

# The influence of educational e-services, advising support, available information, and knowledge acquired on customer satisfaction: The Egyptian private higher education

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## Keywords

e-services; retail, customer satisfaction, private higher education

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## Abstract

*Egypt is one of the significant nations in the district, particularly with its high populace. Although, the Egyptian Higher Education (HE) is the largest in the MENA region, and despite the clear investments in ICT, it still faces serious challenges chief amongst these is students' satisfaction. Recognizing that universities compete to attract and satisfy students; the main aim of this paper is to investigate the main factors that affect students' satisfaction in HE in Egypt.*

*The study focuses on factors like Educational E-Services, Advising Support, Available Information, and Knowledge Acquired. 400 Egyptian HE students at private universities were randomly selected and surveyed using a self-administered structured questionnaire on a 5-point Likert scale, where 133 valid questionnaires were returned. Data collected was coded and statistically analysed using SPSS.*

*When data was tested using chi-square and correlations, significant differences were proven, enabling researchers to reject the null hypotheses. When results were brought together, Educational E-Services, Advising Support, Available Information, and Knowledge Acquired were found to have a significant impact on the Egyptian customer satisfaction at HE. However, the Advising Support is the most influential factor among all variables. Therefore, it requires special attention of decision makers and academics; especially in the Egyptian context, where HE is highly effective with such high population.*

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## Introduction

Customers are becoming more and more powerful, where they can easily shift from a service provider to another with a couple of clicks. The ways retail services are provided have dramatically changes; especially with the technological advances that enabled better service provision (Abd El Aziz, 2009). Retail business in general and HE in particular has evolved for a various reasons, for example, increasing costs, flooded classrooms and shrinking spending plans have emphasized the importance of attracting students (El Gamal and Abd El Aziz, 2012). Learning organisations in Egypt have realized the importance of technology in order to better serve their customers. This is mainly due to its potential to reduce costs, attract more students (Wagner et al., 2008). In this manner, keeping in mind the main goal to improve the HE in Egypt, it is required to identify the primary variables that influence students' satisfaction (El Gamal and Abd El Aziz, 2012).

Egypt specifically has an incredible potential to extend in e-learning services because of its high populace, which surpasses 84 million (El Gamal and Abd El Aziz, 2011a). In 2014/2015, the number of students enrolled in the private HE registered 159.5 thousand; with 110.9 thousand students enrolled in private universities, and 48.6 thousand enrolled in institutes that provide qualified above average diploma and bachelor (Central Agency for Public Mobilization and Statistics, 2015). Egypt has one of the largest university systems in Africa (Ghazal, 2012). Literature states that not only does Egypt have the largest population in the Arab world, it is a cultural powerhouse, producing hugely popular music, movies and television (Tutton, 2011). In HE most of the problems arise from state funded colleges, which makes private colleges more tempting and an easier decision for guardians (El Gamal and Abd El Aziz, 2012).

Therefore, the main aim of this research is to survey student perceptions to investigate the impact of Educational E-services, Advising Support, Available Information, and Knowledge Acquired on Customer (student) Satisfaction in retail business (higher education).

### **Factors Affecting Students' Satisfaction**

Literature is rich with studies tackling factors that affect students' satisfaction and retention. However, studies have identified dissimilar educational services in a range of different contexts. For example in 2008, a study conducted in USA revealed that there are significant relationships between service performance and student satisfaction that will aid institutions to predict and measure student satisfaction and retention. Another investigation measuring service performance, student satisfaction and its impact on student retention in private, post-secondary institutions that was conducted in the same context concluded that perceived service and expectations are the main dimensions that affect student satisfaction (Archambault, 2008). Moreover, a doctorate dissertation in education measuring undergraduate student perceptions of service quality in higher education found that tangibles, reliability, responsiveness, assurance and empathy are the dimensions to HE service quality from the student perspective (Kelso, 2008).

In 2010, a study revealed that teachers' expertise, courses offered, learning environment and classroom facilities are the main factors that affect the student satisfaction with the quality of education offered by different private and public sector universities in Pakistan (Butt and Rehman, 2010). Also, Hanover research has reported its investigation findings and found that the best practices include the preparation and follow-up necessary to ensure a successful assessment, focusing on defining quality dimensions, measuring importance and satisfaction with variables, using unbiased and robust samples, explaining the survey and its purpose to customers, and utilizing an accurate satisfaction index for comparison purposes. It also highlighted the importance of surveying students' perception (Hanover Research, 2010).

In 2011, another study conducted in Athens, Greece identified five different factors as the criteria for students' satisfaction; namely program study, academic staff, equipment, administrative services, and image (Dimas et al., 2011). In 2013, a master thesis conducted in Sweden found that students were satisfied with the university, despite a negative service quality-gap. It also found that service quality only affected customer satisfaction to a small degree, but found a positive relation between the impact of positive news and the level of satisfaction amongst the students (Kelbawi et al., 2013). Another study was carried out in a Portuguese university focusing on the sources used students use to select a higher education institute using a survey that was applied to 1641 students enrolling for the first time. The study found that the university's website is considered the most important source of information (Soares and Simões, 2015).

A study in Pakistan that studied instructors' expertise, courses offered, learning environment and classroom facilities revealed that all attributes have significant and positive impact on students' satisfaction in higher education but at varying degree of strength with teachers' expertise being the most influential factor among all variables (Butt and Rehman, 2010). On the other hand, a study conducted in Hong Kong concerned with assessing customer satisfaction in the context of higher

education indicate that dissatisfied and satisfied students are significantly different when assessed in terms of education quality, social life, compensation, studying condition, and recognition (Huang et al., 2011). While another study conducted in Greece stated that image of the department is the most important criterion leaving Academic Service, Program study, Academic staff and Equipment as of low importance to students in HE (Dimas et al., 2011). In Germany, the results of a study show that students' satisfaction with their university is based on a stable person-environment relationship (Gruber et al., 2010).

E-learning and educational e-services are trending in Egypt. In 2012, 94.4% faculties were already connected to the Internet, with 97.4% professors, and 90% of students using the Internet. In 2015, 37.8% individuals reported to use the Internet and 84.8% were reported to use mobile phones. Already 22% of Individuals use computers in education and 28.3% use computer in internet access is 28.3% (Ministry of Communications and Information Technology, 2015). Mobile penetration has also reached 108.49% in July - September 2016, compared to 107.01% in July - September 2015, with 1.49% annual change rate (Ministry of Communications and Information Technology, 2016). This clearly shows that students choose to use technology and therefore, educational e-services should gain more attention in terms of adoption and utilisation. The analysis of the interaction between Egyptian members of a Face book group in a private university with 4500 members concluded that social networks help higher education communities by acting as a (1) notification centre; (2) question and answer platform; (3) student affairs portal; (4) learning management system (Hamdi and Abd El Aziz, 2017).

In 2016, a research studying the factors that affect the perceived value of online degrees in Egypt and Oman reported that these degrees are considered inferior to traditional education. Factors such as interaction between students and instructors, credibility with employers, and admission regulations were criticized. This calls for a need to investigate the main criteria that affect students' satisfaction (Sadik, 2016). Intention to use educational e-services in Egypt and UK was also investigated in another study in the same year which revealed that support, interactivity, response, ease of use, usefulness, and perceived satisfaction were the most influencing factors in Egypt (Sadik, et al., 2016). Another survey applying technology acceptance model in examining engagement with e-learning and self-efficacy influencing students' intention to use e-learning in Egypt and UK showed that both variables had significant effects on students in Egypt and UK through perceived ease of use and usefulness (Abbas, 2017). On the other hand, instructors' technology readiness towards adopting e-learning technologies in Egypt and UAE was also examined through an exploratory study which found evidence for relationship between instructors' technology, attitude, and behavioural intentions to adopt e-learning technologies. It also found that human interaction is equally important to instructors in both countries (El Alfy, 2016).

### **Research Methodology**

Based on the literature review that proves that private universities have a better potential to satisfy students (El Gamal and Abd El Aziz, 2011b); especially in countries with very high population such as Egypt (Abd El Aziz, 2009), and due to the variety of findings regarding the main criteria that affect student satisfaction in different contexts (Butt and Rehman, 2010)(Huang et al., 2011)(Dimas et al., 2011)(Gruber et al., 2010)(Khodayari and Khodayari, 2011)(Oscar et al., 2005)(Archambault, 2008)(Kelso, 2008)(Hanover, 2010)it was worth testing whether students are satisfied with the current educational services provided at private universities in Egypt (El Gamal and Abd El Aziz, 2011). Accordingly, a number of hypotheses have been devised and the research framework as shown in figure 1 was developed.

### **Research Hypotheses**

This research has four main hypotheses; these are displayed below:

**H1:** There is no significant difference between educational e-services and students' overall satisfaction.

**H2:** There is no significant difference between advising support, and students' overall satisfaction.

**H3:** There is no significant difference between available information and students' overall satisfaction.

**H4:** There is no significant difference between knowledge acquired and students' overall satisfaction.

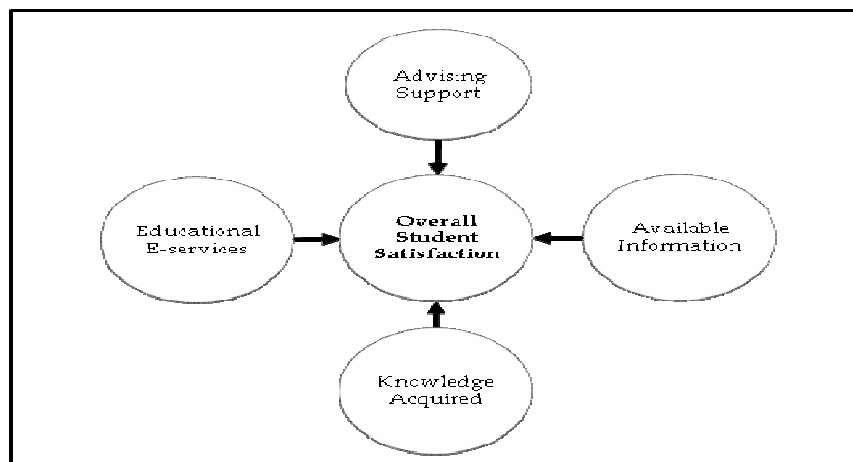


Figure 1. Research framework

### Sampling Techniques

The private higher education students who study in English or Arabic in Egypt are the study population of interest, which reached 110.9 thousand students enrolled in private universities, and 48.6 enrolled in institutes that give qualified above average diploma and bachelor, making a total of 159.5 thousand students based on the statistics of the Central Agency for Public Mobilization and Statistics in 2014/2015 (Central Agency for Public Mobilization and Statistics, 2015). The simple random sampling is adopted as a sampling technique. Based on confidence level 95% and confidence interval  $\pm 8.5$ , the sample size is exactly 133 students (Sekaran, 2003).

### Methodology and data collection

400 questionnaires were distributed both in English and Arabic based on the respondent's preference. The distributed questionnaires were circulated to private higher education students whose standard of living is "above average" and are highly acquainted with technology in Egypt. Over 200 questionnaires were returned, of which only 133 were considered valid in terms of completeness. SPSS data file was designed to feed with the received responses, and then the required statistical analyses on the assembled data were performed.

### Questionnaires

In order to collect data about educational E-services, advising support, available information, and knowledge acquired affect student overall satisfaction from the students' perspective, a structured questionnaire was developed. The questionnaire was designed specifically for measuring student's satisfaction through twenty questions that inquire on the four different attributes with regards to the overall satisfaction, in addition to questions that define the sample portrayal such as student's grade, semester / level, program study language, and gender. The number of received valid questionnaires reached questionnaires. They were circulated randomly, and were provided in English and Arabic languages according to participants' preferences. The questionnaire included two tested factors scattered among 5 Likert scale questions, with the following coding 1 for 'totally agree', 2 for 'agree', 3 for 'neutral', 4 for 'disagree', and 5 for 'totally disagree'. Questionnaire questions were adopted and adapted from literature review (Butt and Rehman, 2010) (Huang et al., 2011) (Dimas et al., 2011) (Gruber et al., 2010).

### Statistical Analysis Results

The students' view toward the received educational E-services, advising support, available information, knowledge acquired, and the overall satisfaction have been investigated through twelve questions. The following lines illustrate the distribution of these questions across the study variables.

- Educational e-services was examined through questions: 13, 14, 15, and 16 that inquired on educational e-services in terms of usefulness, ease of use, responsiveness, and whether they are satisfied with the received educational e-services or not.
- Advising support was investigated through questions: 7, 9, 10 and 11 that question the adequacy of advising support, and finally the helpfulness, skillful, and knowledge of senior and junior staff members.
- Available information was tested through questions: 3, 4, 5, and 6 that query the available information in terms of accessibility, accuracy, timeliness, and the clarity of procedures throughout the course of study.
- Knowledge acquired was investigated through questions: 8, and 20 that ask about gained knowledge and skills throughout the course of study, and being prepared to the job market.
- Students' overall satisfaction was examined through questions: 1, 2, 12, 17, 18 and 19 that inquire on service satisfaction, convenience, excitement and enjoying studying the program, and whether they think they have made the right choice, and would encourage potential students to join their department.

The Statistical Package for Social Science (SPSS) software was used to analyse the data collected.

- Frequencies were calculated to describe the collected data/ results.
- The study variables were tested against reliability by Reliability Analysis- Cronbach.
- Association presence between study variables were investigated by Chi-square and correlation tests

#### *Descriptive Analysis – Frequencies*

The study sample is described below in Table 1. It shows the distribution of respondents based on student's department, student's grade, semester, program language, gender, required procedures, advising support and gained knowledge, and the sufficiency of the advising support.

| Question  | %      | Answers     |
|---|--------|-------------|
| Student's Grade   | 45.3%  | Good        |
|   | 54.7%  | Very Good   |
| Student's Semester  | 38.6%  | First Year  |
|   | 4%     | Second Year |
|   | 35.6%  | Third Year  |
|   | 21.8 % | Fourth Year |
| Student's Program Language  | 34.7%  | Arabic      |
|   | 65.3%  | English     |
| Student's Gender  | 46.9%  | Females     |
|   | 53.1%  | Male        |
| Required procedures, academic advising, and gained knowledge and skills | 68.9%  | Clear       |
|   | 22.3   | Neutral     |
|   | 8.7%   | Not clear   |
| Sufficient of the academic advising and assistance                      | 65.7%  | Agree       |
|   | 26.5%  | Neutral     |
|   | 7.9%   | Disagree    |

table 1 sample general descriptive statistics using frequencies



|                    |                     | Grade  | Student's Semester | Program | Gender |
|--------------------|---------------------|--------|--------------------|---------|--------|
| Student Grad       | Pearson Correlation | 1      | -.213*             | -.058   | .454** |
|                    | Sig. (2-tailed)     |        | .039               | .583    | .000   |
| Student's Semester | Pearson Correlation | -.213* | 1                  | -.441** | -.158  |
|                    | Sig. (2-tailed)     | .039   |                    | .000    | .076   |
| Program            | Pearson Correlation | -.058  | -.441**            | 1       | .002   |
|                    | Sig. (2-tailed)     | .583   | .000               |         | .986   |
| Gender             | Pearson Correlation | .454** | -.158              | .002    | 1      |
|                    | Sig. (2-tailed)     | .000   | .076               | .986    |        |

\*. Correlation is significant at the 0.05 level (2-tailed).  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).

- Student Grad and student's semester are negatively correlated
- Student Grad and gender are highly correlated

|         |                     | Program | Gender | X1.1   | X1.2   | X1.12  | X1.17  | X1.18  | X1.19  |
|---------|---------------------|---------|--------|--------|--------|--------|--------|--------|--------|
| Program | Pearson Correlation | 1       | .002   | -.052  | -.213* | -.134  | -.233* | -.216* | -.208* |
|         | Sig. (2-tailed)     |         | .986   | .613   | .035   | .190   | .022   | .033   | .040   |
| Gender  | Pearson Correlation | .002    | 1      | -.042  | -.103  | .170   | -.028  | -.042  | -.097  |
|         | Sig. (2-tailed)     | .986    |        | .642   | .249   | .057   | .757   | .639   | .279   |
| X1.1    | Pearson Correlation | -.052   | -.042  | 1      | .607** | .489** | .562** | .493** | .535** |
|         | Sig. (2-tailed)     | .613    | .642   |        | .000   | .000   | .000   | .000   | .000   |
| X1.2    | Pearson Correlation | -.213*  | -.103  | .607** | 1      | .571** | .646** | .621** | .665** |
|         | Sig. (2-tailed)     | .035    | .249   | .000   |        | .000   | .000   | .000   | .000   |
| X1.12   | Pearson Correlation | -.134   | .170   | .489** | .571** | 1      | .625** | .492** | .666** |
|         | Sig. (2-tailed)     | .190    | .057   | .000   | .000   |        | .000   | .000   | .000   |
| X1.17   | Pearson Correlation | -.233*  | -.028  | .562** | .646** | .625** | 1      | .615** | .752** |
|         | Sig. (2-tailed)     | .022    | .757   | .000   | .000   | .000   |        | .000   | .000   |
| X1.18   | Pearson Correlation | -.216*  | -.042  | .493** | .621** | .492** | .615** | 1      | .658** |
|         | Sig. (2-tailed)     | .033    | .639   | .000   | .000   | .000   | .000   |        | .000   |
| X1.19   | Pearson Correlation | -.208*  | -.097  | .535** | .665** | .666** | .752** | .658** | 1      |
|         | Sig. (2-tailed)     | .040    | .279   | .000   | .000   | .000   | .000   | .000   |        |

\*. Correlation is significant at the 0.05 level (2-tailed).  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).

- Study program language and X1.2, X1.17, X1.18, X1.19 are negatively correlated

Table 2 displayed below illustrates how the sample of the study is distributed according to the received feedback and students responses' on particular questionnaire questions'. The main focus of

these questions is the level of fulfilment / satisfaction from different measurements and angles using direct and indirect ways of asking. It covers students' overall satisfaction, whether the service is convenient, the program is exciting and enjoyable, senior staff and junior staff are helpful, and finally whether students feel they have made the right choice by joining this department.

| Item / Question                                       | %      | Answer                         |
|---|--------|--------------------------------|
| Students' overall satisfaction                        | 79.6%  | Satisfied                      |
|   | 13.6 % | Neutral                        |
|   | 6.8%   | Dissatisfied                   |
| Service is convenient                                 | 63%    | Is convenient                  |
|   | 26.2 % | Not able to decide             |
|   | 10.7%  | Not convenient                 |
| Program is exciting and enjoyable                     | 61.8%  | Agree                          |
|   | 25.5%  | Neutral                        |
|   | 12.8%  | Not exciting and not enjoyable |
| Senior staff is helpful                               | 73%    | Agree                          |
|   | 16.5%  | Neutral                        |
|   | 9.7%   | Disagree                       |
| Junior staff is helpful                               | 72.8%  | Agree                          |
|   | 19.4%  | Neutral                        |
|   | 7.7%   | Disagree                       |
| e-services are satisfactory                           | 69.3 % | Satisfied                      |
|   | 23.8%  | Neutral                        |
|   | 6.9%   | Disagree / Dissatisfied        |
| Have made the right choice by joining this department | 35%    | Agree                          |
|   | 24%    | Neutral                        |
|   | 11.7%  | Disagree                       |

table 2 descriptive summary using frequencies

### Reliability test

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .961             | 20         |

The Cronbach's Alpha test value 0.961 exceeds 0.8, this illustrates a highly consistent and uniform study measures.

### Hypotheses Testing

This study has four hypotheses; the following section will illustrate the conducted tests for each of these hypotheses. The study hypotheses are:

**H1 There is no significant difference between educational e-services value and students' overall satisfaction.**

The relation between educational e-services value and students' overall satisfaction is significant as shown from the chi-square values below in Table 3. In addition, as illustrated in Table 1 in the Appendix X1.1, X1.2, X1.12, X1.17, X1.18, and X1.19 have strong positive correlation to X1.13, X1.14, X1.15, and X1.16.

These results allow us to reject the null hypothesis, which highlights the impact of educational e-services value on the students' overall satisfaction.

| Variables     | Pearson Chi-Square Value | df | Asymp. Sig. (2-sided) |
|---------------|--------------------------|----|-----------------------|
| X1.1 * X1.13  | 89.565 <sup>a</sup>      | 16 | .000                  |
| X1.1* X1.14   | 61.350 <sup>a</sup>      | 16 | .000                  |
| X1.1 * X1.15  | 62.888 <sup>a</sup>      | 12 | .000                  |
| X1.1 * X1.16  | 1.156E2 <sup>a</sup>     | 16 | .000                  |
| X1.2 * X1.13  | 71.398 <sup>a</sup>      | 16 | .000                  |
| X1.2* X1.14   | 1.087E2 <sup>a</sup>     | 16 | .000                  |
| X1.2 * X1.15  | 79.036 <sup>a</sup>      | 12 | .000                  |
| X1.2 * X1.16  | 1.158E2 <sup>a</sup>     | 16 | .000                  |
| X1.12 * X1.13 | 60.374 <sup>a</sup>      | 16 | .000                  |
| X1.12* X1.14  | 1.003E2 <sup>a</sup>     | 16 | .000                  |
| X1.12 * X1.15 | 71.735 <sup>a</sup>      | 12 | .000                  |
| X1.12 * X1.16 | 1.063E2 <sup>a</sup>     | 16 | .000                  |
| X1.17 * X1.13 | 71.890 <sup>a</sup>      | 16 | .000                  |
| X1.17* X1.14  | 54.788 <sup>a</sup>      | 16 | .000                  |
| X1.17 * X1.15 | 55.880 <sup>a</sup>      | 12 | .000                  |
| X1.17 * X1.16 | 97.939 <sup>a</sup>      | 16 | .000                  |
| X1.18 * X1.13 | 90.123 <sup>a</sup>      | 16 | .000                  |
| X1.18* X1.14  | 84.932 <sup>a</sup>      | 16 | .000                  |
| X1.18 * X1.15 | 80.960 <sup>a</sup>      | 12 | .000                  |
| X1.18 * X1.16 | 98.012 <sup>a</sup>      | 16 | .000                  |
| X1.19 * X1.13 | 59.118 <sup>a</sup>      | 16 | .000                  |
| X1.19* X1.14  | 71.641 <sup>a</sup>      | 16 | .000                  |
| X1.19 * X1.15 | 64.235 <sup>a</sup>      | 12 | .000                  |
| X1.19 * X1.16 | 70.036 <sup>a</sup>      | 16 | .000                  |

Table 3 Chi-Square –educational e-services value and students' satisfaction

**H2There is no significant difference between advising supportand students' overall satisfaction.**

A significant relation between advising support and students' overall satisfaction is illustrated as shown from the chi-square values below in Table 4 and as illustrated in Table 2 in the AppendixX1.1, X1.2, X1.12, X1.17, X1.18, and X1.19 have strong positive correlation to X 1.7, X1.9, X1.10, and X1.11. As a result of the above outcomes, rejecting the null hypothesis, and strengthens the significance of understanding the influence of advising support on students' overall satisfaction in higher education.

| Variables    | Pearson Chi-Square Value | df | Asymp. Sig. (2-sided) |
|--------------|--------------------------|----|-----------------------|
| X1.1 * X1.7  | 55.545 <sup>a</sup>      | 16 | .000                  |
| X1.1* X1.9   | 99.247 <sup>a</sup>      | 16 | .000                  |
| X1.1 * X1.10 | 1.015E2 <sup>a</sup>     | 16 | .000                  |
| X1.1 * X1.11 | 83.681 <sup>a</sup>      | 16 | .000                  |
| X1.2 * X1.7  | 91.877 <sup>a</sup>      | 16 | .000                  |
| X1.2* X1.9   | 1.150E2 <sup>a</sup>     | 16 | .000                  |
| X1.2 * X1.10 | 87.228 <sup>a</sup>      | 16 | .000                  |



|               |                      |    |      |
|---------------|----------------------|----|------|
| X1.2 * X1.11  | 89.602 <sup>a</sup>  | 16 | .000 |
| X1.12 * X1.7  | 53.022 <sup>a</sup>  | 16 | .000 |
| X1.12* X1.9   | 64.469 <sup>a</sup>  | 16 | .000 |
| X1.12 * X1.10 | 84.677 <sup>a</sup>  | 16 | .000 |
| X1.12 * X1.11 | 67.877 <sup>a</sup>  | 16 | .000 |
| X1.17 * X1.7  | 56.364 <sup>a</sup>  | 16 | .000 |
| X1.17* X1.9   | 79.116 <sup>a</sup>  | 16 | .000 |
| X1.17 * X1.10 | 99.799 <sup>a</sup>  | 12 | .000 |
| X1.17 * X1.11 | 77.486 <sup>a</sup>  | 16 | .000 |
| X1.18 * X1.7  | 44.827 <sup>a</sup>  | 16 | .000 |
| X1.18* X1.9   | 68.836 <sup>a</sup>  | 16 | .000 |
| X1.18 * X1.10 | 1.100E2 <sup>a</sup> | 16 | .000 |
| X1.18 * X1.11 | 84.233 <sup>a</sup>  | 16 | .000 |
| X1.19 * X1.7  | 84.943 <sup>a</sup>  | 16 | .000 |
| X1.19* X1.9   | 78.952 <sup>a</sup>  | 16 | .000 |
| X1.19 * X1.10 | 65.210 <sup>a</sup>  | 16 | .000 |
| X1.19 * X1.11 | 70.818 <sup>a</sup>  | 16 | .000 |

Table 4 Chi-Square – ACADEMIC Support, and Students' satisfaction

**H3** There is no significant difference between available information and students' overall satisfaction.

The relation between available information and students' overall satisfaction is significant as shown from the chi-square values below in Table 5 and as illustrated in Table 3 in the Appendix. X1.1, X1.2, X1.12, X1.17, X1.18, and X1.19 have strong positive correlation to X1.3, X1.4, X1.5, and X1.6. Rejecting the null hypothesis is enabled by the above results, thus emphasizes the impact of available information on the students' overall satisfaction in higher education.

| Variables    | Pearson Chi-Square Value | df | Asymp. Sig. (2-sided) |
|--------------|--------------------------|----|-----------------------|
| X1.1 * X1.3  | 88.688 <sup>a</sup>      | 16 | .000                  |
| X1.1* X1.4   | 97.435 <sup>a</sup>      | 16 | .000                  |
| X1.1 * X1.5  | 63.360 <sup>a</sup>      | 16 | .000                  |
| X1.1 * X1.6  | 74.172 <sup>a</sup>      | 16 | .000                  |
| X1.2 * X1.3  | 1.384E2 <sup>a</sup>     | 16 | .000                  |
| X1.2* X1.4   | 1.678E2 <sup>a</sup>     | 16 | .000                  |
| X1.2 * X1.5  | 89.518 <sup>a</sup>      | 16 | .000                  |
| X1.2 * X1.6  | 75.014 <sup>a</sup>      | 16 | .000                  |
| X1.12 * X1.3 | 1.306E2 <sup>a</sup>     | 16 | .000                  |
| X1.12* X1.4  | 64.506 <sup>a</sup>      | 16 | .000                  |
| X1.12 * X1.5 | 65.510 <sup>a</sup>      | 16 | .000                  |
| X1.12 * X1.6 | 1.090E2 <sup>a</sup>     | 16 | .000                  |
| X1.17 * X1.3 | 69.023 <sup>a</sup>      | 16 | .000                  |
| X1.17* X1.4  | 57.690 <sup>a</sup>      | 16 | .000                  |

|              |                      |    |      |
|--------------|----------------------|----|------|
| X1.17 * X1.5 | 70.727 <sup>a</sup>  | 16 | .000 |
| X1.17 * X1.6 | 84.221 <sup>a</sup>  | 16 | .000 |
| X1.18 * X1.3 | 1.229E2 <sup>a</sup> | 16 | .000 |
| X1.18* X1.4  | 83.955 <sup>a</sup>  | 16 | .000 |
| X1.18 * X1.5 | 83.414 <sup>a</sup>  | 16 | .000 |
| X1.18 * X1.6 | 92.265 <sup>a</sup>  | 16 | .000 |
| X1.19 * X1.3 | 87.882 <sup>a</sup>  | 16 | .000 |
| X1.19* X1.4  | 65.596 <sup>a</sup>  | 16 | .000 |
| X1.19 * X1.5 | 75.616 <sup>a</sup>  | 16 | .000 |
| X1.19 * X1.6 | 90.363 <sup>a</sup>  | 16 | .000 |

Table 5 Chi-Square –Available informationand Students’ satisfaction

#### H4 There is no significant difference between knowledge acquired and students’ overall satisfaction.

The relation between educational e-services value and students’ overall satisfaction is significant as shown from the chi-square values below in Table 6 and as illustrated in Table 4 in the AppendixX1.1, X1.2, X1.12, X1.17, X1.18, and X1.19 are strongly positive correlated to X1.8, and X1.20. As a consequence the null hypothesis is rejected. This highlights the importance of the knowledge value as a major factor that affects students’ overall satisfaction.

| Variables     | Pearson Chi-Square Value | df | Asymp. Sig. (2-sided) |
|---------------|--------------------------|----|-----------------------|
| X1.1 * X1.8   | 87.857 <sup>a</sup>      | 16 | .000                  |
| X1.1 * X1.20  | 89.761 <sup>a</sup>      | 16 | .000                  |
| X1.2 * X1.8   | 1.346E2 <sup>a</sup>     | 16 | .000                  |
| X1.2 * X1.20  | 83.265 <sup>a</sup>      | 16 | .000                  |
| X1.12 * X1.8  | 1.051E2 <sup>a</sup>     | 16 | .000                  |
| X1.12 * X1.20 | 1.153E2 <sup>a</sup>     | 16 | .000                  |
| X1.17 * X1.8  | 85.205 <sup>a</sup>      | 16 | .000                  |
| X1.17 * X1.20 | 90.588 <sup>a</sup>      | 16 | .000                  |
| X1.18 * X1.8  | 1.196E2 <sup>a</sup>     | 16 | .000                  |
| X1.18 * X1.20 | 1.240E2 <sup>a</sup>     | 16 | .000                  |
| X1.19 * X1.8  | 92.596 <sup>a</sup>      | 16 | .000                  |
| X1.19 * X1.20 | 1.026E2 <sup>a</sup>     | 16 | .000                  |

Table 6 Chi-Square knowledge acquired and students’ overall satisfaction

#### Research Conclusion

This research focused on the influence of educational E-services, advising support, information, and knowledge acquired on customer satisfaction. The study was conducted in three different phases: the first phase was concerned with determining the major factors identified in literature. During the second phase, the researchers used the knowledge extracted from the literature to formulate the research instrument; namely structured questionnaires. The instrument was exploited to gather necessary data, code data and statistically analyse collected data using SPSS to reach the research findings. In the third phase, findings were discussed to arrive at relevant implications concerning the main factors that affect students’ satisfaction in Egyptian HE.

Educational E-services, advising support, available information, and knowledge acquired received strong literature support. When data was tested using chi-square and correlations, significant differences were proven enabling researchers to reject the null hypotheses. When results were brought together, a relation between all variables with the overall student satisfaction in the Egyptian HE was proven. This supports previous literature and highlights the importance of identifying key factors that influence the overall students' satisfaction level; as this should be considered before improvements or investment planning. Although it was difficult for researchers to measure qualitative factors such as advising support, and available information, both factors could be well delivered electronically through the university's student portal.

Despite the fact that all four variables were proven to have an impact on students' satisfaction, Advising Support was found to be the most influential factor among them all. This is logically reasonable; as students in private universities usually expect better advising support than in public ones. This also supports Hofstede's investigation which proves that Egyptians have high uncertainty avoidance and low individualism, and thus feel more comfortable getting advising support (Hofstede, 1980). Therefore, this dimension requires special attention of decision makers and academics; especially in the Egyptian context, where HE is highly effective with such high population.

#### **Research limitations and future work**

The study at hand has some limitations. Further research is required to investigate the relationship between different criteria that enhance Advising Support. The interplay and the relationship between the Advising Support in particular together with other factors identified in literature must also be studied in order to fill a clear gap in literature. This is highly important as students' satisfaction in private universities is a top priority due to the high influence of wrong decisions on retaining students who could easily shift from a university to another if it better meets their expectations and provides them with the required satisfaction level. Moreover, a comparative study across different countries might be significant, showing more similarities and differences, and bringing more cultural aspects to the light. Finally, a more technical study approach taking into consideration both the study findings and the technological advances of electronic learning.

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### Appendix: Correlation Tables

|       |                     | X1.1   | X1.2   | X1.12  | X1.17  | X1.18  | X1.19  | X1.13  | X1.14  | X1.15  | X1.16  |
|-------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| X1.1  | Pearson Correlation | 1      | .607** | .489** | .562** | .493** | .535** | .486** | .443** | .529** | .591** |
|       | Sig. (2-tailed)     |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.2  | Pearson Correlation | .607** | 1      | .571** | .646** | .621** | .665** | .525** | .553** | .512** | .611** |
|       | Sig. (2-tailed)     | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.12 | Pearson Correlation | .489** | .571** | 1      | .625** | .492** | .666** | .519** | .571** | .533** | .605** |
|       | Sig. (2-tailed)     | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.17 | Pearson Correlation | .562** | .646** | .625** | 1      | .615** | .752** | .466** | .464** | .527** | .574** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.18 | Pearson Correlation | .493** | .621** | .492** | .615** | 1      | .658** | .527** | .549** | .563** | .538** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   |
| X1.19 | Pearson Correlation | .535** | .665** | .666** | .752** | .658** | 1      | .489** | .534** | .497** | .510** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   |
| X1.13 | Pearson Correlation | .486** | .525** | .519** | .466** | .527** | .489** | 1      | .729** | .687** | .654** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   |
| X1.14 | Pearson Correlation | .443** | .553** | .571** | .464** | .549** | .534** | .729** | 1      | .766** | .626** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   |        | .000   | .000   |
| X1.15 | Pearson Correlation | .529** | .512** | .533** | .527** | .563** | .497** | .687** | .766** | 1      | .728** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |        | .000   |

|       |                     |        |        |        |        |        |        |        |        |        |   |
|-------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|
| X1.16 | Pearson Correlation | .591** | .611** | .605** | .574** | .538** | .510** | .654** | .626** | .728** | 1 |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |   |

\*\* Correlation is significant at the 0.01 level (2-tailed).

TABLE 1 CORRELATIONS – EDUCATIONAL E-SERVICES VALUE AND STUDENTS' SATISFACTION

|       |                     | X1.1   | X1.2   | X1.12  | X1.17  | X1.18  | X1.19  | X1.7   | X1.9   | X1.10  | X1.11  |
|-------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| X1.1  | Pearson Correlation | 1      | .607** | .489** | .562** | .493** | .535** | .513** | .634** | .541** | .495** |
|       | Sig. (2-tailed)     |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.2  | Pearson Correlation | .607** | 1      | .571** | .646** | .621** | .665** | .526** | .627** | .585** | .563** |
|       | Sig. (2-tailed)     | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.12 | Pearson Correlation | .489** | .571** | 1      | .625** | .492** | .666** | .446** | .482** | .583** | .547** |
|       | Sig. (2-tailed)     | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.17 | Pearson Correlation | .562** | .646** | .625** | 1      | .615** | .752** | .498** | .597** | .493** | .452** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.18 | Pearson Correlation | .493** | .621** | .492** | .615** | 1      | .658** | .406** | .511** | .415** | .541** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   |
| X1.19 | Pearson Correlation | .535** | .665** | .666** | .752** | .658** | 1      | .590** | .524** | .456** | .512** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   |
| X1.7  | Pearson Correlation | .513** | .526** | .446** | .498** | .406** | .590** | 1      | .455** | .471** | .532** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   |
| X1.9  | Pearson Correlation | .634** | .627** | .482** | .597** | .511** | .524** | .455** | 1      | .608** | .415** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   |        | .000   | .000   |
| X1.10 | Pearson Correlation | .541** | .585** | .583** | .493** | .415** | .456** | .471** | .608** | 1      | .548** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |        | .000   |
| X1.11 | Pearson Correlation | .495** | .563** | .547** | .452** | .541** | .512** | .532** | .415** | .548** | 1      |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |        |

\*\* Correlation is significant at the 0.01 level (2-tailed).

TABLE 2 CORRELATIONS – ACADEMIC SUPPORT AND STUDENTS' SATISFACTION

|       |                     | X1.1   | X1.2   | X1.12  | X1.17  | X1.18  | X1.19  | X1.3   | X1.4   | X1.5   | X1.6   |
|-------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| X1.1  | Pearson Correlation | 1      | .607** | .489** | .562** | .493** | .535** | .606** | .596** | .479** | .473** |
|       | Sig. (2-tailed)     |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.2  | Pearson Correlation | .607** | 1      | .571** | .646** | .621** | .665** | .698** | .703** | .587** | .559** |
|       | Sig. (2-tailed)     | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.12 | Pearson Correlation | .489** | .571** | 1      | .625** | .492** | .666** | .514** | .420** | .544** | .581** |
|       | Sig. (2-tailed)     | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.17 | Pearson Correlation | .562** | .646** | .625** | 1      | .615** | .752** | .529** | .420** | .448** | .448** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.18 | Pearson Correlation | .493** | .621** | .492** | .615** | 1      | .658** | .558** | .554** | .519** | .516** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   |
| X1.19 | Pearson Correlation | .535** | .665** | .666** | .752** | .658** | 1      | .593** | .514** | .453** | .542** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   |
| X1.3  | Pearson Correlation | .606** | .698** | .514** | .529** | .558** | .593** | 1      | .703** | .579** | .538** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   |
| X1.4  | Pearson Correlation | .596** | .703** | .420** | .420** | .554** | .514** | .703** | 1      | .666** | .595** |
|       | Sig. (2-tailed)     |        |        |        |        |        |        |        |        |        |        |



|      |                     |        |        |        |        |        |        |        |        |        |        |
|------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|      | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.5 | Pearson Correlation | .479** | .587** | .544** | .448** | .519** | .453** | .579** | .666** | 1      | .513** |
|      | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |        | .000   |
| X1.6 | Pearson Correlation | .473** | .559** | .581** | .448** | .516** | .542** | .538** | .595** | .513** | 1      |
|      | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   | .000   |        |

\*\* Correlation is significant at the 0.01 level (2-tailed).

TABLE 3 CORRELATIONS – AVAILABLE INFORMATION AND STUDENTS' SATISFACTION

|       |                     | X1.1   | X1.2   | X1.12  | X1.17  | X1.18  | X1.19  | X1.8   | X1.20  |
|-------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| X1.1  | Pearson Correlation | 1      | .607** | .489** | .562** | .493** | .535** | .557** | .573** |
|       | Sig. (2-tailed)     |        | .000   | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.2  | Pearson Correlation | .607** | 1      | .571** | .646** | .621** | .665** | .710** | .623** |
|       | Sig. (2-tailed)     | .000   |        | .000   | .000   | .000   | .000   | .000   | .000   |
| X1.12 | Pearson Correlation | .489** | .571** | 1      | .625** | .492** | .666** | .501** | .532** |
|       | Sig. (2-tailed)     | .000   | .000   |        | .000   | .000   | .000   | .000   | .000   |
| X1.17 | Pearson Correlation | .562** | .646** | .625** | 1      | .615** | .752** | .545** | .609** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   |        | .000   | .000   | .000   | .000   |
| X1.18 | Pearson Correlation | .493** | .621** | .492** | .615** | 1      | .658** | .594** | .649** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   |        | .000   | .000   | .000   |
| X1.19 | Pearson Correlation | .535** | .665** | .666** | .752** | .658** | 1      | .589** | .643** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   |        | .000   | .000   |
| X1.8  | Pearson Correlation | .557** | .710** | .501** | .545** | .594** | .589** | 1      | .618** |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   |        | .000   |
| X1.20 | Pearson Correlation | .573** | .623** | .532** | .609** | .649** | .643** | .618** | 1      |
|       | Sig. (2-tailed)     | .000   | .000   | .000   | .000   | .000   | .000   | .000   |        |

\*\* Correlation is significant at the 0.01 level (2-tailed).

TABLE 4 CORRELATIONS KNOWLEDGE ACQUIRED AND STUDENTS' OVERALL SATISFACTION