Quality eLearning Content: a principal component of the Universal Digital Library (UDL) & Highlights on Egypt's regional role in the Arabic eContent Development

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***Abstract* — Although the Universal Digital Library (UDL) project is a noble idea for "building the globally owned Universal Digital Library where human knowledge is equally preserved and accessed", however the implementation of such a great idea should be well thought of and taking into consideration the different social and economic concerns and needs of the South as well as the North. One of the major challenges facing the South is having a quality education and training system needed to build a generation that could lead the required change to meet the pace of the global knowledge-based economy of the 21st century. Therefore, quality eLearning Content should be considered as a principal component of the UDL project, through an innovative scheme of international and regional cooperation, which would assure reducing the duplication of efforts & expenditure and guarantee the critical mass required to achieve the projects' objectives and the best return on investment (ROI). The international cooperation in this regards should focus on developing the general topics, especially those related to science. While, the regional cooperation should focus on developing subjects and topics such as language studies, culture, social studies, etc., across certain regions of the World that have common interests, sharing same culture and facing same social & economic challenges. This raises the importance of considering Egypt as a main hub for developing Arabic eContent in the region of the Middle East due to its historical leadership role and especially after the great advancement of its ICT infrastructure and the serious steps taken by the Government to establish the knowledge society and economy during the last few years.**

I. Introduction

During the last five decades mankind experienced a unique pace of development unprecedented since the industrial revolution in the 18th century. This rapid pace of development was mainly due to the Information Technology and Communication (ICT) revolution, which made the World a small village and led to the "Globalization" phenomena. Globalization was meant to integrate the economies and societies around the World to develop a Global Economy mainly based on knowledge and information for the sake of reducing poverty, minimizing the gap between North and South and increasing the overall development in most of the countries, however Globalization has put more pressure and constrains on the developing countries, which were unable to cope with the pace of "Globalization" and operate competently in the knowledge-based global economy. The ambitious plans for the overall social and economic development by the governments in the South are always challenged by: the competitive global economy, tough regional & international competition, increased public expectations & needs, ICT revolution that has to be fully utilized. Other local challenges are: lack of resources, especially the qualified human resources needed to lead and implement the required change, bureaucracy and stagnate polices & procedures, poor quality education, low per-capita incomes, rapidly growing population, high illiteracy rate, political instability, and many other inherited economic and social hindrances from the past.

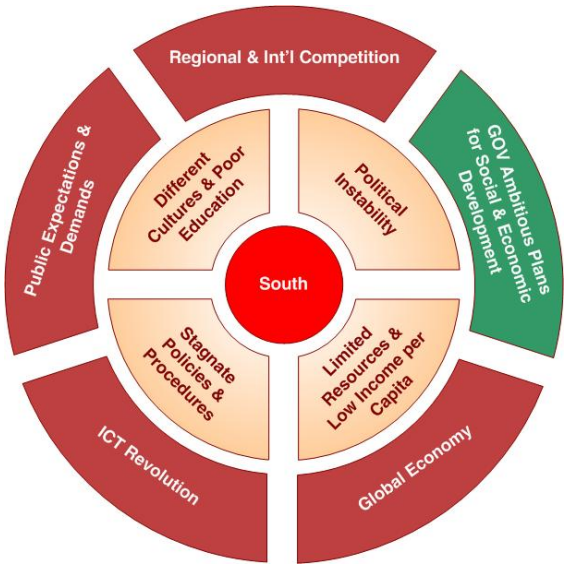


Fig. 1. Challenges facing the South.

Therefore, for achieving the noble goal of the Universal Digital Library "UDL", the implementation of such a great idea should be well thought of and taking into consideration the different social and economic concerns and needs of the South as well as the North.

Assuring the benefits of education for the whole society, while establishing quality education and training systems that would work in an equal, efficient and effective manner is considered one of the major challenges facing the South. Such good systems present the main vehicle for nations of the South to reach their objectives and overcome a multitude of obstacles facing

the desired development, in order to keep abreast of the pace of the knowledge-based economy, and build the required qualified human resources who would be able to lead the required change and operate successfully and professionally in the competitive global economy environment.

Accordingly, we perceive that quality eLearning Content should be considered as a principal component in the UDL project, as it could present a real added-value to many countries, especially those in the South. Moreover, this Content would form a base for many nations for establishing good education and training system that would help their governments to accomplish the ambitious plans for modernizing their societies, as well as help the UDL project to achieve its noble goal of "building the globally owned Universal Digital Library where human knowledge is equally preserved and accessed".

II. Overview of the eLearning Content and its Structure in the UDL Project

The eLearning Content has a wide spectrum, as is not only limited to the educational Content serving K-12 education stage, but also includes Content related to Higher Education, Lifelong Training, Vocational Education & Training, Edutainment, Special Programs for illiteracy eradication, Corporate Training, etc.

In order to help achieving the goals of the UDL project, and to assure the maximum benefit to the target audience of the project, the eLearning Content development -within the project- should follow the new international trend in this regards, which is a curriculum independent and based on developing the Content by using a modular, flexible and reusable approach, in a form of a *Resource Library of Learning Objects and Educational Aids* that contains hundred of thousands or even millions of structured Learning Objects (LOs) - which are progressively perceived as key to a technology-based revolution in education and training- covering the different topics and syllabi related to the different stages of education and the various types of training.

There is a multitude of definitions of the LOs starting from “any entity, digital or non-digital, that may be used for learning, education or training” by The Learning Technology Standards Committee (LTSC) charged with formulating the Learning Object Metadata (LOM) standard for the IEEE (Institute of Electrical and Electronics Engineers), to “any digital resource that can be reused to support learning” by Dr. David A. Wiley, II Utah State University, and ultimately up to “the Knowledge Object that is a collection of Content, which supports a learning objective with associated learning activities and assessment” by Dr. M. David Merrill, Utah State University and CISCO Systems. The Knowledge LO consists of metadata that has: General Course Description Data (Course Identifiers, Language of Content, Subject Area, Descriptive Text & Keywords, etc.); Usage Rights; Relationship to other courses; Perquisite Courses; Target Education Level; Typical Learning Time; etc. Also, the LO contains the learning objective, educational/training Content (information), activities and assessment exercises. The following diagram illustrates the different components of the Knowledge LO.

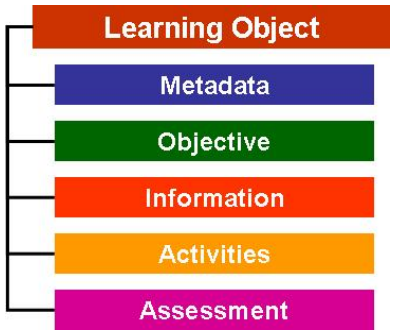


Fig. 2. Components of the structured Learning Object.

Developing such library should also follow the latest international standards, such as the Sharable Content Object Reference Model (SCORM) 2004 3rd Edition recently released by the Advanced Distributed Learning (ADL) Initiative, which was formed in 2000 as a developer and implementer of learning technologies across the US Department of Defense. SCORM is a collection of standards and specifications adapted from multiple sources to guarantee a comprehensive suite of eLearning capabilities that enable interoperability, accessibility and reusability of Web-based learning Content.

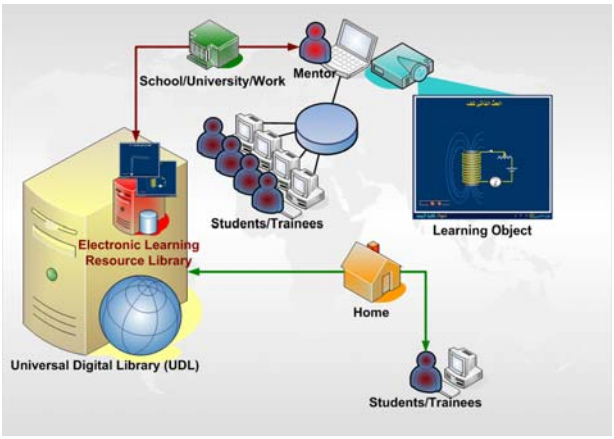


Fig. 3. An overview of the usage of the LOs’ library within the UDL.

Then, teachers, mentors and learners across the World would have the chance to share the global knowledge at school, work, university and home, and reuse the LOs’ library for experiencing quality education and training

utilizing the blended learning technique, which empowers the teachers & mentors, while minimizing the technological divide between them and their learners who are technology natives. Also, this helps the learners to grasp the information by understanding not memorizing, and linking theories to practice.

And as mentioned earlier, establishing such library, as an integral part of the UDL, would present a golden opportunity to many countries, especially in the South, to have rich educational and training resources that would act as the corner stone toward modernizing their education & training systems and building a qualified generation needed to lead and carryout the desired economic and social sustainable development in their countries. Furthermore, this would ensure the knowledge transfer between the North and the South throughout a solid and applicable scheme of international cooperation for the purpose of making human knowledge equally accessible to all and accomplishing the ultimate goal of realizing prosperity for mankind.

On the other hand, there are other challenges to be addressed while implementing the UDL project, which are the digital divide and high digital illiteracy in the South. Therefore, an innovative approach should also be taken into consideration to overcome these obstacles, such as introducing initiatives for making the technology more affordable and available for large sectors in these communities, along with creating different awareness and training campaigns to the public.

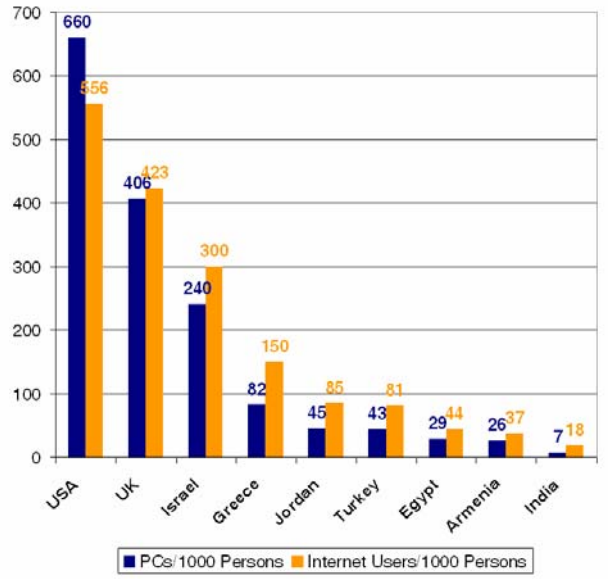


Fig. 4. Internet Users and PCs Index 2005 per 1,000 persons (UN e-Government Readiness Report 2005)

The Egyptian experience in this regards is very rich, as the Government of Egypt (GoE) launched The Egyptian Information Society Initiative (EISI) in September 1999 focusing on six main paths that are e-Readiness, e-Learning, e-Government, e-Business, e-Heath and e-Culture. Then, GoE represented by Ministry of Telecommunications and Information Technology (MCIT) introduced many initiatives based on the Public-Private-Partnership (PPP) model to implement the ambitious EISI for minimizing the digital divide and reaching the information and knowledge society in Egypt. These initiatives are Subscription Free Internet, PC for Each Home, Low-Cost Broadband Connectivity, Public IT Clubs, Basic & Specialized ICT training and Arabic eContent. It's also worthwhile mentioning that eLABs is one of the main stakeholders with MCIT in most of these initiatives. eLABs' role is providing quality Arabic eContent to the Egyptians related to education, culture, general knowledge, languages, computer, SMEs solutions, etc. to cover the different needs of Content at home, school and work.

III. The Essential International Cooperation to Assure the Effective Impact and Benefit of the Project and the Best Return on Investment (ROI)

The development of the Resource Library of Learning Objects and Educational Aids, within the project, is a lengthy process and it needs huge investments and a large pool of qualified resources in different specialties. The process requires: Subject matter experts, who are the masters of the subject, which will be developed in a particular area of knowledge; Instructional designers, who attempt to grasp the subject in a way that will enable them to design the Content in the way suitable to the new electronic medium; Production managers, who are the ones responsible for resource allocation, coordination, organizing the workflow between team members, scheduling and making sure that work is done in the most efficient manner and is ready for deployment on time; Creative & Art Directors, who are the ones working closely with the instructional designers and the arts, graphics and animation procedures; Multimedia editors & writers, who are the ones responsible for turning the original Content material into well-linked multimedia packets of data; Art designers; Graphic designers; Multimedia editors; Programmers; and Testers.

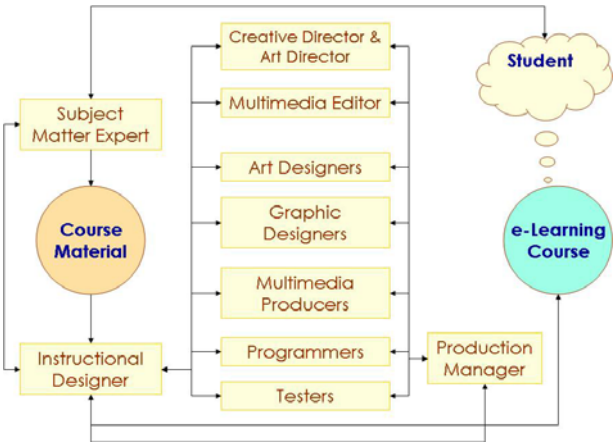


Fig. 5. The Development Cycle of the Resource Library.

As well, this could represent again a major hindrance to many countries on both financial and professional levels. Therefore, international and regional cooperation powered by the involvement and commitment of the concerned international institutions, such as UNESCO, World Bank, Bibliotheca Alexandrina, UNDP, Arab League, international donor & development programs, and universities & research centers around the World would be a strategic entry to overcome such obstacles and reduce the duplication of efforts & expenditure and assure the critical mass required to achieve the projects' objectives and the best return on investment (ROI) via an applicable scheme of collaboration between nations.

The international cooperation should focus on developing the general topics, especially those related to science; as Ohms' law or the operation of the internal combustion engine developed as objects will never change neither in United States nor in China nor even in a small country like Botswana in Africa, as all what's needed is just developing the library of these reusable objects, which are to be localized on a later stage according to the target audience in each country. While, the regional cooperation should focus on developing subjects and topics such as language studies, culture, social studies, etc., across certain regions of the World that have common interests, sharing same culture and facing same social & economic challenges. This arises the importance of considering Egypt as a main hub for developing Arabic eContent in the region of the Middle East.

IV. Egypt as a Main Hub for Developing Arabic eContent in the Middle East

"Egypt has a great advantage in becoming a leader in Arabic content." A.T. Kearney's Study to MCIT in June 2006.

Now the question "Is it true that Egypt has all the qualifications to be the main hub for the development of the Arabic eContent? " The answer is YES but why? The following paragraphs might give an answer to that:

Form *the cultural perspective*, Egypt has a solid culture and language proximity across the whole Arab World, in addition Egypt has always been acknowledged as a regional leader in the field of Arabic Content traditional production, also Egyptian writers, artists, publishers and producers have gained regional recognition and acceptance for centuries.

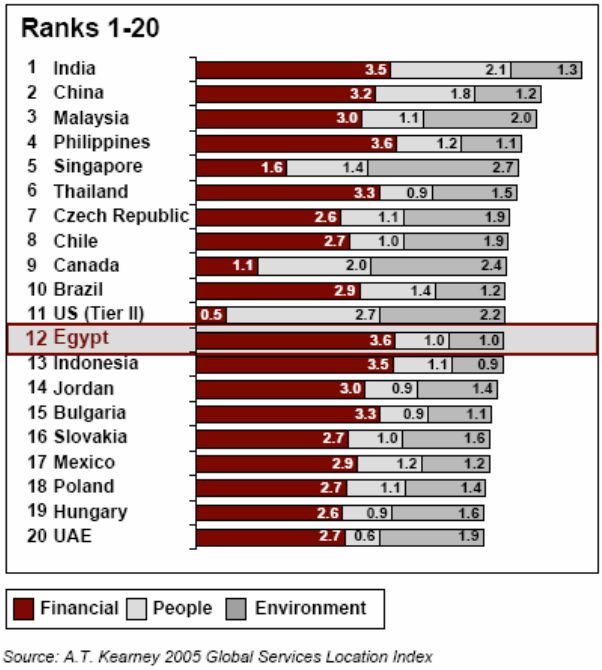
From *the economic perspective*, Egypt by far is the largest Arab country in population; Egypt is the heart of the Middle East and hosts a well-educated labor force in different areas of expertise, especially those needed for the Content industry. Over the last few years, Egypt experienced a noticeable economic growth, as GoE succeeded to take serious steps towards executing an aggressive economic reform program by continuing the privatization process of the state-owned enterprises & services. Egypt's reserve of foreign currency reached US$ 22bn at the start of 2006 up from less than US$ 15.5bn a year earlier. Moreover, GoE introduced a variety of legislation, which facilitated the private sector activity in Egypt, as well as better enabled multinational firms to expand in the local market. Moreover, if one takes a closer look on the indicators recently released by the General Authority for Investment and Free Zones, one can figure out the process in the Egyptian ICT sector. For example, the capital investment in this sector reached US$ 1.6bn in Year 2004 compared to US$ 1bn in Year 1998. The number of ICT companies and the labor force rose from 185 and 10,244 respectively in Year 1998 to 1,132 and 35,201 respectively in Year 2004, which represents a vote of confidence by the private sector in the Egyptian government's act in this strategic economy sector. Also, according to the latest statistics issued by the Central Agency for Public Mobilization and Statistics (CAPMAS) in Year 2004, the population in Egypt is considered as a young population, as the age group [<14 years] represents 37.5% of the population and the age group [15-39] represents 41% of the population, while the age groups [40-64 & 65+] represent only 18.1% and 3.4% of the population respectively.

And from *the ICT infrastructure perspective*, Egypt has introduced many integrated initiatives to elevate the accessibility, affordability and availability of ICT in Egypt, as mentioned earlier in the last section. These initiatives were implemented throughout a multitude of PPP forms, such as licenses to build-own-operate (BOT), joint-ventures between public and private organizations, and coordinating the efforts between different stakeholders whilst deregulating the sector, establishing different programs for building the capacity of the national ICT firms, and creating positive investment environment. All helped the sector to enjoy an annual growth of approximately 35%.

Furthermore, according to MCIT, the number of trainees in MCIT professional and basic IT training

skills programs reached 23,290 and 126,036 respectively in March 2006 (compared to 1,633 and 19,114 respectively in Year 2000); the public IT clubs rose from 120 in the Year 2000 to 1,305 in March 2006; the fixed lines and mobile penetration was 7.0 Mil and 0.3 Mil respectively in Year 1998 and reached 14.7 Mil and 19.7 Mil respectively in March 2006; and the internet bandwidth became 4.492 MBPS in January 2006 (compared to 20 MBPS in Year 1999), while the internet users reached 5.1 Mil users (0.3 Mil users in Year 1999). Also, Egypt is a leader in internet providers, of the 400 IPs in Africa and Middle East, around 55 is from Egypt.

It is also worthwhile mentioning that the recent A.T. Kearney report launched in June 2005 indicated that Egypt's rank is No. 12 in the Global Location Services Index 2005, while USA (Tier II) is 11th, Jordan is 14th, UAE is 20th, Romania is 24th, UK (Tier II) is 28th, South Africa is 32nd, and Ireland is 39th.



Source: A.T. Kearney 2005 Global Services Location Index

Fig. 6. A.T. Kearney 2005 Global Services Location Index.

Moreover, according to the UN Global E-government Readiness Report 2005, Egypt has performed very well in 2005 advancing 37 points in the global ranking from 136th in 2004 to 99th in 2005, which considered by the UN as "one of the greatest advances among all countries of the world in 2005".

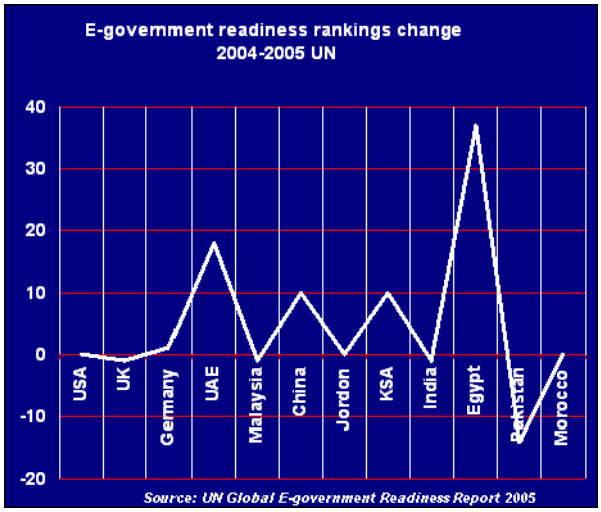


Fig. 7. e-Government readiness ranking change 2004-2005 (UN e-Government Readiness Report 2005).

Therefore, from pervious indicators, statistics and reports it is evident that the size of the achievement accomplished by GoE to advance the economy in general and the ICT sector in particular lately is highly significant. This represents a perfect base for Egypt to take the lead and play the central role in the development of the Arabic eContent in the region of the Middle East and North Africa.

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