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EDUCATIONAL TECHNOLOGY IN SAUDI ARABIA: A HISTORICAL OVERVIEW

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ABSTRACT: *This paper is a descriptive paper on the emergence of the new and relatively new phenomena on e-learning in Saudi Arabia. The purpose of this paper is to highlight key phases and changes towards e-education in general. Also, it highlights the history of using educational technology in Kingdom of Saudi Arabia since the mid-1900s, the beginning, the improvements, and the current status. Finally, it also describes the rapid increases in using technology in schools, institutes and universities, and presents the attitudes of Saudi people towards this global phenomenon, so-called e-learning. The paper serves as a literature review of e-leaning/e-education in Saudi Arabia.*

KEYWORDS: Educational Technology, E-learning, E-education, Saudi Arabia

INTRODUCTION

The discovery of oil in Saudi Arabia in the late 1930s gave this large country, which covers most of the Arabian peninsula, impetus to start progressing towards further social development. Oil is the fundamental pillar of the national economy of Saudi Arabia. It represents 70% of the national production and 90% of the country's exports (Abir, 1999).

Saudi Arabia used much of its oil income to build modern schools, transportation systems, communication networks and to improve housing and provide electricity to remote rural areas. *Kuttab* was the only form of education known before the establishment of the Directorate General for Education in 1930, where teachers received their students in their homes or in the community mosques (Elyas & Picard, 2010). Twenty years later education was very limited in both quantity and quality due to the large size of the country with insufficient funds, very high rate of illiteracy, inadequacies of facilities and almost no qualified native teachers (Rugh, 2002). At that time the number of students never exceeded 30,000. After the establishment of the Ministry of Education in 1953, the number of students almost doubled the following year. The plans and efforts to spread education throughout the country has been successfully executed since 1960. Female education became one of the fastest growing areas of social development in Saudi Arabia (e.g. see, Mahboob & Elyas, 2014).

Education Facilities & Technology Implementation

In spite of the generous fund and the rapid expansion of education facilities, education did not meet all expectations. The Saudi Third National Development Plan covering the years 1980 through 1985 had the following remarks about the previous plan. The Second Development Plan has witnessed a very considerable expansion of the physical facilities of education and training systems. There are problems in the location of facilities, their delivery, equipment, maintenance and design are often costly and ill adapted to educational purpose.

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There are several attempts at reform which have been made but with marginal success. Attempts to implement educational technology in the present condition within the educational network have been discussed in the Third National Development Plan as follows: "Present conditions thus reflect certain opportunities of improvement in qualitative programs, particularly in the implementation of major development projects such as; Educational Technology Centre, Educational Television, and multi-purpose class rooms (Al-Ghmadi & Al-Saadat, 2002).

The True Start of Educational Technology

The effort to implement Educational Technology in Saudi Arabia has always been a number one priority. Both the Second (1975–1980) and the Third (1980–1985) national plans have emphasized the importance of the introduction of new learning material. The fourth national plan (1985–1990) put major emphasis on quality in education outcome. The need for the teacher's belief in the importance of utilizing instructional media was expressed by Abdel-Wassie, former Deputy of the Ministry of Education in his book, Education in Saudi Arabia. What we are lacking is the teacher's belief and enthusiasm for the usefulness of audio-visual aids as an alternative means of instruction (Saxena, 2009).

Prior to the establishment of a small audio-visual unit within the Ministry of Education in 1959, Educational Technology did not exist. Then in the same year there was a report by the International Yearbook of Education concerning the introduction of a small audio-visual production program.

Between the years 1964 and 1971 the major change which took place in Saudi education was the introduction of a graphic and illustrations unit for limited production of slides, filmstrips, photography, transparencies, and silk screen prints. To implement Educational Technology, Saudi Government sought foreign expert recommendations and cooperation such as; Wade Media Consultant, Inc. in 1973, and Indiana University in 1975.

The introduction and use of Educational Technology in Saudi education was introduced through several means. In Saudi Arabia, Educational Technology has been introduced and utilized through teacher training programs and also through the developing and using new methods of instruction. In addition, designing and producing software materials and making them available to the public for broadcast via radio and television stations (Chanchary & Islam, n.d.).

Government Determination to Implement Educational Technology

In the year 1985, establishment of General Administration for Educational Technology within the new Educational Development Department, noted a big change in Saudi education system. The Educational Technology new administration consists of a design unit and a production unit.

The functions of their administration were:

1. In-service training of the leaders in Educational Technology.
2. Production of Instructional materials which serve many educational courses.
3. Providing instructional films, equipment and the materials of science and mathematics laboratories.

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4. Supplying schools with personal computers and computer hardware and software.
5. Establishing a unit for copying and recording instructional video and audio tapes.

One can understand the determination of Saudi Government to implement Educational Technology in Saudi Arabia, by looking at the total spending of the Ministry of Education only on instructional media, materials and equipment which is 281,658,489 SR. during seven years from 1976 to 1982.

Blended Learning

For the above reasons, tt is undoubtedly that young learners in Saudi Arabia are being exposed to a vast number of technologies every day. It seems that educator's constant concern to achieve better learning outcomes and meet expectations and demand allow for emerging innovative ways of learning. New approaches have been found to enhance the learning experience by blending technology within the educational system (Lopez-Perez et al., 2011), while these two environment sustained separated for a long time (Graham, 2004). In the past the notion of blended learning was introduced by the business world, where employees worked and attended courses at the same time using platforms without the need to interrupt their work (Sharam and Barrett, 2007). Many researchers such as Sharma and Barrett have defined it (2007) as "a language course, which combines a face-to-face (F2F) classroom component with an appropriate use of technology" (p.7). Graham (2004) defined blended learning as being the "combining of online and face-to-face instruction" (p. 3). This explains that blended learning is actually the combination of both traditional and innovative learning that allows for the distribution of information and communication. While face-to-face is based on traditional class setting environment and requires the presence of a teacher, blended learning emphasizes self-learning and interaction occurs in an asynchronous environment (Graham, 2004). This style of learning is also defined as "the integration of classroom methods with online activities" (Macdonald, 2008). In other words, definitions above suggest the use of blended learning as to accompany and complement traditional learning rather than replacing it (Lopez-Perez et al., 2011). Blended learning offers the advantages of both learning methods. It encourages and reinforces self-learning thus raises learners' autonomy by the feasibility of reaching information (Barrs, 2011). It also can meet language-learning situations for its flexibility to include a parallel self-study materials (Lopez-Perez et al., 2011; Sharam and Barrett, 2007). Moreover, it reduces costs and facilitates learning. It has been found that age, background and motivation level of learners determine their acceptance and benefit from the technology (Lopez-Perez et al., 2011).

Technology continues to expand and researchers predict the future of blended learning increasing in many courses for it offers connectivity anytime and anywhere on learners own pace (Garrison and Kanuka, 2004; Godwin-Jones, 2011). Singh (2003) suggests that learning is not just 'a one-time event-learning' rather than is a 'continuous process'. Moreover, learning tools such as real-time virtual/ collaboration software, self-paced web-based courses, and knowledge management systems are all different forms that blended learning includes (Singh, 2003). However, the transformation of the learning environment in higher education is still not fully achieved for the diversity of the population of learners (Garrison and Kanuka, 2004). What counts in blended learning is how the technology being blended naturally and effectively (Sharam and Barrett, 2007).

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Emergence of Technical Education in Saudi Arabia

The Kingdom of Saudi Arabia has gone through steady phases in terms of education progress in order to embrace these sudden and rapid needs to modernize the educational sector in KSA. We can showcase and highlight some of these changes as follow:

1. In the early 1950s, technical education and vocational training in Saudi Arabia started and was integrated with general education.

2. In 1980, General Organization for Technical Education and Vocational Training (GOTEVOT) was formally established. It acknowledged the need for technological education at the college level to generate highly qualified national cadres.

Pre-internet Technology & Education in KSA

In 1979, Saudi radio channels broadcast radio education programs with support from the Ministry of Higher Education and the Ministry of Education. Although not official distance-learning programs, these radio programs were designed to assist students in the traditional learning system. In around 1980, correspondence education started when students participated in courses provided by international universities outside the kingdom. In 1985, Saudi Arabia and other Arab countries launched two communications satellites called ArabSat. Their use in education is limited only by the imagination and resources of the user (Albalawi, 2007).

Post-Internet Technology & Education in KSA

In 1993, King Fahd University of Petroleum and Minerals (KFUPM) in Dhahran becomes the first Saudi institution to connect to the internet. In 1994, Internet was first introduced to Kingdom of Saudi Arabia when state academic, medical and research institutions got access to it. In 1997, public access to Internet was allowed. In 1999, the Internet was provided for college and government use. Then, Internet access begins the move from government and academic into the mainstream. Though the first few years did not notice much progress, but in following years, Internet subscription and use increased rapidly. In 2000, Al-Sharhan suggested that a country like Saudi Arabia with a land area of over 2 million square kilometers and a population of 16 million should consider the adoption of the use of satellite technology in its educational system. In addition, the general public was granted Internet access. In the early 21st century, Saudi universities use Interactive Television Technology (ITT) transmitted via fiber optic lines-a technology that provides visual and auditory communication to students in remote area who are seeking an education. In 2001, King Abdul Aziz City of Science and Technology (KACST) decided to fund a study that will explore the use of Internet along three major topics: Implications of the Internet technology for education. Also, Saudi Telecom Company (STC) introduced asymmetric digital subscriber line (ADSL) service for the kingdom, which significantly reduced the cost of the Internet service. ADSL made it possible for all the universities to implement more web-based instruction (WBI). In 2002, Saudi Arabia's nationwide educational system consisted of 11 universities, over 24.000 schools, 48 women's colleges, and over 30 colleges (Albalawi, 2007).

Emergence of E-Learning

In 2003, Aum Alqura University and King Fahad University of Petroleum and Minerals calibrated to establish e-learning center under the deanery of academic development to be the main task help academic population in university to benefit from learning technology to

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develop the process of education. In addition, Ali, Sait and Al-Tawil stated that e-learning is still in its infancy in Saudi Arabia. In 2004, King Abdulaziz University established the Deanship of e-Learning and Distance Education. Starting from 2006, there is a significant development in E-learning in Saudi Arabia. In 2007, National Center for E-learning and Distance Learning was established. Also, Saudi television channels broadcast educational programs with assistance from the Ministry of Higher Education and the Ministry of Education. As with the use of radio offerings, those programs are not official distance learning, but they are presented to help students who are in the traditional learning system. In addition, King Saud University established the Deanship of e-Learning and Distance Education (Albalawi, 2007).

In 2008, Al-Harbi (2011) stated that e-learning in Saudi Arabia is still in its infancy with a paucity of information on its use at the time of the study. Saudi Arabia called for a national plan to adopt information technology across the country. The plan recommends implementation of e-learning and distance learning, and their prospective applications in higher education. In 2009, the first international conference e-learning and distance learning was held and organized by the Ministry of Higher Education and National Center for E-learning and Distance Learning. Also, University of Tabuk established Distance Education Unit. In 2010, the list of distance education in higher education institutions in the Kingdom of Saudi Arabia was officially published and ratified. In 2011, The King Abdullah Ibn Abdul-Aziz Al Saud, the Premier and the Chairman of Higher Education Council, has approved the Council's decision on the establishment of Saudi Electronic University. In the school year 2011-2012, there were first distance education graduate students of King Abdulaziz University among Saudi universities.

Factors hindering full implementation of Educational Technology

Technology in education should not be considered as a replacement for face-to-face instructions but rather as a mean to attain the desired results. Along the same lines, Vikashkumar (2005) emphasizes that the use of ET would enhance the conditions in which students will be a pivotal integral element in teaching and learning processes, and this can take the form of: expanding access, promoting equality, improving the internal efficiency of educational systems, enhancing the quality of education, and preparing new and old generations for a technology-driven market place. However, in Saudi Arabia, there are many obstacles to reach a full implementation of educational technology in Saudi Arabia. Definitely, funding was not, as a G-20 country, considered as one of the factors in this accounting. On the contrary, the Saudi government allocates almost one third of its annual budget for education. However, there are many other obstacles that impede the efforts to have full implementation of ET at Saudi Arabia's schools. These obstacles are found relevant and closely related to: infrastructure, policies and teachers (Vikashkumar, 2005).

Infrastructure of Educational Technology in KSA

Investment in education has become a top priority for the Saudi government. It allocates a lion's share, about one third, of the annual budget for education. Although, speaking of the massive budget for education doesn't justify the reality. In fact, there are many studies state explicitly that the use of educational technology in Saudi schools is still in its infancy stage. For instance, Al-Maini (2011) states that "There is lack of classroom computers, language laboratories or other means of integrating computers into subject teaching". This is a persistent headache for all developing countries, as again Vikashkumar (2005) explains in this quotation that "developing countries usually tend to be at the undesirable end of the digital divide spectrum.

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However, they cannot afford to stay passive and be left behind in race for better social, economic and education prospects. Though, despite all the previous facts, the policies would also has great impact upon the use of ET in Saudi schools which through understanding its vital role, we would expand our scope in term of having more comprehensive understanding of the issue in study.

Lack of Appropriate Policies

The policies of any governmental body are the authoritative gate for the coming developments. Therefore, the importance of policies is to legitimize initiatives and insights. Also, without the proper policies that conform to the Saudi context there will be no sound implementation of ET in schools. To contemplate this topic scientifically, a group of studies deal with this very topic will be reviewed here. First, Almutairi and et al. (2010) state that "there is no indication that students are encouraged to think about, design, or to evaluate products". Accordingly, While this study talks solely about elementary level, it is also applicable for the other two levels. Secondly, some academics are technophobes (Alqurashi, 2009). This can be considered as a barrier to come with sound policies. Therefore, the government needs to encourage students to use technology and to implement technology in education as fast as possible. More important, verbs like design, assemble and invent need to be adopted and to be as fast as possible part of the government's objectives in education. However, the role of teachers inside their classes would be the most important role among the three.

Early Stages of Internet Usage

Internet was first introduced to Kingdom of Saudi Arabia in 1994 when state academic, medical, and research institutions got access to it. Internet was officially made available in Kingdom of Saudi Arabia in 1997 by a ministerial decision and the public access finally debuted in 1999. When internet was first made available for the public in KSA at the end of 1990's, it was supervised by King Abdulaziz City for Science and Technology (KACST) and the Internet Service Unit (ISU) a department of KACST. ISU acted as a Saudi internet change point and worked in raising the public awareness with the internet. It also formulated the rules and regulations that govern the use of the internet in the country and took care of Saudi domain name system. The internet was provided to the public through many number of commercial Internet Service Providers (ISPs) who were licensed by KACST. According to estimates reported by KACST, there were 275,000 internet subscribers in the Kingdom of Saudi Arabia as of June 10, 2001 (Chanchary & Islam n.d.).

Steady Growth in the Number of Internet Users

It is estimated that the internet usage will keep on growing rapidly in the KSA. In addition to the new internet structure that can cut the prices of internet access, there are other reasons that can speed up the growth of internet usage in Saudi Arabia: the first reason is that 60% of the Saudi population comprises teenagers and young adults who are adapting to new technologies faster than expected. Another reason is that several universities and colleges in KSA are now adopting e-learning as a part of their curriculum. It is estimated that the Saudi Arabia's e-learning market will expand. As the usage of internet grows in all the Arabic countries, the amount of Arabic content on the internet will grow as well. This in turn will attract more and more Saudis to join the internet. As more banks and companies offer more of their services online, more customers are drawn to use these services (Mokali, 2012).

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Saudis Attitudes towards Educational Technology

Our world is facing technological revolution in the field of information and mass communication. The objective of this article is to focus on the potential of this new technology in teaching and learning English, in Saudi Arabia, as foreign language and some insight into distance education.

The computer with its multimedia technology provides a lot of opportunities for successful collaborative learning and teamwork in small groups. It also promotes interactive language at the highest level. Hence, this concludes that technology can no longer be ignored. This is as a source of comprehensive input .New technologies have the power to stimulate the development of intellectual skills such as problem solving ability, learning how to learn and create

Due to rapid development of technology, distance education has developed in two major directives "the individual flexible teaching model and extended class room model" (Mokali, 2012, p.25). Interactive multimedia technologies facilitates "individualized "and" collaborative" learning thus, creating new environment for learning such as "virtual communities", interacting with the instructor and other students on electronic mail face to face according to their needs, also sharing information using computer networks.

A research study conducted by Al-Fahad (2007) on the effectiveness of mobile learning with B.A and M.D students of King Saud University. The result indicates that it could be another method for improving retentive of B.A and M.D students by enhancing their teaching and learning. The biggest advantage of this technology is that it can be used anywhere and anytime with the aim of improving communication and enriching students learning experience in their open and distance learning.

In the application of e-learning and Distance education, which is one of the leading and promising experiments in the Arab world, Saudi Arabian Government has announced officially the utilization of distance learning, and to achieve this objective leading towards the future, has launched initiatives to establish six infrastructures for higher education and distance education. The ministry of higher education national center for e-learning have circulated an e-learning management system in harmony with needs of university education in Saudi Arabia developed the academic and administrative skills and management system, built electronic curriculum content and forms digital and print for a number of university courses and educational portal for e-learning and distance learning and awareness program for electronic education.

The new technology offers infinite opportunities for improving education and perception towards effective use of these technologies is far behind what ought to be. Thus, the Saudis have been unable to reap the optimal benefit at all levels of operation but the present levels of use are encouraging and there is hope for improvement and brighter future (Al-Fahad, 2007).

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