Study of the Availability and Awareness of E-services in Higher Education in Libya

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ABSTRACT

A survey was conducted to examine Libyan student's adoption and use of the national Libyan e - services in higher education. Accordingly, the findings obtained from the data analysis were discussed .The reliability test was confirmed a Cronbach's alpha above (0.90). Findings from descriptive statistics showed that all the study factors were related strongly. This study concluded that the respondents reported high percent of 'agree' answers to the factors included in the study to examine the adoption of the e –services. Estimation of the demographic differences employing the Pearson chi-square test revealed that the e- services adopters in higher education in Libya differ significantly in terms of gender, professional background and education level and the correlation was very high between them. This study confirmed that a significant number of participants (84.1%) proved to be aware of e-government services. Only (42%) of participants' answers agreed that there is a necessity services introduced by e-government. Meanwhile, a significant number of the participants (603 of participants' answers) think that the e-government does not introduce a necessity service via its website.

KEYWORDS

E-services, Higher Education, Libya, Awareness, Availability, Technology.

1 INTRODUCTION

The basic principle of e-government is when the public communicate with government officials and access government services by the use of the internet and other information technologies. Most of the Arab countries including Libya are still far behind in this regard [1]. Many challenges face the successful implementation of e-government initiatives in these developing countries. Those challenges vary in severity from country to another depending on the maturity of government servants, the country's economy and citizens. Some of these challenges are decentralization, developing staff skills, infrastructure development, leadership support and digital divide [2], [3], [4].

Libya faces a number of challenges in the technological front. Those challenges are diverse and puzzling as the country acutely lacks the

required technological infrastructure. The lack of adequate network facilities places serious restrictions on internet access in Libya. Furthermore, the use of educational software within institutions is limited as well since very few products that support Arabic language are available in the market, taking into consideration the mediocre level of English language proficiency among the Libyans, besides the country lacks the capacity to develop its own products. Moreover, the technical support is almost unavailable. In Libya, the level of educational technology awareness among educators in all types of higher education institutions is generally below level which lead to resistance in adopting ICT for teaching. Thus, in order to keep pace with the fast-moving world of automation and digitization, Libya government needs to provide a quality e-government services to enhance confidence among students to use the online services it provides in a more effective and efficient way. Accordingly, this study aims to gauge availability as a security factor and awareness among stunts influencing Libya students' intention to use e-government services in different universities. As a matter of fact, the challenges arising from the implementation of e-services in higher education in Libya are extensive with potential problem which also hinder the participation of stunts that consequently make the level of e-services success inapproachable. Therefore, the main goal of this project is to gauge availability as a security factor and awareness among Libyan Stunts influencing

their intention to use e-services in different universities.

2 RESEARCH OBJECTIVES

2.1 To investigate the impact of availability as security factor on the success of e-government implementation in Libyan universities.

2.2 To determine the level of awareness among students about e- government implementation in higher education in Libya.

3 RELATED LITERATURE:

3.1 E-government

In contrast to traditional government processes, e-government is characterized by extensive use of communication technology, [5] indicated that the governments all around the world are moving toward providing public services through electronic ways. E-government provides opportunities to deliver various services more effectively and that better serve citizens.

3.2 Attitude, Awareness, and Motivation of Libyan Users

Awareness goes along with attitude and "positive attitude towards ICTs is widely recognized as a necessary condition for the effective implementation" [6], cited [7]. Study in Libya of awareness showed that, as significant number of participants (84.1%) proved to be aware of e-government services, in respect of each stakeholder, due to the accessibility to computers and Internet. Less than sixteen percent showed to

be unaware of e-government services [8]. On the other hand, students find interacting with computers pleasant, helpful and easy, as they use online chat-rooms, and download music and films. Students' motivation is a factor that affects students' satisfaction and capacity: "Highly motivated students perform well in most cases whereas demotivated students tend to drop out"[9].

3.3 E-government Initiatives in The Arab Region

E-government initiatives in the Arab countries, for example Egypt is a highly centralized state and is one of the largest bureaucracies in the developing world. Current e-government efforts are limited by the strong centralization [2]. According to USAID (2005), only Jordan started seriously planning for e-government in 2003 when the Program Management Office was established under the Ministry of Information and Communication Technology [3]. Dubai also has established a counter dedicated to e-government services at the Customer Services Centre in the Dubai Municipality - Head of Customer Services Section to progress the e-government initiatives of the Dubai government which aimed at making Dubai a pioneering center of activities [2]. According to Kostopoulos (2003), the Kuwait government and FAPCO (a local private company

specializing in software solutions) worked collaboratively to develop a comprehensive portal to the State of Kuwait [4]. In Qatar, the goal of e-government was to make government services readily available to all citizens anywhere and anytime. E-government would present a single, function-driven face to the public. To present a single face implies "one-stop-shopping". Consistent, branded Web pages assure constituents that they are using an authentic, government-sponsored Web site [2].

3.4 Technological Challenges in Libya

Technology is a fundamental factor in the development of e-learning, and it refers to requirements such as networks, hardware, software, computers, radio, audio cassettes, video, and Internet access. According to [10] Libya faces a number of challenges on the technological front. The country largely lacks the required technological infrastructure; however, many infrastructure projects are currently in progress. While computer laboratories are available in most Libyan higher institutions, the lack of adequate network facilities places serious restrictions on Internet access [11].

4 METHODOLOGY

The methodology consists of research design, sample, instrumentation, data collection and analysis. It adopted in order to achieve the stated objectives and answer the research questions. As

this research aims to investigate availability as security factor and awareness of students that might affect the successful implementation of e-government in higher education in Libya, quantitative strategy (a questionnaire) method was used during this research.

4.1 Literature Review

A continuous literature review activity was conducted throughout this study. This information was used to build and enhance the questionnaires.

4.2 Sampling and Data Collection

According to [12] the more important elements in survey research are randomization and bias and the descriptive survey method demands that the researcher select from the general population a sample population that will be both logically and statistically defensible. Participants for pilot study was chosen randomly from Libyan oversees students of higher education (BSc, MSc and ph.D students, age 19-45 years)in different Malaysian universities, 70 Libyan oversees students was take part in the paper-based surveys as sample for pilot study.

4.3 Questionnaire Development

[13], stated that a questionnaire is a list of carefully structured questions, chosen after considerable pilot testing, with a view to eliciting reliable responses from a chosen sample. Most questions are either open or closed [14]. In other words, the researcher attempts to measure many

different kinds of characteristic using questionnaires . In order to determine that suitable data was collected, the acceptance generalisation, a survey was used in this study to learn perceptions (Students) about e-services in higher education in Libya and their ideas about the effect of availability factor on success of e-government in higher education in Libya . The questionnaire was developed based on research literature. Simple English was used with definitions provided in many instances, and an Arabic version was developed for non-English-speaking students. In addition, the participants was able to choose between the English and Arabic versions and respondents was assured of privacy and confidentiality and told not to write any name that might represent their identity. The questionnaires was distributed for 70 participants Students to gain different perceptions in paper based survey. The questionnaire was divided into different sections for easy reading and completion. The questionnaire was structured into various sections to gain data from a demographic background and the required information was distributed into several sections for easy analysis and inference.

4.4 Pilot Study

Pilot studies was conducted to test the effectiveness of the data collection tools. The reason for testing the tools was to assess the validity and reliability of the questions in the survey. [15] stated that the minimum of ten should be enough for piloting a survey. After the questionnaire was designed, a

pilot study was conducted using 70 Libyan students oversee. This had two main aims: to improve the questions and to test respondents 'comprehension and clarity before the actual survey will be administered [16]; [17].

4.5 Data analysis Strategies

The general approach was to use survey data to develop profiles for availability as security factor and awareness of students that might affect the successful implementation of e-government in higher education in Libya. The following sub-sections describe in detail the specific analysis strategies was undertaken during the analysis phase.

4.6 Quantitative Analysis

The research was follow [18] three main quantitative data analysis steps as follows; creating variables, distributing variables across the sample and creating relationships. The following sections describe these steps in detail.

4.7 Defining Variables

Several variables was drawn from the questionnaire draft regardless of their types (independent or dependent) such as:

4.7.1 Background information: Gender, age and education.

4.7.2 Computer experience: PC usage place, PC usage time, PC usage purpose, and PC literacy.

4.7.3 Internet experience: internet usage place, internet usage time, internet usage purpose, internet usage cost, and internet literacy.

4.7.4 e- services experience: awareness of e-services in higher education in Libya, e-services benefit to students in universities, awareness of e-services initiatives in higher education, and willingness to use e- services applications in higher education.

4.8 Statistical Analysis

The survey data was analyzed to detect significant relationships between variables, such as age with computer, education and gender with computer, and computer and internet with willingness to embrace e-government in higher education .The ultimate aim of the statistical analysis was to draw a profile for availability as security factor and awareness of students that might affect the successful implementation of e-government in higher education in Libya. This goal was achieved using different statistical methods such as Frequency Distribution, Correlations Methods and Basic Chi Square.

5 RESULTS and DISCUSSIONS

5.1 Pilot Study

This study verifies the student attitude toward e-government services in Libyan universities. Furthermore, it provides a representative data on the level of students' perceptions of the e-government services adoption plan. In order to test the efficiency of the data collection tools, the pilot study was used.

The data were collected from sixty five Libyan overseas students. The evaluation has been paper-

based. The adoption and usage of the e-services among higher education students were studied based on the following factors; student awareness, availability of e-services, familiarity with the computer and internet, intention and motivation to use, trust ministry of higher education, the technology and e-services risks and issues of privacy.

5.2 Participants 'Profile

5.2.1 Gender of Participants

The questionnaires were distributed among 70 overseas Libyan students on first of November 2013. 65 responses were collected which 15 of them were discarded because of no replying or duplicate answering of some questions. Taking together, just 50 questionnaires were used for further analysis steps.

Regarding the gender of respondent students, 52.9% of the total participants were males and 45.1% of them were females (Figure 1). However, previous studies of e-government in Libya showed that 94.7% of the respondents were males and contributed female were only 5.3% [8].
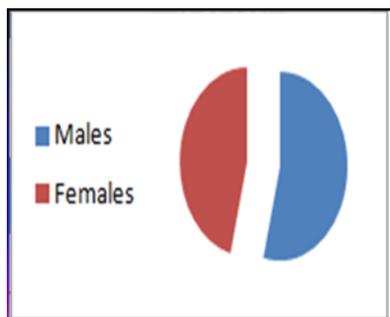

Figure 1: Gender of Participants

5.2.2 Age of Participants

With respect to the Participants' age, 45.1% of the participants were in the age of 30 to 40 years old, 39.2% were between 19-29 and 13.7% were above 40 years old (Figure 2). Nassraddeen (2010) has reported that among the online respondents 47.7% were between 26 to 35 years old. This result reveals that most of the internet users in Libya are of middle age. The age disparities of respondents support the idea that most of the internet/computer users are educated in universities, high schools and other educational Institutions [8].
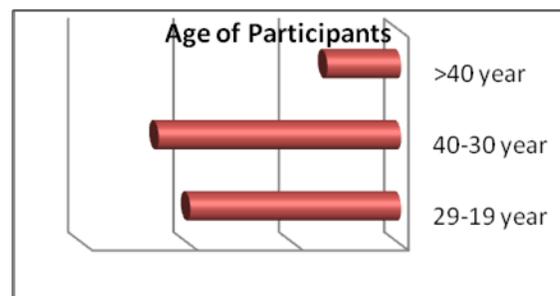

Figure 2: Age of Participants

5.2.3 Professional Backgrounds of the Participants

The largest percentages of participants (29.4%) had the professional background of computer communications, engineering and mathematic followed by medicine and biology (15.7%). The jobs related to economic and management (13.7%) and literary (9.8%) were attended the less (Figure3).
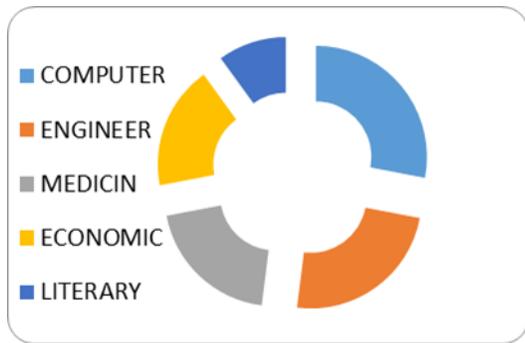
Figure 3: Professional Backgrounds of Participants

5.2.4 Educational Backgrounds of Participants

The largest percentages of participants (52.9%) were PhD students. Master and diploma students (and others) were respectively 29.4% and 5.9% (Figure 4). In his online survey study, Nassraddeen (2010) found that 43% of the respondents had bachelor degree while 22.5% were in high school and 23.7% have studied up to postgraduate level. Only 0.5% of the respondents had no formal education.
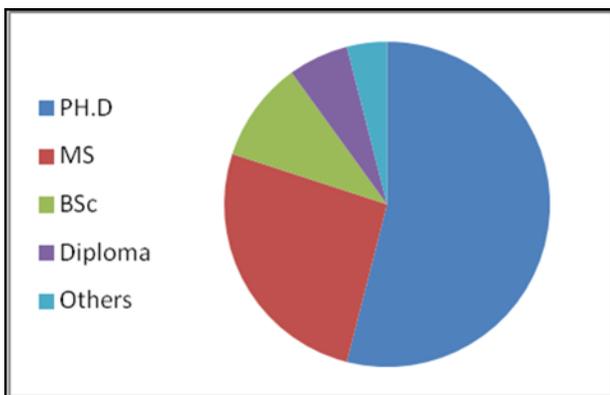

Figure 4: Educational Backgrounds of Participants

5.2.5. Students Internet Experience

About the students' experience in using the internet, the results showed that majority of the students (72%) have experienced internet for more

than 4 years. 20% of them have practiced internet for 3-4 years and 8% of student were familiar with internet for 1 -2 years (Figure 5). Comparing with the results of Nassraddeen (2010), he showed that 46.0% of participant used the internet/computer for 2 to 5 years, 29.3% for more than six years and about 10.1% of the participant for more than 10 years - especially when they were studying abroad. Only 14% of the reported cases had started using the internet since less than two years. These results can be attributed to the early introduction of internet resources to some professionals, for instance engineers, lecturers and medical doctors in Libya. In addition, Libyan nations who studied abroad had earlier exposure to the use of internet/computers. These findings is consistent with the literature review expressing that education is an effective tool to create or/and improve peoples' awareness and participation of e-Government services implementation in Libya [19].
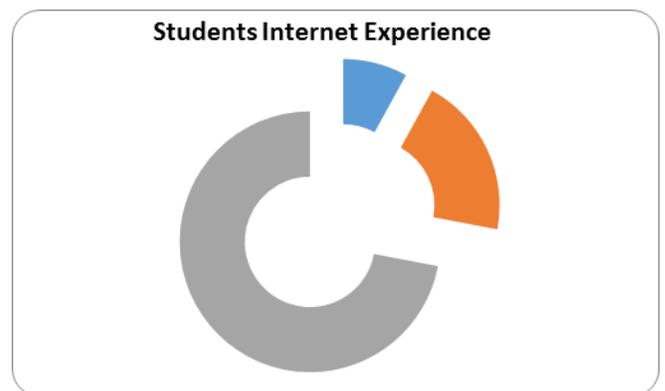

Figure 5: Students Internet Experience

5.2.6. Computer Experience of Students

This study revealed that the number of students with background experience in using internet is

predominant so that, 84% of the total students had experience in using computers for about 5 years. 12% of the participants had between 3 to 5 years of experience and the rest (4%) had less than 3 years of computer operating knowledge (Figure 6). Previous study on computer skills showed that about 28.5% of the total participants had typical working knowledge of computer. 28.0% of the respondents indicated that they had more than typical. 34.3% of respondents had advanced computer skills. 8.8% were beginners or had basic abilities in computing. The findings prove that almost all of the respondents (nearly 81%) have at least typical computer skills [8].
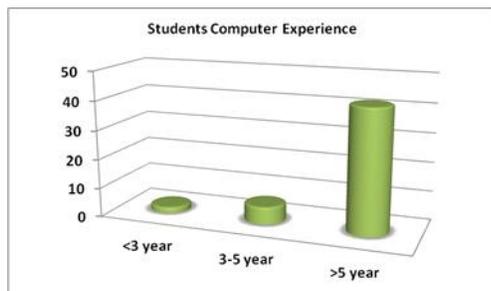

Figure 6 Students Computer Experience

5.2.7 Participants' Internet Usage

In terms of frequency of using the internet, the results raveled that the daily users were the largest group (86%) whilst the smallest group was weekly users (14%) (Figure 7). 62.9% of the participant were daily internet users while, 26.3% of them use internet 3 to 4 times a week and 9.6% use only once a week. Despite the limited access of internet in houses, schools, universities and work places, many of the internet users in Libya are interested

in the technology. This fact, suggests providing more opportunities for Libyan people to use internet by training them, making infrastructure and creating the awareness on the implementation of e-Government services [20]. Regarding the spending respondents' time using internet, it is found that by getting access to internet, 84.7% of the participants use internet users for less than 5 hours [8].

Figure 7: Students' Internet usage

5.3 Adoption of E-services in Higher Education in Libya

5.3.1 Reliability Test

The reliability of the questionnaire information was measured by Cronbach's coefficient alpha values which estimate the internal consistency of the data [21]; [22]. Reliability is defined as the proportion of the variability to the responses to the survey with the below equation:

$$\alpha = k(\text{cov}/\text{var})1/(k-1)(\text{cov}/\text{var}) \qquad (1)$$

Whereas:

K= number of items in the survey

cov= ratio of the average inter -item covariance

var= average item variance.

The higher the Cronbach's (a) value of construct scores is the higher the reliability of measuring the same construct is [23]. Hinton et al (2004) has suggested four different points of reliability: excellent reliability (0.90 and above), high reliability (0.70 - 0.90) moderate reliability (0.50 - 0.70) and low reliability (0.50 and below) [21]. In the present research, the excellent reliability (Cronbach's alpha of 0.905) belongs to the factor of intention and motivation to use technology (Table 1). The other parameters were determined highly reliable by showing the following Cronbach's alpha; 0.773 for awareness of electronic services, 0.751 for availability of electronic services is and, 0.873 for trust ministry of higher education, 0.836 for risk predict and privacy and 0.887 for adoption

of government.

5.3.2 Demographic Differences

5.3.2.1 Gender and E-services Adoption

The Pearson's chi-square test validated that there was a significant difference between the adopters and non –adopters in both genders ($\chi 2$ (1, N =50) =2.769, $p <$ .032). Results of this study agreed with Shafi's (2009) findings showing a significant difference between the gender of the adopters and non-adopters ($\chi 2$(1, N =1146) =70.411, $p <$ .001). As it is seen in Table 2, the binary correlation test shows a significant negative correlation between the students' gender and the e-services adoption (Table 2).

Table 1: Reliability of Measurements

Constructs	N	Number Of items	Cronbach's Alpha (a)	Type
Awareness of e-services	50	6	0.773	High Reliability
Intention and motivation	50	6	0.905	Excellent Reliability
availability of e-services	50	13	0.751	High Reliability
Trust in ministry of higher education,	50	3	0.873	High Reliability
Risk predict and issue of privacy	50	3	0.836	High Reliability
Adoption of government	50	3	0.887	High Reliability

Table 2: Correlations Between Demographic Characters and E-services Adopters

		Sex	Age	Specialization	Education	Adoption of E-services
Sex	Pearson Correlation	1	$.281^{*}$	$.556^{**}$	.033	-.219
	Sig. (2-tailed)		.048	.000	.819	.126
Age	Pearson Correlation	$.281^{*}$	1	.060	-.248	.004
	Sig. (2-tailed)	.048		.678	.082	.976
Specializon	Pearson Correlation	$.556^{**}$	.060	1	.218	$-.455^{**}$
	Sig. (2-tailed)	.000	.678		.129	.001
Education	Pearson Correlation	.033	-.248	.218	1	$.725^{**}$
	Sig. (2-tailed)	.819	.082	.129		.000
Adoption E-services	Pearson Correlation	-.219	.004	$-.455^{**}$	$.725^{**}$	1
	Sig. (2-tailed)	.126	.976	.001	.000	

5.3.2.2 Age and E-services Adoption

Studying the age and e-services adoption revealed that there are no significant differences between different ages and e-services adoption. This finding differs from Shafi's (2009) result that showed a significant difference between the ages of the adopters and non-adopters ($\chi 2$ (5, $N =1147$) $=83.655$, $p < .001$). In addition, the binary correlation test results confirmed that there was no correlation between different ages and adoption of e-services (Table 2).

5.3.2.3 Education and Adoption of E-services

Based on the Pearson's chi-square ($\chi 2$ ($N =50$) = 17.494 $p < .002$), educational level displayed significant differences between each educational background.

The finding of this research confirms Shafi's (2009) results by declaring a significant difference between the education levels of the adopters and non-adopters ($\chi 2$ (2, $N =1130$) $=26.833$, $p < .001$). This statement is approved by the binary correlation analysis (Table 2).

5.3.2.4 Professional background and Adoption of E-services

Pearson's chi-square showed that there were significant differences between adopter and non-adopter of e-services depending on the Professional background ($\chi 2$ ($N =50$) $= 10.585 p$ $<.032$). Nassraddeen (2010) stated that still a large number of participants (more than three quarter of them) do not visit e-services websites, considering each stakeholder. This idea is supported by the

binary correlation analysis that showed a remarkable negative correlation between the professional background and adoption of e-services (Table 2).

6 CONCLUSIONS

The conclusion of the study can be summarized as follows:

6.1The impact of availability as a security factor on the success of e-services implementation in the Libyan universities is very high. Internet access is not furnished in many places in Libyaa due to unavailability of the technical infrastructure. At present, most of the cities in Libya use the dialup connection which is very slow. Technology achievement occurs by increasing the facilities of computer and internet anytime and anywhere and by training courses that can be affordable with the income of the people.

6.2The level of awareness of e-services implementation concept is high among higher education Libyan students. Abdulrazzaq, et al. (2003) believes awareness as an important factor among stakeholders and the citizenry of a country like Libya to have successful implementation and adoption of projects such as e-Government services.

6.3Implementing project such as e-Government services requires a change in attitude and behavior of people such as: improve their awareness, establish technological infrastructures, change culture and create reliance. It is also important to involve people in the projects.

6.4Most of the participants are willing to use e-services websites if the government improves the infrastructures in case the public can obtain access to e-services websites easily and less costly. A few participants are still not or not that much ready to use e-services website. The lack of awareness and low availability of technology influence the use of e-services.

6.5The people awareness and availability are known as the most important factors to success implementation of e-services in higher education in Libya which need to take in consideration by government.

7 ACKNOWLEDGMENT

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