

Internet and emerging Information technologies in Libyan Universities into reduce Digital Divide

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Abstract:

This paper aims to identify the factors enabling information and the reduction bridging of digital divide and enhancing the technology with staff academic at Universities in Libya through an effective ICT implementation. The authors study the global digital divide with emphasis on the Info-tech disparities between developed and African countries (including Libya) in relation to generalised rates of social and technological development. Also, investigate the relationship between the digital divide and Higher Education (HE) teaching methods in Libya. It indicates into: (1) The effective of ICT implementation by focus on understanding individual faculty needs. (2) The significance of implementation of electronic education at Libyan universities. (3) The challenges and solutions of ICT implementation. (4) The factors that affect enabling information and the reduction with Internet use by the staff members who using Internet resources.

Keywords: *Digital divide; emerging technology; ICT gap; Electronic education; Libyan Higher education.*

I. Introduction

About two decades ago, Libya was able to emerge from economic separation that had a significant role in causing stagnation in the oil trade and the commercial companies. The telecom sector consists of an operator, owned by the state, which provides postal services and telecommunications (Libyan Post, Telecommunication and Information Technology Company "LPTIC", General Post and Telecom Company "GPTC"). Libyan Telecommunication and Technology (LTT) Corporation provide Internet service, and two mobile phone networks in Libya, the lowest of the African countries, and have lowest prices. In 2004 Libyan Telecommunication penetration of the market began, it was one of the lowest in Africa and in just two years it made a great leap.

A. Libyan Communications Infrastructure and Internet usage:

Libya's civil war in 2011 has crippled the country's economy and disrupted its telecommunications sector. It is estimated that more than US\$1 billion worth of ICT has been destroyed, including about 20% of the country's cell sites. Reconstruction efforts are underway, and at an estimated 76% GDP growth, the country's economic output is expected to return to pre-war levels in 2012 [1]. Internet usage statistics of Africa published the results in 2011 that shown 5.7 % of the users in Africa and 17.00 % of the users in Libya were subscribers. In the case of Libya, an Internet subscription is often used by several members of the household, by clients of cybercafés, and increasing user Facebook and by visitors to libraries. [2]

The main restrictions on Internet use are relative poverty, poor quality of Internet services due to infrastructural shortcomings, low Internet bandwidth and unreliable electricity [3]. These problems pose serious limitations and frustrations for African users and Libya too. Internet access officially came to Libya at the end of 1998, but it was not widely available until early 2000. Internet penetration remains lows, at around 3.8%, and change in 2011 about 17.0 % [4]; see Table 1.

The primary means for people to connect is through Internet cafés. The state-owned General Post and Telecommunications Company (GPTC), regulates and operates Libya’s telecommunications infrastructure, and owns and operates the country’s primary ISP, Libya Telecom and Technology (LTT), which offers Internet services via dialup, DSL, broadband, and satellite. At least seven companies other companies are licensed but are effectively subordinated to LTT, as LTT maintains a monopoly over the country’s international Internet gateway. Libya has one of the highest budgetary surpluses and one of the lowest government debt levels worldwide. Libya has now embarked on a process of economic reform and the list of challenges to be addressed is long, particularly the low penetration of the latest technologies to improve the overall level and quality of education. Table 1 shows the growth of Internet usage in Libya and countries near Libya [5].

TABLE 1: THE GROWTH OF INTERNET USAGE IN LIBYA AND THE ADJACENT COUNTRIES 2011.
(WWW.CIA.GOV.)

The Countries	Population (2012)	Internet Users, Latest Data (2012)	User Facebook (31-Dec 2012)	Population Penetration	User Growth (2000-2011)
LIBYA	6,469.50	954,275	781,700	17.0 %	3,44%
TUNISIA	10,704.90	4,499.275	3,328.300	39.1 %	3,50 %
ALGERIA	36,485.80	5,230.000	4,111.320	14.0 %	9,30 %
EGYPT	83,958.40	29,809.724	12,173.540	35.7 %	4,37%

It is not possible to discuss the Internet in Libya and adjacent countries without considering the state of its applications, including the number of Internet hosts and the cost of Internet access. The LTT monopoly in Libya raises the cost of an Internet connection and, to some extent, exacerbates the deterioration of the service. Many Arab governments, for political reasons, create a monopoly in the ISP market by preventing new firms from entering the market by e.g. control of licences [6]. Another reason why Internet costs are high and connection speeds are low in

Arab countries is because ISPs are not allowed to provide their own international gateways. Table 2 shows the number of hosts in each country.

TABLE 2: INTERNET SERVICE PROVIDERS IN COUNTRIES NEAR LIBYA

Number of Internet Service Providers in countries near Libya		
Country	Internet Hosts	Example of ISP
LIBYA	67	Libya Net (www.libyanet.net)
TUNISIA	281	Global Net (www.gnet.tn)
ALGERIA	897	Cerist (www.cerist.dz)
EGYPT	3401	Link Egypt (www.link.com.eg)

B. The Digital Divide of ICT in Libyan higher education:

The ICT policy in Libya has relied on the introduction of telecommunications competition, and the lifting of strict regulations on wireless and other digital technologies to provide more incentive, for investment and development. Efforts to build out the ICT infrastructure can be incorporated into online projects strategies. Additionally, it is important to recognize the synergy between online projects and ICT development.

Libyan national ICT policy for education aims to provide access to ICT tools and build a strong Infrastructure. It also promote research and development to ensure the provision of suitable learning, one of the main objectives of the national ICT policy for education is human resource development, and the investment in human resources is the key factor to achieve the goals and objectives of the national ICT strategy.

Several indicators can be used on a global scale to determine the digital divide between countries; generally the research projects within Libyan universities aim to satisfy academic requirements (students' certificates; job promotion, etc), but have not emerged from the real needs of society [7]. Libyan business executive survey/global competitiveness report (LBES/GCR) has the rank 97 (out of 111 countries) in university/industry research collaboration [8]. Additionally, the Digital Divide has historically referred to the lack of physical access to important information technology such as computers and the Internet [9].

The digital divide exists in Libya and negatively affects the ability of the group to use information technology Libya experiences limitations of ICT access due to geographic, infrastructure, and education limitations along with a history of restrictively traditional cultural values. This process affects the experience and development of Libyan staff academic universities, which eventually affects students. This general problem evolves into a twofold manifest that includes limited research on staff academic and understanding the perspectives of these universities in the context of the digital divide [10].

II. Research methodology:

The use of questionnaire is considered to be appropriate in this case due to advantages mentioned as the highly economical research tool - large amount of data collected easily and efficiently from a large number of members. Also, the data collected from standardized questionnaires allows for easy comparisons and statistical analysis [11]. The responses are analysed with quantitative and qualitative methods by considering the issues of reliability, validity, bias and triangulation. The survey was on random sample (32 Mature) from the stockholders of Tripoli University in

2008. Generally, the survey has a positivist approach to research, even though having some weaknesses (such as low response rate, possible ambiguities in the questions) [12].

III. Findings:

It is indicate to exist a digital divide, which were results from pervious studies; it also suggest that the availability of digital content has helped overcome the substantial scholarly information divide. The questionnaire was conducted to provide comments on the final survey [13]. The postal survey strategy has been adopted to satisfy the objectives of the study and the need for a large sample to carry out the data analysis.

The overarching finding was that there were three primary elements that affected the use of the Internet by the respondents: job requirements, self-perception, and technology availability. However, within these three fairly obvious elements were subtleties that provide thought-provoking consideration.

A. Using of Internet.

Table 3 shows the weekly use on the Internet, in hours, by the respondents. Nearly one fifth of the respondents use the Internet for academic purposes less than two hours a week. Only a quarter use the Internet for more than an average of one hour per day. Only 2 respondents (6.25%) are more frequent in Internet use with a minimum of 10 hours weekly. The relevant analysis showed no obvious gender difference in time spent on the Internet. Based on common sense, it is presumed that the people with science backgrounds spend more time on the Internet, but the data do not support the assumption.

TABLE 3: USE OF THE INTERNET EVERY WEEK

Case (hours used/week)	Frequency	Percent
0--2	6	18.75 %
2--5	17	53.125%
6 --10	7	21.875%
>10	2	6.25%
The total	32	100%

B. Face Barriers to keep staff from using the Internet.

There are fifteen factors that could keep them from using the Internet for academic research purposes, these are:

- 1- Lack of Internet access; twenty members (62.5%) considered the absence of Internet access in their institutions is what has prevented faculty from using it.
- 2- Lack of access of specialized online databases; Seventeen members (53.13%) indicated that not having access to specialized online database is what is keeping them from using the Internet for research.
- 3- Low speed of connection; Twenty (62.5%) members suggested that having a low speed Internet access is what kept them from using Internet.
- 4- Quality of the information source; all the members (100%) agreed to necessary of the strategy for searching information, variety and availability of information, information convenience, quality of information, unfiltered information, speed of finding information, newness of information and opportunity for update.
- 5- System availability; Eighteen members (56.25%) cited the lack of computer availability in their institution as the barrier to their use of the Internet.

- 6- Lack of educational institutions' encouragement and incentives; Fourteen members (43.75%) believe that not having the encouragement or incentives from their institution is a barrier to their accessing the Internet.
- 7- Lack of skill in the English language; Twelve members (37.5%) indicated that being not proficient in English is one of the main reasons that prevent them from using the Internet.
- 8- Field of study; Thirteen members (40.63%) mentioned that they could find information sources in their field of study, without the aid of the Internet.
- 9- Unfiltered information; Eight members (25%) indicated that the unfiltered information from the government sometimes that prevented them from using the Internet
- 10- Clarity and ease of use; Thirteen members (40.63%) considered the Internet as a complicated and unclear source of information.
- 11- Technical difficulties; Thirteen members (40.63%) mentioned that there is a barrier to their Internet use related to technical problems.
- 12- Lack of interest; Twelve members (37.5%) mentioned that not having sufficient interest to learn about the Internet is what is preventing them from using it.
- 13- Social factors, Eleven members (34.38%) mentioned that certain social factors prevent them from using the Internet. (Because it is considered a large proportion of the community as source for finding prohibited information, some schools or universities place restrictions on using the Internet.)
- 14- High cost of Internet connections; Seven members (21.88%) indicated that the expense of Internet connection is one of the reasons that prevented them from using it.
- 15- Lack of training, support computer and Internet skills; Sixteen members (50%) indicated that lack of computer and Internet skills and the training, keeps them from using the Internet.

Conclusion and Implication for future research:

The primary conclusion from this paper is that there are significant differences in the perceptions of Libyan academics as to the potential use of the Internet for research purposes and the benefits from Internet access.

However, while there is an understanding to improve the computer literacy and Internet skills; as many responders reported that they needed more Arabic websites as realised they needed to improve their English language skills. The findings of this paper indicate that faculty utilizes the Internet for teaching purposes more than for communication and research. Previous studies examining faculty Internet usage in the local situation have consistently reported email and communication as the major purposes for their online activities when compare to teaching or research purposes.

Integrating Internet technologies in the teaching process generally indicates higher utilization. This may be an indication that comparable studies conducted in the past showed that Internet adoption is in its early stages, the Internet is being utilized to a wider extent as the resources become more accessible to faculty in higher education institutions. In our examination of the hypotheses [14], the study showed that there is no connection between available university resources and Internet use. This finding is in line with findings of studies that reported that organizational factors have minimal effect on faculty use of the Internet.

Utilization of research in higher education in Libya, conducted across the world, provides explanation for low implementation rates by putting the blame on the faculty; either they are stuck in traditional methods of teaching, and

are labelled as resistors, or charged with negative attitudes towards technology. These unjust explanations are based on a poor understanding of different faculties with different needs. The challenge of increasing the benefits gained from Internet technologies should focus on understanding individual faculty needs. Stakeholders are advised to include faculty members in every step of the planning and realization of up-to-date technologies. If they are involved from the early stages, then their requirements would be met, and this should allow for increased levels of efficient integration of Internet technologies that meet their particular needs [15].

This paper offers an in-depth understanding of problems in utilizing the Internet. Technology solutions are not likely to be the quick fix to all educational problems and issues. It is generally known that technology solutions do not improve enough teaching methods. Therefore, the focus should be on adopting the right technology solution that fits the education context and the faculty involved. The being factor should always be considered as the starting point on making the decision on how technology, and more specifically the Internet, could be employed to improve teaching and research efforts. Faculty should be given the chance to participate in decision-making with regard to the appropriate use of technology in their specific academic control with more training.

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