

# The Perception of Students Regarding E-Learning Implementation in Egyptian Universities

The Case of Arab Academy for Science and Technology

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**Abstract**—Adopting e-learning in Egypt with population, over 80 million, needs clear understanding of the students' characteristics, perception, and cultural aspects. The large number of students per class in higher education in Egypt has highlighted the role of and the need for e-learning. This paper will focus on the Egyptian students as the customer in the e-learning process. It will try to identify the students' education preference, perception regarding e-learning mode effectiveness, and their e-readiness to its adoption by answering 'What is the preference of the Egyptian students' regarding HE mode in Egypt?' and 'What is the students perception regarding the effectiveness of e-learning as a higher education mode of learning in Egypt?' A structured questionnaire was designed to target higher education students in main two cities in Egypt. Data collected was statistically analyzed using Statistical Packages for the Social Sciences. Findings enabled the researchers to make conclusions and recommendations regarding e-learning implementation in Egypt.

**Keywords:** e-learning; perception; e-readiness; cultural aspects.

## I. INTRODUCTION

The penetration of technology and computers in different sectors including education has changed the ways services are delivered to customers, making automating applications obvious in learning systems [1]. There are an increasing number of university networks of this kind all over the world, and the use of computers in the learning process, access to the Internet by students as a vehicle for self-directed learning, educational broadcasting and video-conferencing are all being stepped by [2].

With the changing environment, educational institutions are forced to reconsider the methods in which they deliver their educational services. They now need to serve more students, yet, they have to shrink their budgets [3]. This creates a calling need for e-learning, which creates new opportunities for both educational institutions and students. E-learning has been defined by Wagner et al. as the learning experience enabled by electronic technologies [4].

Despite the clear need for studies that address the students' perception, preferences and e-readiness in developing countries, literature seems to focus on technical aspects. Accordingly, the main focus of this

paper is the Egyptian students' preference regarding the different higher education modes, and their perception regarding the effectiveness of e-learning as a higher education mode in Egypt.

## II. PROBLEM DOMAIN

Learning is a major sector in the Egyptian industry. As a service provider, learning institutions have realized the importance of investing in technology to control cost, attract students, and fulfill customers' needs for convenience and technical innovation [16]. Literature has been rich with studies regarding e-learning potentials. It also provides a clear view on how e-learning is adopted in developed countries. However, technologies can not be adopted regardless of the adopters' nature, perception, and preferences.

A study [12] about Egypt has highlighted that the quality of higher education in Egypt is decreasing due to the rapidly growing enrolment that started in the 1970s and 1980s, which, as a result, lead to large classes and the decrease of resources available [12].

Although e-learning seems to be the dream that would solve the education hassle in Egypt, in order to make e-learning more popular in Egypt, and to successfully adopt this technology, it is required to understand the users', perception, and preferences. Therefore the study at hand aims to survey the students' perception towards e-learning and whether they believe that it is an effective mode or not. It seeks to understand the nature of the Egyptian students, their frequency of use, and whether they believe that e-learning can help improve education in Egypt

## III. RESEARCH QUESTIONS

In order to understand the perception of students regarding e-learning implementation in Egypt, we need to answer the following questions:

- What is the preference of the Egyptian students' regarding HE mode in Egypt?
- What is the students perception regarding the effectiveness of e-learning as a higher education mode of learning in Egypt?

#### IV. E-LEARNING PERCEIVED USEFULNESS

E-learning has been significant in Information and Communications Technology (ICT). It delivers knowledge to developing countries and it integrates many ICT capabilities in a noble cause. E-learning could dramatically increase access to education. It improves quality of education by accessing global academic resources and by offering training to academics. It also helps learners take an active role, work with their colleagues/instructors from a variety of locations [17].

E-learning is believed to take a competitive advantage over the conventional methods due to the speed and efficiency of the Internet, especially in making announcements. Moreover, e-learning could be the dream for people with work or family commitments; due to the high flexibility in time and place it offers [8]. E-Learning creates an interactive environment for teachers and students, as well as the opportunity for discussion and clarification of class content [9]. It also enables educational institutions to target learners who are unable to participate in traditional-learning environments [10].

The Internet provides a rich source of information with different perspectives in research, high speed and countless resources to improve student work. Students can undertake group work through the collaborative groupware [11]. E-learning also enables participants to choose the course scope, appropriate time, access up-to-date content and even customize it.

##### A. E-Learning in Egypt

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 [4] [12] [13].

Beckstorm et al. [12] stated in their investigation about readiness for e-learning in Egypt that there is a positive response to Egypt readiness. Regarding the Internet initiative, the Ministry of Communications and Information Technology has been maintaining a free internet access nationwide since 2002, where more than 15,000 ports serving 2 million internet users, with users paying only for local phone tariffs.

E-learning in Egypt could provide solutions to problems such as overcrowded classrooms and transportation problems. The adoption of e-learning 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.

The Egyptian Ministry of higher education has made its first attempt in collaboration with higher education institutions in Italy, Canada and the United States to launch Egypt's first electronic non-profit university.

E-learning in Egypt has many challenges, some of which are the immature infrastructure, unawareness, resistance to change, and computer/Internet illiteracy [3][5]. Yet, it is essential [8][9] that the Egyptian government considers e-learning, especially in the higher education, where most of problems originate; in order to

meet the needs of increasing numbers of students and cover the requirements of the job market in a period of communication and knowledge revolution [9].

To sum up, we would say that although e-learning in Egypt is expected to face many challenges, yet the perceived usefulness outweighs the disadvantages. But in order to adopt a new technology in Egypt, users can not be ignored [14]; as they are the real customers without which the system will fail. Since the overall customer satisfaction is not a new issue; it can be a central factor to evaluate and control strategic marketing [3].

#### V. RESEARCH METHODOLOGY

In order to answer the above stated questions, a questionnaire was designed to survey students' usage patterns, e-readiness, their perceptions and priorities with regard to E-learning usefulness, effectiveness and implementation issues. The survey was administered in the two main cities in Egypt. 100 questionnaires were distributed over higher education student respondents from Alexandria and Cairo. 77 valid questionnaires were returned.

The questionnaire was designed in English and translated into Arabic. Questionnaire forms were distributed in both languages, according to respondents' preferences. The questionnaire contained 24 variables distributed among 12 different questions. A summary of the questionnaire form is presented in Tables 1.

##### A. Statistical Treatment

Simple frequencies derived for the questionnaire variables are reported below. For further analysis of the findings, Statistical Packages for the Social Sciences (SPSS) was used to analyse the data. Chi-squares tests were applied to the questions, as they tabulate the variable into categories and computes a chi-square statistic. This test compares the observed and expected frequencies in each category to test that all categories contain the same proportion of values or test that each category contains a user-specified proportion of values.

Where the answers were ordinal as in questions 4 and 5, the mode was calculated to assume an average, making the standard chi-square test also applicable, to assess whether the distributions of results differ significantly from findings given by different segments of the population in the questionnaire which might have arisen by chance. For questions 4 and 5, two supplement hypotheses were developed. Mode, Crosstabs and Chi square tests were used to assess student's preference mode against the mode effectiveness for the following hypotheses.

##### B. Frequencies

- 97.1% of the study sample uses the Internet on a daily basis, while only 2.9% use it monthly.
- 80% of students are aware of the e-learning concept, while 20% of them did not even hear about it.

- 61.8% of students prefer traditional on-campus learning mode, while only 35.3% choose e-learning and 2.9% preferred other modes of learning.
- 51.4% of students agree that e-learning is an effective mode, while a close percentage of 48.6 opposed the idea.
- The majority of students (94.3%) believe that e-learning will face difficulties during its implementation, while only 5.7% believe the opposite.
- Exactly half of the students (50%) believe that e-learning would help in overcoming the problems of higher education, while the other half do not.
- 62.9% of respondents agree that the introduction of e-learning will enhance the quality of higher education, while 37.1% agree on the opposite.
- 54.3% of the sample believes that there is no chance to gain skills via e-learning graduates as compared to traditional learning, while 45.7% agree that e-learning graduates may gain more skills.

C. Data Analysis

In order to analyse the data collected the following null hypotheses were tested and interpreted as shown below:

1) *H01: Higher education students in Egypt are aware of e-learning educational mode.*

Since e-learning programs have been evolving and adopted all over the world, we would expect that higher education students in Egypt would be aware of this learning module. To see whether there was greater than expected e-learning awareness in the survey population, we used the chi square test. Results were obtained as follows:

'Have you ever heard of e-learning before?' (Q2): Chi-square= 12.600a (df = 1, sig. =0.000).

With these values, we can reject the null hypothesis. The interpretation is that the majority of Egyptian students seem to have heard of e-learning. Although e-learning has just come out of its infancy, it is sound enough to make this clear significance in the awareness question.

2) *H02: There is no significant variation in students' preferences regarding the higher education learning mode.*

Since e-learning programs advantages have been clear and obvious, and because it has not yet dominated the Egyptian market, we would expect that higher education students in Egypt will not have a clear inclination towards any of the learning modes. To see whether their preferences are different from our expectations, chi square test was used and the results obtained as follows:

'Which would you prefer e-learning, or traditional on-campus learning?' (Q3): Chi square = 17.706 (df = 2, sig. = 0.000). With these values, we can also reject the null hypothesis. The interpretation is that the majority of Egyptian students seem to prefer the traditional on-campus learning mode despite of all the advantages of e-learning.

This may ring the bell to show that the Egyptian culture seems to resist change and fear uncertainty.

3) *H03: There is no significant difference between the perceptions of student's regarding the educational mode and its effectiveness.*

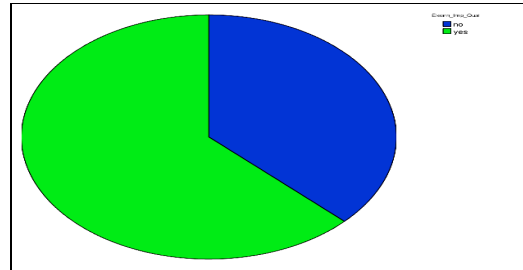


Figure 1. EL would improve the higher education in Egypt

In order to test hypothesis three, we formulated two sub-hypotheses:

1. *H03.1 Students prefer on-campus education because they are more familiar with it*

The majority of the Egyptian higher education students in the sample under investigation preferred traditional on-campus education. This may be due to resistance to change, cultural aspects, fear of uncertainty and the low expectations of e-learning programs. To assess the previously mentioned hypothesis, Modes, Crosstabs and chi square tests were applied and results obtained were as follows:

'E-learning is not an effective mode because:' (Q5) Chi square = 19.402a (df = 9, sig. = 0.022). These results allow us to reject the null hypothesis. The interpretation is that most respondents prefer on-campus educational mode. They believe that e-learning is not an effective educational way. This may be due to their fears from a number of factors as minimum interaction and students and lack of synchronous feedback to questions and assignments.

2. *H03.2: Students preferred e-learning because it solves HE problems.*

For those respondents who preferred e-learning, it is assumed that their choice is built upon the problems that already exist in traditional higher education programs as large class sizes and limited number of universities available with respect to population. Therefore, e-learning is taken as a way out of such problems. To test these assumptions modes, Crosstabs and chi square tests were applied and results obtained were as follows:

'E-learning is an effective mode of education because': (Q4) Chi square = 34.444a (df = 20, sig. = 0.023). Consequently, we can again reject the null hypothesis. The interpretation is that higher education students who prefer e-learning as an educational mode believe in its effectiveness. Factors such as addressing differences in learning styles and studying according to learner's convenience are the main causes of such results. Therefore, we can reject hypothesis H03. Beliefs about the

ineffectiveness of e-learning as educational approaches are the main reasons for student's preference of on-campus education mode. On the other hand, students who prefer e-learning trust its effectiveness.

ε) *H04: E-learning will not face difficulties during its implementation.*

As e-learning technologies have been available and widely used across different nations, we would expect that e-learning should not face any difficulty during its implementation in the higher education in Egypt. To see whether Egyptian students believe that e-learning may face difficulties during its implementation, chi square test was used and the results obtained as follows:

'Do you think e-learning will face difficulties during its implementation?' (Q5): Chi square = 27.457a, (df = 1, sig. = 0.000). With these values, we can again reject the null hypothesis. The interpretation is that most of the Egyptian students highly believe that e-learning will face many difficulties during its implementation in Egypt. This may be because of the cultural aspects that always seem to be neglected by decision makers, and technology adopters.

ϑ) *H05: E-learning will improve HE problems in Egypt.*

Logically and theoretically speaking, e-learning should be regarded as the dream that would solve higher education problem, but in order to test whether in reality, students believe that it will improve the higher education situation in Egypt or not, chi square tests were used and the results obtained as follows:

'Do you think e-learning will help in overcoming the problems of higher education?' (Q6): Chi square = 0.029a, (df = 1, sig. = 0.866).

'Do you think e-learning can help in improving the quality of higher education in Egypt?' (Q7): Chi square = 2.314a, (df = 1, sig. = 0.128). With these values, we fail to reject the null hypothesis. The interpretation is that students seem to lack confidence in the way e-learning would be implemented and are rather disappointed with the current system. They seem to doubt that higher education problems in Egypt could be solved by adopting a new technology.

ζ) *H06: Egyptian higher education Students in Egypt are infrequent Internet users.*

As Egypt is a developing country, with a high rate of illiteracy, we would expect students to be infrequent Internet users. In order to test this hypothesis, chi square test provided the following results:

'How often do you use the Internet?' (Q1): Chi square = 0.029a, (df = 1, sig. = 0.000). With these values, we can reject the null hypothesis. The interpretation is that higher education Egyptian students are very frequent Internet users. This is very interesting because it clarifies that young adults are technology users and most of them use the Internet on a daily basis. This puts a big question mark on why they negatively perceive e-learning implementation in Egypt.

η) *H07: There is no significant variation between e-learning graduates and on-campus graduates with regards to recruitment chances.*

Because e-learning advantages is known to the public, and its content should not be of less value than the traditional on-campus learning mode, we expect that there should not be any significant variation between e-learning graduates and on-campus graduates with regards to recruitment chances. In order to test this hypothesis chi square test was again used and the results obtained as follows:

'Do you think e-learning will improve higher education problems in Egypt?' (Q10): Chi square = 17.371a, (df = 1, sig. = 0.000).

With these values, we can reject the null hypothesis. The interpretation is that students believe that recruiters are biased and will not give equal chances to e-graduates. One more time cultural aspects speak out to prove that technology adopted in the West may not have the same effect.

TABLE I. QUESTIONNAIRE SUMMARY

#	Question	Possible answers
1	How often do you use the Internet?	Daily/Weekly/Monthly
2	Did you hear about e-learning before?	Yes / No
3	If you have th opportunity to choose the type of higher education would you prefer e-learning?	Traditional/On-campus education E-learning
4	Do you think e-learning is an effective way of learning in higher education?(If your answer is NO go to question 6).	Yes / No
5	E-learning is an effective mode of education because: (Go to question 6) - Offers an interactive mode of education - Courses are presented in separate modules - Learning is reinforced through clear learning objectives for each module - Courses are easy to navigate - Helps in developing learner's skills - Encourages access to more related electronic course material - Students may have the opportunity to mix what they learn with practical work	1: Strongly agree 2: Agree 3: I do not know 4: Disagree 5: Strongly disagree
6	E-learning is not an effective mode of education because: - Students need to feel connected to their school - Lack of interaction between classmates and instructors - Lack of real time feedback to questions and assignments - Classroom environments helps students to learn more - Needs perfect computer and Internet skills - More expensive than traditional education - Bandwidth and Internet speed could represent some obstacles	1: Strongly agree 2: Agree 3: I do not know 4: Disagree 5: Strongly disagree
7	Do you think e-learning will face difficulties during its implementation in Egypt?	Yes / No
8	Do you think e-learning will help in overcoming the problems of higher education in Egypt?	Yes / No
9	Do you think e-learning can help in improving the quality of higher education in Egypt?	Yes / No
10	Do you think that e-learning graduates will gain more skills than traditional education graduates?	Yes / No
11	Do you think e-learning graduates will be acknowledged and accredited as equally as traditional learning students from professional bodies and employers?	Yes / No
12	Do you think that e-learning graduates will have equal chances of recruitment as on-campus students?	Yes / No

## VI. DISCUSSIONS AND CONCLUSION

E-learning seems to be the upcoming trend. It has been spreading worldwide. However, Egypt has not really begun to take advantage of the e-learning medium. Although the adoption of e-learning 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 currently available in Egypt and the growing demand for higher education, the Egyptian Ministry of Higher Education has not yet dominated the Egyptian Market. Egypt has just launched its first non-profit private, electronic university in order to put some light and support to the e-learning modules, but still students seem to doubt the effectiveness of such a mode besides the difficulties during the implementation phases. They prefer the traditional on-campus learning mode as a way to avoid uncertainty.

A variety of reasons have led to students' doubt about the new educational platform such as the lack of normal college environment, asynchronous interaction and feedback between learners and instructors, and technological infrastructure problems such as Internet speed and bandwidth besides the familiarity of the structure routine of traditional on-campus education. This highlights the role of the Egyptian Higher education authorities and the Ministry of Communication and Information Technology in increasing public awareness about e-learning concepts, benefits, validity of the e-learning degree granted and the technological infrastructure available in Egypt.

As Lorenzi and Riley have reported in their article [16], the main success factors to system success are behavioural more than technical. An interesting feature of the Egyptian situation is the clear concern regarding learning via electronic forms, and yet are very frequent Internet users. They seem to trust the technology, and even use it frequently and yet do not trust the system and its power in solving improving the higher education in Egypt. Egyptian students seem to have heard about e-learning, but actually are not aware of the associated benefits which again emphasize the role of Egyptian authorities in dealing with resistance to change dilemma and addressing customer needs.

In the wider study of which this survey is part of, further investigation of the social and stakeholder context will be undertaken. Better understanding of the context of e-learning readiness and perception should enable decision makers in Egypt to address their customers' needs more fully. As customers are becoming more powerful than they previously were, and are more able to switch to other providers that if their expectations are not met [17], universities seeking e-learning adoption should try to make their potential students aware of the technique, process, and output.

Finally, we would say that although e-learning has a lot of potentials and advantages, it can not be actually promising in Egypt until e-learning readiness and perception have been taken into consideration.

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