration in order to build a complete picture that represents the Egyptian context.

Perceptions and attitudes are critical to technology adoption, developers and deliverers of online learning need more understanding of how different stakeholders perceive and react to e-Learning besides methods of applying these approaches most effectively to enhance learning (Smart, 2006). As mentioned earlier in Chapter Two – *Literature Review and Theoretical Background*, the Technology Acceptance Model (TAM) developed by Davis is one of the commonly known theories of technology acceptance used to understand the perceptions of users. The TAM model describes how a person's behavioural intention to use e-Learning is determined by perceived usefulness and perceived ease of use. Although TAM's goal is actual usage, it could also be used to explain why individuals may or may not accept a particular technology such as e-Learning (Tagoe, 2012).

Attitudes towards technology are also determined by a combination of positive contributors: optimism and innovativeness and negative inhibitor forces: discomfort and insecurity. These attitudes push individuals to or from adopting and using technology. A user's technology readiness is a combination of all these four

dimensions (Chang & Kannan, 2006). On the other side, in the Information and Communication Technology (ICT) field, readiness is the degree to which a community is prepared to participate in the Networked World. It is measured by assessing a community's relative developments in the areas that are most critical for ICT adoption and the most important applications of ICTs. These elements besides planning provide a strong base for the assessment of a community's Readiness. The value to a community of assessing its readiness lies in evaluating its unique opportunities and challenges.

Chapter Two – *Literature Review and Theoretical Background* also highlighted the effects of motivation on technology acceptance and use. Motivation to use e-Learning is also a significant factor that has been considered from the side of design (Cocea, 2006; Smith, 2008; Ramaha, 2012) as well as user intentions to use an information system and the usage behaviour. The Unified Theory of Acceptance and Use of Technology model known as UTAUT is one of the commonly used models that aim to explain user intentions to use an information system and the usage behaviour. The most significant factors addressed by the model that would determine users acceptance and usage behaviours are performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh et al., 2003).

Therefore, a number of factors contribute to the success and acceptance of technology in a specific culture. Accordingly, the potential perceived benefits expected from introducing e-Learning to the Egyptian context depend on the acceptance and use of various stakeholder groups.

3.2.3.1 Conceptual Framework

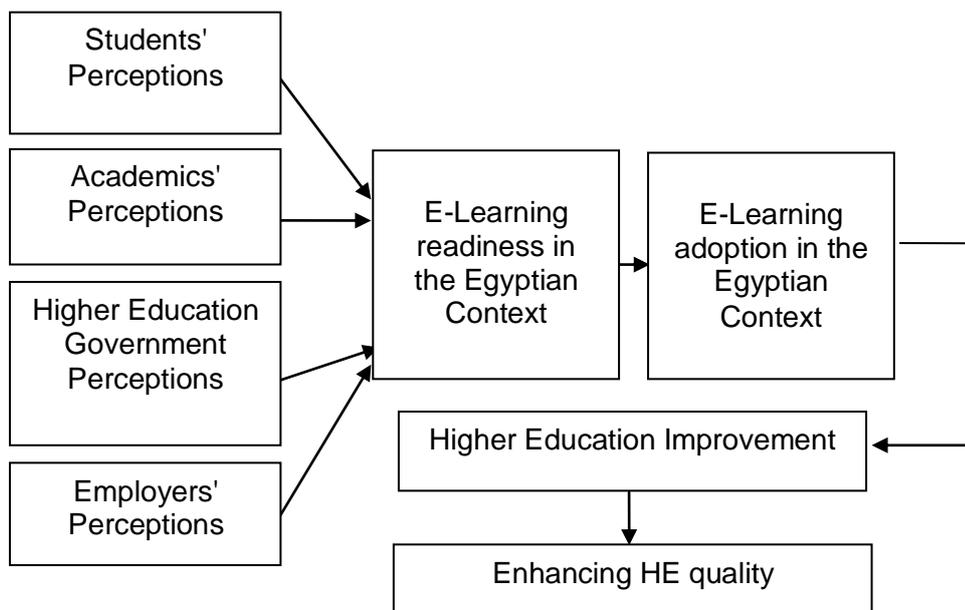
According to the success of e-Learning institutions worldwide and its contribution in providing a good educational experience, it could be expected that the same chances of success could be implemented in the Egyptian context. However, the success of technology adoption depends on the extent of the fulfilment of local needs and desires.

In order to make e-Learning more familiar and to successfully accept and adopt

the new educational technology in higher education, it is necessary to understand some of the e-Learning stakeholder group's perception, individual and technological readiness and adoption trends in the Egyptian context.

Thus, the opportunities of e-Learning in improving higher education could be assessed. The conceptual framework proposed in this research seeks to determine the relationships between e-Learning perceptions, individual and technological readiness and adoption trends through collecting data from different stakeholder's groups. Thus, the opportunities for e-Learning to improve higher education in the Egyptian context could be revealed highlighting local needs and desires that would help decision makers in utilising e-Learning effectively. Figure (3.1) shows the main variables tested and stakeholder groups involved.

Figure (3.1) Conceptual framework



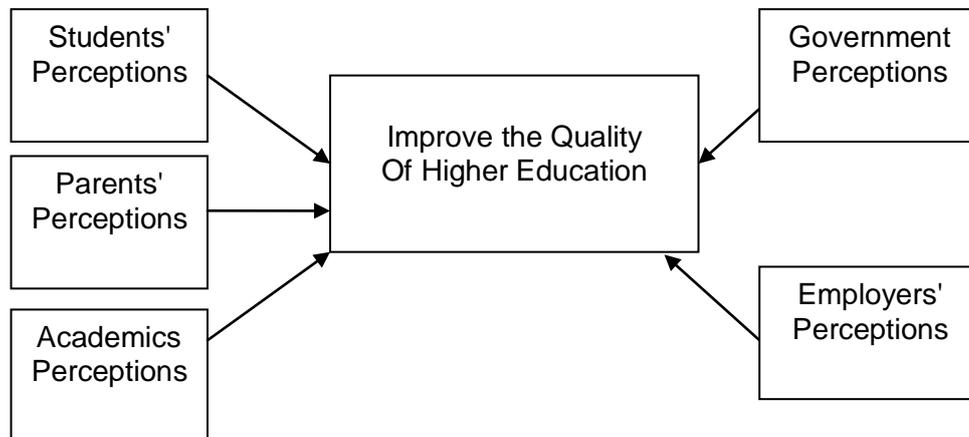
3.2.3.2 Initial Conceptual Framework

At the very first stages of the research, the conceptual framework considered students (public and private only), secondary school student parents, lecturers, employers and higher education government representatives as the main informants involved in investigations. The main focus of the research was to determine how e-Learning could improve the quality of higher education through stakeholder perceptions only as presented in figure (3.2).

After the conduction of a wide piloting study (presented in sections 3.2.4.2 and

3.2.5.2) the focus of the research and consequently the research questions were reformulated, as well as the stakeholder groups involved as shown earlier.

Figure (3.2) Initial Research Framework



3.2.4 Questionnaire Design

The questionnaire design stage started by surveying secondary data available about the Egyptian higher education sector, besides technology perception, readiness and adoption models. The questionnaire targets private and public higher education students located in Cairo and Alexandria. Since the introduction of e-Learning to higher education in Egypt started by considering Business Administration and Information Technology departments, the same majors were selected for questionnaire distribution in universities.

The faculties of Commerce in Cairo and Alexandria Universities are considered as representatives of governmental higher education universities. They are considered the oldest universities found in Egypt, including the majority of students studying Business Administration and Information Technology in Egypt. Management Information Technology (Equivalent to IT).

The Arab Academy for Science, Technology and Maritime Transport (AASTMT) is chosen as an example of private higher education, since it is one of the oldest private universities located in Egypt after the American University of Cairo (AUC) (Guide to Higher Education in Egypt, 2004). The university has four main branches located at the largest cities of Egypt (Cairo Alexandria Port-said South valley), which helps in the representation of the Egyptian private students. The ease of

accessibility to the university besides time issues were other factors for the choice of the private university selected since the researcher is staff member at the same place. On the other side, the faculty of Business Administration and the faculty of Information Technology are considered for distributing questionnaire forms. The questionnaire design was written in the English language, then translated into Arabic. The language was chosen according to each participant's convenience.

Since Egypt is starting to take its preliminary steps in the introduction of e-Learning to the higher education sector, the study follows the purposive sampling technique. The technique is a non-probability sampling approach that samples cases/participants in a strategic way, so that those samples are relevant to the research question. With purposive sampling the researcher intends to select the subjects against one or more characteristics to give what is believed to be a representative sample. Although in purposive sampling, the researcher may be subconsciously biased in selecting the sample (Gray, 2004) and may not be allowed to generalise to a population (Bryman, 2008), it may indeed succeed in achieving a true cross-section of the population.

The latest figure provided by the Information and Decision Support Center (2010) showed that the higher education sector in Egypt included 1431469 at public education, 71719 at private education and 250 e-Learning students. Using the validity calculator (The Survey System, 2010) at 95% confidence interval at 5 confidence level, sample sizes of 384, 382 and 152 samples were calculated for each sector respectively. Since the sample sizes gained did not represent the real distributions of the Egyptian higher education sector, non-proportional quota sampling was used for collecting questionnaire data, which is more appropriate for the nature of this research since the minimum number of sampled of units are specified in each category. There are no concerns with having numbers that match the proportions in the population. Alternatively, the sample sizes gained represented all groups even smaller groups in the population. This method is the non-probabilistic analogue of stratified random sampling in that it is typically used to assure that smaller groups are adequately represented in research samples.

3.2.4.1 Ethical Consideration for Distributing Questionnaires

The distribution and collection of questionnaires was done personally by the researcher to reduce the chance of missing data. The approval of faculty deans was taken at first through a personal meeting with the researcher in order to start the questionnaire distribution process. The researcher used the help of some friends and relations in order to meet faculty deans and lecturers to explain the aims of the research and purpose of the questionnaire and distribute forms. A total of four personal meetings with faculty deans were done.

Forms were distributed at the start or at the end of lectures after taking verbal consent from lecturers. Before giving out questionnaire forms, the researcher introduced herself, explained the aim of the research and the purpose of the questionnaire. Also, the researcher reassured that the participation in this survey is voluntarily and confirmed the confidentiality of the data collected. An information letter was attached to each questionnaire form to reassure confidentiality of data and the voluntary participation of students.

Questionnaire forms were distributed randomly throughout different faculty departments. Data collected from questionnaires were only accessed by the researcher for the aim of this research only.

3.2.4.2 Piloting Questionnaires

In order to determine the extent of validity of the questionnaire and the convenience of design, the questionnaire forms had to be tried before the real data collection, to get over any potential constraints and assure the collection of as many responses as possible.

Consequently, 35 copies of the questionnaire were collected out of 40 distributed equally among the students of Information Technology and Business Administration schools of a private higher education university (Arab Academy for Science and Technology).

The Questionnaire consisted of 13 variables distributed over 30 questions; 13 multiple choice questions and 17 Likert scale questions. Most of the Likert scale questions were dependent on other multiple choice ones. It also included a separate section for respondents to give their opinion regarding the structure and layout of the questionnaire itself and any further comments. Students were asked to rank each criterion as length, wording and language using a Likert scale.

The statistical analysis of the questionnaire data was done using both SPSS and Microsoft Excel. Advanced statistical techniques for testing the significance of results using Chi-square tests were used which then proved to be not the optimum method of representing the perspectives gained.

From the results gained it was clear that the questionnaire length was not appropriate, students considered it too long. Respondents lost interest while going through the questionnaire. The layout was confusing that made a lot of students miss some questions besides the redundancy in some sections. Accordingly, the questionnaire has been revised to a much shorter length and a clearer layout.

The question regarding enhancing higher education quality through e-Learning programmes was either left unanswered or '*neutral*' responses were gained from the majority of respondents. Therefore, it was noted that on-campus students did not have the appropriate answer for this question. It was also assumed that they are not the right respondents for this question in particular.

Reflections on Piloting Questionnaires

- The design and layout of the on-campus student questionnaire was revised to be shorter in length, less confusing and contain a variety of question formats.
- Developing a new questionnaire version for e-Learning students. This questionnaire included a separate question about enhancing the quality of higher education through e-Learning programmes from which this point could be concluded from a practical point of view;
- Changing the statistical methods used for analyzing questionnaire results,

- from significance testing to using descriptive statistics, median calculations, correlation coefficient and simple linear regression analysis;
- Focusing on investigating the opportunities of e-Learning in improving higher education in Egypt from the perspective of other stakeholder groups.

3.2.4.3 Final Questionnaire Data Collection

As a result of piloting questionnaires, there are two questionnaire forms that are developed for investigating on-campus (public and private students) and e-Learning students.

The Egyptian Electronic Learning University (known as EELU) is chosen for investigating e-learners, since it is the first and only undergraduate e-Learning university in Egypt. Due to the difficulty in reaching e-Learning students, questionnaire forms were distributed through the registrar's office electronically after gaining necessary approval from the university president. Completed questionnaire forms were returned to the researcher's personal email.

The result is that among 550 questionnaires, 371 were returned with valid answers from On-campus students and among 50 questionnaires, 27 were returned from e-Learning students.

Table (3.2) shows a summary of the on-campus questionnaire form distributed among higher education students. The questionnaire includes four variables (e-Learning readiness, e-Learning perception, e-Learning adoption and higher education improvement) distributed among 52 questions. It included seven multiple choice questions, two ranking questions and five Likert scale questions.

Likert Scale is preferred as a measurement scale in questionnaire design as it is considered the most universal easily understandable method for survey collection. The responses presented contain neutral or undecided feelings of participants. The responses gained are easy to code when accumulating data since a single number represents the participant's response (Likert, 1932). However, Likert scales may be subject to alteration from several causes. According to the report of Bertram (2007), participants may avoid extreme response categories of a Likert scale or may

correspond with statements as presented in order to satisfy the researcher. Respondents may represent themselves in a more socially favourable manner than being honest in their responses. The validity and reliability methods used for testing questionnaire data are shown below.

Table (3.2) On-campus students questionnaire summary

#	Question	Possible Answers
1	Your Internet access is mostly from	Home/Work/Other
2	How often do you access the Internet?	Daily/Weekly/Monthly
3	Do you use the Internet for educational purposes?	Yes/No
4	Have you ever heard about e-Learning?	Yes/No
5	Which would you prefer?	Traditional on-campus education/e-Learning
6	Would your parents encourage you to have your higher education certificate from an e-Learning university?	Yes/No
7	Would your parents agree to enrol you and fund your studies at an e-Learning university programme?	Yes/No
8	<p>Please rank the following e-Learning promotion criteria by putting them in order of importance for you, using 1 to mean the most important, and 5 to mean least important.</p> <ul style="list-style-type: none"> • Internet Connection should be reliable • e-Learning programmes should be useful and effective • Ease to use course electronic material • e-Learning certificate should be accredited • Creating societal awareness of e-Learning concept 	1: Most important 2: Important 3: Less Important 4: Not Important 5: Least important
9	<p>Higher education problems are:</p> Free education Large number of students per class Lack of innovation in programmes Poor instructor capabilities Limited budgets Lack of practical work Admission system to universities	1: Strongly agree 2: Agree 3: I do not know 4: Disagree 5: Strongly disagree
10	<p>Please rank the following e-Learning challenges by putting them in order of importance for you, using 1 to mean the most important, and 6 to mean least important.</p> Lack of face-to-face interaction and close supervision Non-real time feedback to enquiries and assignments Cultural resistance to change and adaptation to	1: Most important 2: Important 3: Less important 4: Not important 5: Less important 6: Least important

	<p>technology</p> <p>Technological gap (Internet speed and bandwidth / computer skills needed)</p> <p>Lack of normal college environment</p> <p>Establishing and developing reliable course material</p>	
11	<p>e-Learning graduates may gain more skills due to:</p> <ul style="list-style-type: none"> • Use of computer applications • Encouraging responsibility • Search and data gathering abilities acquired • Experiencing practical work environments • Use of recent updated information sources • Availability of free time to develop talents • More team work involvement 	<p>1: Strongly agree</p> <p>2: Agree</p> <p>3: I do not know</p> <p>4: Disagree</p> <p>5: Strongly disagree</p>
12	<p>e-Learning graduates may be acknowledged by employers because:</p> <ul style="list-style-type: none"> • e-Learning graduates studied the same set of topics • e-Learning exams and grades have valid criteria • e-Learning graduates got the same practical training • Higher education authorities supports e-Learning programmes • e-Learning graduates acquired the same knowledge • Employers are familiar with e-Learning systems 	<p>1: Strongly agree</p> <p>2: Agree</p> <p>3: I do not know</p> <p>4: Disagree</p> <p>5: Strongly disagree</p>
13	<p>e-Learning graduates may have equal recruitment chances because:</p> <ul style="list-style-type: none"> • e-Learning graduates are considered well educated • e-Learning graduates are regarded as skillful and responsible employees • e-Learning graduates have practical experiences • e-Learning certification is admired by employers • e-Learning is approved by higher education authorities • Employment depends on other factors (ex: extra training courses and experience) • Employers are familiar with e-Learning systems 	<p>1: Strongly agree</p> <p>2: Agree</p> <p>3: I do not know</p> <p>4: Disagree</p> <p>5: Strongly disagree</p>
14	<p>e-Learning may improve higher education because it:</p> <ul style="list-style-type: none"> • Is a solution to higher education problems • Is an effective educational way • Supports more discussions via online tools 	<p>1: Strongly agree</p> <p>2: Agree</p> <p>3: I do not know</p> <p>4: Disagree</p> <p>5: Strongly disagree</p>

	<ul style="list-style-type: none"> • Adopts a variety of learning styles • Develops computer/Internet skills • Encourages accessing online updated data • Helps in developing learners personality 	
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On the other hand, the questionnaire form designed for investigating e-Learning students contains four variables (e-Learning readiness, e-Learning perception, e-Learning adoption and higher education quality enhancement) distributed among 51 questions. It included one multiple choice questions, two ranking questions and five Likert scale questions. A summary of the questionnaire form is shown in Table (3.3).

Table (3.3) e-Learning student questionnaire summary

#	Question	Possible Answers
1	Your Internet access is mostly from	Home/Work/Other
2	<p>Please rank the following e-Learning criteria by putting them in order of importance for you, using 1 to mean the most important, and 5 to mean least important.</p> <ul style="list-style-type: none"> • Internet connection should be reliable • e-Learning programmes should be useful and effective • Ease to use course electronic material • e-Learning certificate should be accredited • Creating societal awareness of e-Learning concept 	1: Most important 2: Important 3: Less important 4: Not important 5: Least important
3	<p>Please rank the following e-Learning (EL) drivers by putting them in order of importance for you, using 1 to mean the most important, and 5 to mean least important.</p> <ul style="list-style-type: none"> • Increase of student tutor interaction and supervision • Spontaneous feedback to student's enquiries and assignments • Increase of cultural acceptance and technology adaptation • Better technological infrastructure (Internet bandwidth and speed) • Availability of reliable, innovative and user-friendly course materials • Increase of e-instructor capabilities 	1: Most important 2: Important 3: Less Important 4: Not Important 5: Less important 6: Least Important
4	<p>I prefer e-Learning because:</p> <ul style="list-style-type: none"> • It solves higher education problems • It is accessible 'anytime - anyplace' • It reduces travel cost and time 	1: Strongly agree 2: Agree 3: I do not know 4: Disagree

	<ul style="list-style-type: none"> • It is an effective mode of education • I will have more time for my hobbies • It is more affordable • It develops more learner skills • e-Learning courses are more innovative • It allows work and study simultaneously 	5: Strongly disagree
5	<p>e-Learning graduates may gain more skills due to:</p> <ul style="list-style-type: none"> • Use of computer applications • Encouraging responsibility • Search and data gathering abilities acquired • Experiencing practical work environments • Use of recent up-dated information sources • Availability of free time to develop talents • More team work involvement 	1: Strongly agree 2: Agree 3: I do not know 4: Disagree 5: Strongly disagree
6	<p>e-Learning graduates may be acknowledged by employers because:</p> <ul style="list-style-type: none"> • e-Learning graduates studied the same set of topics • e-Learning exams and grades have valid criteria • e-Learning graduates got the same practical training • higher education authorities support e-Learning programmes • e-Learning graduates acquired the same knowledge • Employers are familiar with e-Learning systems 	1: Strongly agree 2: Agree 3: I do not know 4: Disagree 5: Strongly disagree
7	<p>e-Learning graduates may have equal recruitment chances because:</p> <ul style="list-style-type: none"> • e-Learning graduates are considered well educated • e-Learning graduates are regarded as skilful and responsible employees • e-Learning graduates have practical experiences • e-Learning certification is admired by employers • e-Learning is approved by higher education authorities • Employment depends on other factors (ex: extra training courses and experience) • Employers are familiar with e-Learning systems 	1: Strongly agree 2: Agree 3: I do not know 4: Disagree 5: Strongly disagree
8	<p>Eventually, the implementation of e-Learning in Egypt may enhance the quality of higher education because:</p> <ul style="list-style-type: none"> • Student's needs are addressed during course development • Course development supports a variety of learning styles • Teaching process is via different ways and in a timely manner • A clear course structure, objectives and outcomes are present • Student support system to electronic data problems /complaints is available 	1: Strongly agree 2: Agree 3: I do not know 4: Disagree 5: Strongly disagree

	<ul style="list-style-type: none"> • Evaluation and assessment criteria are clear and present • Rapid feedback to student's enquiries/assignments is available • Students' interaction among each other and instructors is facilitated via a variety of ways • Courses are innovative and contemporary • The use of e-sources is encouraged 	
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Reliability and Validity Calculations

Reliability

Reliability refers to the consistency of a measure. A measure is highly reliable if it produces consistent results under consistent conditions (Carlson et al., 2009). Therefore reliability is the extent to which a particular measure is free from random errors (Diamantopoulos, 2002; Field 2005). In statistical terms, reliability is based on the idea that individual items should produce results consistent with the overall questionnaire. Cronbach's alpha (α) is a numerical coefficient that provides an effective tool for measuring reliability. Computation of alpha is based on the reliability of a test relative to other tests with the same number of items, and measuring the same construct of interest (Hatcher, 1994).

Theoretically, alpha varies from 0 to 1. Higher values of alpha are more desirable (Cronbach, 1951). A commonly accepted rule of thumb for describing internal consistency using Cronbach's alpha considers a reliability of 0.70 or higher as an acceptable value before using a questionnaire (George & Mallery, 2003).

Statistical Package for the Social Sciences (SPSS version 19) is used to calculate the reliability of both questionnaires using Cronbach's alpha (α) coefficient. Values obtained from the data collected of public on-campus, private on-campus and e-Learning student questionnaires respectively as shown in Table (3.4).

Table (3.4) Reliability Test Results

Questionnaire	No. of items	Cronbach's alpha (α) coefficient	Validity
Public on-campus	52	0.772	0.878
Private on campus	52	0.719	0.847
E-Learning	51	0.822	0.906

Validity

Diamantopoulos (2002) defines validity as “*the extent to which a particular measure is free from both systematic and random error (p.33)*” while Boslaugh (2008) defines it as “*how well a test or rating scale measures what it is supposed to measure (p.12).*” Validity is often assessed along with reliability.

An early definition of test validity identified it with the degree of correlation between the test and a criterion. Under this definition, reliability of the test and the criterion places an upper limit on the possible correlation between them which is called the validity coefficient. Therefore, reliability involves freedom from random error and random errors do not correlate with one another. The less the random error in variables, the higher the possible correlation between them. Consequently, validity cannot exceed the square root of the correlation between two versions of the same measure.

As a result, the validity of the questionnaires is calculated for each student category; public on-campus, private on-campus and e-Learning as shown in Table (3.4).

Therefore, referring to the values mentioned in Table (3.4), questionnaires distributed among public, private and e-Learning students produced consistent results under consistent conditions, since all Cronbach's alpha (α) coefficients gained are above the value of 0.7. Similarly, questionnaires proved to be free from both systematic and random error since high correlation values were gained from validity tests. Thus, questionnaires are expected to provide a reliable and a valid method for use in investigations.

The statistical treatment used to analyse the results gained from investigating three of the main higher education student sectors through two questionnaire forms are described in Chapter 4 – *Quantitative Data: Analysis and Results*. Statistical techniques (frequency patterns, median calculations, correlation and regression analysis) are used to demonstrate similarities and differences between various student groups.

3.2.5 Interview Design

Interview questions were originally designed considering the research questions and review of corresponding literature. The list of questions asked differed from one group to the other according to the type of respondents. However, some questions were common between all groups in order to highlight similarities and differences of responses.

Under the purposive sampling umbrella, a combination of theoretical sampling and snowball sampling are used to collect data from respondents. These sampling techniques are selected as the number of participants being interviewed is controlled depending on the theory emerging. Sampling is carried on until a category has been saturated with data, no new or relevant data emerges or the category is well developed and relationships among categories are established. Theoretical sampling is best used to discover categories and their properties and to suggest the interrelationships into a theory (Bryman, 2008).

3.2.5.1 Ethical Considerations for Conducting Interviews

In order to initiate the snowball sampling technique, the researcher used the personal appointments done with deans of faculties before the distribution of questionnaire forms to conduct personal face to face interviews. At the end of each interview, the researcher asked the respondent to recommend at least one academic who would be interested in the field of study to be interviewed. The researcher used her connections and the help of some friends to reach the first group of employers and government representatives, who recommended others to be interviewed.

Interviews were conducted at the interviewee's location according to their convenience. Before conducting interviews, research information letters were sent in advance to the interviewee's location to explain the aim of the meeting and set out their role. Information letters also confirmed confidentiality of data collected and volunteer participation of respondents. Then an appointment was arranged to conduct the interview.

During the interview, the researcher re-explained briefly the aim of the meeting

and reassured confidentiality issues. A consent form was given to the interviewee to read and sign before starting. The forms contained consent sentences about the aim of the research, the role of the interviewee and approval of audio recording of the meeting. Only five respondents out of twenty-four agreed to sign the consent form. The rest of the respondents read the consent form carefully and then agreed orally to conduct the interview.

All interviews conducted were done through face-to-face meeting which lasted from 60 to 90 minutes at most. Most of the interviews conducted were audio recorded except when refused by respondents. A total of seven interviewees refused audio-taping in which the researcher took notes of the responses. Interviews were conducted mainly in the Arabic language, and then the responses gained were translated and transcribed by the researcher into the English language.

The perceptions of informants about the person asking questions can affect the kind of responses collected. In other words, data are affected by the personal identity of the researcher (Denscombe, 2010). In order to avoid such effects as much as possible during interviews, the researcher introduced herself as a post graduate student in the first place interested in researching the educational field. Starting with introducing the current profession of the researcher as a staff member at the Productivity and Quality Institute may have given a wrong impression to respondents about the purpose of the interview, since improving higher education is one main point of the pillars of the interview.

The researcher was keen to limit her interference. The role of the researcher was limited to re-explaining the aim of the interview, re-assuring confidentiality, asking questions and further clarifications desired by informants. The researcher was determined to appear receptive and neutral during interviews. Further elaborations were politely asked from the researcher only if closed ended answers were gained ('Yes', 'No' or 'Maybe'). This gave space for respondents to open-up and elaborate their responses, to the extent that some questions were already answered by interviewees without asking the corresponding question. As a result, the sequence of questions differed from one interview to the other.

3.2.5.2 Piloting Interviews

To further investigate the pilot study results gained from analysing questionnaires, a pilot study concerning the interview question was conducted. Two interviews in each category were conducted (academics, employers and parents) except the government representative category where only one interview was done. Interviews were conducted at the interviewee location, after considering necessary approvals.

As a result of the interpretive analysis of interviews, it was noted that the majority of responses disregarded the opportunities of e-Learning in enhancing the quality of higher education for the time being in Egypt. They justified that it is still not the time for assessing the quality of higher education. Instead, considering the opportunities of e-Learning in improving some of the weaknesses of on-campus higher education should be a prior step.

Investigations with parents also proved that they would depend on the opinions of their young adults concerning the preference of the higher education mode. Therefore, parents' are considered as a secondary stakeholder group, in which their consensus from the perspective of their young adults is only taken into consideration. Similarly, lecturers recommended the decisions taken by their top managers as the main director towards e-Learning adoption in their schools. Accordingly, interviewing senior academics rather than ordinary lecturers is also considered.

Analysing piloting results also revealed that participants recommended certain factors as potential drivers and inhibitors of e-Learning adopting in Egypt. Consequently, a ranking question is added to questionnaires and interviews in order to gain a common understanding of the contributors and inhibitors of e-Learning adoption in the Egyptian context.

Reflections on Piloting Interviews

- Excluding parents as a main group in the investigations; instead an extra question about the encouragement and funding of parents is added to on-

campus questionnaire forms;

- Considering senior academics instead of ordinary lecturers;
- Reformulating interview questions and adding a common ranking question to all interviews.

As a result of mapping the quantitative and qualitative results gained from the piloting study, the original research questions with which the study started were reformulated, and the focus of the research changed. Instead, the research regarded investigating different perspectives of stakeholders through considering technology perceptions, technological and individual readiness for technology and technology adoption variables. Besides, the effect of the stated factors on the opportunities that e-Learning programmes could offer for improving higher education in the Egyptian context. Thus, enhancing higher education quality through e-Learning programmes is regarded as a secondary research point, which is explored through investigating e-Learning students.

In order to ensure the validity of the interview questions and to ensure the reflectivity of the questions asked to the research aim, three specialists in the field of higher education and Information Technology were asked to examine the interview questions during the piloting study phase. As a result of piloting, some questions have been changed and others added to fit the new focus of the research. The questions were reassessed again by the same groups of specialists to reassure their appropriateness to the current aim and purpose of the research. The final interview forms are shown in Table (3.5).

Consequently, the main groups considered in this research were limited to higher education students (public, private and e-Learning), senior academics, employers and higher education government representatives.

3.2.5.3 Final Interview Data collection

As a result of the snowball sampling and theoretical saturation techniques followed, a total of twenty four interviews are conducted; ten interviews are conducted with senior academics located at the public and private universities, ten interviews are conducted with employers of public and private professions and four

interviews are conducted with higher education government representatives.

At the initial stages of the research, interviewing as many government representatives as possible was planned in order to obtain a full perspective from decision-makers towards e-Learning introduction in Egypt, in order to provide the research with the desired data that would help in mapping between local needs and decision makers strategies. However, the political situation in Egypt that started in January 2011 has limited conducting of more interviews with government representatives. It was not possible to meet more higher education representatives within an environment of frequently changing government such as Egypt's. Due to the tense conditions and location of nearly all government representatives in Cairo where most of the political events take place, the School of Health, Community and Education committee and research supervisors were concerned with the safety of the researcher and recommended to limit the number of interviews done with government representatives.

Interview questions focus on five main variables: e-Learning readiness, perception, adoption and higher education improvement. One common ranking question was included in all interviews, in which the medians are computed for each category of participants. This question helps in the comparison of the results gained between all stakeholder groups. Table (3.5) represents a summary of the total interview questions asked during interviews.

The snowball sampling continued until common themes are derived from the interviews conducted in each category, thus reaching theoretical saturation is reached.

Table (3.5) List of Semi-structured Interview Questions

Semi-structured Interview Questions	
Employers' Questions	
1	What are the important skills / criteria to look for in a HE graduate?
2	What are the skills that HE graduates lack?
3	What do you think are the main reasons behind this?
4	Have you ever heard about e-Learning before? Undergraduate or postgraduate studies?
5	Do you think e-Learning graduates would be more skilful than traditional education graduates? How?
6	Do you think the Egyptian society is ready for e-Learning graduates and will equally acknowledge e-Learning graduates as traditional higher education

	graduates? Why?
7	If you have a job vacancy, which applicant would you recruit, an e-Learning graduate or a traditional graduate?
Senior Academics' Questions	
1	Do you think e-Learning is a useful way of learning in higher education? Why?
2	Do you think Egypt is ready for e-Learning? Why?
3	Can e-Learning be part of the solution to higher education problems in Egypt? Why/How?
4	Do you think e-Learning will help graduates gain more skills? How?
5	What are the skills that e-Learning could improve in higher education graduates?
6	Would you encourage the adoption of an e-Learning programme in your university? Why?
7	Do you think the Egyptian society is ready for e-Learning graduates and will equally acknowledge e-Learning graduates as traditional higher education graduates? Why?
8	Will they have equal job opportunities? Why?
Government Representatives' Questions	
1	Why do you think the government introduced e-Learning in Egypt?
2	From your point of view, which would be better for the higher education in Egypt, adopting e-Learning or developing the existing universities programmes?
3	What do you think are the higher education disadvantages in Egypt?
4	Can e-Learning be part of the solution to the higher education problems in Egypt? Why/How?
5	What are the governmental efforts to ensure the efficiency of eE-Learning?
6	What is the government plan concerning eE-Learning accreditation and quality assurance?
7	How will the government encourage the adoption of eE-Learning in Egypt?
8	How will eE-Learning graduates differ from traditional on-campus graduates concerning skills gained?
9	What are the governmental efforts concerning promoting the readiness of the Egyptian society to acknowledge e-Learning graduates?
Common Ranking Question	
<p>Please rank the following criteria that you think would promote the adoption of e-Learning in Egypt based on the level of importance according to your point of view, where (1) presents the most important and (5) presents the least.</p> <ul style="list-style-type: none"> • Internet connection should be reliable • e-Learning programmes should be useful and effective • Ease to use course electronic material • e-Learning certificate should be accredited • Creating societal awareness of e-Learning concepts 	

The interpretive analysis of the data collected through interviews is presented in detail in Chapter Five - *Qualitative Data: Analysis and Results*. The chapter also demonstrates the common themes derived for each category of respondents.

The qualitative results gained from interviews conducted with senior academics, employers and government representatives, together with the quantitative results achieved from on-campus and e-Learning student questionnaires distributed among students, helped in getting a multi-perspective view towards e-Learning adoption in the Egyptian context. Chapter Six – (Discussion of Findings) presents the discussion of findings through the relationships gained from testing the variables of the conceptual framework proposed in this research. The chapter will also present similarities and differences across groups investigated that will help to build a full view that represents local needs and gaps present.

Validity of Interview Results

Since the main aim of the research at hand is to gain a multi-perspective overview towards e-Learning acceptance and use in the Egyptian context through investigating the perceptions of different stakeholder groups, ensuring the validity of data collected from informants is essential. Although there is not a complete way of determining the truth of responses gained (Denscombe, 2010), some checks are used:

- *Checking the data with other sources and looking for common themes:* according to the sampling technique followed, data collected from an informant at an investigated category (employers, educators and government representatives) is compared to the data gained from other informants in the same category until no more themes were achieved. Similarly, the data collected from a set of informants at an investigated category is compared to another set of responses from another category to ensure a level of consistency in data collected. Since the research follows a mixed research approach, more than one research strategy is used. Therefore, the data collected from questionnaires is further investigated through interviews and corresponding literature in order to enable the triangulation of data.
- *Checking the transcript with informants:* since nearly the majority of interviews were conducted in Arabic then translated to English, it was necessary to make sure that what was said during the interview meant exactly the same in the transcript. Due to the nature of professions of

informants involved in investigations, checking the transcript was not applicable to most of them due to time and location limitations. However, this activity was only limited to two of the senior academics interviewed since they work with the researcher at the same university. The transcript was sent using the researcher's personal email, where respondents separately confirmed their agreement to the contents of the transcript.

- *Checking the plausibility of the data:* the purposive sampling techniques followed in this research samples participants in a strategic way, so that those samples would be relevant to the research questions and aims. Since the topic of the research at hand is mainly on education and specifically e-Learning, it is expected that the groups investigated (senior academics, employers and higher education government representatives) would have the minimum knowledge required that would help in answering the research questions.

Following the previous mentioned checks for determining the truth of responses from interviewees, it could be expected that the interviews provide a suitable tool for investigating the perceptions and readiness of societal groups towards e-learning adoption, as well as highlighting the opportunities of improvement that e-Learning could contribute to higher education. Also, the responses collected could be considered as an appropriate foundation for gaining valid results that would help in reaching factual conclusions.

3.3 Summary

This chapter presented the elements of the mixed research approach followed by this research. The rationale behind following a pragmatic knowledge claims approach that included mixed strategies of inquiry and data collection tools were presented. The ethical considerations followed before and during data collection are also included. The chapter also presented the design and results of the piloting study conducted, besides its effect on the research focus and consequently the final data collection stage. Finally, the chapter presented the questionnaire forms distributed as well as the question guide for conducting interviews with each stakeholder group.

4. QUANTITATIVE DATA: ANALYSIS AND RESULTS

This chapter presents the analysis and results of the quantitative data collected through questionnaires distributed among on-campus and e-Learning students. The chapter demonstrates the various statistical techniques used to analyse the results that included descriptive, correlation and regression techniques.

Usage patterns, e-readiness, perceptions regarding e-Learning usefulness, effectiveness, adoption, and opportunities for higher education improvement were investigated.

4.1 Statistical Techniques

The statistical tests used in the analysis of quantitative data gained from questionnaires were as follows:

- Descriptive analysis using patterns of simple frequencies. Column charts were used to show and describe the patterns of data gained for questions 1 to 7, 9 and 11 to 14 of the on-campus students' questionnaire and questions 1, 4 to 8 of the e-Learning students' questionnaire.
- Median calculations were applied to demonstrate readily whether there are one or more opinions concerning e-Learning driving forces and challenges from the perspective of both student categories. Median calculations were applied to questions 8 and 10 of the on-campus student questionnaire besides questions 2 and 3 of the e-Learning student questionnaire.
- Correlation analysis using spearman rank correlation coefficient (r_s)
- Single linear regression analysis to determine the strength of the relationship between variables.
- Reliability and validity test to determine the consistency of measures used and freedom from both systematic and random error using Cronbach's alpha (α) coefficient.
- Non-proportional quota sampling calculations using the validity calculator (The Survey System) at 95% confidence interval at 5 confidence level.

4.2 On-Campus Higher Education Students' Questionnaires

Questionnaire forms were distributed among on-campus higher education students in governmental and private universities. The distribution of the questionnaire segments were as follows:

- Q1-Q5: included general questions including the location and frequency of internet access, usage of the web for educational purposes, awareness of e-Learning and preference of higher education mode.
- Q6-Q7: included questions regarding parents' encouragement, enrolment and funding of studies to an e-Learning university.
- Q8-Q10: included the ranking questions of the important factors needed for the adoption of e-Learning and the challenges facing it.
- Q11-Q13: included questions regarding the potential of e-Learning to enhance student's skills, acknowledgment of employers and recruitment opportunities offered to e-Learning graduates.
- Q14: included questions regarding the potential of e-Learning to improve higher education in Egypt.

4.3 e-Learning Students' Questionnaire

Questionnaire forms were distributed among e-Learning students studying Business Administration and Information Technology principles. One of the main purposes of this questionnaire besides others mentioned earlier is to investigate whether the introduction of e-Learning in Egypt improved some of the higher education problems from a practical point of view. The distribution of the questionnaire segments were as follows:

- Q1: general question that included the location of Internet access of e-Learning students.
- Q2-Q3: ranking questions that included the desired criteria and driving factors needed to promote the adoption of e-Learning in Egypt.
- Q4: included questions regarding the reasons for the preference of e-learning in higher education.
- Q5-Q7: included questions regarding the potential of e-Learning to enhance

student's skills, acknowledgment of employers and recruitment opportunities offered to e-Learning graduates.

- Q8: included factors testing the potential of e-Learning to enhance higher education quality in Egypt.

4.4 Data Analysis and Results

Simple frequencies derived from questionnaire variables are illustrated below. The main findings of the questionnaire results are presented according to higher education students' sectors (i.e, public, private and e-Learning). Column charts were used to illustrate the main findings graphically.

Median calculations were used to analyse the ranking questions, which helped to determine the most frequently occurring criteria in the set of variables under investigation (Diamantopoulos, 2000; Hinton, 2004; Boslaugh, 2008). Then, the results were ranked according to their importance.

Simple linear regression analysis was also used to determine the strength of the relationships between different variable categories described before. A linear regression is the straight line that best describes the linear relationship between both variables. To show the strength and direction of a correlation, and provide a formula for predicting the scores on one variable by using the scores of the other variable, correlation coefficient (r) were calculated (Hinton, 2004).

Since the data used were in nominal representation, correlation calculations were based on ranks using Spearman rank correlation coefficient (r_s). R_s is the measurement used to describe the degree with which the points cluster along a straight line. Spearman rank correlation coefficient (r_s) ranges between -1 and 1, where a positive correlation is shown by an (r_s) greater than zero and a negative correlation by (r_s) less than zero. The strength of the correlation is shown by how close (r_s) is to 1 (Boslaugh, 2008).

4.4.1 Frequencies

4.4.1.1 Internet Usage Patterns

Figure (4.1) Internet Usage Patterns

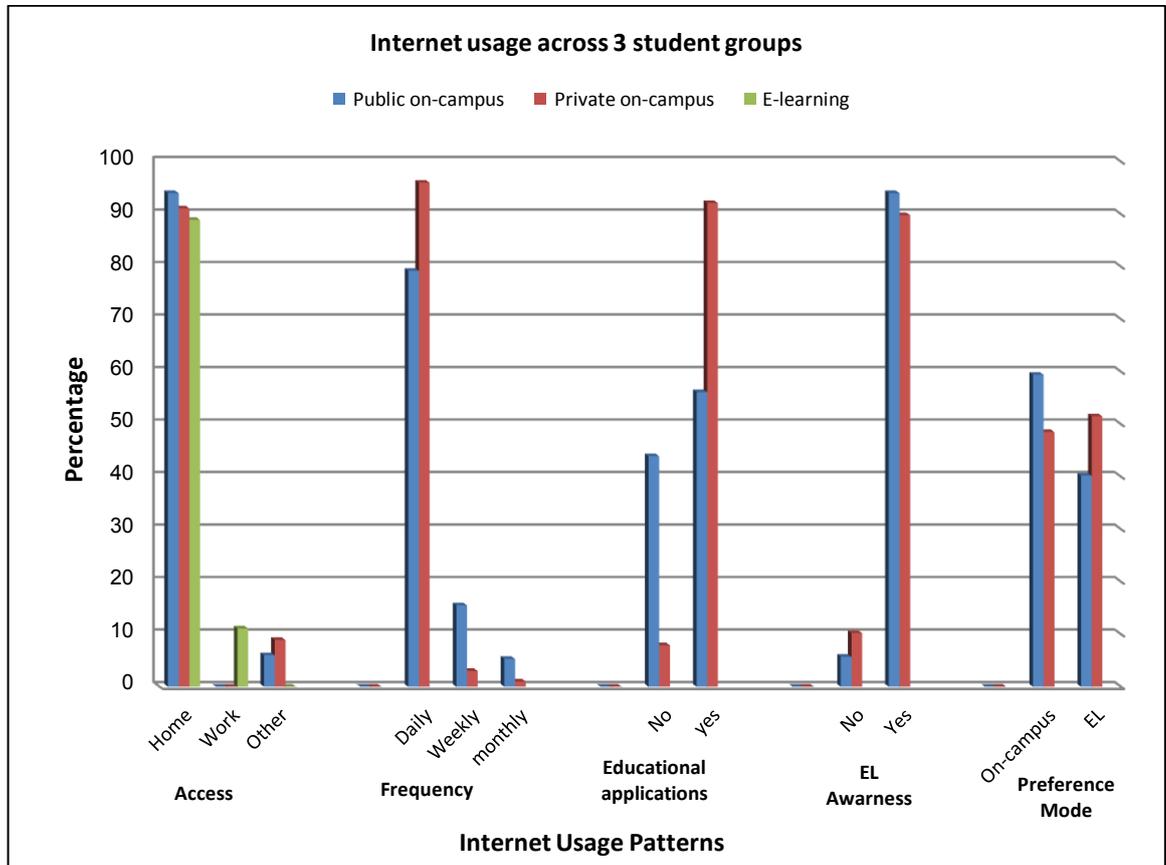


Figure (4.1) illustrates the patterns of Internet usage through public, private and e-Learning higher education students. The figure shows that 94% of on-campus public students accessed the Internet from their homes, while only 6% used the Internet from other locations (eg: Libraries and Cyber-café's). Similar results were gained from private on-campus students sampled where, 91.1% of them accessed the Internet from their homes, while the rest used other places. According to e-Learning students, a relatively lower percentage of 88.9% accessed the Web from their homes, while 11.1% depend on their working locations to access the Internet.

Similar results were gained through the three student groups, which showed that there seems to be no problem in reaching an Internet access. Concerning the adoption of e-Learning in higher education, these results are considered as a driving force that could facilitate the acceptance of e-Learning among young adults. The link between these results and the preference of the higher education

mode according to young adults is an interesting point that will be discussed further.

Regarding the frequency of using the Web, the majority of students in both types of on-campus higher education use the Internet daily, 79.2% of public students and 96% of private students use the Internet on daily basis. Students were asked if their Internet access included educational purposes. Results showed that the majority of the private higher education students under investigation (92.1%) use the Web for educational purposes, while a lower percentage of 56.1% of public higher education students use the Web for educational purposes.

With these results, it could be concluded that young adults are heavy Internet users who use the internet on a daily basis. Again, these results show that there seems to be no problem in the technological infrastructure needed concerning accessing the Internet which is essential for e-Learning adoption. These results are considered promising since nearly half of public higher education students and the majority of private higher education students use the Web for educational purposes, which again could be considered as a strong base for e-Learning adoption and usage. However, it is obvious that private higher education student results are higher than their public peers. Further investigations are still needed to confirm if there are main differences between on-campus student sectors.

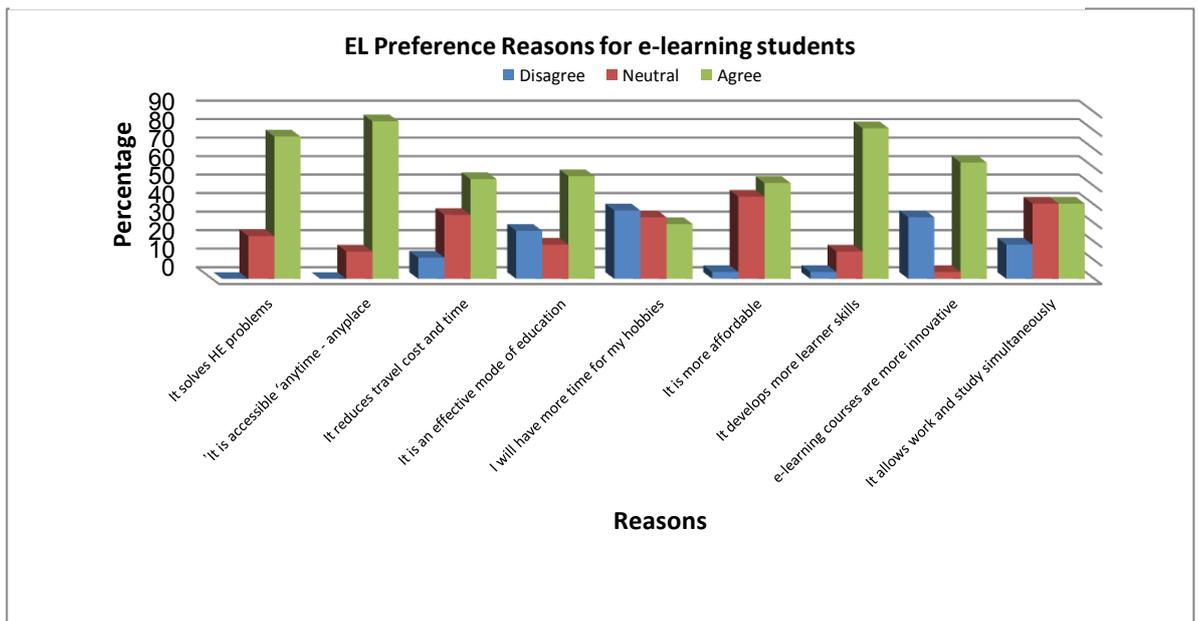
The awareness of e-Learning as a new higher education mode was also investigated. The majority of private on-campus students (89.8%) seemed to be aware of e-Learning as an educational platform, while a larger percentage of 94% of public on-campus students seemed to be aware. Consequently, the preference of higher education students studying mode was investigated. The results demonstrated that nearly 60% and 48.5% of public and private students investigated respectively preferred on-campus higher education.

Following these results, it could be assumed that e-Learning as a higher education mode of learning is known to on-campus students. However, there is still a strong preference to traditional higher education from both student groups. This is an important result to be taken into consideration when investigating the perspective of higher education students towards e-Learning. It could be assumed that either young adults seem to doubt the effectiveness of e-Learning or there is a strong

resistance to change the ways from which they used to gain their education from despite the obstacles they face. Further investigations and discussions will demonstrate the major higher education problems as seen from the perspective of higher education students, besides their views regarding the ability of e-Learning to promote the higher education experience.

4.4.1.2 e-Learning Preference Reasons

Figure (4.2) Reasons for preferring e-Learning



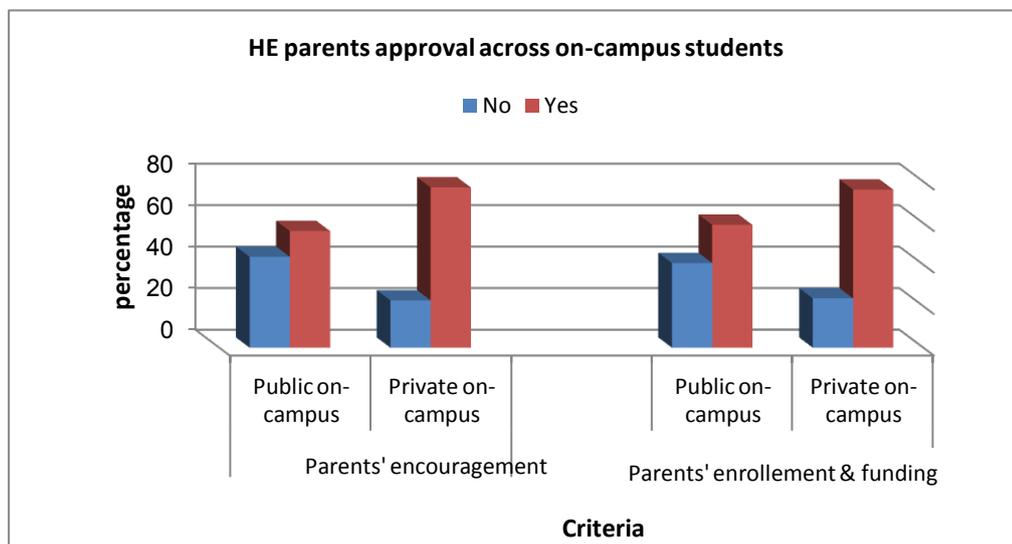
On the other hand, from e-learners' perspective the reasons behind the choice of e-Learning students to join an e-Learning university was an important area to examine. Their results gave a preliminary idea about the perceptions towards e-Learning despite the small sample size investigated.

Figure (4.2) demonstrates that e-Learning students considered the "anytime anyplace" accessibility of e-Learning besides the development of more skills of learners than traditional higher education were on top of the reasons for their choice. However, the rest of the reasons were considered relatively high except for reason number five "more time for hobbies". Another important result could be seen, where nearly 75% of the e-learners sampled agreed that they choose e-Learning as it solves higher education problems as crowded classrooms, limited resources and transportation time and costs.

Following these results it could be concluded that e-learners seem to be aware of some of the known benefits accompanied to online education. An important question could be raised concerning their own beliefs about the ability of e-Learning to provide them with the necessary skills that could encourage employers and the job market to hire e-Learning graduates. More analysis of e-learners views together with their traditional peers will clarify their perspectives towards the skills gained, recruitment chances and employers' acknowledgement in comparison with the views of job market as represented in employers' responses.

4.4.1.3 Parental Approval

Figure (4.3) Parental approval



According to the collectivism nature of the Egyptian culture, group/family decisions most likely affect the decisions taken by individuals. Thus, young adults are constrained by their parents' approval and opinions concerning the type of higher education to join. Although parents were not considered as a primary group in the investigations, they are considered as an effective group of stakeholders that would strongly affect young adults' choice. Therefore, parents' encouragement, enrolment and funding of higher education students were also investigated in questionnaires from the perspective of students'.

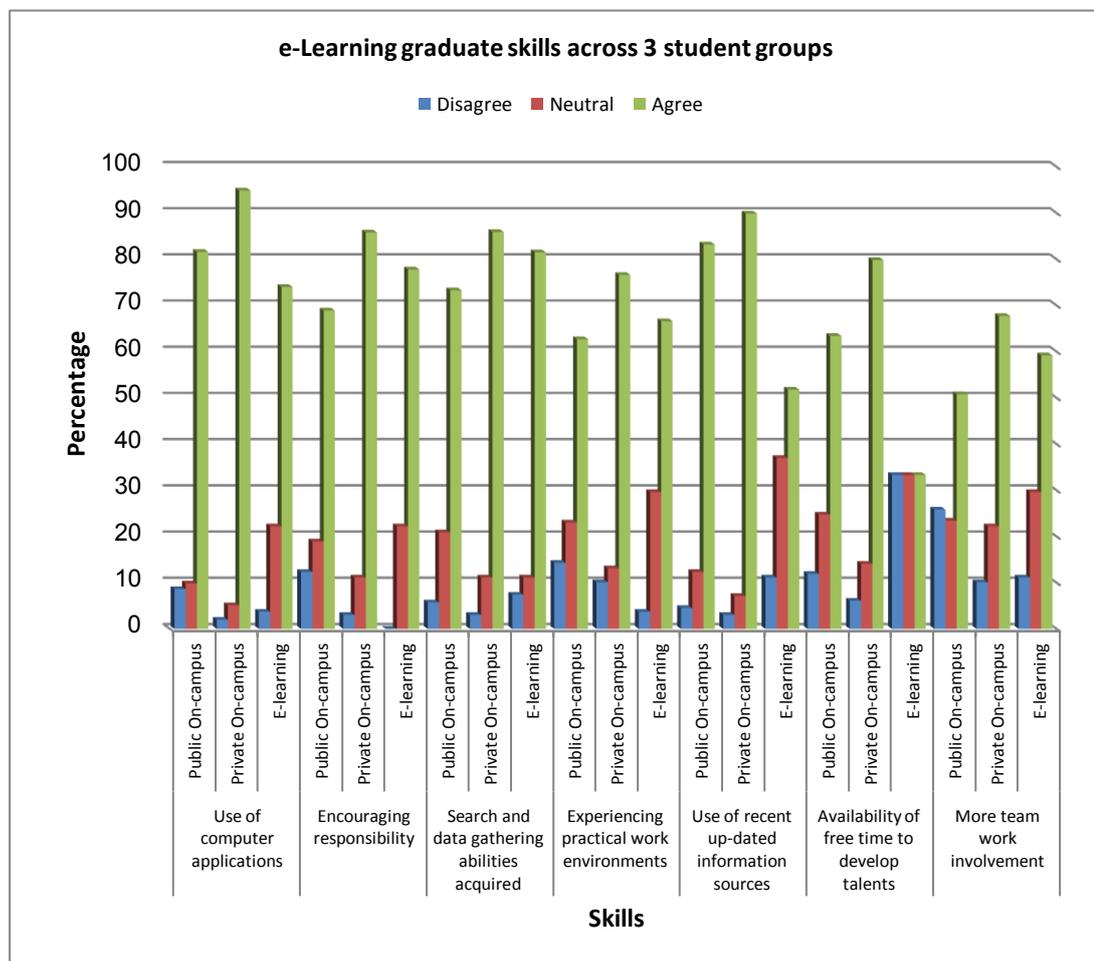
Figure (4.3) shows that 77.2% and 56.2% of private and public on-campus higher education students respectively were certain of their parents' encouragement towards an e-Learning university. The figure also illustrates that 76.2% and 59.2% of private and public higher education students respectively thought that their

parents would encourage them to enrol and provide the necessary funds for an e-Learning university.

Following these results, it could be assumed that the majority of private higher education students and more than half of their public peers were certain about their parents' encouragement and funding of e-Learning. These are noteworthy results since undergraduate e-Learning is newly introduced into Egypt; yet, young adults were sure of their parents' support. It could be assumed that e-Learning is seen as a compromise solution between the deteriorating governmental higher education and the high tuition fees of private universities. This solution seemed to be clear to students on one side and has the potential for encouraging parents on the other side. Still, the percentage of responses disagreeing with these points cannot be neglected. Regarding e-Learning as a second standard mode of education could be a reason behind these results.

4.4.1.4 Perceptions toward e-Learning Graduates

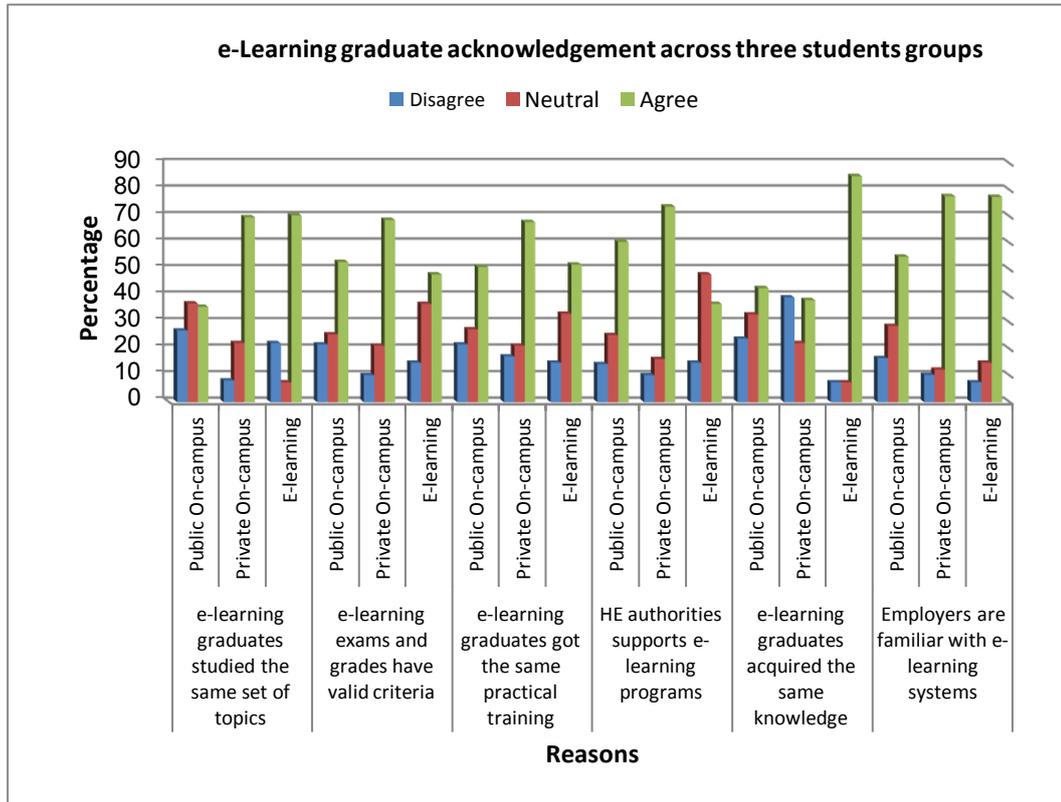
Figure (4.4) E-Learning graduate skills



Different results were gained from the three student groups investigated concerning the skills gained by an e-graduate as compared to their traditional peers. Figure (4.4) shows that according to private higher education students the use of computer applications were the most commonly agreed skill gained by 94.9%, while experiencing practical work environments (76.7%) and involvement of more team work (67.7%) gained the least by the same group of students. On the other side, public students considered the use of recent updated information sources (83.2%) as the most important reason for gaining more skills and considered team work involvement the least. As for e-Learning students, search and data gathering abilities acquired were on top of the reasons for gaining more skills (81.5%) and availability of free time to develop talents was the least (33.3%).

Accordingly, higher education students both on-campus and e-Learning believe that e-Learning would provide its graduates with more skills through a variety of reasons. The use of computer applications, use of recent updated information sources and search and data gathering abilities acquired were on top of the reasons despite the difference between the priorities of the three student groups. However, common results were gained from on-campus students showing a doubt in the level of practical work environments experienced and involvement of more team work in e-Learning studies. These results demonstrate that there is a fluctuation in the perception of students towards e-Learning in spite of the great level of agreement collected among the three student groups. e-Learning is still not considered as effective as traditional higher education except for the use of information technology. Fears from less interactions may be a major obstacle that could demotivate students despite the benefits admitted. The perspective of employers on the skills gained by e-graduates will show a broader view of the ability of e-Learning to provide its graduates with the skills required by the job market or the skills that traditional higher education graduates lack.

Figure (4.5) Acknowledgment towards e-Learning graduates

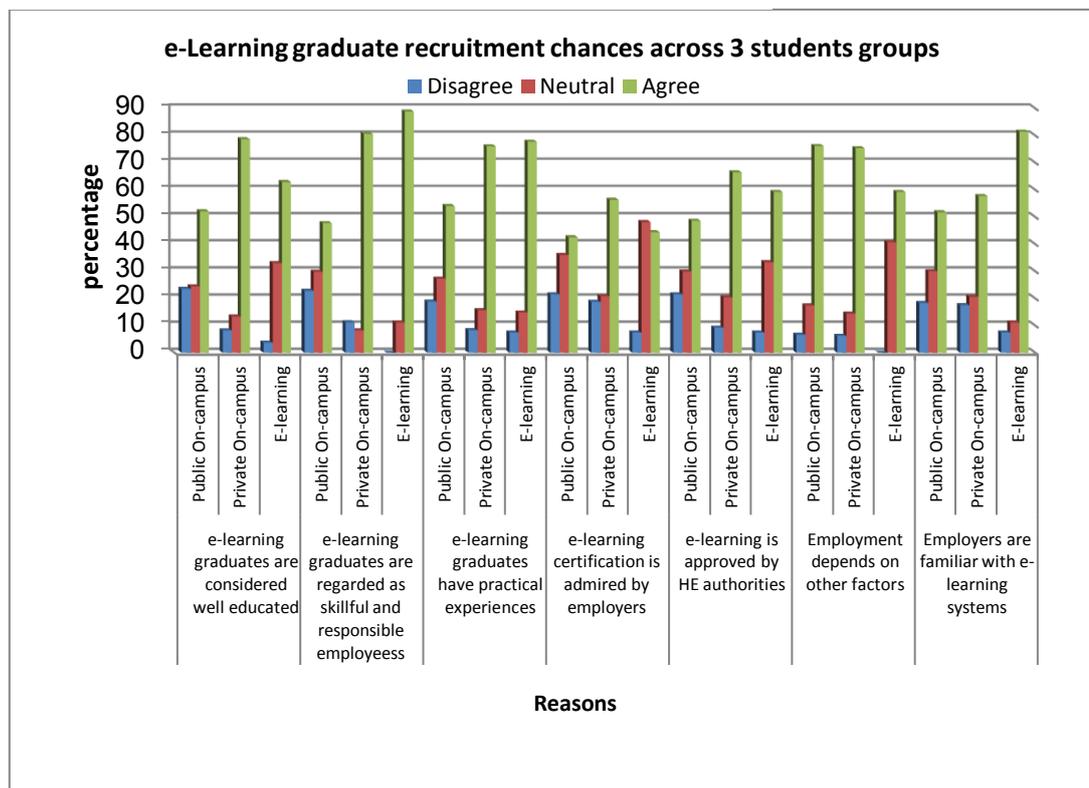


The acknowledgement of e-Learning graduates as seen from the three student groups compared to their traditional higher education peers was investigated. Figure (4.5) shows that different reasons have been considered and others disregarded by the three student groups. The support of higher education authorities to e-Learning (60.4%) was the main reason of e-graduates' acknowledgments as seen by public higher education students. Unlike private on-campus students who considered the familiarity of employers with e-Learning systems (77.6%) as the main reason of e-graduates acknowledgement. On the other hand, studying the same set of topics (35.9%) and acquiring the same amount of knowledge (38.4%) were the least reasons agreed upon by public and private students respectively. e-Learning students considered the support of higher education authorities to e-Learning programmes (85.4%) besides acquiring the same amount of knowledge (85.2%) as the top reasons for their acknowledgement, while studying the same set of topics was the least (22.2%).

The previous results showed that there is an agreement about the acknowledgement and appreciation of e-graduates from employers since all

results are above average. However, the support of higher education authorities to e-Learning and familiarity of employers with e-Learning systems were on top of the reasons. This shows that the acknowledgement of employers is most likely to be achieved if the mode of education is supported or introduced by higher education authorities regardless of the quality of the graduate or the value of the certificate gained. On the other side, the familiarity of employers with the higher education mode of learning is another supporting factor. Surprisingly, the results gained for the latter reason were high in spite of the recent introduction of undergraduate e-Learning in Egypt and the absence of e-graduates yet. The interpretation could be due to the high power distance present in the Egyptian culture which may affect the level of acknowledgment offered to e-graduates from the perspective of learners.

Figure (4.6) e-Learning Recruitment Reasons



Consequently, job opportunities available to e-Learning graduates as compared to traditional graduates were investigated. Results shown in figure (4.6) illustrate that every educational sector had a different perspective regarding its students. The dependence of employment on factors rather than the kind of certificate granted was the most common factor agreed upon by public on-campus students (76.1%), while considering e-Learning graduates as well educated as other traditional

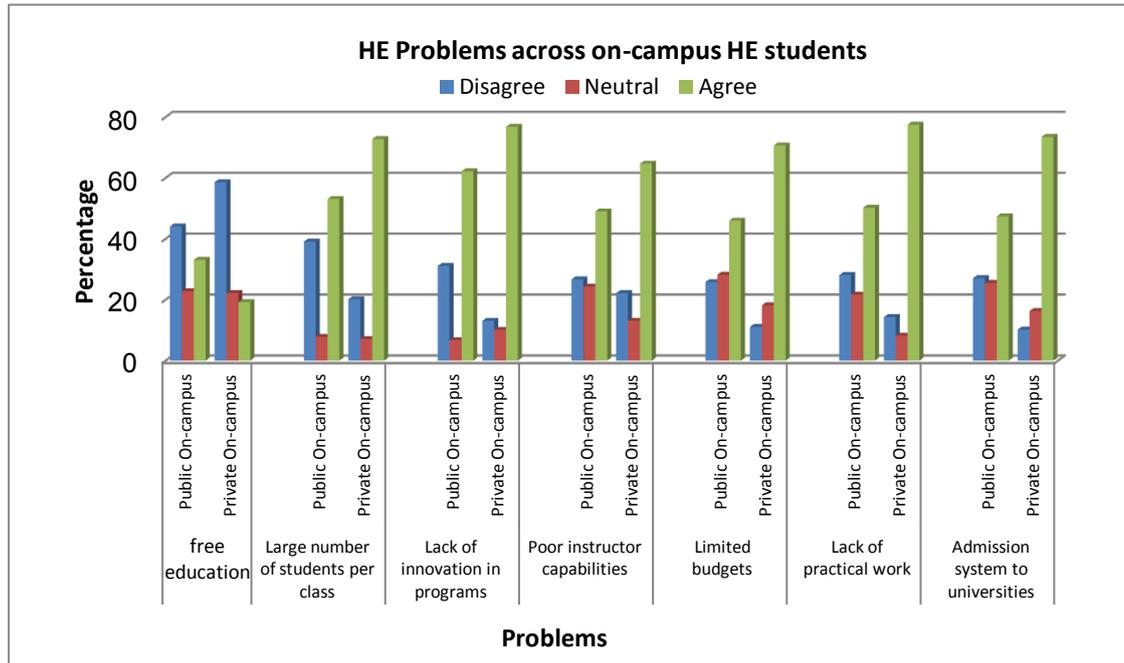
graduates gained the largest negative results (23.5%) by the same group of students. Private higher education students considered e-Learning graduates as more skilful and responsible, which will be the main reason for gaining a job opportunity (80.6%), while the admiration of the e-Learning certificate from the employer's side gained the largest negative factor (18.7%). As for e-Learning students, the most commonly agreed upon factor regarding recruitment chances was the same as their private higher education peers (89.1%).

On the other side, several factors scored a relatively low percentage of disagreement across e-learners of 7.4% each as practical skills acquired, admiration of the certificate, and approval of higher education authorities and familiarity of the certificate to employers. These low scores could be considered as important results since they give the impression that e-learners are sure to a great extent about their opportunities of recruitment among other graduates. It seems that they assume that their mode of higher education would give them a step up in the job market. The results also show that e-learners depend heavily on the familiarity and admiration of their certificate by employers besides the support of higher education authorities. There is a potential to produce an interesting level of discussion when comparing these with the results of employers regarding e-graduate acknowledgement and recruitment.

By these results, it seems that the opportunities for recruitment offered to e-Learning graduates compared to their peers are not clear yet. There is a high level of uncertainty in the results of public higher education students compared to their private and e-Learning peers who believe that e-Learning graduates are more skilful and responsible. The perspective of employers will give a clearer picture. Still, it could be expected that e-graduates might be less preferred than their peers at least until they prove their efficiency as effective employees and get over the doubts discovered by students.

4.4.1.5 Higher Education Improvement through e-Learning Programmes

Figure (4.7) On-campus higher education problems



In order to determine whether the introduction of e-Learning would improve the higher education experience in the Egyptian context, the existing problems of higher education in Egypt from the perspective of higher education students have been investigated first. Figure (4.7) illustrates the major higher education problems as seen from the different student sectors. The lack of practical work (77.5%) and lack of innovation in programmes (62.2%) were the top reasons of higher education problems as illustrated by on-campus private and public higher education students respectively. On the contrary, both categories (public and private on-campus students) denied that free education is considered one of the main higher education problems. Results gained for the latter point were 58.5% and 44.1%, respectively. Although the cost of higher education is rising in most institutions worldwide, governmental higher education is still free in Egypt. Free governmental higher education started during Nasser's regime which led to a speedy increase in enrolment rates and consequently a decline in the quality of teaching and learning. Large number of students per class, underfunding of universities and insufficient or poor equipment were the top reasons (Richards, 1992; Rossiter, 1997; Beckstorm, 2004).

In spite of such facts, these results are considered relatively surprising since free governmental higher education in Egypt is admitted to be one of the major contributors to the higher education problems in Egypt. However, it was expected that private higher education students would strongly deny this particular point as a main problem due to the high tuition fees paid. Still, there seems to be a clear problem admitted by both student groups concerning the availability of enough practical work and innovation in undergraduate programmes. A big question mark could be placed here asking whether the introduction of e-Learning in undergraduate higher education problems would help in solving the problems highlighted by students. It could be expected that e-Learning programmes could be much more innovative; however, the previous results showed that students doubt the level of practical work environments experienced and involvement of teamwork in e-Learning studies. Investigating the ability of e-Learning in improving higher education and hence upgrading the higher education experience sensed by students will give a clearer view of students' perceptions.

Figure (4.8) Higher Education Improvement Criteria

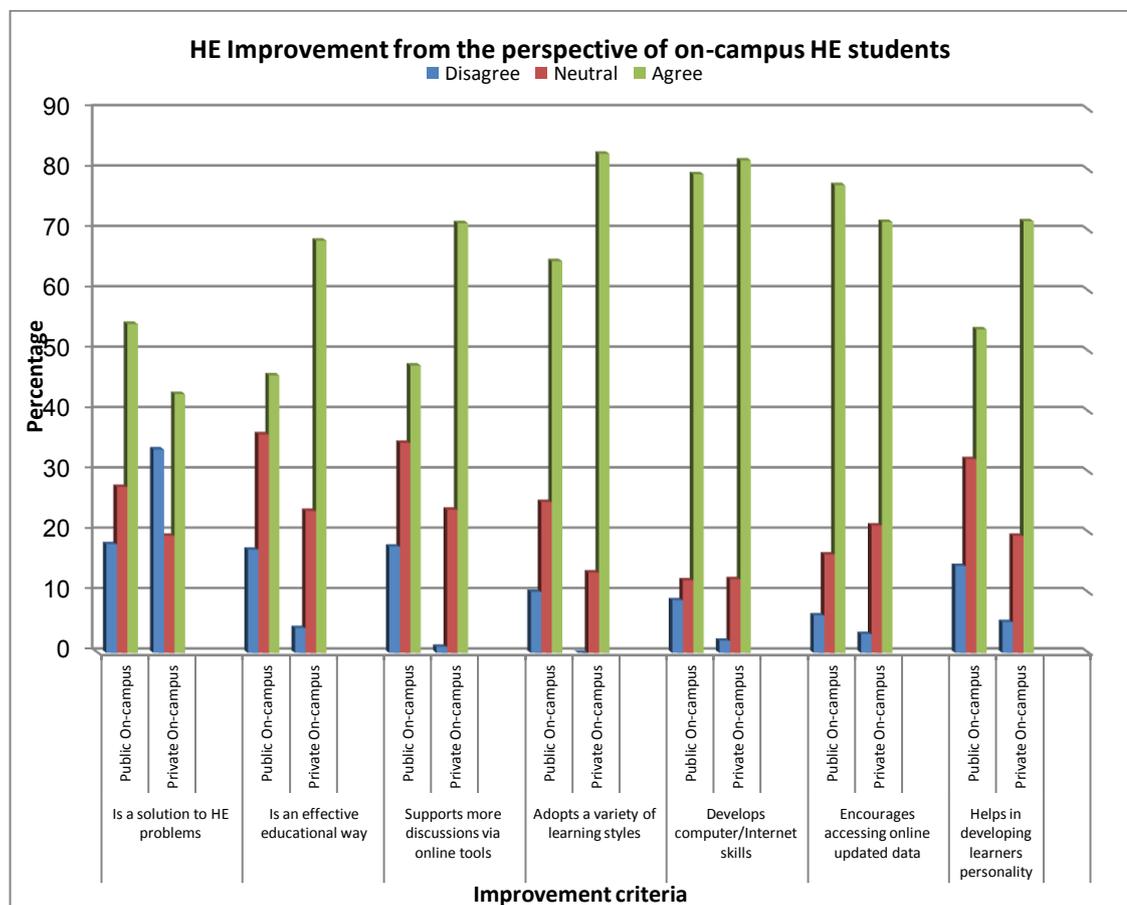
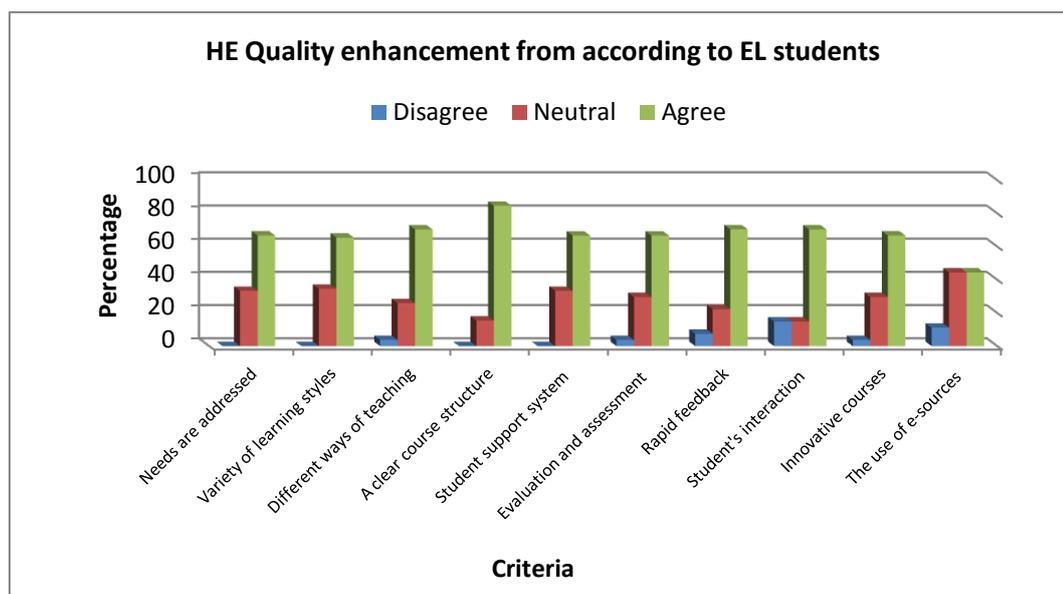


Figure (4.8) illustrates the criteria of improvement that e-Learning could tackle in higher education as seen from the perspective of on-campus public and private higher education students. It is clear that the majority of the factors suggested gained high results from students. However, 79.3% of public higher education students believed that e-Learning would improve higher education as it develops computer and Internet skills, while private higher education students considered adopting a variety of learning styles as their main reason (82.7%) for improvement. On the other hand, all student groups investigated did not consider e-Learning as a solution to all higher education problems, where the least level of agreement was gained.

Since the introduction of e-Learning is new to the Egyptian culture, it is unlikely to expect that students would consider the introduction of e-Learning as a solution to all higher education problems. The results gained supported this expectation keeping in mind that there is a doubt about the amount of practical application, teamwork experienced by e-learners and the efficiency of e-Learning in the educational system. e-Learning is again considered as an educational mode that might solve some of the problems experienced besides enhancing limited skills. The well known facts about e-Learning such as the dependence on dealing with computers and the Internet and 'anytime-any place' accessibility were the main reasons behind achieving such results. It could be assumed that students' perception of e-Learning is still limited. Further investigations done with higher education authorities in Egypt would help in giving a clear view by decision makers about the reasons for introducing e-Learning into Egypt and their perspective on improving higher education through the new higher education mode.

Figure (4.9) Higher education quality enhancement criteria from the perspective of e-Learning students



On the other hand, the ability of e-Learning to enhance the quality of the higher education experience was investigated from the perspective of e-Learning students who have experienced an online environment. Figure (4.9) demonstrated that all factors mentioned gained high results. Surprisingly, the presence of a clear course structure, objectives and outcomes were on top of the reasons followed by very close results for all other factors except for the encouragement of using e-sources.

Based on the previous results and acknowledging the relatively small sample size investigated of e-Learning students, some close interpretations could be drawn. Practicing a real e-Learning environment supported the idea of enhancing higher education quality through the introduction of e-Learning programmes. Following the fact that e-Learning students preferred this mode of education for its easy accessibility in the first place their perception has increased to include more reasons.

4.4.2 Median Calculations

Figures (4.10) and (4.11) present the results of median calculations computed to the ranking questions number (8 and 10) and (2 and 3) in the on-campus and e-Learning student questionnaires, respectively.

The median of a data set is the middle value when the values are ranked in ascending or descending order. It is based on the ranks of data points rather than their actual values (Boslaugh, 2008). Therefore, it is preferred as it should demonstrate whether there are single opinions or there is a division of opinions.

Median calculations were applied to the questions reflecting the criteria needed to promote e-Learning adoption and the challenges that e-Learning faces in Egypt. Students were asked to rank the given criteria on a ranking scale where 1 represents the most important.

4.4.2.1 Factors Deriving e-Learning Adoption

Figure (4.10) Median results for the e-Learning adoption criteria

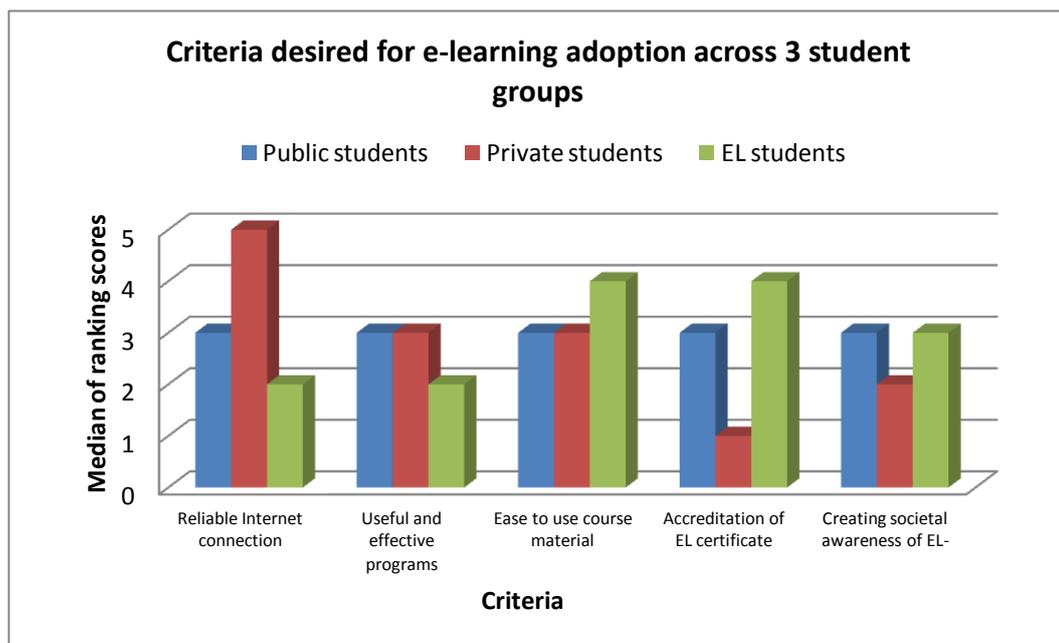


Figure (4.10) illustrates the results of the criteria desired for e-Learning adoption across three student groups. It is clear that different results were achieved across the three student groups. A constant middle value of (3) was gained across public higher education students for all the criteria given. It could be predicted that there is a clear division of opinions across this category of higher education students for all suggested criteria. Students have different perceptions regarding the necessary criteria needed to promote e-Learning in the Egyptian context.

The case was not the same with private and e-Learning students where different

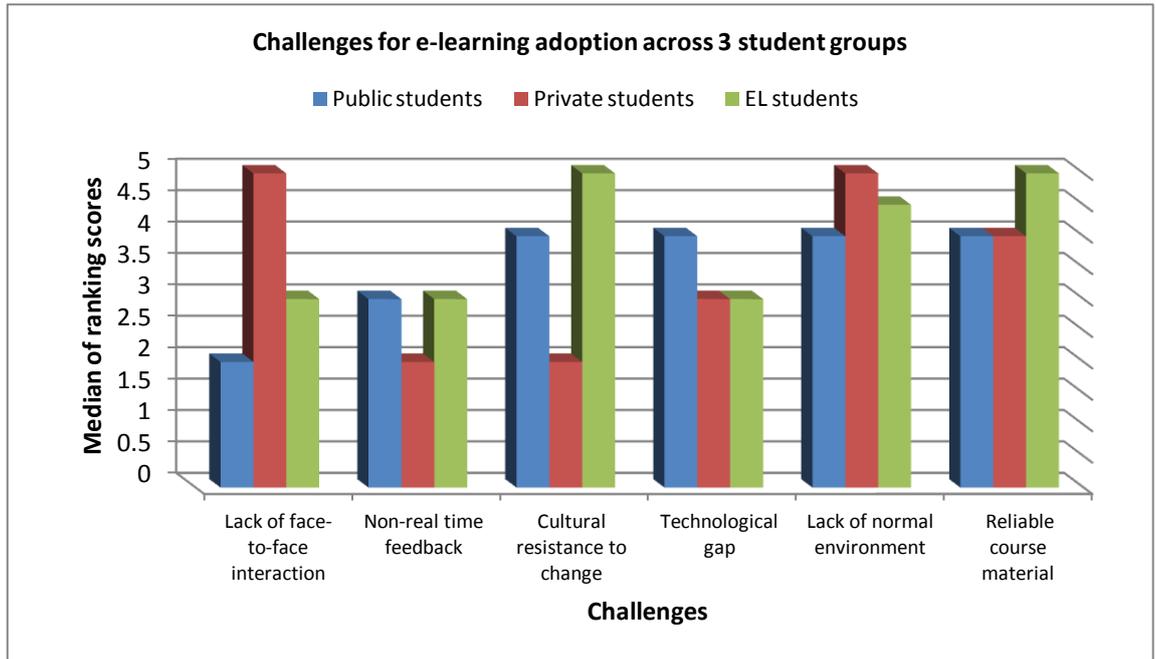
results were gained. The accreditation of e-Learning certificates followed by the need for creating social awareness towards e-Learning concepts were prioritized respectively by private higher education students. It is also worth mentioning that the reliability of Internet connection was the least prioritized criteria by the same group of students. These are not surprising results, non-governmental educated students tend to encourage the adoption of e-Learning but after the accomplishment of some factors that would help in equating between e-learners and traditional students. It could be assumed that students admit the low perception of e-Learning concepts in the Egyptian context. They also acknowledge that e-Learning would be less admired by society unless societal awareness has been developed. More interesting facts would be revealed after investigating the plans of higher education authorities concerning accreditation of e-Learning certificates and awareness promotion. On the other hand, students showed that the reliability of the Internet is not a main problem for e-Learning adoption in Egypt. This further shows that the basic infrastructure needed for the adoption of e-Learning is available in Egypt.

Again, e-Learning student results discovered further differences. The reliability of the Internet connection besides the usefulness and effectiveness of e-Learning programmes were prioritized. This perspective of students emerged from the actual usage of an e-Learning environment. Therefore, students believe that the effectiveness of the programmes offered are the most important criteria needed to encourage e-Learning adoption with the presence of a reliable Internet connection. Unlike traditional students, the accreditation of the certificate was considered as highly important. It seems that e-Learning students believe that the effectiveness of e-graduates will help them in gaining the acknowledgement and appreciation of society regardless of the accreditation of the certificate.

4.4.2.2 Challenges Facing e-Learning Adoption

In the same context, the challenges facing the adoption of e-Learning have been investigated from the perspectives of three student sectors. Different results have been revealed as illustrated in Figure (4.11).

Figure (4.11) Median results for the challenges of e-Learning adoption criteria



The lack of face to face interaction besides non-real time feedback to tasks and assignments were the main challenges highlighted for e-Learning adoption as seen from governmental higher education students. A constant equal value was gained for the rest of the factors mentioned by the same student group. It could be assumed that governmental students are concerned with the level of interaction and feedback they will get. Again, depending on these results, it could be predicted that students doubt that the level of interaction they will get during their electronic learning mode will be equivalent to that of traditional on-campus education.

Alternatively, the non-real time feedback besides cultural resistance to change were the highly weighted factors according to non-governmental higher education students. In spite of the overlap between the results of both kinds of on-campus higher education students, the lack of face to face interaction was one of the less prioritized factors regarded by private higher education students. There seems to be a common perception among on-campus higher education students about the level of interaction gained during online education.

From a practically experienced e-Learning environment, a middle constant value of (3) was achieved by e-Learning students for the lack of face to face interaction,

non-real time feedback and technological gap challenges. It seems that the highly prioritized factors considered by on-campus higher education students were considered of the same importance to e-learners. This raises a very interesting point of discussion concerning the level of perception and awareness to both types of learners.

4.4.3 Correlation and Regression Analysis

According to higher education students sampled different perceptions regarding e-Learning in general and its contributing and inhibiting adoption factors in the Egyptian context in specific were gained. However, the majority of students under investigation showed low levels of perception and awareness towards basic e-Learning concepts. Despite the technological readiness in Egypt that was also shown from the results demonstrated, most of higher education students still prefer traditional higher education despite their thoughts about gaining parental approval. Therefore, it could be assumed that young adults as a major sector of the Egyptian higher education stakeholders are not yet ready to accept and consequently join e-Learning in higher education.

In order to test the type and strength of relationships between different variables proposed in the research framework shown previously in Chapter Three, questionnaire segments were divided into four main categories (e-Learning perception, e-Learning readiness, e-Learning adoption and higher education improvement/Quality). Correlation analysis was performed on the data collected using Spearman coefficient to determine the relations between each variable and the other in addition to simple linear regression tests to model and determine the strength of the relations between the groups of variables.

Simple linear regression tests are represented by the equation: $Y = a + b x$, where Y is the dependent variable, (a) is the Y intercept, that is the value of Y when $x = 0$, b is the regression coefficient which indicates the amount of change in Y given a unit change in x , and finally x is the value for the independent variable (Hinton, 2004; Boslaugh, 2008). The regression coefficients for each student group besides the figures illustrating the relation between each two variables are interpreted below. Table (4.6) shows a summary of the results gained.

Table (4.1) Regression equations and correlation coefficients results

		Public on-campus student's Coefficients (Y=a + bx)			Private on-campus student's Coefficients (Y=a + bx)			e-Learning student's Coefficients (Y=a + bx)		
Dependent (Y- Intercept)	Independent (X- Intercept)	No. of cases = 270		Regression equation	No. of cases = 101		Regression equation	No. of cases = 27		Regression equation
		(r _s) coefficient	(p) value		(r _s) coefficient	(p) value		(r _s) coefficient	(p) value	
e-Learning readiness	e-Learning perception	0.496	0.000	Y= 0.520+0.719x	0.335	0.022	Y= 2.789+0.201x	0.264	0.168	Y= 3.144+0.222x
e-Learning adoption	e-Learning readiness	0.579	0.000	Y= 1.355+0.669x	0.594	0.000	Y= 0.7+0.899x	0.474	0.009	Y= 1.422+0.632x
Higher education improvement / Quality enhancement	e-Learning adoption	0.416	0.000	Y= 0.787+0.640x	0.387	0.004	Y= 2.463+0.363x	0.526	0.004	Y= 2.357+0.371x

4.4.3.1 Relationship between e-Learning Perception (Independent Variable) and e-Learning Readiness (Dependent Variable)

Figure (4.12) Regression equation results for the relationships between e-Learning perception and e-Learning readiness across the three student groups

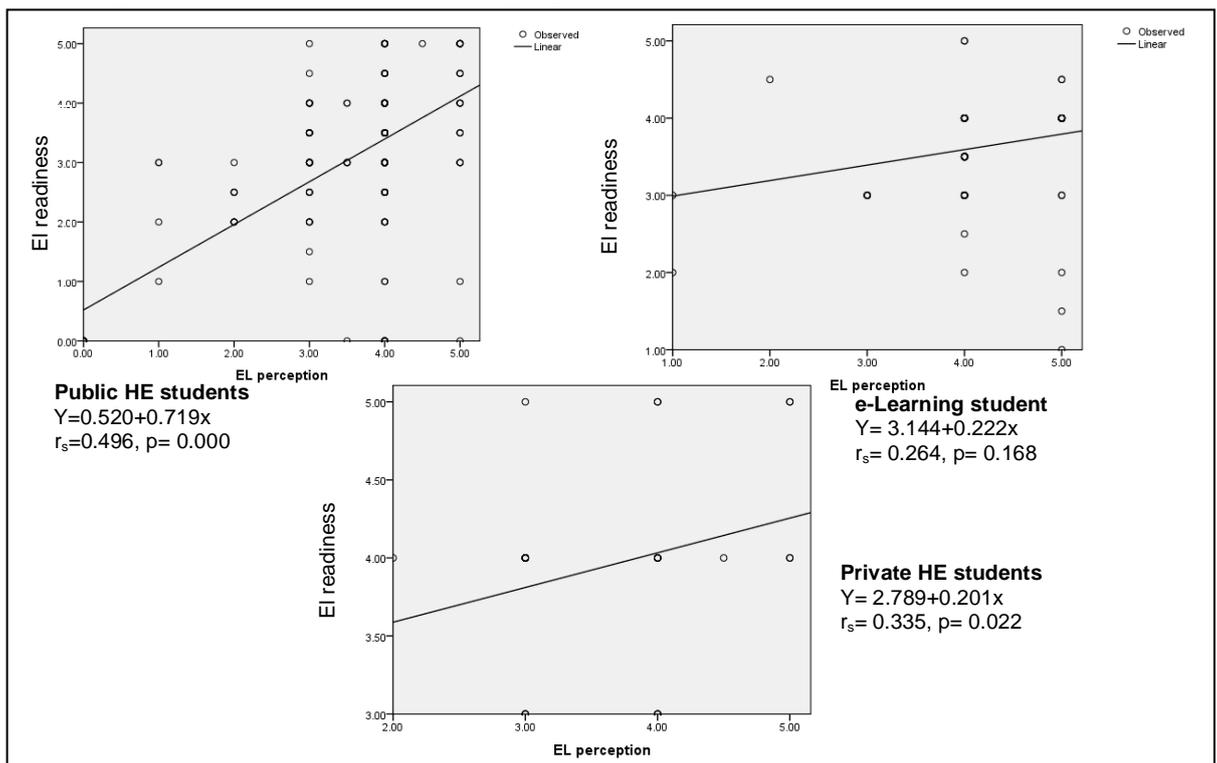


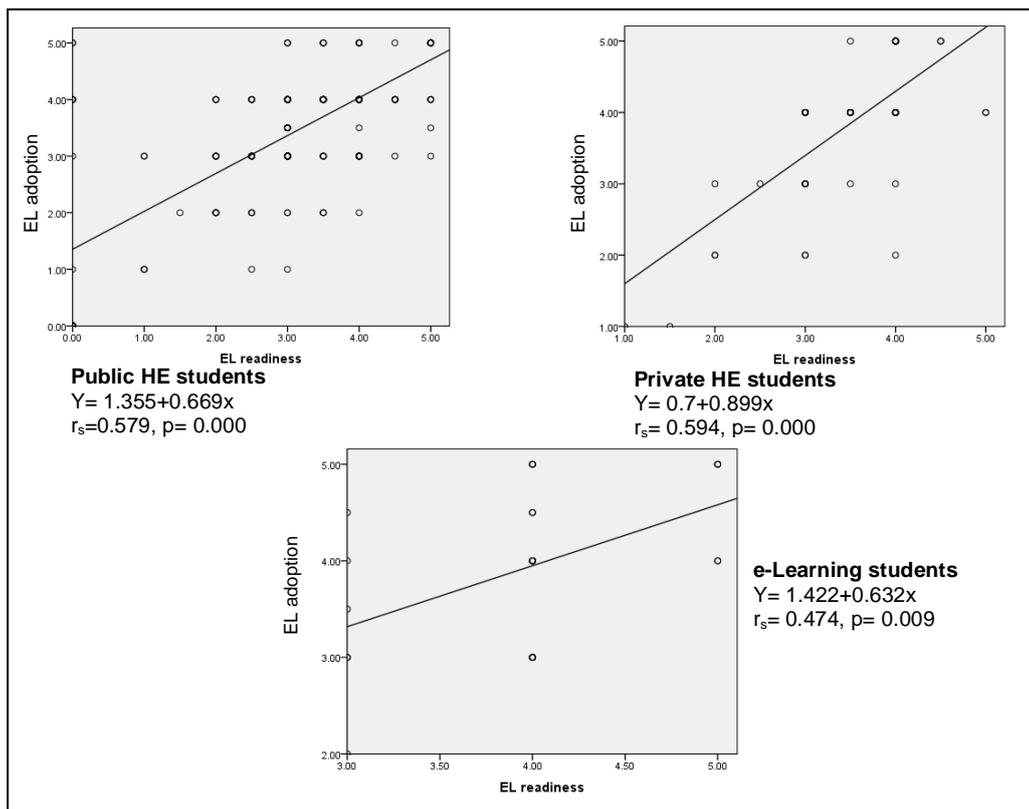
Figure (4.12) illustrates the relationship between e-Learning perception and e-Learning readiness gained across the three student groups. Three positive correlation coefficients were gained. Although results show weak relations, governmental higher education students were the strongest value gained ($r_s=$

0.496). On the contrary, results gained through e-Learning students showed the weakest relations ($r_s = 0.264$).

These results are further proved from the results of the regression equations. A strong relation is gained in case of governmental higher education students, weaker in case of private higher education students and weakest in case of e-Learning students. In spite of the relatively weak relations gained between perceptions and readiness to e-Learning, it could be concluded that there is a potential for increasing the readiness to e-Learning adoption if perceptions towards e-Learning increase.

4.4.3.2 Relationship between e-Learning Readiness (Independent Variable) and e-Learning Adoption (Dependent Variable)

Figure (4.13) Regression equation results for the relationships between e-Learning readiness and e-Learning adoption across the three student groups



Three positive relationships were gained between the three student groups investigated regarding the relationship between readiness to e-Learning and its adoption.

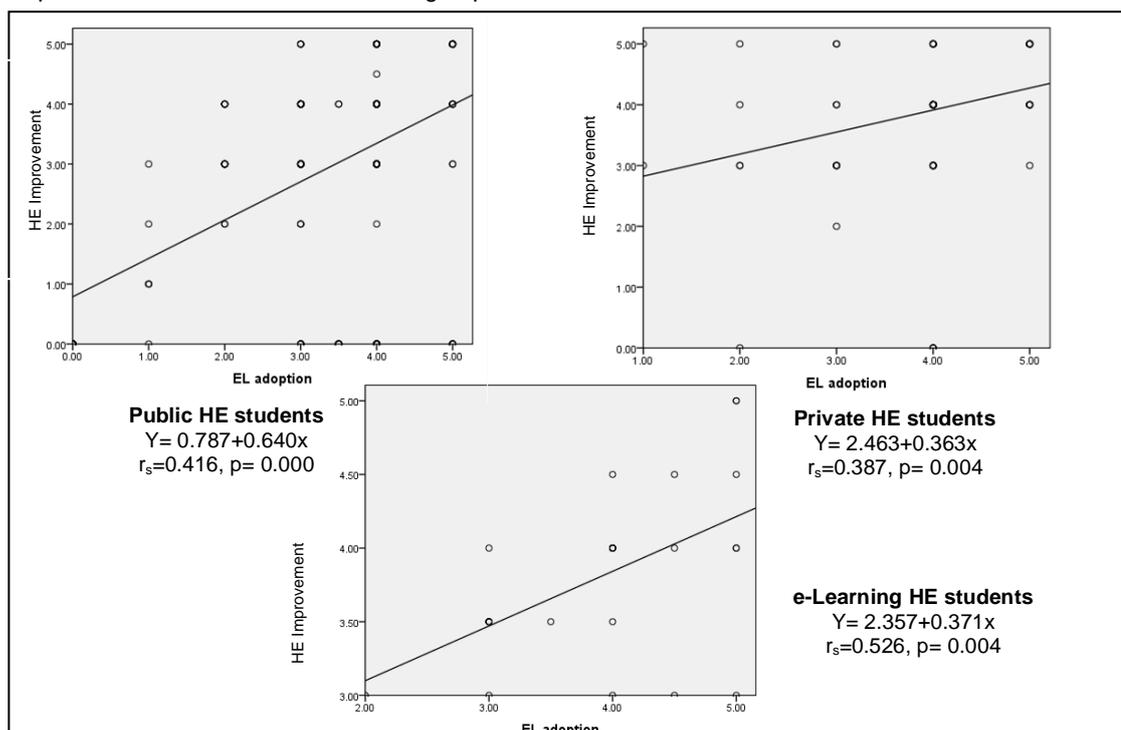
Positive correlation coefficients have been achieved through all student groups.

These correlations represent an intermediate relationship between e-Learning readiness and e-Learning adoption variables. Although the coefficients are very near to each other, this time private higher education student results were slightly stronger than the rest of the groups.

These results have been confirmed through the regression equations gained. Strong positive relationships were gained to assure that e-Learning adoption depends on the readiness of the society in which it is implemented. Therefore, it could be assumed that there is a potential for increasing the adoption of e-Learning if society is ready for its acceptance.

4.4.3.3 Relationship between e-Learning Adoption (Independent Variable) and higher education Improvement/Quality (Dependent Variable)

Figure (4.14) Regression equation results for the relationships between e-Learning adoption and HE improvement across the three student groups



Another three intermediate positive correlations were revealed. However, it is obvious this time that the strongest correlation relation was present between e-Learning adoption and higher education improvement, in the case of e-Learning student results.

Following the correlation results and regression relationships demonstrated, it could be concluded that there are main differences between the results gained

across governmental, private and e-Learning higher education students. Although the descriptive analysis results shown above seemed to prove that governmental higher education students had lower awareness and perception of e-Learning concepts, their results succeeded in proving strong relations across the variables investigated.

The results also showed that there seems to be a gap in the basic concepts and perceptions towards e-Learning across the student groups sampled. Another gap was also highlighted concerning the ability of e-Learning in improving the higher education experience and solving part of the problems occurring. However, there seemed to be a moderate starting point regarding the relation between e-Learning readiness and e-Learning adoption.

Further discussions of findings presented in Chapter – Six (Qualitative Data Analysis and Results) will further explore the results gained by students to discover the rationale behind the results gained by students linked with those results gained by the rest of the stakeholder groups sampled. The combination of all these results will contribute to giving an idea about the perceptions and attitudes of Egyptian society towards e-Learning adoption and higher education improvement through e-Learning programmes. Thus, proposing a framework for the effective utilisation of e-Learning in the Egyptian context.

4.5 Summary

This chapter illustrated the statistical analysis performed on the quantitative data collected from two types of questionnaires that were distributed among three different student sectors in Cairo and Alexandria. The results emerged from the analysis of results using simple frequencies, median calculations and simple linear regression analysis.

After investigating student's Internet usage patterns and frequencies, higher education preference mode, perception towards e-Learning and readiness to e-Learning adoption besides the ability of e-Learning to improve the higher education experience, major differences and similarities were discovered among the three respondent groups.

Results showed that young adults are heavy Internet users. The applications they use on the Web are not only for entertainment but for educational purposes as well. Higher education students seem to be aware of e-Learning as an educational mode. Most of them believed that they would gain the necessary consent and funding from their parents for joining an e-Learning university, however they still preferred traditional on-campus higher education despite the obstacles they face and the well known problems they proved by their results.

Results also demonstrated trivial perceptions towards e-Learning concepts. e-Learning was considered as an educational mode that would only enhance ICT skills in its graduates. The level of practical applications, supervision and teamwork involvement were underestimated which will make any e-Learning graduate appear less competent and less skilful compared to traditionally educated peers.

Consequently, the level of acknowledgement from society of e-Learning graduates is highly doubted by higher education students. Therefore, their opportunities for recruitment are not guaranteed from the perspective of higher education students. This high level of doubt resulted in considering the accreditation of e-Learning certificate as one of the essential factors that would promote e-Learning adoption in Egypt besides enhancing the level of societal awareness about e-Learning concepts. In the same token, non-real time feedback and less face-to-face interactions were regarded as two of the main challenges that e-Learning would face. Therefore, the ability of e-Learning to enhance the higher education experience was not promised by higher education students except in information technology skills. Therefore, e-Learning is considered as a partial solution to higher education problems due to its easier accessibility, time saving and computer skills advantages.

The case was better for e-Learning students who have experienced a real higher education environment. e-Learning students experienced a higher level of quality in their higher education atmosphere despite the early stages of undergraduate higher education in Egypt.

Despite these results, the regression analysis has shown that there are directly proportional relationships between e-Learning perception and e-Learning

readiness, e-Learning readiness and e-Learning adoption, e-Learning adoption and higher education improvement/quality enhancement. Therefore, there is the potential to enhance higher education if perceptions are increased.

Some of the main findings from the questionnaire were:

- Young adults are heavy Internet users, most of them access the Internet from their own homes;
- Non-governmental higher education students are more oriented towards using the Web for educational applications;
- On-campus young adults receive their parents' encouragement, enrolment and funding of online education despite their preference for on-campus higher education;
- Solving the conventional higher education problems, easy accessibility and developing learner's skills were the main reasons for choosing online education, which could enhance the quality of the higher education experience as regarded by e-Learning students;
- Experiencing practical work is regarded as a deficiency in online learners skills;
- Online degree holders could receive equal acknowledgement, appreciation and hiring opportunities;
- Free education was not considered as a main cause of higher education weaknesses, on the other hand, lack of innovation and practical work and large numbers of students per class were regarded as main causes;
- Developing ICT skills and accessing updated data were the contributing factors of higher education improvement;
- Variations between student groups concerning the most important criteria required for promoting e-Learning adoption, while non-real time feedback was regarded as one of the main challenges for e-Learning adoption;
- Positive correlation coefficients (stronger in public higher education student results) were gained between e-Learning perception, readiness for e-Learning, e-Learning adoption and higher education improvement.

The following chapter –(Qualitative Data: Analysis and Results) includes the findings of the interpretive analysis performed to the qualitative data collected from

the responses of the rest of the stakeholder groups included in this research. The chapter will include the themes derived from the interviews performed with three main stakeholder groups; senior academics, major employers and higher education government representatives. The results gained from the mentioned stakeholder groups will help in building a more complete picture concerning the opportunities for e-Learning to improve higher education in the Egyptian context.

The total overview of perspectives gained from quantitative and qualitative data analysis and findings are demonstrated in figures (6.3) and (6.4) in Chapter Six – *Discussion of Findings*.

5. QUALITATIVE DATA: ANALYSIS AND RESULTS

This chapter presents the analysis of qualitative data deduced from the interviews conducted with three of the main higher education stakeholders in Egypt. Students, instructors, institutions, content providers, technology providers, accreditation bodies and employers are some of the stakeholder groups responsible for e-Learning success (Wagner, 2008). Following this, senior academics, employers and higher education government representatives are investigated.

The information that follows illustrates the diverse views of each stakeholder group concerning e-Learning adoption, acceptance in the Egyptian context and the opportunities for higher education improvement. Face-to-face semi-structured interviews are conducted with representatives of the three different stakeholder groups.

The preliminary view of the collection of responses demonstrates a commonality of local needs between the stakeholders groups investigated. The need for the accreditation of the certificates granted, promoting societal awareness towards e-Learning concepts and gaining higher job market appreciation of e-Learning graduates were the top requirements. Similarly e-Learning is regarded as a mode of higher education that does not support practical training in its students. The latter is a factor that has the potential to contribute to less hiring opportunities offered to e-Learning university graduates. However, the development of ICT skills are seen as a significant privilege to e-Learning graduates.

5.1 Interviews

The interviews conducted consist of semi-structured questions designed to fit the nature of the group under investigation. Questions focus on five main areas: e-Learning readiness, e-Learning perception, e-Learning adoption, higher education improvement and quality enhancement. One common ranking question is included in all interviews in which respondents are asked to rank the criteria given. This ranking question gives an opportunity for comparison of the results gained between all stakeholder groups through a common criteria.

Common themes are derived from the interviews conducted in each category. The integration of the results gained from interviews together with the results achieved from the questionnaires distributed among students will help in filling in the research gap and answer the research questions.

5.1.1 Employers' Interviews

A total of ten interviews are conducted with different employer profession in various fields. The interviews consist of seven semi-structured questions and one ranking question as shown in Table (5.1).

Table (5.1) Employers' Interview Form

<ol style="list-style-type: none">1. What are the important skills / criteria to look for in a higher education graduate?2. What are the skills that higher education graduates lack?3. What do you think are the main reasons behind this?4. Have you ever heard about e-Learning before? Undergraduate or postgraduate studies?5. Do you think e-Learning graduates would be more skillful than traditional education graduates? How?6. Do you think the Egyptian society is ready for e-Learning graduates and will equally acknowledge e-Learning graduates as traditional higher education graduates? Why?7. If you have a job vacancy, which applicant would you recruit, an e-Learning graduate or a traditional graduate?8. Please rank the following criteria that you think would promote the adoption of e-Learning in Egypt based on the level of importance according to your point of view, where (1) presents the most important and (5) presents the least important.<ul style="list-style-type: none">– Internet connection should be reliable– e-Learning programmes should be useful and effective– Ease to use course electronic material– e-Learning certificate should be accredited– Creating societal awareness of e-Learning concepts
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Respondents consist of different professions of employers representing public and private businesses. The selection of employment fields is based on the potential for recruiting Business Administration and Information Technology graduates. Due to the fact that nearly every business relies on either or both types of graduate majors, multi-professions are selected in order to represent the Egyptian job

market. Top manager and seniors with experience not less than ten years of work in the field are selected for interview, thus their views are expected to be reliable and represent similar points of view in the same employment field.

Employers interviewed held the following occupations:

- Bank manager
- Head of an international school
- Dean of a training institute
- Department manager in a governmental company
- Owner of a private business
- Head of consultants of a public institute
- Manager of a private medical centre
- Head of legal affairs in a multi-national organization
- Owner of a private company
- Industry representative on the board of trustees in a governmental university

The responses collected (shown below) demonstrate the high level of doubts and uncertainty present among employers towards the effectiveness and efficiency of e-Learning programs. These fears have prioritised conventional higher education graduates in the job hiring. Although most of the employers interviewed seem to be aware of e-Learning as a known higher education mode, they doubt its effectiveness as an equal alternative. Half of the employers interviewed seem to prefer recruiting traditional graduates despite the clear deficiencies in the skills they acquire since the rules, regulations and assessment criteria are familiar to them. Others are willing to give a chance in hiring where they could be judged as per their quality in practical working situations. On the bright side, acquiring higher ICT skills than traditional graduates may give e-Learning graduates a step-up regarding job opportunities.

While, the job market presented in nearly all the employers interviewed referred to the known drawback of the traditional Egyptian higher education system as a main cause of the low level of skills experienced by traditional graduates and at the same time desired by the job market, half of employers either agree that e-Learning graduates have the potential for less acknowledgment and appreciation

by society. Others (nearly half of responses) argue that this factor cannot be decided yet. e-Learning employees have to show that they are high quality employees first.

These trends could be a consequent result of the doubts discovered about the skills acquired by learners in their studying period. ICT skills are found to be the commonly guaranteed skills acquired by half of interviewees, while the second half commented that the unfamiliarity of students in dealing with an e-Learning environment is an obstacle that could contribute to producing a less skilled graduate and consequently potential employee.

As a result, the need for the establishment of useful and effective e-Learning programmes besides promoting societal awareness are highlighted in order to increase perceptions and decrease levels of doubt and uncertainty towards e-Learning potential employees.

5.1.1.1 Summary of Responses

e-Learning perception

It is clear from the interviews conducted that most of the employers interviewed seem to be aware of e-Learning as an educational mode and its applicability in both under-graduate and post-graduate studies. On the other hand, two employers mentioned that they are unaware of the technicality of the mode itself and its operation;

- *"Yes, but I am not very much aware of the mode" (E5),*
- *"Yes, but I am not very much aware of its techniques" (E9).*

While three employers seem to be aware even though they doubt the e-Learning system as an effective alternative to traditional higher education in Egypt;

- *"Yes, but I do not think that it is well established in the Egyptian market" (E7),*
- *"..... I heard that e-Learning certificates are offered online and are easy to get. A lot of people are granted a Masters or even a PhD from vague*

universities if they can afford to pay for it or even buy the certificate. So there is bad reputation about it" (E8).

Although only two of the employers interviewed admit that they are unfamiliar with the e-Learning techniques, uncertainty and doubt about the effectiveness of e-Learning in higher education are seen in some of the responses.

Due to the wording of the questions used, respondents misunderstood the true meaning of the question, in which the researcher had to further clarify the question. Although the majority of employers interviewed seem to be aware of e-Learning, their responses did not reflect the true meaning of awareness towards the new technology. Respondents did not mention any techniques, methods, advantages, disadvantages towards e-Learning that would reflect their true perspective. They considered 'awareness' to be the same as 'knowing' or 'not knowing' about the topic.

All the skills/criteria desired or looked for in higher education graduates by different employers in various fields were nearly the same. There was a common agreement that most of such desired skills are not found in higher education graduates. Language, basic knowledge gained from higher education, practical experience based on practical training attended in the field of specialization, computer and soft skills and ability for hard work are commonly mentioned by most employers.

Employers referred mainly to the drawbacks of higher education in Egypt as the main reason for the deficiencies they face in higher education graduates. The wide-spread dependence on private tutoring, stagnation of the higher education syllabuses, absence of the link between practical implementation and theoretical applications, large number of students per class, shortage of resources in universities, lack of soft skills enhancement and absence of motivation in students were the common reasons behind their responses.

When asked about the skills gained by e-Learning graduates as compared to their traditional peers, two common directions are revealed. Five of the employers interviewed agreed that an e-Learning graduate will be more skillful, those are divided into two groups. The first group which consists of three respondents who

agreed that e-Learning graduates will be more skillful if e-Learning programmes are applied effectively;

- *"If e-Learning was applied effectively students will have better skills in computer and Internet skills and will be more responsible with better knowledge but might lack communication and presentation skills" (E1),*
- *"It totally depends on the study field. I think it would make a dream come true in areas such as Business Administration and IT, as it will enhance research and computer skills" (E7),*
- *"It depends on the student personality, the material taught, and instructor " (E5).*

The second group of respondents confirming this point highlighted that mainly computer, Internet and research skills would be enhanced by e-Learning graduates besides producing a more independent graduate that can be more responsible.

The second argument discovered was through employers that did not consider that e-Learning graduates would be more skillful than on-campus students. Interviewees suggested that the lack of training student in using such technology previously in schools, besides the lack of practical experience undertaken by e-Learning students in the field of specialization, would be the main causes;

- *"For graduates to be more skillful the system offered has to be well controlled and assessed which is difficult to be applied in our culture" (E3),*
- *"Egyptian students are not used to this type of learning in their previous learning stage which decreases the chance of gaining new skills, so they will not benefit from it even if there are more skills to learn" (E8).*

The perception of employers concerning the skills gained by e-Learning graduates seems to be limited to two main themes. The first theme argued that graduates would excel only in information technology applications. However, there seems to be a doubt in the correct implementation of e-Learning that would lead to the effectiveness of the system offered. On the other hand, there seems to be a lot of challenges mentioned that resulted in the under estimation of the skills gained by e-Learning graduates. Cultural differences and resistance to change were on top

of the reasons mentioned.

e-Learning Readiness

Investigating whether e-Learning graduates will receive the same level of acknowledgment and appreciation as regular graduates, three different arguments are identified. Four respondents confirmed that it is still too early to decide, but initial expectations were suggested from respondents:

- *"Cannot be decided yet, however there will be a doubt about this certificate at first especially if offered by government. The first group of graduates will make their own reputation" (E1),*
- *"This concept will take time to convince society and employers but I think they will be highly appreciated after some time" (E2).*

The second theme reveals that an e-Learning graduate will be less acknowledged by society. Employers justified their responses by a number of factors;

- *"There are neither well known nor established strong rules or regulations yet to control the system that would encourage employers, besides fears of uncertainty and trust about the educational level received" (E3),*
- *"Traditional education students will always be preferred than e-Learning students, except in some work fields that deal mainly with computer and Internet applications they may be preferred" (E4),*
- *"Our educational system depends on private tutoring to a very large extent in traditional higher education and preliminary stages, consequently an e-Learning graduate will be seen as less knowledgeable off-course since it's based on self-learning" (E8).*

Only one respondent confirmed that an e-Learning graduate would be equally acknowledged if the university offering the programme is of good reputation:

- *"If the university is reputable as the AUC (American University of Cairo) for example, then why not. As an employer, I will be sure that this graduate learnt on solid and effective basis" (E5).*

Similarly, two main themes are gained from interviewing employers and asking

about the chances of recruitment for an e-Learning graduate and their choice of recruiting the type of graduate. The first route reveals the preference of traditional on-campus graduates as employees, which was supported by half of the responses;

- " Generally, e-Learning students will have fewer chances; however, the concept of non-free education, language and computer skills might give them a step up in recruitment" (E1),
- "..... Traditional higher education system is more trusted, their rules, regulations and assessment systems are known and valid. I think that the e-Learning concept has to be promoted, which will take some time to gain trust and confidence" (E3),
- "..... e-Learning graduates will take time to prove themselves as qualified employees in the job market "(E6).

From the responses gained towards the acknowledgement and recruitment of e-Learning graduates, it seems that there is a tendency towards preferring on-campus higher education graduates in spite of all the concerns listed by respondents. The resistance to change and doubt about the effectiveness of e-Learning systems may be the main reasons behind the employers' responses. e-Learning graduates may be accepted by the job market only if they prove that they are better graduates in various skills not only in information technology. The awareness and validity of the rules and regulations to which e-Learning systems are based are known to society in general and consequently to employers specifically may help in equating them to regular graduates. It seems that e-Learning graduates will face a great challenge to prove themselves as an effective alternative to on-campus higher education graduates and a greater challenge to prove that they might be even better than the type of graduate usually recruited.

Alternatively, another theme is discovered from four employers. The theme supported giving the same chances to both types of graduates. The decision of employers in this case depends on the graduate qualifications;

- "It depends on the skills gained by the graduate and desired to the nature of the job" (E4),

- *"It depends on the interview with the candidate, through which I can understand more about his knowledge and skills; especially that it is still a new learning mode" (E5),*
- *"I believe both would be useful, as the e-graduate will be more flexible and up-to-date, while the traditional graduate will be used to working under tough conditions and limited resources" (E7).*
- Only one employer chose to recruit an e-Learning graduate right away only if the university offering the programme is well known;

Following both themes discovered concerning the recruitment chances of e-Learning graduates, there is a possibility that the occupation of the interviewee could have biased their responses and choice of employees. The experience of business owners especially in hiring fresh graduates could have directed their responses. Employers that could take the challenge of trying new graduates with new learning experiences could have chosen to give a chance to e-graduates, while those whose nature of business requires a graduate of a certain level of learning could refuse giving a chance to a new type of graduates. Uncertainty avoidance seems to play a dominant role in the responses collected from employers.

e-Learning Adoption

Asking about the most important criteria needed for the adoption of e-Learning in Egypt as seen from the perspective of employers, the majority of respondents prioritized two factors: creating social awareness of e-Learning concepts in Egypt besides the usefulness and the effectiveness of e-Learning programmes offered. The secondly prioritized factor was the accreditation of e-Learning certificates followed by ease to use course electronic materials and reliability of Internet connection, respectively.

It seems that employers, as an important part of Egyptian society, show a lack of awareness of the main principles of e-Learning needed before its adoption. The sample investigated is also keen about the effectiveness and usefulness of the e-Learning programmes offered that would be reflected in the skills gained by e-Learning graduates. Therefore, it could be expected that recruiting an e-Learning graduate would not be as easy as hiring a regular alternative. The investigation of

the strategies, rules and regulation developed by higher education authorities investigated further in this chapter would be helpful in giving a clearer picture.

5.1.1.2 Employer Themes Derived from Analysis

- The well known traditional higher education drawbacks (large numbers of students per class, insufficient/poor equipment, underfunding of universities and obsolete curricula) were the main reason behind the gap found in higher education graduate skills, where as the skills desired by employers are the same skills that higher education graduates lack.
- Employers are aware of e-Learning as an educational mode but not of its methods of delivery and techniques. There is a high level of uncertainty, doubt and lack of trust about it.
- The skills gained by an e-Learning graduate depend mainly on the effectiveness and efficiency of the e-Learning system. Therefore, e-Learning graduates would either excel mainly in computer and internet skills or will not benefit from the new educational system. Employers are either uncertain to decide or refuse to acknowledge e-Learning graduates in the same manner as their traditional counter partners.
- e-Learning graduates would have less chances of recruitment at least at the beginning; they will be considered as less qualified. Their qualifications have to be assessed first to guarantee their efficiency.
- More social awareness of e-Learning concepts in Egypt besides the guarantee of the usefulness and the effectiveness of e-Learning programmes offered are essential for e-Learning graduate recruitment.

5.1.2 Senior Academics' Interviews

Educators play a dominant role in the design, delivery and implementation of e-Learning. Thus, the perspectives, perceptions and readiness of academics towards e-Learning are significant areas for investigation. A total of ten senior academic respondents specialised in Business Administration and Information Technology schools are interviewed through semi-structured interviews. A sample of public (Cairo and Alexandria universities) and private universities (Arab

Academy for Science and Technology) were considered during data collection located in Cairo and Alexandria. The interview in this category of stakeholders included eight semi-structured questions and one ranking question as shown in Table (5.2).

Table (5.2) Senior Academics' Interview Form

<ol style="list-style-type: none"> 1. Do you think e-Learning is a useful way of learning in higher education? Why? 2. Do you think Egypt is ready for e-Learning? Why? 3. Can e-Learning be part of the solution to higher education problems in Egypt? Why/How? 4. Do you think e-Learning will help graduates gain more skills? How? 5. What are the skills that e-Learning could improve in higher education graduates? 6. Would you encourage the adoption of an e-Learning programme in your university? Why? 7. Do you think the Egyptian society is ready for e-Learning graduates and will equally acknowledge e-Learning graduates as traditional higher education graduates? Why? 8. Will they have equal job opportunities? Why? 9. Please rank the following criteria that you think would promote the adoption of e-Learning in Egypt based on the level of importance according to your point of view, where (1) presents the most important and (5) presents the least important. <ul style="list-style-type: none"> – Internet connection should be reliable – e-Learning programmes should be useful and effective – Ease to use course electronic material – e-Learning certificate should be accredited – Creating societal awareness of e-Learning concepts
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Investigations with senior academics revealed a number of interesting arguments. The adoption of e-Learning in higher education is encouraged by most academics due to two main reasons. Providing more educational opportunities with less pressure on university infrastructure and resources is regarded as a main contributor to e-Learning adoption, besides, considering e-Learning as a partial solution to the common higher education problems experienced in Egypt. However, electronic education is not regarded as an equal alternative to conventional education. Doubts about the effectiveness of e-Learning programmes are noticed in the majority of responses. Another reason discovered is the belief about applying e-Learning in non-practical fields of education only.

Similar to the themes revealed from employers' investigations, an e-Learning graduate is considered to excel in ICT skills mainly besides the ability to self-motivate and work independently. As a result, the majority of senior academics were either sure of less acknowledgment and appreciation given to e-Learning graduates from society or not sure yet justifying that it is not the time yet, e-graduates should prove their quality of work first. Consequently, traditional graduates will mostly be preferred as they provide a more safe and guaranteed choice despite the skills they lack as mentioned by various employers interviewed.

In order to boost online higher education, encourage society and decrease the potential fears of uncertainty towards e-Learning higher education and its graduates, the accreditation of the certificates offered besides increasing cultural awareness were prioritised by most academics interviewed in order to promote e-Learning adoption.

5.1.2.1 Summary of Responses

e-Learning Perception

When asked about the usefulness of e-Learning as an educational mode in higher education, most academics considered e-Learning as a useful method of education in higher education due to the advantages it offers only;

- *“e-Learning offers an educational service that is independent of time and place which can offer an educational service to a larger number of students” (A1),*
- *“e-Learning encourages students to take full responsibility of their learning, develops internet and computer skills and is seen as cost effective since the costs of learning, as transportation for example, are eliminated” (A3).*

Other benefits of e-Learning were obvious in the sample of responses collected. e-Learning is considered as an opportunity in opening new directions of education in Egypt besides solving some of the existing most common higher education problems as over-crowded classrooms and large tuition fees in private education (A4);

- *“It matches with the technological revolution that we have now, but we have to develop a new system to encourage the adoption of more e-Learning programmes in Egypt” (A10).*

On the other hand, a completely opposing opinion was addressed by one of the senior academics interviewed (A9). The respondent believed that the usefulness of e-Learning as an educational system will not be obvious in Egypt;

- *“For Egypt I do not think so. Students do not have the experience to depend on a totally electronic mode of education, they will not be self motivated. May be it can work only with International school graduates”.*

As all academics interviewed are experts in their own fields with working experience not less than ten years, it is expected that the responses of educators would show a deeper perception and awareness of more pedagogical benefits to e-Learning systems in higher education. However, the responses gained were not different from those gained by employers and students so far. For example, the benefits of e-Learning in cognitive development, self-regulation and substituting real life situations through technology were not mentioned.

e-Learning Readiness

Two different arguments are discovered concerning the readiness towards e-Learning in the Egyptian context. The majority of academics interviewed assumed that e-Learning could be easily applied in Egypt; however, spreading is the main real challenge. They claimed that the technological infrastructure in Egypt represented by the increase in the number of internet users, software developers, internet service providers (ISPs) and other resources needed are suitable and available; besides the high demand of higher education are encouraging factors;

- *“The increasing number of students acquiring a higher education certificate is another important promising factor (A1);*
- *”The applicability of e-Learning in Egypt is now more possible especially after the Egyptian revolution 2011 and realizing the power of the internet and information technology. Therefore, there is more respect for education through the internet” (A5).*

The technological infrastructure offered by governmental universities is a factor highlighted by one of the interviewees (A10) that is needed to ease the applicability of e-Learning in Egypt. The interviewee respondent added that;

- *“spreading e-Learning is the great challenge, therefore its applicability will be limited for the time being”* (A10).

On the other hand, two respondents disagreed with this concept. They justified that students are not yet ready to use this educational mode;

- *“Students are not ready for this type of education”* (A7);
- *“....., the applicability of e-Learning depends on other important factors as the acceptance from society for example which I think is not ready yet”*(A9).

Asking about the acknowledgement of e-graduates from the society as compared to traditional graduates, only two of respondents were certain of this point. Interviewee (A7) assumed that e-Learning graduates will have some special criteria that would help in their appreciation from the side of society;

- *“e-Learning graduates had to depend on their self confidence and self-motivation so I think they will be highly acknowledged,”* while interviewee 8 replied:
- *“there are a lot of online programmes that are already acknowledged and accredited, so there should be no problem”*(A8).

Different responses were gained from the majority of seniors interviewed. Two of them believed that it is difficult to decide yet, while another three proposed some factors to be taken into consideration first;

- *“Not yet, this is one of the main challenges of e-Learning in my opinion, which could be eliminated by applying strong quality standards and making sure of their true implementation before awarding e-Learning degrees”* (A1),
- *“Not in the meantime. After e-Learning spreads more and gains trust from society and proves that it can offer a high quality educational service it could be acknowledged”*.
- *“Our culture should be adapted first”* (A10).

Other interviewees considered some important factors before acknowledging graduates;

- *“It depends; I think accrediting the programmes and raising awareness about the validity and effectiveness of programmes offered might increase their appreciation and acknowledgement”* (A5),
- *“This will be according to the cultural acceptance of the country, may be in Egypt it will take longer time because of some mindset concepts about internet users but if e-Learning spreads in Egypt it will be acknowledged by time as traditional education”* (A6).

Interviewee (A2) was not certain; the respondent added that Egyptian society is actually unaware of e-Learning in general. While interviewee (A4) was sure that traditional graduates will always have more weight as their programmes are more powerful than their e-Learning counter parts. It could be assumed that there is a high level of uncertainty, fear and doubt about the effectiveness of e-Learning systems.

Similarly, responses were gained concerning the recruitment chances offered for e-graduates. Only one of the educators interviewed was quite sure that e-Learning will have equal status and that there may be more job opportunities. The respondent justified that:

- *“e-Learning graduates would have passed through a real challenge which will make them preferred more by employers”* (A7),

On the other hand, another group of three academics have positive views regarding this point after taking into consideration certain conditions such as the adaptation of culture (A6), employment in certain non-practical applications only (A8) and the accreditation of the certificate (A9). Half of interviewees were not sure about this point; they stated that recruitment depends on a number of factors such as;

- *“awareness of employers of e-Learning as an educational mode”* (A2),
- *“skills gained by e-Learning graduates”* (A4,) and
- *“accreditation of programmes offered”* (A5).

Two of the informants were quite sure that e-Learning graduates will have less recruitment chances. They believed that the lack of awareness of e-Learning in the job market and the absence of clear quality standards (A1) besides the limited e-Learning services offered (A10) are the main reasons behind this. The responses showed that there is a potential for e-Learning graduates to face a real challenge after graduation. It seems that finding an opportunity in the job market will not be an easy task compared to their traditional counterparts.

Higher Education Improvement

Results of investigating the opportunities that e-Learning can contribute revealed that the majority of informants considered that e-Learning can partially solve some problems such as high density classrooms, shortage in financial resources and traffic problems, hence improving the teaching and learning process;

- *“The learning process will be facilitated through giving more opportunities for discussion (A3),*
- *The lack of educational resources and high tuition fees are examples of problems that might be eliminated through the implementation of e-Learning” (A5).*

On the other hand, doubts about the effectiveness of the e-Learning programmes offered appeared to be clear in some responses;

- *“Strong technological infrastructure and quality of curriculum are factors that should be taken into consideration” (A5,)*
- *“The higher education problems in Egypt are spread throughout the entire educational majors in Egypt, while e-Learning can only be applied in certain non-practical applications only”(A10).*

The respondent of interview (9) considered e-Learning as an alternative solution to traditional higher education only in emergency or crisis scenarios, but not as a permanent alternative;

- *“In crisis only, as what we have experienced in Egypt during the swine flu period and the 25th of January events, where schools had to close for a while” (A9).*

Therefore, according to responses of interviewees in the academic field, e-Learning has the potential to solve some of the Egyptian higher education problems. The skills gained by e-learners are another important aspect discussed with academics. Most of the senior academics interviewed agreed that e-Learning graduates will gain more skills than traditional graduates. Internet, computer and research skills were the most commonly mentioned skills (A2, A5, A6 and A7). Other skills were also mentioned such as group work, independent thinking, self-confidence, expression of ideas and communication skills (A1, A2 and A6);

- *“Self-motivation is another gained skill by an e-learner” (A5),*
- *“e-learners will gain more skills but not in all applications as mentioned before”(A10),*

While interviewee (A4) had a completely different point of view that highlighted the necessity of the presence of the normal university environment from which students gain most of their skills.

When asked about the skills that e-Learning could improve in an e-graduate, it was totally agreed that e-Learning will improve a number of skills in an e-Learning graduate. Once again Information Technology, research, Internet and computer skills were commonly mentioned. Besides, time management, writing skills, language skills and scientific thinking were also stated. Therefore, if traditional higher education graduates lack the majority of skills desired by the job market as stated by employers sampled, e-learners may have the potential to fill the gaps found between the skills desired by the job market and the skills acquired by e-Learning graduates. However, responses from employers did not support the same perspective. These different perspectives shed light upon the plans and strategies of governmental authorities regarding the encouragement of society towards accepting e-Learning graduates.

e-Learning Adoption

The majority of respondents interviewed encouraged the adoption of an e-Learning track in their schools, either public or private. Various reasons were mentioned;

- *“.....especially in higher education because we could reach some populations of students that we cannot be able to reach otherwise, in addition to the other benefits mentioned before” (A1),*
- *“we have large universities with strong faculty base and resources that can meet the demands of e-Learning. Our human resources have the essential education, knowledge and experience to provide the e-Learning community. Also the university has a strong networking infrastructure” (A4),*
- *“we have already started in a post-graduate programme. We hope to offer an undergraduate e-Learning programme but we have to gain some experience from universities offering e-Learning first and start on a small scale basis as if it is a pilot study to test its success, then we can move further” (A10).*

A minor perspective was also gained by two respondents who were completely opposed to the idea of e-Learning adoption in their schools;

- *“e-Learning needs strong technical infrastructure, training to students to enhance their computer skills as well as training to academics for the development of courses and curriculums and continuous help and assistance to student’s which is time consuming and whose success is not guaranteed” (A7).*

Results gained from the ranking question showed that senior academics prioritized the accreditation of the e-Learning certificate and the creation of social awareness of e-Learning concepts as the most important criteria desired to promote the adoption of e-Learning in Egypt. Reliability of the internet connection was the second most important criteria followed by the creation of useful and effective e-Learning programmes and lastly the use of electronic materials easily.

It seems that academics consider the accreditation of the e-Learning certificate a

necessity for guaranteeing a high monitored level of higher education that would encourage the adoption level of e-Learning as well. Again creating cultural awareness of e-Learning concepts is prioritised by academics, which was the same case as employers. This shows that there is a big concern about developing a solid foundation to adopting e-Learning in Egyptian culture through promoting awareness and adequate control from authorities. Fear of uncertainty and resistance to change could be the reasons behind these responses.

5.1.2.2 Senior Academics' Themes Derived from Analysis

- General benefits of e-Learning systems are admitted by academics due to their advantages. From the technological side, Egypt is ready for e-learning since its applicability is possible and its adoption is encouraged in various universities. However, the social and cultural factors are the main obstacles to adoption (eg: readiness of students to use technology, challenge of spreading and cultural acceptance).
- e-Learning is considered as a partial solution to higher education problems, especially for solving the problem of large number of students. However, its application is seen to be limited to non practical fields. In spite of this, important factors should be considered first to ensure effective and efficient learning.
- e-Learning will help graduates in gaining more skills than traditional higher education graduates.
- Egyptian society is still not yet ready for acknowledging e-Learning graduates as seen from the society. The accreditation of the certificate and implementation of quality standards are highly recommended.
- The job opportunities offered to e-Learning graduates as compared to traditional ones are still not clear. More time is needed to adapt culture and employers. However, the skills gained by graduates may give them a step up. The accreditation of the certificate is highly recommended.
- Accreditation of the e-Learning certificate besides the need to create cultural awareness is essential for promoting the adoption of e-Learning in the Egyptian context.

5.1.3 Government Representatives' Interviews

The main reasons of introducing e-Learning and the opportunities that e-Learning can provide to the Egyptian higher education system could be revealed through interviewing higher education authorities. A total of four interviews are conducted with higher education government representatives in various positions. The initials plan of the research aimed at interviewing a similar number of respondents to those of employers and academics sampled. Unfortunately, the political situation in Egypt that started during January 2011 till present took place during the data collected period of this research. Due to safety reasons and recommendations from research supervisors, the number of interviews decreased in number. The interview in this category of stakeholders consisted of nine semi-structured questions and one ranking question as shown in Table (5.3).

Table (5.3) Higher Education Government Representatives' Interview Form

1. Why do you think the government introduced e-Learning in Egypt?
2. From your point of view, which would be better for the higher education in Egypt, adopting e-Learning or developing the existing universities programmes?
3. What do you think are the higher education disadvantages in Egypt?
4. Can e-Learning be part of the solution to the higher education problems in Egypt? Why/How?
5. What are the governmental efforts to ensure the efficiency of e-Learning?
6. What is the government plan concerning e-Learning accreditation and quality assurance?
7. How will the government encourage the adoption of e-Learning in Egypt?
8. How will e-Learning graduates differ from traditional on-campus graduates concerning skills gained?
9. What are the governmental efforts concerning promoting the readiness of the Egyptian society to acknowledge e-Learning graduates?
10. Please rank the following criteria that you think would promote the adoption of e-Learning in Egypt based on the level of importance according to your point of view, where (1) presents the most important and (5) presents the least important.
 - Internet Connection should be reliable
 - e-Learning programs should be useful and effective
 - Ease to use course electronic material
 - e-Learning certificate should be accredited
 - Creating societal awareness of e-Learning concepts

Interviews took place in Cairo where representatives were located. Occupations of government representatives included the following:

- A government representative on the board of trustees of a governmental university.
- Assistant minister for higher education development
- Board member of the National Authority for Quality Assurance of Accreditation of Education (NAQAAE)
- Director of higher education development fund

Investigations with higher education government representatives discussed the main reasons for introducing e-Learning to the higher education sector in Egypt, the potential opportunities for success and opportunities for improving higher education through e-Learning. Results revealed are not far from the rest of the stakeholders interviewed, where common themes are highlighted.

The high demand on higher education and limitations of infrastructure and resources in universities are the main reasons for introducing e-Learning to higher education. Higher education government representatives also claimed that the availability of suitable technological infrastructure present in Egypt is an encouraging factor for providing more educational opportunities without overloading college campuses. Therefore, e-Learning is seen as a logical solution that would help in overcoming some of the problems experienced. It is considered as an alternative route that is expected to encourage learners regardless of acceptance from society.

Similar to other stakeholders investigated (students, employers and academics), e-Learning graduates are regarded to excel in ICT skills. However, some contradicting results are revealed. Although informants considered the quality of the graduate to be the main reference for gaining society acceptance and approval, promoting societal awareness about e-Learning concepts besides accreditation of e-Learning certificates were regarded to be the most important factors for encouraging e-Learning adoption.

5.1.3.1 Summary of Responses:

Higher Education Improvement

Despite the limited number of interviewees, responses gained confirmed the major drawbacks of the higher education system found from the literature when asked about the disadvantages of higher education in Egypt;

- *“The Large number of students demanding a higher education certificate is the main problem, which is a result of free higher education” (G1),*
- *“The large number of students in most universities and the limited resources both are the main drawbacks. The lack of true implementation of a viable quality assurance system in Egyptian universities hinders any development plan for reform” (G2),*
- *“Limited facilities and limited use of high technology, obsolete programme contents and traditional way of teaching” (G3) and*
- *“the lack of updated programmes of study, absence of new teaching methods and obsolete learning programmes” (G4).*

When asked about the ability of e-Learning to be part of the solution to higher education in Egypt, three of the responses gained considered e-Learning as a partial solution to higher education problems, especially for solving the increasing demand for higher education dilemma without over-crowding campuses;

- *“Definitely it can, there will be less pressure on universities so the quality of higher education will increase but the main problem is in society and industry acceptance” (G1),*
- *“Solving the problem of limited places in the universities” (G3),*
- *“Especially in faculties with large numbers of students”(G4).*

Interviewee (G2) had a different but yet a positive point of view;

- *“Of course it can, it will allow more accessibility to education for learners and at the same time students will be better engaged in the learning process which will help them acquire the ability for self learning.”*

Therefore, e-Learning was considered as an equal alternative to traditional higher education that has the potential to attract a number of learners interested in higher education. On the other hand, Government representatives focused on the skills gained by e-learners as a major difference between them and on-campus graduates. They considered e-graduates as more skilful. However, different responses were acquired concerning this question. Interviewees G1 and G2 believed that e-Learning would enhance students' skills. This was obvious where interviewee (G1) responded;

- *"I think e-graduates will excel in computer, Internet and search skills. They will be familiar with updated information sources and will have a sense of responsibility and self-dependence."*
- *"Those skills are desired by employers and wanted in higher education graduates" (G1).*

Interviewee (G2) has also supported the same view by replying: "They will be more independent relying mainly on themselves and more actively participating in their education" (G2).

Interviewee (G3) had a slightly different point of view;

- *"e-Learning graduates may lack some practical aspects of education. However e-Learning graduates may acquire more knowledge in different fields of education."*

Interviewee(G4) did not add any comments justifying that:

- *"it's too early to evaluate since we don not have graduates."*

Despite the small number of interviewees, responses gained matched those of senior academics and employers. The same strengths and weaknesses were mentioned. Self reliability and information technology skills are guaranteed while practical skills and experiences are still under estimated.

e-Learning Adoption

Asking about the governmental efforts for ensuring the efficiency of e-Learning

programmes, responses varied between steps already taken and other that still need to be in place. Interviewee (G1) indicated what should be in place not what is really implemented;

- *“Government should provide all quality dimensions needed to gain trust from society and industry as: facilities of the university and its technological infrastructure, programmes offered and availability of course material, government should announce about the quality criteria applied to the e-Learning courses, especially in the assessment and follow-up of students.”*

Interviewees (G2) and (G3) gave some responses related to the actual situation illustrating the steps taken:

- *“The government established the Egyptian e-Learning University (EELU) and at the same time established a production centre in each university to assist professors in transforming their courses into the e-format. The introduction of this new concept in education and the acceptance of all partners involved as professors, students and parents is not an easy endeavour”* (G2),
- *“The government introduced teaching computer at an early stage of education in addition to arranging training courses to educators to get acquainted with dealing with e-Learning”* (G3).

Following those responses, it could still be assumed that government representatives admit that the spread and acceptance of e-Learning from society is the real challenge. However, by comparing the efforts stated by higher education authorities with the fears and doubts of students and employers, it could be concluded that still more strategies need to be developed and implemented.

Responses gained from different interviewees were nearly the same when asked about e-Learning accreditation and quality assurance plans. Government representatives clarify that a quality assurance strategy is essential but still not in place;

- *“There is a quality assurance plan under construction by NAQAAE which will take its time to be ready”* (G1),

- *“The national authority for quality assurance and accreditation is currently establishing the benchmarks required for this type of education” (G2),*
- *“Establishing the National Authority for Quality Assurance of Accreditation of Education (NAQAEE) to accredit all educational programmes and offer technical assistance to help educational institutes to confirm the requirements of the quality system” (G3).*

It seems that government representatives are keen about the establishment of accreditation criteria for e-Learning tracks. However, introducing the first e-Learning university before establishing robust criteria may have a negative impact towards e-Learning acceptance and adoption.

There was not a common theme mentioned by government representatives regarding the encouragement of adopting e-Learning in Egypt. Responses varied between steps that need to be implemented and others already in place. Four different responses were gained. Interviewee (G1) gave details of the actions that the government should do in order to encourage society for adopting e-Learning;

- *“The government should take strong and clear actions to encourage society as offering scholarships for distinguished employees to get either an undergraduate or postgraduate certificate from an e-Learning route as well as ensuring that this is another equivalent route for getting a higher education certificate.”*
- *“By introducing it as an alternative for students who were not able to enrol in public universities and by ensuring that the graduates of this type of education are accepted and equivalent to those coming from the regular system” (G2),*
- *“By offering a budget for training and providing technical assistance to educational institutes”(G3),*
- *“Through the e-Learning units introduced in some universities and the establishment of e-Learning university (EELU)” (G4).*

The limited responses gained still shows that HE authorities consider the limited perception and acceptance of society towards e-Learning. However, the absence of clear strategies is obvious.

When asked about the reason for introducing e-Learning to Egypt, it was clear from all interviewees that it was a logical solution and an alternative route to escape from the existing problems in higher education;

- *“e-Learning is another route for students without over drowning universities especially for technical education students. The Technological infrastructure in Egypt is appropriate for adopting this kind of education” (G1),*
- *“With the increase in demands on higher education and the limited resources available to expand the existing or open new public universities and the unaffordable tuition fees in private universities, all this led to the conclusion that the use of modern technology was the only alternative to ensure accessibility” (G2),*
- *“there are a lot of reasons that led to introducing e-Learning: to solve the problem of increasing numbers of students, to avoid the need for establishing new universities and educational institutes, to reduce the cost of education and to keep up to date with the new trends in education” (G3),*
- *“to overcome the great increase in the number of students, of course” (G4).*

These responses complete the picture concerning the ability of e-Learning in solving some of higher education drawbacks. Encompassing a number of learners with less financial expenses was one of the common reasons.

Asking about the best scenario for Egypt, adopting e-Learning or developing the existing universities programmes, the majority of replies gained considered investing in both routes together;

- *“Both are required; however, e-Learning can help more students than traditional students as it does not depend on geographical locations. Investment in traditional education needs larger budgets, which is why the quality of higher education is deteriorating plus giving a good opportunity for students with jobs or difficult family conditions” (G1),*
- *“The introduction of e-Learning does not preclude the necessity of developing existing universities,*
- *“Both tracks have to move in parallel” (G2),*
- *“Both are required, however introducing e-Learning would be better” (G3).*

On the other hand, interviewee (G4) showed that developing existing university programmes must be the first priority with the help of the benefits of e-Learning programmes;

- *“From my point of view developing existing university programmes would be better with the help of introducing e-Learning services in some programmes.”*

Government representatives prioritized the factor of creating social awareness about e-Learning concepts as the most important criteria needed to promote the adoption of e-Learning in Egypt followed by the accreditation of the certificate offered. The reliability of the internet connection and ease to use course materials gained the third and fourth ranks, respectively. There was not a common trend from the results gained for the usefulness and effectiveness of the e-Learning programmes factor.

It could be assumed by these responses that in spite of introducing e-Learning into higher education to Egypt, higher education authorities are aware of the lack of societal awareness. Accreditation is crucial in giving a step up to e-Learning which could encourage adoption and help in increasing societal acceptance.

e-Learning Readiness

There were no clear plans for the governmental efforts concerning promoting the readiness of the Egyptian society to acknowledge e-Learning graduates, different replies were obtained;

- *“The government must arrange awareness sessions about the management, assessment and technological infrastructure used in e-Learning tracks to assure society and promote confidence”* (G1),

Interviewee (G2) believed that the quality of the graduate is the controlling factor concerning the acknowledgment and appreciation from society;

- *“Since we do not have yet any graduates from these programme, I think that the quality of the graduates will be the main reason for the acknowledgment of the society,”*

- While interviewee (G3) added that: “*governmental efforts are limited so far.*”

In the context of the present fear of cultural acceptance and lack of societal awareness, it could nearly be confirmed that e-Learning graduates are highly likely to face a real challenge. They need to prove that they are not less educated or lower quality graduates keeping in mind that there are no clear plans from higher education authorities concerning promoting their acknowledgement and appreciation from society.

5.1.3.2 Government Representative Themes Derived from Analysis

- E-Learning is seen as another alternative route to higher education that would help in escaping from the well known higher education problems, especially large student numbers in schools.
- There are preliminary steps taken from the side of the government to ensure effective implementation and delivery of e-Learning. However, there is potential to develop accreditation criteria for e-Learning institutions.
- There are initial plans for encouraging the adoption of e-Learning. There are not any current efforts for enhancing the readiness of Egyptian society to acknowledge e-Learning graduates. The quality of the graduate was a commonly mentioned criterion on which the e-Learning graduates might be valued or not.
- e-Learning graduates will excel in the same skills mentioned by employers and academic (computer, internet, research and the ability for working independently). Yet, the lack of practical experience was mentioned as a clear deficiency.
- The awareness of society about e-Learning concepts followed by the accreditation of the e-Learning certificate are needed for e-Learning adoption.

5.2 Summary

This chapter presented the summary of 24 responses and results of interviews conducted with three of the main higher education stakeholder groups in Egypt. The groups investigated included senior higher education academics, employers and higher education government representatives. Semi-structured interviews

were used to collect data among various respondent groups.

For each group, common themes were derived from the summary of various responses. The results have shown that there is a great chance for improving the higher education experience in Egypt through adopting e-Learning programmes as seen by higher education authorities and academics. However, the main problem found was the great level of uncertainty of such an educational mode. Fears about the effectiveness of e-Learning programmes implemented in the Egyptian context were revealed that might affect the acknowledgment, appreciation and recruitment of e-Learning graduates. Therefore, a traditional higher education graduate would be preferred in the job market rather than his e-Learning peers.

Although academics are willing to adopt and deliver this kind of educational technology in their institutions, there seems to be limited plans developed by higher education authorities concerning the encouragement of society to engage in e-Learning. The effects of these limited efforts could be seen in the responses of employers concerning their perspective on hiring an e-Learning higher education graduate and the obvious need for increasing societal awareness of e-Learning concepts. Therefore, it is expected that the absence of clear and valid strategies known to Egyptian society in general and the main stakeholders specifically may be the main obstacle in accepting e-Learning and gaining the benefits that e-Learning could potentially contribute to improving the Egyptian higher education.

Some of the main findings from the interviews were:

- The popular problems of higher education mentioned by academics and higher education authorities (crowded classes, insufficient resources and obsolete learning material) are the main reasons behind the lack of skills desired by employers;
- Online degrees can improve ICT skill, self-dependency and raise the sense of responsibility;
- Employers claim to be aware of e-Learning as an educational mode of learning, however doubts and fears of uncertainty towards the online degree holders were discovered;

- Online degree holders are likely to face less acknowledgement and appreciation from society and especially employers, thus less job opportunities;
- More time is needed to decrease the discrimination discovered between online degree holders and their conventional peers, to assure their level of education and knowledge;
- Academics acknowledge the usefulness of e-Learning programmes, encourage the adoption of e-Learning programmes, however students' readiness to use technology and social acceptance are the main constraints;
- e-Learning is considered as a partial solution to higher education weaknesses. Its application is limited to non-practical fields;
- Government representatives considered the introduction of online education as a logical solution to higher education weaknesses. The dilemma between the high demand on higher education and limited resources available will promote e-Learning acceptance and adoption;
- The accreditation of online certificates granted besides the development and implementation of action plans to increase social awareness are needed to promote e-Learning adoption.

The next chapter (Discussion of findings) provides a detailed discussion of the results gained of both quantitative and qualitative data collection techniques, in which comparing and contrasting of total views will be demonstrated. Figures (6.3) and (6.4) provide a succinct presentation of the responses gained aiming at providing a full picture of all stakeholders involved showing their perspectives towards e-Learning adoption and its opportunities of improving the Egyptian higher education.

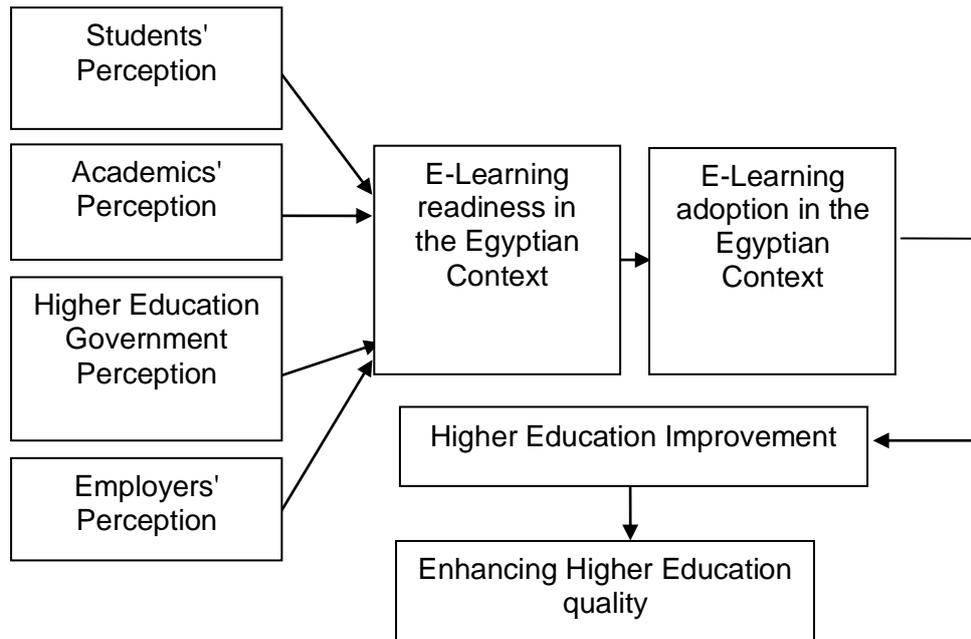
6. DISCUSSION OF FINDINGS

The aim of this chapter is to synthesise all the responses collected from questionnaires distributed among governmental, private and e-Learning students and interviews conducted through academics, employers and government representative groups in order to reflect the on perceptions, readiness and adoption trends towards the introduction of e-Learning in the Egyptian context. Deviations, similarities and differences in perspectives between various stakeholder groups will also be highlighted in relation to literature to discover the opportunities for e-Learning to improve higher education in Egypt. The chapter reflects the main findings discovered through the research framework proposed as shown in Figure (6.1).

6.1 Introduction

This study indicated potential relationships between perceptions of technology, readiness of individuals and technology adoption (Davis et al., 1989; Venkatesh et al., 2003; Lopes, 2007). Thus, the research framework presented in Figure (6.1) was proposed. The following sections of this chapter will discuss the relations between the previous factors and their effects on improving the higher education experience from the perspectives of higher education students (public, private and e-Learning), parents, senior academics, employers and higher education government representatives. Thus, they provide higher education authorities with firm guidelines and recommendations for the effective utilisation of e-Learning in the Egyptian context. Figures (6.3) and (6.4) illustrate the commonalities and differences in perspectives among the stakeholder groups investigated in this research.

Figure (6.1) Research Framework



6.2 Synthesising Perceptions towards e-Learning

Perception towards technology is affected by two main factors: perceived usefulness and perceived ease of use. Both factors affect the behavioural intention and the actual use of technology (Davis et al., 1999; Venkatesh et al., 2003). Perceptions of different stakeholders that deal directly or indirectly with the technology introduced are crucial for its success. Therefore, learners are considered as being the main end users of e-Learning programmes, educators design and deliver their learning materials through special programmes, higher education authorities and governmental institutions provide the official necessary guidelines, while regulations and employers receive the end product of online degrees in the form of fresh graduates that should conform to the requirements of the job market.

6.2.1 Perceived Usefulness of e-Learning Programmes

Starting with the main end user of e-Learning institutions, the study investigated the perceptions of higher education students studying in different sectors of Egyptian higher education. Questionnaires were used for collecting data from governmental, private and e-Learning universities. Looking at the perceived usefulness of e-Learning programmes, different results were gained from the three student groups investigated. Students were asked about the skills that e-Learning

programs could provide to learners. In spite of the acknowledgement gained by higher education students towards the skills acquired through online degrees, there seems to be a lack of knowledge of some basic e-Learning principles. The majority of students investigated underestimated the ability of e-Learning environments to support practical work (private 76.6% and public 61%) and teamwork (private 67.7% and public 50%). It seems that the majority of on-campus young adults are unaware of the use of ICT applications such as simulations that can provide practical demonstrations of learned topics which could even be more difficult to display in normal conditions. Teamwork between peers is also facilitated in online environments through the use of live chats and forums. On the basis of these findings, e-Learning institutions are not foreseen to provide students with the minimum level of skills as conventional methods do, from the learner's perspective. However, online degrees are seen to excel in providing learners and graduates with enhanced ICT skills.

Although both groups (public and private) of on-campus students recognised that the lack of practical work (public 50% and private 77.5%) besides the lack of innovation (public 62.2% and private 77.5%) in conventional higher educational programmes offered as the main drawbacks experienced, they denied that free admission to universities (public 30% and private 19%) could be a main reason that contributed to experiencing low educational quality levels. Although the introduction of ICT in education would help in providing more innovative methods of education that has the ability to simulate practical work environments, the doubts discovered about e-Learning programmes from the perspectives of young adults may not help in widening the acceptance of e-Learning.

The same trend could also be seen in the percentages gained concerning the preference of the higher education mode by students. The majority of governmental higher education students (60%) continued to prefer conventional institutions despite their dissatisfaction with the educational level they get. Based on these results, it could be assumed that the fear of uncertainty stemming from lack of awareness of e-Learning principles could be the potential reasons behind students' preferences. Students tend to favour experiencing obstacles from a known experienced learning system familiar to them rather than dealing with a new system they seem to doubt its effectiveness. Therefore, fears of uncertainty

outweigh the potential benefits that could be experienced as a result of introducing a new learning system.

Although the results of privately educated students were nearly evenly divided between preferring on-campus and e-Learning modes, still these results could be considered important. The fact that nearly half of non-governmental young adults investigated considered choosing online degrees as an alternative, indicates that learners are not quite satisfied with the level of education they receive. e-Learning could be considered as an educational track that has the potential to provide new innovative ways of learning to some students or it could also be considered as a compromise solution between the low quality of teaching and learning in governmental institutions and the high tuition fees required by reputable private universities. Since higher tuition fees are required for experiencing an acceptable level of private higher education, the sacrifice of money could still be another option for learners instead of experiencing new doubtful educational systems such as e-Learning.

Since Egypt has launched its first e-Learning university, determining the motives that pushed students to choose this mode of higher education was necessary in order to gain integrated perspectives. It was discovered that e-learners valued the easy access to education (83%), development of learner's skills (80%) and considering e-Learning as a solution to the existing higher education problems (75%). Although the first two reasons were commonly mentioned as some of the e-Learning benefits (Haddad, 2002; MacKeogh and Fox, 2009), the latter reason could be considered as an important indicator for future educational investment. Based on the results, experiencing a real e-online educational environment helped in raising students' awareness about the paybacks that e-Learning could provide. Since the lack of practical applications and innovation in programmes were on top of the main obstacles experienced by on-campus students, there seems to be a potential for e-Learning in improving the same factors as seen from practical experiences. However, none of these benefits could be achieved if e-Learning awareness levels remain low or at the same level as it is.

Since Arab countries are characterised by collectivism cultures (Hofstede, 2013), the approval and support of young adults' parents regarding the choice of their

learning mode in higher education could be considered as a directing force that affects young adults' preferences. Although traditional higher education was preferred by on-campus students, according to the results gained, the encouragement (77.2% private and 56.2% public), enrolment and funding (76.2% private and 59.2% public) of parents was guaranteed by most on-campus students. Although the effectiveness of online degrees is not foreseen by most of students, e-Learning could have the potential to offer a compromise solution between governmental higher education weaknesses and the high tuition fees of private higher education. From the perspectives of young adults, e-Learning could provide a compromise solution that is capable of encouraging and motivating their parents.

Since the first e-Learning university was introduced by the higher education authorities, it could be expected that governmental authorities' trust and guarantee the use of technology in education. Their perceptions towards e-Learning are expected to be significantly different from the rest of stakeholders investigated. However, the same doubts were gained from the interviews conducted with higher education authorities investigated.

New governmental representatives admitted the major drawbacks of higher education in Egypt, which matched most of the problems mentioned in literature (Richard, 1992; El Sebai, 2006; Fahim, 2009; Schwab 2013): "*The large number of students in most universities (G1)*", "*Limited facilities and limited use of high technology, obsolete programme contents and traditional way of teaching*" (G3).

Based on the responses collected from interviews, e-Learning is seen as another alternative route to higher education that would help in the getting over some of the main problems occurring; "*More accessibility to education for learners and at the same time students, acquiring the ability for self learning*" (G2), "*Less pressure on universities*" (G1). Similarly, the amount of practical work experienced during e-Learning seems to be a clear deficiency as seen by interviewees; "*e-Learning graduates may lack some practical aspects of education*" (G3). Accordingly, it seems that in the sample investigated there is a shortage in the basic knowledge of learning through ICT. Therefore, the amount of learning gained from practical work is not guaranteed even by governmental authorities.

Nearly the same themes of perspectives were gained from senior academics interviewed. The perceived benefits that e-Learning environments could add to higher education systems as a whole and consequently graduates were nearly the same. ICT skills, promoting responsibility and self-reliance were commonly mentioned. Still, e-Learning is seen as limited to non practical applications such as humanity studies but not suitable for practically base educational tracks such as engineering and medical sciences; *"The higher education problems in Egypt are spread throughout the entire educational majors in Egypt, while e-Learning can only be applied in certain non-practical applications only"* (A10).

Current students of higher education are the future employees desired by the job market. Through interviewing a sample of employers in the Egyptian job market, it was discovered that the main weaknesses that higher education suffers from affected the quality of graduates. Employers agreed that the skills they assume to find in fresh graduates are the same skills that fresh graduates lack. Strong basic knowledge in field of specialisation, soft skills, responsibility and independence, ICT skills and practical experiences were mentioned as desired and at the same time not found in graduates. Accordingly, these results shed light on the opportunities available for e-Learning institutions to provide graduates having the potential to satisfy job market needs.

Employers also mentioned that the skills gained by graduates depend mainly on the effectiveness of the educational system. Since e-Learning was recently introduced and its graduates have not been practically assessed. It could be expected that online degrees will be underestimated by employers; *"It totally depends on the study field. I think it would make a dream come true in areas such as Business Administration and IT, as it will enhance research and computer skills"* (E7), *"It depends on the student personality, the material taught, and instructors"* (E5). The variety of responses shown demonstrates that employers doubt the effectiveness of online degree holders, which again assures the perceptions of students, educators and governmental authorities demonstrated earlier.

Although e-Learning seems to be the dream that has the potential to provide the job market with an acceptable level of quality employees, there seems to be a high

level of uncertainty and lack of trust regarding the effectiveness of e-Learning system from the perspectives of employers. The constraints that online degree students could potentially face in the Egyptian context may affect the skills acquired; *"Egyptian students are not used to this type of learning in their previous learning stage which decreases the chance of gaining new skills, so they will not benefit from it even if there are more skills to learn"*(E8).

Consequently, the ability of e-Learning systems in promoting independent thinking and self-regulation are not clear enough to potential recruiters. These perceptions also show that ICT skills are regarded as the prime if not the only benefit that distinguishes online degree graduates from their conventional peers. It could be anticipated that e-Learning graduates potentially face serious challenges when they are subject to hiring. Although a lot of researchers demonstrated similar findings, where conventional degree holders were considered as more rigorous and mostly preferred by employers (Seibold, 2001; Udegbe, 2012) the results gained were partially expected. The fears of uncertainty towards new ideas and resistance to change present in the Egyptian culture are all contributing factors to the preference for traditional graduates among employers. However, ICT skills, independence, self-regulation and motivation acquired by e-Learning graduates and desired by the job market (at the same time not available in traditional graduates) could have given e-Learning graduates a priority in recruitment. Due to the absence of the desired skills in fresh conventional graduates as mentioned by employers, it was expected that employers would give e-Learning programs a better chance according to the skills they acquired. Based on the responses collected from employers, the availability and implementation of a valid well known strategy at e-Learning institutions may help in guaranteeing the acceptance of its graduates. Thus, creating an opportunity for online degree holders to show themselves as quality employers and at the same time fill in the gaps between the skills required by the job market and skills acquired by learners.

6.2.2 Ease of Use

Students' attitudes towards technology are directly connected to several factors; their technical abilities, time dedicated to computer use and computer experience (Bertea, 2009). Looking at the ease of using ICT in education, which is one of the

factors affecting the actual use of technology, results showed that young adults are heavy users of the Internet especially in educational application (92.1% private and 56.1% public). Although these results are higher in non-governmental sector, still based on the results, learners are not expected to face technological problems depending on a totally electronic platform. Learners are used to the basic skills needed for dealing with ICT in education. The same conclusion could be drawn highlighting the low rank gained from the 'ease of use' category by e-Learning students. Dealing with a real e-Learning environment demonstrated that using technology is not the main challenge. Therefore, technology usage is not foreseen as a significant obstacle by learners.

Similarly, according to responses collected from interviews, educators disregarded the 'ease of use' of technology as a main condition for accepting e-Learning programmes. Therefore, the ease of use of ICT in education could be one of the potential drivers towards e-Learning as seen by its main users (students and educators). Although confidence in e-Learning in terms of training needed is one of the important factors for academics needed for e-course delivery (Daugherty and Funke, 1998; Pajo and Wallace, 2001; Agboola, 2006), most of the educators investigated showed the opposite. However, a minority of responses assured the need for training of instructors and students; *"e-Learning needs strong technical infrastructure, training to students to enhance their computer skills as well as training to academics for the development of courses and curriculums and continuous help and assistance to student's which is time consuming and whose success is not guaranteed"* (A7), and *"Students are not ready"* (A9). The lack of experience and technology awareness towards e-Learning applications experienced by academics could be the main reason behind the responses gained. As Rofle (2008) mentioned, the lack of technology awareness could be a reason behind unclear definition of e-Learning among academics. Therefore, the importance of training needed may not be foreseen.

Although the stakeholder groups investigated seemed to be aware of e-Learning concepts, results have demonstrated the lack of basic e-Learning fundamentals resulting in false perceptions towards the use of technology in education. The perceived benefits of e-Learning are not totally clear, while the ease of use of technology in education seems to be a driving force for students yet

underestimated by educators. The same results were achieved by Beckstorm (2004) and El-Zayat (2007) who highlighted the poor perceptions of e-Learning in Egypt and the low awareness level, respectively. Based on these results, a local strategy may be required to raise the awareness of e-Learning concepts.

6.3 Synthesising Readiness for Technology

In order to introduce technology, the corresponding society must be ready and prepared for its acceptance. Technology acceptance is determined by two main contributors. Technological readiness of countries presented in terms of indices and scales and individual readiness for technology determined by contributing and inhibiting forces (Chang and Kannan, 2006). Thus, assessing readiness for technology sheds light on the challenges and opportunities present in a specific context.

6.3.1 Technological Readiness

Looking into the Egyptian technological e-readiness, the latest figures given by the Global Competitiveness Report (2012/2013) highlighted Egypt's position among 144 economies, besides a ranking score on a scale from 1-7, with 7 being the most desirable outcome (Schwab, 2013). Egypt ranked the 91st place out of 144 with an average score of 3.4 out of 7, a low percentage of individuals using the internet (35.6%) and a high score of 6.8 out of 7 concerning Internet bandwidth (p. 158). Although the technological potential in Egypt seems to focus on the availability of suitable Internet bandwidth, the results gained from surveying students showed different trends. The majority of students in the three educational sectors investigated helped to show that accessing the Internet is one of their daily home activities (79.2% public and 96% private). The heavy use of the Web besides the availability of suitable bandwidth could be considered as a potential technological advantage for adopting e-Learning.

These results could have been the main cause for not considering the reliability of the Internet as one of the main factors for e-Learning adoption by on-campus students, educators, employers and government representatives. However, the same factor was prioritised by the e-Learning student group (median = 2). Although the Internet bandwidth in Egypt seems to be reliable, e-Learning

students may require the provision of more technological infrastructure in order to support their mode of learning. Despite the small sample of e-Learning students investigated, the reliability of Internet connection could be one of the challenges facing technological readiness in Egypt. Thus, based on the results and taking into consideration the sampling technique followed during data collection which does not support the generalisation of results, it could be anticipated that the Information and Communication readiness of Egypt seems to be higher than the assessment of the latest reports. This assumption supports the criticisms assigned to e-readiness models used, in which a gap between theoretical frameworks and practical implications of e-readiness assessment of countries was highlighted (Dada, 2006).

6.3.2 Individual Readiness

On the other side, assessing readiness of individuals in the Egyptian context has revealed different results. Some studies showed positive potentials towards e-readiness (Abouchedid, 2004; Beckstorm, 2004), while others highlighted some weaknesses such as the absence of necessary skills needed by students (Ali, 2010). Based on the findings demonstrated, the real contributors to e-Learning readiness in Egypt according to the sample investigated are classified into three main groups; development of Information and Communication skills, ease of accessibility and overcoming crowded classrooms. Although online institutions were regarded as a logical alternative to conventional higher education according to the responses of academics and educational authorities, they are not regarded as an equal alternative to conventional education. The support of practical education and teamwork are foreseen as obvious weaknesses in online degrees. Consequently, e-Learning could only be limited to certain fields. This perspective sheds light on the readiness of the Egyptian society, specifically employers, towards the acknowledgement, appreciation and acceptance of e-Learning graduates and the chances of hiring provided to them. Based on the findings and the elementary steps taken towards the introduction of e-Learning in higher education in Egypt, it could be expected that employers may not accept an e-Learning graduate easily.

Taking in the perspectives of young adults, a large portion of students investigated

(60% of public on-campus and 78% of e-Learning students) considered the support of Higher Education authorities to e-Learning certificates as an important factor that would help giving e-Learning graduates a step up in gaining more recognition and appreciation in the Egyptian context. Young adults expect that online certificate holders have the potential of facing resistance in gaining approval from society. Therefore, the support of higher education authorities is essential for facing resistance from society members and especially employers who might not prefer hiring an e-Learning degree holder. These results highlight the high power distance present in Egyptian society. It could also be expected that for e-Learning to spread and stem from other non-governmental tracks, other forms of official support such as the accreditation of certificate could be a necessity.

Although non-governmental higher education students considered the familiarity of employers (76%) with e-Learning systems as a main contributor for the recognition of e-Learning degree holders, they considered the lack of admiration of e-Learning certificates as a factor that would lead to less hiring opportunities despite the skills acquired. Therefore, if the skills and knowledge acquired by e-Learning degree holders are known to employers, more hiring opportunities may be available. On the contrary, the current situation showed low admiration of employers towards e-Learning certificates which might result in lower hiring opportunities. Partially, the same perspective was gained from educators. Although they recognised the usefulness of e-Learning programmes, the readiness of Egyptian society was underestimated. Educators claimed the Egyptian society is not ready yet for receiving e-Learning graduates. Assuring the quality of teaching and learning is crucial. Therefore, the chances of hiring for an e-Learning graduate may not be guaranteed yet. Again, the accreditation of the certificate and the implementation of rigorous quality standards might boost the approval of e-Learning graduates.

These views were partially confirmed by the sample investigated from the job market. Employers were either uncertain about the quality of e-Learning graduates. So, potential employees may need to be assessed before hand: *"It depends on the skills gained by the graduate and desired to the nature of the job"* (E4). Another theme was discovered which refused to approve e-Learning graduates in the same manner as their traditional on-campus peers. Employing a traditional graduate would be a safer choice or: *"Traditional higher education*

system is more trusted, their rules, regulations and assessment systems are known and valid. I think that the e-Learning as a concept has to be promoted, which will take some time to gain trust and confidence" (E3), "I am not convinced that an EL graduate would replace an on-campus one" (E10).

There is a potentially emerging trend showing that e-Learning graduates are more likely to experience less hiring opportunities. This trend may still be valid until online certificate holders succeed demonstrating their qualifications and knowledge as quality and reliable employees. Although governmental support for e-Learning certificates does not seem to be a motive for the recognition of e-Learning graduates, still the role of higher education authorities is significant in promoting awareness, ensuring effectiveness and efficiency and approval of online degrees.

The results gained from surveying the Egyptian society was not far from experiences shown in literature concerning the attitudes towards online degree holders. Despite the increase of e-Learning programmes offered worldwide (Columbaro, 2009), there is a clear discrimination between online degree and traditional on-campus graduates (Seibold, 2001; Udegbe, 2008). Traditional on-campus certificates are considered better and more rigorous providing better qualifications to students (Udegbe, 2012). Again, the role of Higher Education authorities and institutions in assuring the reliability of e-Learning tracks and promoting awareness is highlighted. The ability of e-Learning in promoting pedagogical development and technological skills must also be highlighted.

Consequently, the role of governmental efforts towards promoting the readiness of Egyptian society for acknowledging e-Learning graduates was investigated. Due to the small sample size of Higher Education representatives investigated, different responses were gained; *"Since we do not have yet any graduates from these programs, I think that the quality of the graduates will be the main reason for the acknowledgment of the society" (G2), "governmental efforts are limited so far" (G3).* Based on the responses gained, the absence of clear plans for promoting e-Learning readiness is a common feature. It seems that higher education authorities guarantee the success of accepting e-Learning in the Egyptian society. They depend on the quality of the graduate for gaining societal recognition.

However, previous results gained from other stakeholder groups highlighted the dominant role that governmental authorities should play in order to promote awareness and assure acceptable levels of teaching and learning which match the large power distance, uncertainty avoidance and resistance to change present in Egyptian society. The results also highlighted the gap between the individual perceptions, readiness and the implications of steps undertaken by government disregarding the importance of societal acceptance.

Although technological readiness in Egypt seems to provide a suitable foundation for adopting e-Learning in terms of Internet users, bandwidth availability and cost, and the main difficulties appear to be in a lack of basic knowledge of online degrees which affected societal perceptions and individual readiness. Although developing ICT skills, ease of accessibility, escaping from crowded classrooms are the main contributors that account for individual's readiness, based on the findings inhibitors or challenges are highly weighted. The lack of awareness shown from the investigated groups have resulted in low perceptions concerning the reliability of online degrees in providing graduates with at least the same level of education and knowledge as conventional graduates. As a result, students consider e-Learning degree holders as less knowledgeable with less hiring opportunities. Clear official support from authorities is highly recommended, educators believe that the society is not ready yet for accepting an e-Learning graduate and employers tend to doubt the quality of online degree graduates thus on-campus educated graduates are highly preferred despite all their concerns.

Although higher education government representatives regard online degrees as an alternative route that should play an important part in overcoming most of the popular weaknesses, societal readiness seems to be a significant obstacle that requires more rigorous solutions to encourage learner's engagement, educator's participations and delivery and employer's motivation.

6.4 Synthesising Technology Adoption

Motivation is a significant factor in technology acceptance and use. According to the Unified Theory of Acceptance and Use of Technology model (UTAUT); performance expectancy, effort expectancy, social influence and facilitating conditions are the most significant factors addressed by the model that would

determine user's acceptance behaviours towards technology adoption (Venkatesh et al., 2003).

6.4.1 Effort Expectancy Factors

Different results were gained from student questionnaires based at different educational sectors regarding the most important criteria that would facilitate e-Learning adoption. Results showed that the easiness of using electronic material was disregarded as a main factor for e-Learning adoption (median = 4 for e-Learning students, and 3 for on-campus students). Based on these figures, young adults seem to trust their abilities and skills in dealing with electronic educational materials, which may not require additional training or special skill development. The same perspective was gained from the responses of senior academics. Educators encouraged the adoption of e-Learning institutions in their universities regardless of the needs for further trainings or development of skills: "*especially in higher education because we could reach some populations of students that we can not be able to reach otherwise*" (A1).

Previous research revealed that the lack of technical support, adequate equipment, and the increased amount of preparation time required (Daugherty and Funke, 1998; Pajo and Wallace, 2001), besides confidence to use e-Learning (Agboola, 2006) are the most commonly found barriers towards e-Learning from the perspective of educators. It could be anticipated that a large portion of the Egyptian society are confident to adopt e-Learning. They consider themselves experienced enough to deal with technology based education with no further effort required or training needed. Therefore, the effort expectancy factors could be considered as motivating factors towards e-Learning adoption.

6.4.2 Performance Expectancy factors

On the other side, the real challenges that students highlighted were the lack of face to face interaction (median = 2 for public, 5 for private and 3 for e-Learning students) and non-real time feedback to questions (median = 3 for public, 3 for private and 3 for e-Learning students). These fears could be the main reasons behind the doubts discovered earlier as regards the effectiveness and efficiency of online degrees. Therefore, it could be concluded that students tend to

underestimate their performance in e-Learning environments in the context of less supervision and interaction between them, their tutors and peers.

The expectations of lower performance of online degree students were also seen in the previous results that demonstrated the lack of appreciation and lack of approval of online degree holder by various stakeholder groups. The anticipation of less hiring opportunities offered to e-Learning degree holders and the preference of conventional graduates also show that employers doubt the effectiveness of online degrees and the performance of students in e-Learning environments. Similar expectations were reassured once again based on the responses gained from interviewing senior academics and employer groups. Educators recommended the accreditation of e-Learning certificates besides creating cultural awareness as significant factors for promoting e-Learning adoption. The latter factor was also prioritised by employers besides the assurance of the usefulness of online degrees. Therefore, it could be assumed that perceptions towards equal performances of online degree students compared to their conventional peers act as an important demotivational factor that constrains e-Learning adoption. Thus good performance expectancy is not guaranteed.

6.4.3 Social Influence Factors

The obtained results also demonstrated the main constraints concerning e-Learning adoption. The common fear of uncertainty and resistance to change present in the Egyptian society besides lack of technology based education awareness negatively influenced attitudes towards the acceptance of the new educational platform and its graduates. Alternatively, different societal groups represented in the stakeholders investigated recommended a number of driving forces that would help in gaining more confidence and assurance of e-Learning effectiveness and the quality of graduates. Thus, creating cultural awareness and accreditation of online certificates were on top of the contributors mentioned. These results show that a large portion of society admits the limited awareness of e-Learning principles and highlights the role of higher education authorities and institutions in promoting necessary concepts. Societal groups seem to lack the basic motivational forces that could help in promoting adoption and acceptance of

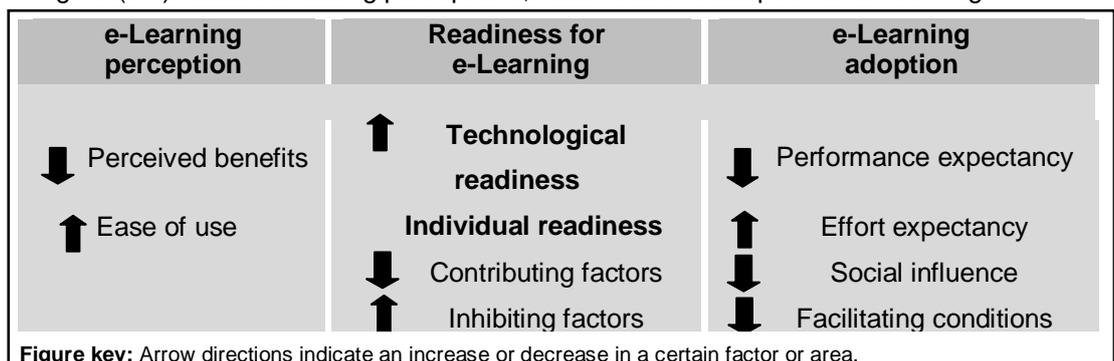
e-Learning institutions and consequently graduates.

6.4.4 Facilitating Conditions

Since e-Learning higher education was introduced to Egypt by HE authorities, it could be expected that government provided the facilitating conditions necessary for motivating society and assuring e-Learning acceptance and success. Change management plans and strategic frameworks are expected to be in place. Despite the small number of government representatives sampled, very similar themes were discovered. The absence of official plans for ensuring the effectiveness of e-Learning tracks and absence of clear strategies for the encouragement and motivation of society shows that local needs are not addressed. Alternatively, government representatives relied on the ability of online degree holders to prove their quality and the available potentials for the establishment of distance learning quality criteria that would help in the accreditation of online certificates.

Although higher education representatives considered promoting societal awareness and accrediting online degrees as significant factors that would motivate the adoption of e-Learning, there seems to be a gap between the facilitating conditions desired by the society and the facilitating conditions provided by officials, which seems to be insufficient for motivating the adoption of e-Learning technology. Therefore, there is a gap between local needs and development of official strategies. The unfulfilment of local needs is expected to constrain the improvement that e-Learning could provide to higher education. Figure 6.2 summarises the findings of the variables affecting perceptions, readiness and adoption of e-Learning. The arrows shown indicate an increase or a decrease in a certain factor, in which an arrow pointing upwards indicates an increase in the factor or area and vice versa.

Figure (6.2) Factors affecting perceptions, readiness and adoption of e-Learning



The above figure shows that there are certain differences regarding e-Learning acceptance in the Egyptian context. Although the ease of using e-Learning tools and environments seem to be guaranteed, e-Learning is not regarded as an effective and efficient educational system. Thus, its benefits are not quite perceived. Similarly, although technological readiness factors seems to be a driving force for e-Learning adoption, the inhibiting factors resulting from low awareness of basic educational technology concepts seem to outweigh any contributing factors or opportunities, which were discovered to be very limited. Results also demonstrated that numerous factors oppose the adoption of e-Learning. The expectations of less effort exerted seem to be the only motivational factors for e-Learning adoption.

6.5 Reflecting the Improvement Opportunities for Higher Education through the Introduction of e-Learning Programmes

The literature is rich with studies aimed at finding out how to implement e-Learning due to its potential advantages in education and training all around the world (Akaslan and Law, 2011). Due to the speed and efficiency of the Internet, e-Learning is assumed to give a competitive advantage over the traditional methods (Intel, 2012). e-Learning has the ability to contribute to different features of educational development and effective learning: expanding access, promoting efficiency, improving the quality of learning, enhancing the quality of teaching, and improving management systems (Haddad, 2002). MacKeogh and Fox (2009) divided the perceived benefits of e-Learning into seven broad categories; enhancing reputation, developing information skills, widening access, supporting disabled learners, improving the quality of teaching and learning, increasing flexibility, and reducing cost.

On campus young adults have pointed out two main obstacles they faced through their learning experiences; lack of practical work and lack of innovation in programmes offered. Therefore, interactive applications and computer simulations could be considered as competitive advantages of e-Learning environments that would motivate students and at the same time improve some of the weaknesses of the existing higher education system. Results gained from on-campus learners did

not support this perspective. The development of ICT skills was considered the main point from which e-Learning could enhance higher education.

This result again highlights the lack of awareness towards e-Learning concepts mentioned earlier. The underestimation of online education in adopting a variety of learning styles, which was regarded as one of the perceived benefits of e-Learning, was not foreseen from the results. Therefore, the improvements that e-Learning could offer to higher education are constrained by low awareness and perception levels towards e-Learning.

On the other hand, based on the results gained from the sampled e-Learning students, it could be assumed that dealing with a real online environment raised the awareness and perceptions of its users. Results have shown that e-Learning students believe that their mode of learning could enhance the quality of the higher education experience. The availability of clear course structure, objectives and outcomes seemed to motivate students and raise their expectations. The means of improvement to higher education from the educators' perspective were different. Escaping from crowded classrooms, shortage in financial resources and traffic problems were commonly mentioned, besides the development of ICT skills, independent thinking and self-confidence, "*The learning process will be facilitated through giving more opportunities for discussion*" (A3), "*The lack of educational resources and high tuition fees examples of problems that might be eliminated through the implementation of e-Learning*" (A5). Therefore, e-Learning was considered as a partial solution to higher education. The perception about less practical experiences and collaborative working environments underestimate the benefits that e-Learning could offer.

According to higher education officials interviewed, e-Learning was considered as a logical alternative that would help in resolving some of the commonly experienced higher education drawbacks. The new track was also considered to attract a large portion of the young adults demanding higher education. The development of ICT skills besides ease of accessibility seemed to be the main motivators for adopting e-Learning: "*Less pressure on universities so the quality of higher education will increase but the main problem is in society and industry acceptance*" (G1), "*Solving the problem of limited places in the universities*" (G3),

“Especially in faculties with large numbers of students” (G4), *“will help learners acquire the ability for self learning”* (G2). However, the challenges that the rest of stakeholders regard towards online degrees seem to outweigh the factors considered by official authorities. Thus, the success of e-Learning tracks is not fully guaranteed until rigorous official strategies are in place and known to various stakeholder groups.

6.6 Summary of Findings

In summary, the findings of this chapter demonstrated a gap between local needs of various stakeholder groups and the strategies provided by governmental authorities introducing e-Learning programmes. According to the results gained, officials considered that the acceptance and adoption of e-Learning by Egyptian society will follow the normal trends of supply and demand. The high demand on higher education, limited places available and poor quality experiences should create a competitive advantage for young adults looking for higher education. Consequently, e-Learning provides suitable opportunities for students which could facilitate its acceptance and adoption by the Egyptian society. However, results have demonstrated a different scenario in the Egyptian context. Online degrees are not seen as providing the same level of education as traditional methods and the quality of e-Learning degree holders is highly doubted. Therefore, conventional on-campus (public and private) higher education is still preferred.

Based on the results, variations in perspectives between investigated groups were discovered. The following main points were highlighted:

- The introduction of e-Learning is considered by higher education authorities as a logical solution that can address the problems resulting from the high demand on higher education and limited admissions;
- Low knowledge of e-Learning concepts despite the positive responses towards e-Learning awareness;
- e-Learning is not considered as an equal alternative to conventional education, it is seen as a compromise solution between the weaknesses of governmental institutions and the high tuition fees required by reputable private universities;

- The perceived benefits that e-Learning can bring to higher education as seen by conventional students were regarded as providing more skilled potential employers that can gain equal opportunities of appreciation, acknowledgement and hiring. While the benefits regarded by the rest of the groups were limited to ease of accessibility, ease of use and acquiring better ICT skills;
- e-Learning is regarded as a solution to higher education weaknesses as seen from the e-learners perspective that can enhance the higher education experience; while conventional students consider developing ICT skills, accessing updated knowledge and supporting a variety of learning styles as the main improvement contributors;
- Individual readiness seems to be a main obstacle towards e-Learning adoption; the fear of uncertainty and resistance to change present in the Egyptian society besides lack of awareness towards technology based education have negatively influenced the perceptions towards the acceptance of the new educational platform despite the willingness of students;
- Absence of the facilitating conditions desired by the societal groups in order to motivate e-Learning adoption and the steps considered by decision makers;
- Official support represented by increasing societal awareness and accreditation of e-Learning degrees by educational authorities are the main promoters needed for e-Learning adoption;

Figure 6.3 illustrates the differences and similarities between on campus (private and public students) and e-Learning students. The trends discovered are represented by arrow directions. In the same way, similarities and differences between investigated stakeholder groups; students, academics, employers and government representatives are illustrated in Figure 6.4.

Figure (6.3) Similarities and differences between student groups

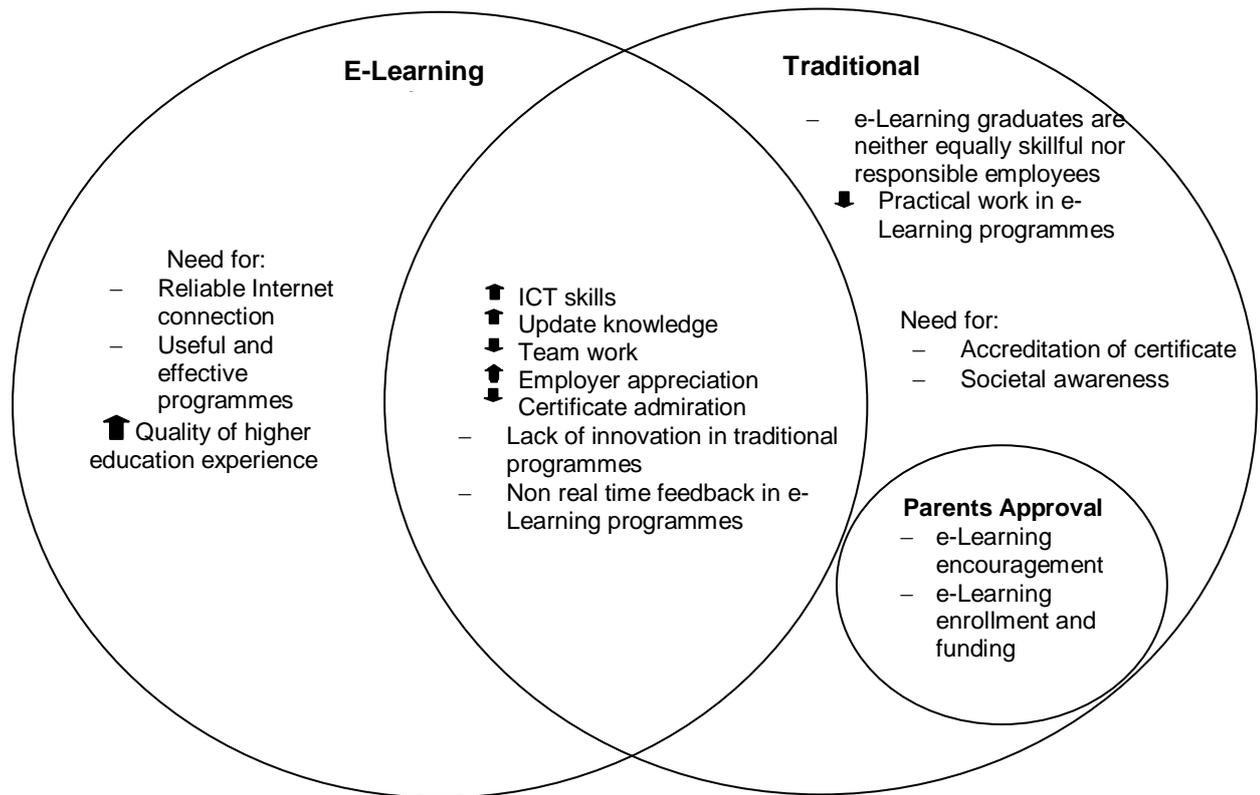


Figure key: Arrow directions indicate an increase or decrease in a certain factor or area

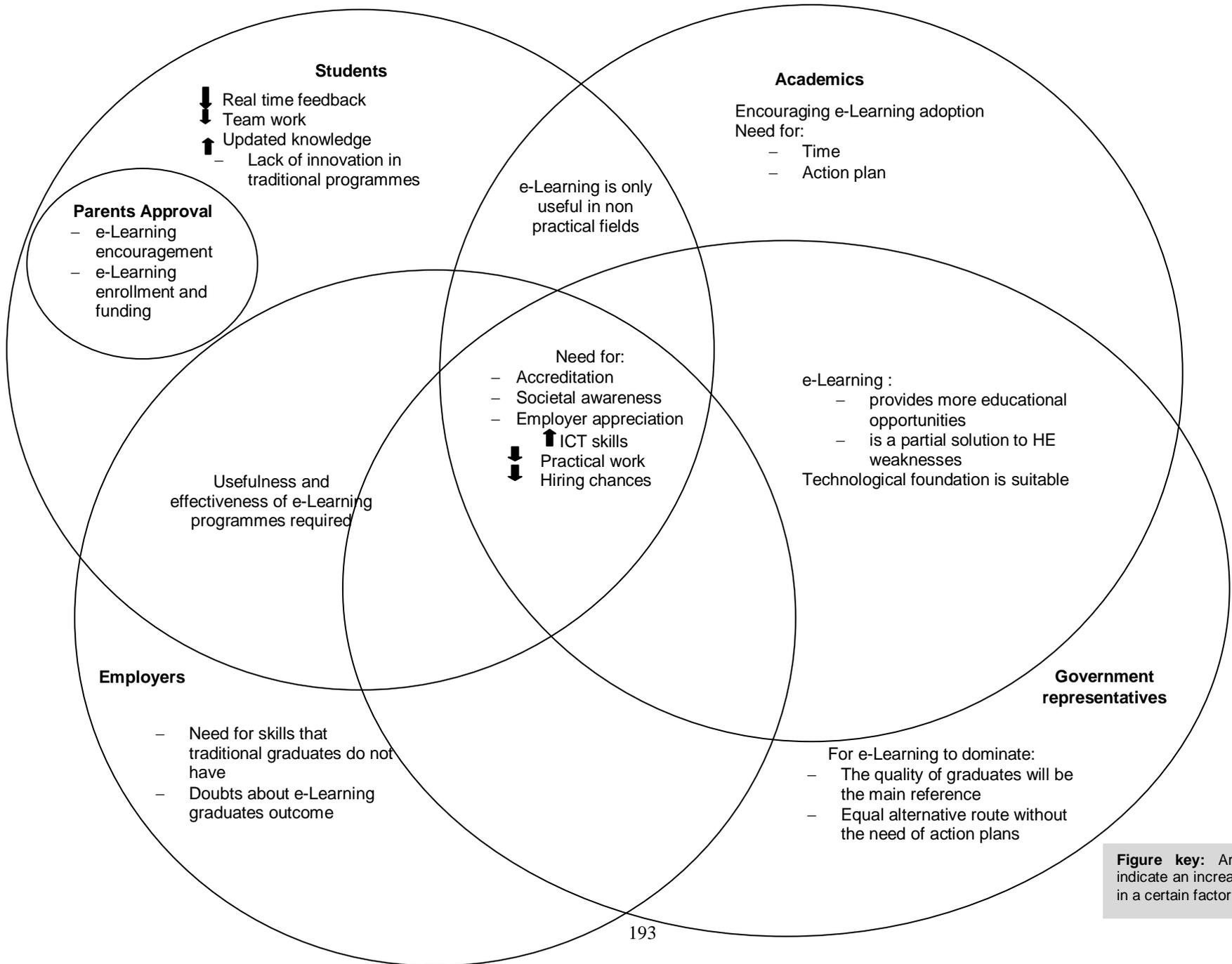


Figure (6.4) Similarities and differences between stakeholder groups

Figure key: Arrow directions indicate an increase or decrease in a certain factor or area

Despite the technological readiness available in Egypt and proven by results of respondents, low awareness of e-Learning fundamentals have resulted in the emerging of false perceptions towards the usefulness of e-Learning programmes. The ability of online degrees in the development of learners' skills, except for the ICT skills, seemed to be underestimated, thus the effectiveness of e-Learning environments were highly doubted. These results were significantly seen through the disapproval of e-Learning graduates from various stakeholder groups and especially employers. Based on the results, the inhibiting forces were more dominant than the contributing ones. Also, the inherited cultural characteristics regarding the fear of uncertainty and resistance to change present in the Egyptian culture have supported the avoidance of e-Learning and the preference of traditional methods as a safer option.

Although a large portion of the investigated groups (government representatives, employers and academics) admitted that e-Learning could contribute to getting over some of higher education weaknesses, still conventional learning seems to be highly preferred. Therefore, the potential benefits accompanied by the introduction of e-Learning in higher education and expected to push higher education forward may not be experienced. The doubts about online education as lack of practical work, less teamwork involvement and lack of face to face interaction in addition to the rules and regulation that control e-Learning institutions may constrain any further improvements that are expected to take place and assumed by educational authorities.

As mentioned by Hofstede (2013), the high power distance experienced in the Egyptian culture pushed a large portion of stakeholders investigated to recommend the official support to e-Learning institutions. The accreditation of the certificate was one of the examples commonly mentioned in order to guarantee an acceptable quality level of learning and consequently an acceptable educational level of online degree holders. It seems that the official support provided by higher education authorities represents a significant pillar in motivation towards e-Learning

adoption. The results also highlighted the role of official bodies in promoting awareness. Therefore, the guidelines for the evaluation of open and distance education provided by the National Authority for the Quality Assurance and Accreditation (NAQAAE, 2013) of Education seems to be a necessity for encouraging e-Learning acceptance and assuring high quality levels. Institutions interested in providing e-Learning programmes should consider the accreditation of the certificate offered as one of its main priority targets.

Although the sampling technique followed for collecting data from the investigated stakeholder groups does not allow generalisation of results support, statistical tests have shown that there are potential relationships between the variables introduced in the research framework shown earlier. Results have illustrated positive correlation coefficients between variables used to assess e-Learning perceptions, readiness for e-Learning and e-Learning adoption and higher education improvement. Therefore, government representatives may provide the necessary strategies in order to raise e-Learning perceptions and e-Learning readiness of individuals, as well as boost motivation, thus increasing e-Learning adoption rates and hence experience the benefits that e-Learning can offer to the higher education system in Egypt. Nevertheless, increasing awareness levels should be considered as a prior step.

Based on the results gained, the final conclusion of this research presented in Chapter Seven provides recommendations directed to higher education authorities that could help in the development of official strategies that take into consideration local needs in order to promote e-Learning adoption in the Egyptian context, thus improving higher education experience.

7. CONCLUSIONS AND RECOMMENDATIONS

The final chapter of this research work will start with highlighting the findings revealed and recommendations suggested in order to fill in the gap in knowledge and answer the research questions. Then, the chapter reviews the research aims, questions and the process followed. It will also show the change of initial research focus and how the final aims were met. Finally, the limitations of the study and suggestions for work that can be done in the future are brought to light.

7.1 Contribution to Knowledge

The variety of perspectives and the shifting patterns of business and technology make the subject of the research suitable for an analysis grounded in social and technical approaches. The contribution to knowledge presented in this research work emerges from the development of a conceptual framework that bridges the gap between societal acceptance and the adoption of e-Learning in the Egyptian universities. Although the investigation has one country in focus, but still the analytical methodological framework could be generalised.

The research identifies the main factors that affect e-Learning adoption and determines the potential obstacles that online degree holders might face in Egypt. It investigates and understands the different stakeholder perspectives of academics, employers, government authorities and students at public, private and e-Learning universities regarding e-Learning adoption in Egypt; in order to check whether the different organisational cultures play an important role in the given context. The mixture of methods used both in the data collection and data analysis are believed to give more strength to the research results. The importance of this study lies mainly in:

- Providing a deep insight into the perception, readiness, and adoption of e-Learning in the Egyptian context;

- Highlighting the opportunities for improving higher education in Egypt through e-Learning programmes; and
- Providing highlights and directions to decision makers concerned with planning for the development of higher education in Egypt in aspects related to e-Learning.

7.2 Findings

This Section will present the blending of findings gained from the analysis of results of Chapter Four - *Quantitative Data: Analysis and Results*, together with findings from Chapter Five - *Quantitative Data: Analysis and Results*.

7.2.1 Blending of Findings

The analysis of data identified the gaps found between stakeholder perceptions, individual readiness, adoption trends and the steps undertaken by government. The technological readiness present in Egypt in one hand, besides the dilemma between the high demand on higher education and limited places available on the other hand, motivated higher education authorities to introduce e-Learning, disregarding the importance of societal acceptance and contextual influences.

The results of this research showed that there is a low level of awareness towards e-Learning fundamentals. These trivial awareness levels besides the fear of uncertainty, resistance to change and high power distance factors present in Egyptian society have resulted in the generation of false perceptions towards the level of teaching and learning of online degrees. Consequently, doubts exist about the skills and knowledge acquired by e-Learning degree holders.

Although the results have shown that online degrees could be considered as a partial solution to higher education weaknesses, societal readiness seems to constrain potential improvements that can be experienced. According to a high power distance culture such as Egypt's, official support for e-Learning degrees is highly recommended to ensure an

acceptable level of teaching and learning thus encouraging adoption and acceptance. Based on the findings, the development of action plans that could increase technology based education awareness is needed which can raise individual readiness levels and online degree adoption rates.

Based on the statistical results of questionnaires and interpretive analysis of interviews, there are potential aspects of improvement that e-Learning degrees can provide to higher education. However, students seem to be more positive towards the opportunities for improvement that e-Learning can offer to higher education than other groups.

The following is a brief description of the findings discovered from the results of the statistical analysis of questionnaires and interpretive analysis of interviews together:

- e-Learning is considered as a second degree higher education option. Official support is required to increase social acceptance. Therefore, e-Learning could be more promising in post graduate studies;
- Educators, underestimate the basic preparations required for designing and delivering e-courses (time and training needed), thus the adoption of e-Learning programmes is encouraged;
- Differences in the perception of skills acquired by e-Learning degree holders between students and the job market, where students consider e-Learning graduates as more skilled and appreciated employees than their conventional peers, while employers prefer conventional graduates despite the lack of skills acquired;
- The underestimation of the educational level delivered to e-Learning students during their learning period and expectations of potential lower levels of performance on jobs will eventually affect the rate of student adoption and consequently parental approval;

- The opportunities of improvement that e-Learning can offer to higher education is seen to be only limited to providing more educational opportunities to a limited sector of students in non-practical fields, besides better ICT skills acquired;
- The preference for traditional degree holders may eventually limit potential future efforts by higher education authorities and institutions in opening new online programmes in new educational fields or developing the quality of e-Learning delivered.
- Highlighting rigorous controls, rules and regulations applied to e-Learning institutions on one hand, besides assuring the skills acquired by graduates on the other, has the potential for considering e-Learning as a compromise solution between governmental higher education weaknesses and non-governmental tuition fees.

7.3 Recommendations

The full stakeholder analysis enabled the researcher to make suggestions and recommendations for higher education authorities, decision makers and academic institutions regarding the efficient utilisation of e-Learning in Egypt, as listed below:

- Promoting the awareness of e-Learning concepts and techniques to the key higher education stakeholders, such as students, academics and employers as well as highlighting successful e-Learning experiences;
- Developing official strategic framework that assures equal levels of knowledge, training and skills acquired by e-Learning degree holders;
- Differentiating between techniques, fundamentals and benefits of open and e-Learning higher education;

- Benchmarking with successful implementation of e-Learning in similar developing countries with similar contextual background;
- Developing and implementing rigorous control, rules and regulations for e-Learning institutions by higher educational authorities and policy makers that must be known to stakeholder groups, namely employers;
- Prioritising receiving accreditation of e-Learning programmes by higher education authorities as a necessity for e-Learning institutions;
- Offering job opportunities (supported by higher education authorities and major employers) in different fields for the first groups of e-Learning degree holders;
- Offering e-Learning scholarships to high ranks of secondary school students and employers who wish to gain a higher education or a post graduate degree;
- Collaborating between ministry labour, higher education and major employers in the announcement of open vacancies where e-Learning degree holders are prioritised in hiring.

7.4 Review of Aims, Questions, Methods and Process

The following subsections will reflect on the original research focus, aims, questions, and process, in order to reveal how the aims were met, as well as changes in the research questions and holding on to the research process.

7.4.1 Research Aims

According to the research questions mentioned earlier in the Introduction, the aims of this research investigation were as follows:

1. Substantive Research Aim: to understand how various higher education stakeholders view e-Learning, the extent of technological and individual readiness, and rankings of different criteria desired for e-Learning adoption, besides the opportunities of e-Learning in providing an improved higher education experience. The research investigation has yielded new knowledge for decision makers in Egypt about the effective utilisation of e-Learning in the Egyptian context.
2. Theoretical Research Aim: to test the relations between technology acceptance, readiness and adoption variables to evaluate how various higher education stakeholders view e-Learning and their effect on potential higher education improvement opportunities. Since the research is constrained in the generalisation of results, there was not much theoretical development in the work. However, the study followed the mentioned variables to develop and test the theoretical framework proposed.
3. Methodological Research Aim: to use the proposed research framework in combination with statistical methods to analyse questionnaire data and interpretive methods to analyse interview data. The research framework was used to get a multi perspective view of the research area and to derive the design of the questionnaire and interview. Then used the results from those investigations to review the framework as a basis for recommendations. Relevant statistics were generated as shown in the analysis of the questionnaire data.
4. Personal Aim: to extend the understanding of various e-Learning perspectives towards e-Learning in the Egyptian context, establish a specialist area of knowledge, publish in the field, and to further the researcher's academic career. Immersion in the field has extended the understanding of applying technology in education in general and e-Learning in the Egyptian context in particular.

7.4.2 Research Questions

The original focus of the research was to investigate the perception of e-Learning through different stakeholder groups and the methods in which e-Learning would contribute to improving the quality of higher education. The study aimed at reaching its aims through investigating students, parents, educators, employers and government representatives.

A wide pilot study was conducted that included responses gained from 35 students through distributed questionnaire forms and conducting two interviews in each stakeholder category (senior academics, employers, parents and higher education representatives). As a result, the following actions were taken:

- Modifying students' questionnaire questions and layout;
- Designing a separate questionnaire form targeting e-Learning students;
- Excluding parents as a main group in the investigations;
- Interviewing senior academics instead of lecturers;
- Modifying interview questions to include only senior academics, employers and government representatives;
- Developing a new questionnaire version for e-Learning students. This questionnaire included a separate question about improving the quality of higher education through e-Learning programmes from which this point could be concluded from a practical point of view; and
- Modifying the research questions.

Accordingly, the original research questions with which the study started were formulated, and the focus of the research changed. Instead, the research considered investigating different perspectives of stakeholders regarding the adoption and acceptance of e-Learning in Egypt as a main focus, besides the opportunities for improving higher education through e-Learning programmes. Thus, enhancing higher education quality through e-Learning programmes was regarded as a secondary research point.

Investigations with parents also proved that they would depend on the opinions of their young adults concerning the preference of higher education mode. Therefore, parents were considered as a secondary stakeholder group, in which their consensus from the perspective of their young adults was only taken into consideration.

Similarly, lecturers recommended the decisions taken by their top managers as the main director towards e-Learning adoption in their schools. Accordingly, interviewing senior academics rather than lecturers was also considered.

Analysing piloting results also revealed that participants recommended certain factors as potential drivers and inhibitors of e-Learning adoption in Egypt. Consequently, a ranking question was added to questionnaires and interviews in order to gain a common understanding of the contributors and inhibitors of e-Learning adoption in the Egyptian context.

Accordingly, the research focus was formulated to yield the following research questions;

- *What are the different stakeholder perspectives regarding e-Learning adoption in Egypt?*
- *What are the opportunities for improving higher education in Egypt through e-Learning programmes?*

The answers produced by this research study to these two questions have been summarised above in Section 7.1, where the blended findings from the questionnaires and the interviews, reflected through the research framework, are presented and combined to produce the research recommendations.

7.4.3 Research Methods

The pragmatic knowledge claim followed in this research allowed the free movement between quantitative and qualitative approaches in the research and choosing the methods that best met the research needs.

The methods played a significant role in the contribution of the study:

- Questionnaires were used as a way of extracting as much information from higher education students studying at three different educational sectors (public, private and e-Learning) as possible, besides highlighting the differences and similarities between student groups as well as evaluating the level of education gained by e-Learning students;
- Interviews revealed the gaps between decision makers and other groups, investigating variations in perceptions, individual readiness and adoption trends and conditions, in addition to highlighting the need to develop official strategies addressing local needs and cultural context;
- The proposed research framework used a number of models (as Technology Acceptance Model and The Unified Theory of Acceptance and Use of Technology Model) to develop, assess and test relations between variables through questionnaires and interviews conducted. The framework helped in the development of recommendations directed to higher education decision makers in order to set up action plans aimed at the effective utilisation of e-Learning in Egypt in order to gain an improved higher education experience;
- The combination of methods used and the interaction between them extended the understanding of the current problem at hand.

7.4.4 Research Process

The research study was planned to be conducted over five years. The steps of the research process, as stated in detail in Chapter Three, were as follows:

1. Studying the relations between the psychology of learning and the fundamentals, considerations and applications of technology in education;
2. Surveying the higher education sector in Egypt using secondary data;
3. Developing the research framework and assemble questions for interviews and questionnaires;
4. Designing questionnaires for higher education students;
5. Designing interview questions for senior academics, employers, parents and higher education authorities;
6. Gaining ethical approval from school committee;
7. Conducting pilot study;
8. Transcribing and analysing pilot study results and making necessary changes to research focus and framework;
9. Redistributing new questionnaires forms and collecting data from higher education students;
10. Reformulating interview questions and carrying out interviews with other stakeholder groups;
11. Analyzing questionnaire data;
12. Transcribing and analyzing interview data;
13. Integrating results and findings;.
14. Formulating conclusions and writing the final version of the thesis, including recommendations to higher education authorities in Egypt.

Reflecting on the research process as planned; listed below are some

comments on how the research was performed in practice. Generally, the research followed the sequence of steps listed above, with a few exceptions:

- the first and second steps were done in an introductory manner at the start of the study, then were studied in depth at the final writing up stage;
- the analysis of questionnaire and interview data of the pilot study influenced the development of the research framework, as well as the development of a new questionnaire form targeting e-Learning students;
- due to the nature of the research, the majority of interviews were done in Arabic, so translating to English was a prior step before transcribing data.

The development of the research framework helped in gaining new knowledge about the perspectives of different higher education stakeholder groups towards e-Learning. The framework helped in assessing various aspects of e-Learning perception, readiness and adoption and their effect on potential higher education improvements rather than using a single model for assessment.

From initial understanding of the problem areas it seemed useful to represent different perspectives concerning the adoption of e-Learning in the Egyptian context mainly from *students, academics, employers* and *government representatives*. The perspectives were then combined to produce a full preview, which suggested that recommendations directed to higher education decision makers are essential. The research framework was the basis upon which both the questionnaire and the interview were designed.

The distribution and collection of questionnaires was done personally by the researcher to reduce the chance of missing data, using the help of some friends and relations at the departments where the questionnaires

were distributed, after taking necessary approvals. This made it possible to reach more respondents in different locations. Due to the difficulty in reaching e-Learning students, questionnaire forms were distributed through the registrar's office electronically. Completed questionnaire forms were returned to the researcher's personal email. The result was that among 550 questionnaires, 371 were returned with valid answers from on campus students and among 50 questionnaires, 27 were returned from e-Learning students. Reaching people in person also made it possible to get back to them if there were any clarifications in meanings of questions. Questionnaire forms were distributed in both languages (Arabic and English) according to participant's preference.

The statistical analysis of the questionnaire data, using both SPSS and Microsoft Excel, was a tough and time consuming task. At first, advanced statistical techniques for testing the significance of results using Chi-square tests were used, which proved to be not the optimum method of representing the perspectives gained. Instead, descriptive statistics, median calculations besides correlations and simple regression analysis were used. However, this effort was useful, because the analysis enabled the researcher to write the first published paper from the work.

Interview questions were redesigned as a result of the piloting study which modified the research focus and initial framework.

Interviews with employers, academics and government representatives were all conducted by the researcher alone. Interviews took place in Cairo and Alexandria at the interviewee's location. Information letters were sent beforehand for interviewees to read, get approval and set the time for the interview to take place according to their convenience. Conducting interviews was not an easy stage of the research process. The majority of respondents were extremely busy with little time to conduct extra meetings over their workloads. The hardest was with the case of government representatives, who were difficult to reach in the first place with much more limited time than other groups. The researcher had to use personal connections to reach the first group of government

representatives who then recommended others interested in the same field to be interviewed.

The researcher was keen to limit her interference during interviews. The role of the researcher was only limited to re-explaining the aim of the interview, re-assuring confidentiality, asking questions and further clarifications. This gave space for respondents to elaborate their responses, to the extent that some questions were already answered by interviewees without asking the corresponding question. As a result, the sequence of questions differed from one interview to the other.

At the initial stages of the research, interviewing only four government representatives was not foreseen. A larger sample was expected to be taken into consideration. However, the political situation in Egypt that started in January 2011 has limited the possibility of conducting more interviews with government representatives. Research supervisors were concerned about the safety of the researcher in the first place.

However, the interpretative data analysis of the interviews clearly discovered the gaps between higher education strategies and local needs concerning e-Learning acceptance and adoption in the Egyptian context.

Therefore, in the light of the research framework, recommendations were directed to higher education authorities and decision makers in order to reduce the gaps discovered between stakeholder groups and to effectively utilise e-Learning. Thus, achieving any potential area of improvement that e-Learning could bring to the higher education sector.

7.4.4.1 Limitations

According to the research process described above, the study at hand was subject to some limitations as listed below:

1. Due to the topic of the research area, which is recently introduced to the higher education sector in Egypt, the study followed a

purposive sampling approach. Thus generalisation of results was not permitted;

2. Non-proportional quota sample was chosen to match the distribution of students in the higher education sector, other sampling techniques could have reached more respondents;
3. For safety reasons, the number of higher education government representatives interviewed was less than expected;
4. The remote location of e-Learning students forced the researcher to send questionnaire forms through emails with the help of the registrar's office, only 27 valid questionnaire forms were returned.

7.5 Future Work

- The respondents investigated though selected from public, private and e-Learning sectors were limited to the main two cities in Egypt. A convenience sample from all Egyptian cities could give a more inclusive analysis that could be generalised;
- Including a convenience sample of participants from Al-Azhar university could give a broader picture of the higher education stakeholder perspectives in Egypt;
- A comparative study across different countries might be significant, showing more similarities and differences, and bringing more cultural aspects to light;
- A more technical study approach could be beneficial taking into consideration both the study findings and the technological advances of online education;
- Conducting a case study research that focuses on evaluating the performance of e-Learning degree graduates in different positions;
- Investigating the quality criteria desired by higher education stakeholders concerning online education will also be required.

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APPENDIX 1: INTERVIEW RESPONSES

A. Senior Academics Interviews

1. Do you think E-Learning is a useful way of learning in HE? Why?

Interviewee 1: Certainly yes, since it offers independence of time and place for getting educational services which is more suitable for quite a large number of students, taking into consideration the increasing capabilities of ICT resources to serve E-Learning purposes.

Interviewee 2: E-Learning is a very useful way if you need to keep a job or run a family. It can be more efficient for both students and their instructors.

Interviewee 3: yes, it is useful. It encourages the student to take responsibility of their learning, develops internet and computer skills, reduces costs of learning (transportation, ...)

Interviewee 4: yes, it will open new eras for education in Egypt. It will also resolve some of the existing problems in HE like student numbers in classes, and high tuition fees in Private Univ.

Interviewee 5: yes, definitely, it overcomes the barriers of distance and gives students a chance of getting a degree with the benefit of flexible hours and gaining an education no matter where you are in the world. Plus now it is no longer an obstacle if you want to get the benefit of learning from a specific professor or instructor even if they are half way across the world.

Interviewee 6: yes it is because many people specially females or house wives do not have spare of time to attend courses so e-Learning is the best way for them.

Interviewee 7: yes, as it could be applied anywhere and at any time. Also, it saves costs due to elimination of travel expenses.

Interviewee 8: Yes, due to its accessibility any time anywhere.

Interviewee 9: No, it depends. They don't have the experience, not self motivated, except for the International school graduates.

Interviewee 10: yes, because it goes with the technological revolution that we have now so we have to develop new system to encourage the adoption of EL systems.

2. Do you think Egypt is ready for EL? Why?

Interviewee 1: Yes, especially for higher education because of the increasing number of internet users, and the improving services of internet service providers on one side, and the increasing population of graduates willing to pursue further academic studies, without having to compromise their working environment on the other side.

Interviewee 2: E-Learning can be very applicable in Egypt, especially with the high number of population and Internet usage. Most of the undergraduates actually use computers and access the Internet on a daily basis.

Interviewee 3: yes, I think so. We have software developers that can build interactive lectures. The technological infrastructure in most universities is available.

Interviewee 4: yes, Egypt has the necessary resources to do that. It has the professions, education, experience and knowledge of faculties to design courses as well as the infrastructures like networks and internets for students to communicate effectively.

Interviewee 5: yes, it is applicable because I think now after the Egyptian revolution

people are realizing the power of the Internet and IT and there is more respect and acknowledgment for education through e-Learning.

Interviewee 6: yes but not to a great extent because the no. of internet users in Egypt to the number of inhabitants is low. On the other hand people using the Internet are divided into 2 parts, youth who won't encourages EI a lot and employers who will benefit a lot from EL.

Interviewee 7: no, students are not ready for this. The number of students is very large so this will reduce the communication.

Interviewee 8: Yes, our culture is now ready; especially with the high Internet usage. We need it to help solve problems such as traffic, inconvenient lecture times, and yet students can take other independent studies at the same time.

Interviewee 9: No,

Interviewee 10: sure, but needs infrastructure especially from the government and universities. Spreading EL is the great challenge because it needs special skills as computer and Internet but for the time being it could be applied on a small scale.

3. Can E-Learning be part of the solution to HE problems in Egypt? Why/How?

Interviewee 1: The problems of high density classes, lack of able highly qualified faculty, shortage of financial resources, and heavy traffic in large cities could be solved partially by introducing high quality E-Learning programs

Interviewee 2: Yes, at least it will help reduce the high number of students in classes and improve the quality of teaching.

Interviewee 3: yes. It facilitates the learning process through giving more opportunities for discussion escaping from the environment of crowded classrooms.

Interviewee 4: yes those who will e-learn will avoid many of the encountered problems in HE like high students numbers, old buildings, availability of books, poor services, high tuition costs.

Interviewee 5: yes, but not to all problems and not the only solution. It can solve the issue of congestion in universities and having over crowded lecture rooms where it is difficult to get a proper education however the quality of the curriculum needs to be up to the standards required.

Interviewee 6: yes, specially for females who are sometime and because of some cultural aspects not subject to studying in universities those specially will use EL as a solution to their problems.

Interviewee 7: yes, as it could improve the quality of education to HE by reducing the student's numbers in every class using the same lectures.

Interviewee 8: Yes, due to the cutting cost of things such as utilities and equipment, however we need a very well established infrastructure.

Interviewee 9: In crisis

Interviewee 10: sure, specially solving the congestion we have but the problem is that it is not effective in all majors such as medicine that needs practical education.

4. Do you think E-Learning will help graduates gain more skills? How?

Interviewee 1: Yes, skills of group-work, independent thinking, self-confidence, presentation, expression of ideas, communication, and good writing are among the skills to be enhanced as an outcome of introducing E-Learning in higher education.

Interviewee 2: I think yes. E-Learning can help students gain more computer skills, and electronic communication skills.

Interviewee 3: yes, computer and IT skills.

Interviewee 4: no, because many of the skills which graduates gain come from interactive learning, extra curricular activities, student activities and volunteer work which come from university environment.

Interviewee 5: yes, by learning online, you can gain Internet and IT skills plus discipline to finish the required program.

Interviewee 6: yes, they will be more qualified in Internet search skills and communication through the Internet

Interviewee 7: yes, as the candidate will have to learn computer skills as internet, power point

Interviewee 8: It totally depends on the courses and their content.

Interviewee 9: Yes, self motivated

Interviewee 10: definitely, but not in all applications as I said before.

5. What are the skills that E-Learning could improve in HE graduates?

Interviewee 1: Soft skills in general, especially communication skills, research skills, group work, presentation skills, independent thinking, and computer skills

Interviewee 2: E-Learning can help improve graduates research skills, become more self-motivated.

Interviewee 3: internet and search skills, computer skills.

Interviewee 4: time management, writing skills, language skills, report writing.

Interviewee 5: IT and communication skills.

Interviewee 6: internet usage in general and communication skills in specific

Interviewee 7: time management skills, self-discipline, self-motivation, computer skills (Internet, power point, ...)

Interviewee 8: Searching online will help them with their projects, and will sure develop their research, language and communication skills.

Interviewee 9: Research

Interviewee 10: computer, communication skills, scientific thinking.

6. Would you encourage the adoption of an e-Learning program in your university? Why?

Interviewee 1: Yes, especially in higher education because we could reach some populations of students that we can't be able to reach otherwise, in addition to the other benefits mentioned above.

Interviewee 2: Yes, sure and we are actually planning to adopt e-Learning as a plan B in case of any political or medical instability in the region.

Interviewee 3: yes, specially for distance students with conditions that doesn't enable them to attend normally.

Interviewee 4: yes, because it is a large university with a strong faculty base and resources that can meet the demands of e-Learning. Our human resources have the essential education, knowledge and experience to provide the e-Learning community. Also the university has a strong networking infrastructure.

Interviewee 5: yes I would, because of the benefit and expanding by opening up a whole new market besides the flexibility of lectures.

Interviewee 6: yes, this will be very effective as it will increase no. of candidates in general in universities without an increase in the no. of candidates in the universities. campus which will increase the university income, reputation and spread of the education mission through facilitating the educational service.

Interviewee 7: no as it needs technical infrastructure, training to students for computer skills, course and curriculum development, continuous help and assistance.

Interviewee 8: Yes, for what I previously mentioned.

Interviewee 9: No, students are not ready

Interviewee 10: definitely, we have already started in a post-graduate program. We hope to offer an undergrad. EL program but we have to gain some experience from universities offering EL and start with small groups first.

7. Do you think the Egyptian society is ready for EL graduates and will equally acknowledge EL graduates as traditional HE graduates? Why?

Interviewee 1: Not yet, and this is one of the main challenges of E-Learning, which could be met by introducing quality standards and making sure of their strict application before acknowledging E-Learning degrees

Interviewee 2: I am not quite sure whether it will be acknowledged and appreciated by those who are actually unaware of E-Learning in general.

Interviewee 3: yes, if the educational system provided strong educational programs.

Interviewee 4: don't think so, normally full time traditional students who are more attached to the university have a stronger weight in the job market. This may be because the amount and quality of knowledge, skills and education they gain is different than their e-Learning counter partners.

Interviewee 5: not always, I think this issue can be solved by making the programs accredited and by raising awareness about the importance of these programs.

Interviewee 6: this will be according to the cultural concept of the country, may be in Egypt it will take some time because of some mindset about internet users but if EL spreads in Egypt it will be acknowledged by time as traditional education.

Interviewee 7: yes, as they had to go through and applied self confidence and self-motivation.

Interviewee 8: Yes, because there are online programs that are already acknowledged and accredited.

Interviewee 10: No in the mean time. After it spreads more and gains trust from society and offering high quality EL service it could be acknowledged. The culture of job market should be adapted first.

8. Will they have equal job opportunities? Why?

Interviewee 1: No, because of the lack of awareness of E-Learning at the job market, and the missing quality standards

Interviewee 2: It totally depends on the employers and whether they are broad minded and are aware of the e-Learning as an educational mode.

Interviewee 3: may be, I'm not sure.

Interviewee 4: they may because job opportunities depends on how much skills you have rather than how much education you have. So if an e-learner has more skills than the traditional graduate, he may be preferred over traditional graduate.

Interviewee 5: as stated before, not always, it depends more on the accreditation of these degrees and the skills they have acquired.

Interviewee 6: yes but also according to the cultural as it will take some time as mentioned before. I think it will be more effective in post graduate studies than undergraduate studies specially in the beginning.

Interviewee 7: yes, and may be better as they have to go through a real challenge.

Interviewee 8: Not in Egypt, or at least not now. There are some fields where they will not get equal job opportunities, such as Fine Arts and Medicine. E-Learning would sure be appreciated from employers in areas such as Business and Law.

Interviewee 9: Why not if accredited they have to

Interviewee 10: no in the mean time because the service is still very limited.

9. Please rank the following criteria that would promote the adoption of e-Learning in Egypt based on the level of importance according to your point of view

- Internet Connection should be reliable
- E-Learning programs should be useful and effective
- Ease to use course electronic material
- E-Learning certificate should be accredited
- Creating societal awareness of E-Learning concepts

- Interviewee 1: 2, 3, 5, 1, 4
- Interviewee 2: 3, 4, 5, 2, 1.
- Interviewee 3: 5, 1, 3, 2, 4
- Interviewee 4: 2, 4, 5, 1, 3.
- Interviewee 5: 1, 5, 4, 3, 2.
- Interviewee 6: 3, 1, 2, 4, 5.
- Interviewee 7: 5, 3, 4, 2, 1.
- Interviewee 8: 3, 2, 5, 4, 1.
- Interviewee 9: 2, 4, 5, 1, 3.
- Interviewee 10: 2, 5, 4, 3, 1.

B. Government Representative Interview Questions

1. Why do you think the government introduced E-Learning in Egypt?

Interviewee 1: E-Learning is another route for students without over crowding universities with students especially for technical education students. Technological infrastructure in Egypt is appropriate for adopting this kind of education.

Interviewee 2: With the increase in demands on higher education and the limited resources available to expand the existing or open new public universities and the unaffordable tuition fees in private universities, all this led to the conclusion that the use of modern technology was the only alternative to ensure accessibility.

Interviewee 3

- To solve the problem of increasing numbers of students.
- To avoid the need for establishing new universities and educational institutes
- To reduce the cost of education
- To keep up to date with the new trends in educations

Interviewee 4: To overcome the great increase in the number of students of course.

2. From your point of view, which would be better for the HE in Egypt, adopting e-Learning or developing the existing universities programs?

Interviewee 1: both are required however, E-Learning can help more students than traditional students (doesn't depend on geographical locations). Investment in traditional education needs larger budgets. Good opportunity for students with jobs or difficult family conditions.

Interviewee 2: The introduction of E-Learning does not preclude the necessity of developing existing universities. The two tracks have to move in parallel.

Interviewee 3: Both are required, however introducing e-Learning would be better.

Interviewee 4: From my point of view developing existing university programs would be better with the help of introducing E-Learning services.

3. What do you think are the Higher Education disadvantages in Egypt?

Interviewee 1: large no. of students as a result of free education

Interviewee 2: The large number of students in most universities and the limited resources are the two major drawbacks. The lack of the implementation of a viable quality assurance system in Egyptian universities hinders any development plan for reform.

Interviewee 3:

- Limited facilities and limited use of high technology.
- Traditional programs.
- Traditional way of teaching.

Interviewee 4:

- Not updated programs of study
- Absence of new teaching methods
- The obsolete learning programs.

4. Can E-Learning be part of the solution to the HE problems in Egypt? Why/How?

Interviewee 1: Definitely, less pressure on universities so the quality of HE will increase. The problem is in society and industry acceptance.

Interviewee 2: Of course it can, it will allow accessibility and at the same time students will be better engaged in the learning process which will help them acquire the ability for self learning.

Interviewee 3: Yes, to solve the problem of limited places in the universities.

Interviewee 4: yes, especially in faculties with large numbers of students.

5. What are the governmental efforts to ensure the efficiency of E-Learning?

Interviewee 1: Government should provide all quality dimensions needed to gain trust from society and industry as:

- Facilities of the university and its technological infrastructure.
- Programs offered and availability of course material.
- Government should announce about the quality criteria applied to the e-Learning courses especially in the assessment and follow-up for students.

Interviewee 2: It established the Egyptian E-Learning university and at the same time established a production centre in each university to assist professors in transforming their courses into the e-format. The introduction of this new concept in education and the acceptance of all involved, professors, students and parents is not an easy endeavor.

Interviewee 3:

- Introducing teaching computer at early stage of education.
- Arranging training courses to the teachers.

Interviewee 4: nothing yet to mention

6. What is the government plan concerning E-Learning accreditation and quality assurance?

Interviewee 1: There is a quality assurance plan under construction by NAQAA which will take its time to be ready.

Interviewee 2: The national authority for quality assurance and accreditation is currently establishing the benchmarks required for this type of education.

Interviewee 3: Establishing the National Authority for Quality Assurance of Accreditation of Education (NAQAAE) to accredit all educational programs and offer technical assistance to help educational institutes to confirm the requirements of the quality system.

7. How will the government encourage the adoption of E-Learning in Egypt?

Interviewee 1: The government should take strong and clear actions as offering

scholarships for excellent employees to get either an undergraduate or postgraduate certificate from an E-Learning route as well as ensuring that this is another equivalent route for a HE certificate”.

Interviewee 2: By introducing it as an alternative for students who were not able to enroll in public universities and by ensuring that the graduates of this type of education are accepted are equivalent to those coming from the regular system.

Interviewee 3: By offering budget for training and providing technical assistance to educational institutes.

Interviewee 4: through the EL units introduced in some universities and the EL university (EELU).

8. How will E-Learning graduates differ from traditional on-campus graduates concerning skills gained?

Interviewee 1:

- Responsibility and self-dependence.
- Computer, Internet and search skills.
- Familiarity with updated info. Sources.

Those skills are designed by employers and wanted in HE graduates.

Interviewee 2: They will be more independent relying mainly on themselves and more actively participating in their education.

Interviewee 3: E-Learning graduates may lack some practical aspects of education. However E-Learning graduates may acquire more knowledge in different fields of education. Also, E-Learning can help in adult education as well as education in rural areas.

Interviewee 4: too early to evaluate, we don't have graduates yet.

9. What are the governmental efforts concerning promoting the readiness of the Egyptian society to acknowledge e-Learning graduates?

Interviewee 1: Awareness sessions about management, assessment and technology used.

Funding from government (ministry of communication) regarding the technological infrastructure of the university.

Interviewee 2: Since we do not have yet any graduates from these programs, I think that the quality of the graduates will be the main reason for the acknowledgment of the society.

Interviewee 3: Limited efforts so far.

10. Rank the following criteria that would promote the adoption of e Learning in Egypt based on the level of importance according to your point of view

- Internet Connection should be reliable
- E-Learning programs should be useful and effective
- Ease to use course electronic material
- E-Learning certificate should be accredited
- Creating societal awareness of E-Learning concept

Interviewee 1: 5, 3, 4, 2, 1.
Interviewee 2: 3, 1, 2, 5, 4.
Interviewee 3: 1, 5, 4, 2, 3.
Interviewee 4: 3, 4, 2, 5, 1.

C. Employer Interview Questions

1. What are the important skills / criteria to look for in a HE graduate?

Interviewee 1: Knowledgeable, trained, responsible, hard worker

Interviewee 2: language, training.

Interviewee 3 language, ICDL (computer skills), communication and presentation skills.

Interviewee 4: The acquired knowledge in field of study, The willingness to learn, Hard worker, Communication skills.

Interviewee 5 : I normally seek graduates with public relation and communication skills.

Interviewee 6: Soft skills, group work, independence, Computer-based skills, report-writing, present ability, problem solving

Interviewee 7: I need a HE graduate that in broad minded, flexible and can work under pressure.

Interviewee 8: Retrieving information and knowledge learned from college

- Self-confidence
- Representable appearance
- Respectful
- Ambitious (Looking for a career and not money)
- Loyalty
- Frank especially in about his own information regarding resume

Interviewee 9: Flexibility to perform different tasks assigned besides computer skills off course and communication skills especially with customers.

Interviewee 10:

- Good theoretical foundation and knowledge about field of specialty.
- Excellent command of English.
- Critical thinking and ability to infer.
- Ability to synthesize not just analyze
- Awareness of new paradigms in field of specialty.
- Soft skills such as computer and managerial skills
- Practical experience and on-the-job training
- High moral standards, integrity and ethical values

2. What are the skills that HE graduates lack?

Interviewee 1: Mainly responsibility, no serious will for hard work

Interviewee 2: Language, Minimum knowledge from HE

Interviewee 3: presentation skills, general knowledge, practical background.

Interviewee 4: Work experience , Practical experience

Interviewee 5: HE graduates are usually not creative and lack the sense and logic.

Interviewee 6: Most of the desired that I mentioned before.

Interviewee 7: There are a lot I think. On top of the list are computer, presentation and communication skills. They also lack practical skills and research capabilities, they ability to develop their skills and capabilities (self-learning). I always have a feeling that a fresh grad is satisfied with the amount of information learn in college and they don't have the will to learn more.

Interviewee 8:

- Confidence to a very great extent
- No link between academic information learned in college and real life practices
- Poor language specially English

Interviewee 9: Flexibility mainly, HE graduates tend to hesitate and panic when they are assigned a new task in their job that they aren't used to do. There is always a gap in computer and research skills. A large number of HE graduates aren't capable of dealing with simple computer applications and data gathering facilities.

Interviewee 10: Unfortunately HE students lack most of the above criteria, i.e.:

- English language skills
- Creativity and innovative spirit
- Good communications skills
- Good presentation skills
- Poor and / or outdated knowledge base
- Lack of soft skills
- Lack of culture of excellence
- Poor knowledge and skills in *Humanities* in general

3. What do you think are the main reasons behind this?

Interviewee 1: due to the education system that depends mainly on private tutoring

Interviewee 2: due to stagnation of the HE system (lack of updated curricula and minimum research)

Interviewee 3: gap between practical applications and syllabuses taught, lack of training due to the large number of students present in HE.

Interviewee 4: Lack of practice during HE, Lack of interaction with market demands

Interviewee 5: They learn by heart massive contents and don't practice enough.

Interviewee 6: Shortage of resources, High class densities, lack of accreditation criteria, weak dedication of faculty, bad links with labour market.

Interviewee 7: Our educational system is designed in a way that is based on memorizing more than enhancing student's skills. All that matters is the way that students will know how to answer the exam questions.

Interviewee 8:

- Crowded classrooms is another major reason therefore there isn't enough attention paid to each and every student. Consequently, parents turned to private tutoring which helped in producing a graduate unable of motivating himself and cannot stand hard work and pressure.

- HE system especially in public schools doesn't allow students to present academic material and experience soft skills. Learning depends mainly on spoon feeding so there is no chance for students to enhance or develop any skills.
- Lack of practical experience
- Examinations don't show the real level of students in all education levels including HE.

Interviewee 9: There are a lot of reasons off course that I think are very well known to the Egyptian society. Incompetence of students is a main reason and a result of the major problems that HE students experience in HE as overcrowded classrooms, lack of practical applications (outdated packages used).

Interviewee 10: Societal, cultural and off course educational factors:

- Societal: society does not reward excellence, ethical behavior but emphasis on financial / wealth values. Lack of competitive spirit, humble involvement in general / public affairs, and lack of role.
- Cultural: weak competitive spirit and ignorance about other cultures. Unfortunately, there is Lack of leadership and role models in most business and educational environments that would inspire HE students.
- Educational: very poor schooling system in Egypt that starts from fundamental education. The system rewards memorizing not critical thinking. Yet, the large numbers of students per class breaks up ability to reward the good students.
- Poor qualities of educators, who usually lack necessary skills of teaching, even good teachers and professors are not financially motivated to excel.
- The modest government spending on education and research by universities and academic / research centres

4. Have you ever heard about E-Learning before? Undergraduate or postgraduate studies?

Interviewee 1: yes, in post graduate studies mainly

Interviewee 2 :yes in under and post graduate.

Interviewee 3: yes in both applications.

Interviewee 4: Yes I did, I know it is applied in both domains

Interviewee 5: Yes, but I am not very much aware of the mode.

Interviewee 6: Yes of course

Interviewee 7: Yes, but I do not think that it is well established in the Egyptian market

Interviewee 8:

- Yes, but in post graduates studies more. I heard that EL certificates are offered online and are easy to get. A lot of people are granted a masters or even a PH.D from ambiguous universities if they can afford to pay for it or even buy the certificate. So there is bad reputation about it.
- There should be a strong marketing strategy from governmental authorities first to the Egyptian society to erase this bad reputation (government support) plus accreditation of the certificate to give it strength and seriousness.

Interviewee 9: Yes, but am not very much aware of its techniques

Interviewee 10: Yes off course. I'm aware of e-Learning and its models especially in my field of specialization (manufacturing). In my opinion E-Learning should *not* be viewed as an alternative to classroom education except in remote areas where teaching staff of the required skills and quality is not available or the teaching material is not easily available in the geographic area under consideration.

E-Learning can be used as a learning tool that *complements, clarifies* and *enriches* the material being taught by adding multimedia, interactive experience to the education process.

5. Do you think E-Learning graduates would be more skilful than traditional education graduates? How?

Interviewee 1: If e-Learning was applied effectively students will have better skills in computer and Internet skills and more responsibility with better knowledge but might lack communication and presentation skills.

Interviewee 2: yes definitely. Students will gain more skills with no doubt (especially gaining more knowledge in their field of study) due to the availability of more facilities and updated information.

Interviewee 3: No I doubt. For graduates to be more skilful the system offered has to be well controlled, assessed which is difficult to be applied in our culture.

Interviewee 4: No, because E-Learning would not be able to develop their practical skills.

Interviewee 5: I don't know, it depends on the student personality, the material taught, and instructor.

Interviewee 6: Yes, through improved computer skills, independence of thinking, Problem solving, and communication

Interviewee 7: It totally depends on the study field. I think it would make a dream come true in areas such as Business Administration and IT, as it will enhance research and computer skills.

Interviewee 8: No, EL graduates will be less skilful off course. Egyptian students aren't used to this type of learning in their previous learning stage which decreases the chance of gaining new skills, so they will not benefit from it even if there are more skills to learn.

Interviewee 9: Yes, I sure think so. At least the research, language, and computer skills will be much more. They will be flexible and up-to-date as their education is based on self-learning.

Interviewee 10: Yes, as a modern teaching methodology it is more effective than conventional methods of teaching. E-Learning could be successful in delivering self taught skills within a limited scope of specialization, but not to teach a full course. It is viewed as a teaching aid and *not* as a substitute to conventional schooling.

E-Learning material can enrich the student experience. A serious mistake would be just to emulate a printed book, and distribute this as an E-Learning tool, while tests and supervisory material is sent electronically to the teacher. For example it could interactively and automatically correct and grade tests.

6. Do you think the Egyptian society is ready for EL graduates and will equally acknowledge EL graduates as traditional HE graduates? Why?

Interviewee 1: This cannot be decided now. There will be a doubt about this certificate at first specially if offered by government. The first group of graduates will make their own reputation. Government must encourage society through quality assurance and scholarships to excellent students.

Interviewee 2: It is still early to judge, this concept will take time to convince society and employers but I think they will be highly appreciated after some time. There must be scholarships offered by the government encourage and give some trust to society.

Interviewee 3: No, less of course. There aren't well known nor established strong rules and regulations to control the system thus encourages employers. Plus cultural fear of uncertainty and trust.

Interviewee 4: No, Traditional education students will be always preferred than EI however, in some work field that deals mainly with computer and Internet applications they would be appreciated.

Interviewee 5: If the university is reputable as the AUC for example, then why not. As an employer I will be sure that this graduate learnt on solid and effective basis.

Interviewee 6: Not yet, because of lack of awareness and doubts about the level of quality of e-Learning programs offered.

Interviewee 7: Not expected in the near future. This will take time and needs a lot of effort at first from HE authorities (government and universities) to well establish such a system and introduce it to the Egyptian society.

Interviewee 8:

- Not yet for the time being.
- Our educational system depends on private tutoring to a very large extent in traditional HE and preliminary stages consequently an EL grad will be looked at as less knowledgeable off-course since it's based on self-learning.
- EL needs a powerful marketing strategy to ensure that an EL graduate is knowledgeable and is different than a traditional HE graduate that depends mainly on spoon feeding. The assessment of this certificate is unclear which will underestimate its graduate.

Interviewee 9: No I do not think so at all. They will always be under estimated especially in the amount of knowledge gained from college.

Interviewee 10: Theoretically speaking we should not differentiate between the two types of graduates. If, however, the implication is that E-Learning replaces traditional learning, then the graduate of this type of institution will be in a less favourable position, and will be hard to accept.

7. If you have a job vacancy, which applicant would you recruit, an e-Learning graduate or a traditional graduate?

Interviewee 1: I would prefer a traditional student. Generally, EL students will have fewer chances; however, the concept of non-free education, language and computer skills might give a step up in recruitment.

Interviewee 2: For me both are the same. However, EI graduates will have fewer chances at first because it's a new concept even if the certificate is accredited from governmental authorities, still it won't be trusted.

Interviewee 3: Traditional student of course. The system is trusted, rules, regulations and assessment systems are known and valid. I think that the EL concept has to be promoted, which will take some time to gain trust and confidence.

Interviewee 4: It depends on the type of job and skills gained by the graduate and desired to the nature of the job.

Interviewee 5: It depends on the interview with the candidate, through which I can understand more about his knowledge and skills; especially that it is still a new learning mode.

Interviewee 6: So far, traditional graduates. E-Learning graduates will take time to prove themselves as qualified employees in the job market.

Interviewee 7: I believe both would be useful, as the e-graduate will be more flexible and up-to-date, while the traditional graduate will be used to working under tough conditions.

Interviewee 8: Traditional graduate. They are more trusted for the time being in terms of knowledge and assessment than EL ones in spite of all their disadvantages.

Interviewee 9: Yes, I would sure do because I will sure benefit from the skills gained in such a graduate.

Interviewee 10: Traditional graduate, I'm not convinced that an EL graduate would replace an on-campus one.

8. Please rank the following criteria that would promote the adoption of e-Learning in Egypt based on the level of importance according to your point of view

- Internet Connection should be reliable
- E-Learning programs should be useful and effective
- Ease to use course electronic material
- E-Learning certificate should be accredited
- Creating societal awareness of E-Learning concepts

Interviewee 1: 5, 3, 4, 2, 1.

Interviewee 2: 4, 2, 3, 5, 1.

Interviewee 3: 2, 1, 3, 4, 5.

Interviewee 4: 5, 3, 4, 2, 1.

Interviewee 5: 4, 1, 5, 2, 3.

Interviewee 6: 5, 2, 4, 1, 3.

Interviewee 7: 2, 4, 3, 5, 1.

Interviewee 8: 5, 1, 4, 2, 3.

Case9: 2, 3, 1, 5, 4.

Case 10: 3, 1, 2, 5, 4.

APPENDIX 2: QUESTIONNAIRE FORMS

A. On-Campus student's questionnaire form

College:
University:
Department:

Dear Respondent,

You are invited to participate in our survey about improving higher education in Egypt through E-Learning programs. Your participation in this study is completely voluntary, and will be highly appreciated. Your survey responses will be strictly private and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential.

Thank you for your time and support.

The researcher
Eng. Sarah El Gamal

Please tick the appropriate answer

1. Your Internet access is mostly from:

- Home
- Work
- Other (Please state).....

2. How often do you access the Internet?

- Daily
- Weekly
- Monthly

3. Do you use the Internet for educational purposes?

- Yes
- No

4. Have you ever heard about E-Learning?

- Yes
- No

5. Which would you prefer?

- Traditional On-campus Education
- E-Learning

6. Would your parents encourage you to have your Higher Education certificate from an E-Learning university?

- Yes
- No

7. Would your parents agree to enroll you and fund your studies at an E-Learning university program?

- Yes
- No

8. Please rank the following E-Learning criteria by putting them in order of importance for you, using 1 to mean the most important, and 5 to mean least important.

-
- Internet Connection should be reliable
- E-Learning programs should be useful and effective
- Ease to use course electronic material
- E-Learning certificate should be accredited
- Creating societal awareness of E-Learning concept

9. Please tick the appropriate box to show how much you agree with the following:

Higher Education (HE) problems are:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Free education					
Large number of students per class					
Lack of innovation in programs					
Poor instructor capabilities					
Limited budgets					
Lack of practical work					
Admission system to universities					

10. Please rank the following E-Learning challenges by putting them in order of importance for you, using 1 to mean the most important, and 6 to mean least important.

<input type="checkbox"/>	Lack of face-to-face interaction and close supervision
<input type="checkbox"/>	Non-real time feedback to enquiries and assignments
<input type="checkbox"/>	Cultural resistance to change and adaptation to technology
<input type="checkbox"/>	Technological gap (Internet speed and bandwidth / computer skills needed)
<input type="checkbox"/>	Lack of normal college environment
<input type="checkbox"/>	Establishing and developing reliable course material

Please tick the appropriate box to show how much you agree with the following:

11. EL graduates may gain more skills due to:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Use of computer applications					
Encouraging responsibility					
Search and data gathering abilities acquired					
Experiencing practical work environments					
Use of recent up-dated information sources					
Availability of free time to develop talents					
More team work involvement					

12. EL graduates may be acknowledged by employers because:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
EL graduates studied the same set of topics					
EL exams and grades have valid criteria					
EL graduates got the same practical training					
HE authorities supports EL programs					
EL graduates acquired the same knowledge					
Employers are familiar with EL systems					

13. EL graduates may have equal recruitment chances because:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
EL graduates are considered well educated					
EL graduates are regarded as skilful and responsible employees					
EL graduates have practical experiences					
EL certification is admired by					

employers					
EL is approved by HE authorities					
Employment depends on other factors (ex: extra training courses and experience)					
Employers are familiar with EL systems					

14. EL may improve HE because it:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Is a solution to HE problems					
Is an effective educational way					
Supports more discussions via online tools					
Adopts a variety of learning styles					
Develops computer/Internet skills					
Encourages accessing online updated data					
Helps in developing learners personality					

B. On-Campus student's questionnaire form

Dear Respondent,

You are invited to participate in our survey about improving higher education in Egypt through E-Learning programs. Your participation in this study is completely voluntary, and will be highly appreciated. Your survey responses will be strictly private and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential.

If you agree to take part in this study, please kindly send your response to: **Sarah.el-gamal@unn.ac.uk**

Thank you for your time and support.

The researcher

Eng. Sarah El Gamal

College:
University:

1. Your Internet access is mostly from:

- Home
- Work
- Other (Please state).....

2. Please rank the following E-Learning (EL) criteria by putting them in order of importance for you, using 1 to mean the most important, and 5 to mean least important.

	Internet Connection should be reliable
	E-Learning programs should be useful and effective
	Ease to use course electronic material
	E-Learning certificate should be accredited
	Creating societal awareness of E-Learning concept

3. Please rank the following drivers to effective EL by putting the following statements in order of importance for you, using 1 to mean the most important, and 6 to mean least important.

	Increase of Student – Tutor interaction and supervision
	Spontaneous feedback to student's enquiries and assignments
	Increase of cultural acceptance and technology adaptation
	Better technological infrastructure (Internet Bandwidth and speed)
	Availability of reliable, innovative and user-friendly course materials
	Increase of E-instructor capabilities

Please tick the appropriate box to show how much you agree with the following:

4. I prefer EL because:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It solves HE problems					
It is accessible 'anytime - anyplace'					
It reduces travel cost and time					
It is an effective mode of education					
I will have more time for my hobbies					
It is more affordable					
It develops more learner skills					
EL courses are more innovative					
It allows work and study simultaneously					

5. EL graduates may gain more skills due to:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Use of computer applications					
Encouraging responsibility					
Acquiring search and data gathering abilities					

Experiencing practical work environments					
Use of recent up-dated information sources					
Availability of free time to develop talents					
More team work involvement					

6. EL graduates may be acknowledged by employers because:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
EL graduates studied the same set of topics					
EL exams and grades have valid criteria					
E-graduates got the same practical training					
Higher Education authorities supports EL programs					
EL graduates acquired the same knowledge					
Employers are familiar with EL systems.					

7. EL graduates may have equal recruitment chances because:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
EL graduates are considered well educated					
EL graduates are regarded as skilful/responsible employees					
EL graduates have practical experiences					
EL certification is admired by employers					
EL is approved by Higher Education authorities					
Employment depends on other factors (training/experience)					
Employers are familiar with EL systems					

8. Eventually, the implementation of EL in Egypt may enhance the quality of HE because:	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Student's needs are addressed during course development					
Course development supports a variety of learning styles					
Teaching process is via different ways and in a timely manner					
A clear course structure, objectives and outcomes are present					
Student support system to electronic data problems /complaints is available					
Evaluation and assessment criteria are clear and present					

Rapid feedback to student's enquiries/assignments is available					
Student's interaction among each other and instructors is facilitated via a variety of ways					
Courses are innovative and contemporary					
The use of e-sources is encouraged					

APPENDIX 3: SUMMARY OF FINDINGS

A. Main Questionnaire Findings

Some of the significant findings from the questionnaire were:

- Young adults are heavy Internet users, most of them access the Internet from their own homes on daily basis;
- Non-governmental higher education students are more oriented towards using the Web for educational applications;
- Parents' encouragement, enrolment and funding to technology based education is approved by on-campus students, despite the nearly equal preferences of both educational modes;
- Solving the conventional higher education problems, easy accessibility and developing learner's skills were the main reasons for choosing online education, which could enhance the quality of the higher education experience as regarded by e-Learning students;
- Experiencing practical work is regarded as a deficiency in online learners skills;
- Online degree holders could receive equal acknowledgement, appreciation and hiring opportunities;
- Free education was not considered as a main cause of higher education weaknesses, on the other hand, lack of innovation and practical work and large numbers of students per class were regarded as main causes;
- Developing ICT skills and accessing updated data were the contributing factors of higher education improvement;
- Variations between conventional and e-Learning student groups concerning the significant criteria required for promoting e-Learning adoption, where the reliability of Internet connection, effectiveness of programs offered and accreditation of e-Learning degrees were prioritised respectively. While fears from non-real time feedback was regarded as a common challenges facing e-Learning adoption;
- Positive correlation coefficients (stronger in public higher education student results) were gained between e-Learning perception, readiness for e-Learning, e-Learning adoption and higher education improvement.

B. Main Interview Findings

Some of the significant findings from the interviews were:

- The known weaknesses of higher education mentioned by academics and higher education authorities (crowded classes, insufficient resources and obsolete learning material) are the main reasons behind the lack of skills desired by employers;
- Online degrees can improve ICT skill, self-dependency and raise the sense of responsibility;
- Employers claim to be aware of e-Learning as an educational mode of learning, however doubts and fears of uncertainty towards the online degree holders were discovered;
- Online degree holders are likely to face less acknowledgement and appreciation from society and specially employers, thus less job opportunities;
- More time is needed to decrease the discrimination discovered between online degree holders and their conventional peers assure their level of education and knowledge;
- Academics acknowledge the usefulness of e-Learning programs, encourage the adoption of e-Learning programs, however students readiness to use technology and social acceptance are the main constrains;
- E-Learning is considered as a partial solution to higher education weaknesses. It's application is limited to non-practical fields;
- Government representatives considered the introduction of online education as a logical solution to higher education weaknesses. The dilemma between the high demand on higher education and limited resources available will promote for e-Learning acceptance and adoption;
- The accreditation of online certificates granted besides the development and implementation of action plans to increase social awareness are needed to promote e-Learning adoption.