

# UAE Universities Embark on Web-based ETD Service: *Vision and Inspiration*

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## **ABSTRACT**

The dissertation work is a knowledge-intensive process whose success heavily relies on the adequate retrieval, gathering, analysis and composition of relevant research information in producing intellectual work. The scholarly research and digital ICT have enjoyed a meaningful relationship since the advent of the Internet and new Web technologies in early 1990s. Doubtless, the Internet represents a digital contrivance whose functional capabilities have fascinatingly facilitated building, preservation, exchange, and delivering of a plethora of knowledge over the Web in different digital forms and formats. The UAE oil revenues triggered off a series of socio-economic changes to promote the element of concern towards investing heavily in education and related knowledge technologies, believing it as a vital strategic component of the economic growth and future prosperity. To achieve this, UAE established the *Higher Education Authority* to strategise and financially support the scholarship programmes for students to pursue their graduate studies abroad, mainly in North American, Australian, and British universities. Furthermore, the UAE-based universities accelerated a dynamic growth and expansion in graduate education with consequent demand for more skilled personnel and research cadre. Such graduate activities inspired the UAEU libraries to develop special collection of the theses and dissertations that done by the UAE students or on the UAE as a research theme. This essay aims at sketching a proposed pilot project for creating Web-based ETD portal to be a one-stop portal to serve the UAE research community within a distributed library environment. Acquisition processes and workflow are discussed. UAE-based Universities collaboration and ETD networked service model is proposed.

**Keywords:** ETD services, graduate education, scholarly research, UAE.

## **1. INTRODUCTION**

The evolution of the knowledge-based society has been paralleled by advancements in the means of expression and sharing of knowledge. The recent developments in the digital information and communication technologies have sprung up to address emergence of new e-based paradigms in business, academia and research domains, which in turn provided powerful stimuli for designing, creating, and producing a wide range of electronic materials and digital objects to answer the needs of the web-based society. Since the expansion of the Internet and related web-based applications; in particular, there have been dramatic changes in the whole enterprise of education and research (Fox, McMillan & Eaton 1999). Such enormous influence of ICT on academic and research communities has led to a wide public consensus about the necessity of publishing and exchange of scholarly documents by electronic means.

The web-aided library has emerged as a dominant paradigm for enabling academic enterprise-wide interoperability, and facilitating the distribution of such e-publishing products as e-journals, e-books, ETD and related e-print services. The critical factor to the overall utility of the Web in e-print services is largely attributed to its scalable, flexible and robust navigating and discovery mechanism. The easy universal access to e-documents cast over the Web has triggered off a series of serious concerns and debate over the question of copyright and ownership regarding the use of e-documents that retrieved from the Web (Ou 2003). These issues promoted the elements of concern towards international collaboration dedicated to protecting the copyright and preventing misuses of web materials. This fruitful international cooperation yielded such crucial digital library initiatives as *Networked Digital Library of Theses and Dissertations* (NDLTD), *Computer Science Teaching Centre* (CSTC), *Open Access Initiative* (OAI) and the like (Fox *et al.* 1999).

The UAE invests generously in maintaining expansion of university education and higher studies as a key priority to warrant future prosperity in the forthcoming knowledge-based society whose hallmark is consciousness of the importance of education as strategic asset. This paper aims at sketching a pilot project proposed for creating a Web-based ETD portal to be a one-stop clearinghouse to serve the UAE scholarly research community within a distributed library environment. The inspiration for the proposed project is NDLTD. Acquisition and inclusion process and workflow of TD is outlined, along with shedding light on the interlibrary cooperation in developing an accessible ETD collection and service. The cataloguing process (e.g. MARC format) and OPAC display are illustrated, which largely rely on NDLTD standards.

## **2. NDLTD INITIATIVE: A POWERFUL STIMULUS**

The digital library infrastructure provides robust venues to mediate between the increasing availability of the electronic information and the end-users. As more research materials become more Web-based, the necessity for new initiative and approaches in digital knowledge organisation becomes paramount. Theses and dissertations diligently found their way to assume a foremost position in database business e.g. UMI *Dissertation Abstracts* and NDLTD aggregator (<http://www.ndltd.org>) at Virginia Tech. both of them have sparked a powerful stimulus for creating a web-based ETD collection into one-stop accessible portal. NDLTD is global in its scope and serves a model of scalable and sustainable DL. It is open to all universities, research-oriented institutions, and international organisations as UNESCO (Fox 1998; Gonçalves *et al.* 2001; Edminster & Moxley, 2002).

### **2.1 A Brief History**

NDLTD has been conceptualised in 1987 and realised in 1997 through the pioneer efforts of Virginia Tech's Edward A. Fox, Gail McMillan, and John Eaton, who steered elaborate works towards launching worldwide networked digital library of theses and dissertations. In November 1987, UMI hosted a public meeting in Michigan focused on the potential use of electronic document processing in creating electronic version of theses and dissertations. A generous grant from US Department of Education funded NDLTD project to see the light in 1996 (Fox 1998). The continuous advancements in word-processing software, Web mark-up language (e.g. SGML, XML), and portable document format (PDF) do effectively sustain the triumphant course of NDLTD project. Since then, NDLTD has been receiving a great deal of interest in circulating theses and dissertations electronically. To this concern, NDLTD has attracted many non-American institutions from the overseas, benefited from the increasing global consciousness of sharing scholarly research information.

## **2.2 Vision and Philosophy**

The vision and philosophy of NDLTD has been geared by the following principal goals (McMillan 2003):

- To enhance graduate education with an equal e-access to current international scholarship.
- To support diffusion of e-literacy among graduate students purporting to effective scholarly use of the Web and digital library.
- To increase awareness and understanding of basic issues relating to intellectual property and copyrights.
- To present NDLTD to serve as a model digital library project demonstrating how universities can collaborate in sharing with their intellectual resources.
- To highlight how ICT is being used to streamline processes in digital repository and drive large-scale changes in access to distributed research information.

## **3. GRADUATE EDUCATION: *STUDYING ABROAD VS. AT HOME***

### **3.1 Background**

A symbiotic relationship between education and socio-economic growth has long been well established. Education is considered a crucial element in developing and preparing the necessary skilled manpower for piloting growth and modernisation in the UAE resulted in devoting 1.78% of its GDP to education; furthermore, the government expenditure on education has steadily increased from US\$67.3 million in 1994 to US\$1.465 billion in 2003 (UAE yearbook 2005). The UAE federal government offers free tertiary education exclusively to Emirati students who entitled to choose between study in the state universities or abroad through a generous educational scholarship system (Shihab 2003).

### **3.2 UAE Higher Education Expansion: *An Example of Globalism***

The UAE is emerging as significant site of private and foreign higher education to result in escalating expansion in state and private universities of indigenous and overseas origin. Globalism is obviously manifested in the number of the international agencies consulted by UAE government for setting up and running the higher education institutions. These agencies (e.g. UNDP, World Bank, etc.) involved in providing technical assistance, advice, streamline processes, and network communications since UAE created out of the previous *Trucial States* federation in 1971 (Findlow 2001) to help in establishing these state universities: UAE University (UAEU) established in 1976 with the aim of welding the new nation. At the same time, the evident need has increased for higher education-training provision, which answered by establishing the Higher Colleges of Technology (HCT) Group in 1988, and Zayed University (all-women) in 1998.

Later, over thirty private and semi-private institutions have been established throughout the UAE, enabling the rapid increasing in numbers of the university students to study near their homes. The most high profile of these institutions are: Ajman University of Science & Technology Network (1988); Etisalat College of Engineering (1989); American University of Dubai (1997); University of Sharjah (1997); American University of Sharjah (1998), Ittihad University (2002); Abu Dhabi University (2003); University of Southern Queensland in Dubai (2003); British University in Dubai (2004). Some overseas universities having representative offices to offer online distance learning such as the American University of Hawaii in Dubai. (UAE Index 2004).

### 3.3 Graduate Colleges in UAE Universities: *Research Venues*

The UAE-based universities have placed great emphasis on graduate education and research activities in the areas of high demands by the job market and public development projects. In response to this concern, many UAE-based universities created graduate programmes largely modelled on American system. The first graduate college in UAE was established at UAE University in 1990; inaugurated its Master degree programmes in the areas of environmental studies, followed by business and engineering studies (Taha 2003).

The graduate degree programmes are either by courses (business, humanities) or as a partial fulfilment by research (science and engineering). MBA degree programmes have been designed and increasingly geared to qualifying the students to work in a global economic environment; therefore, they are taking the lion-share of the awarded degrees i.e. 13 graduate programmes out of 27 currently being offered.

**Table 1.** Master degree programmes offered by UAE-based universities

University	Graduate programme	Degree
UAE University	<ol style="list-style-type: none"> <li>1. Environmental studies</li> <li>2. Materials science &amp; engineering</li> <li>3. Petroleum science &amp; engineering</li> <li>4. Water resources</li> <li>5. Business administration</li> <li>6. Remote sensing &amp; GIS</li> </ol>	MSc MEng <sup>1</sup> MSc MSc MBA MSc
Zayed University	<ol style="list-style-type: none"> <li>1. Healthcare administration</li> <li>2. Business administration</li> <li>3. Education</li> </ol>	EMHCA <sup>2</sup> EMBA EMEd
HCT-Strathclyde University	<ol style="list-style-type: none"> <li>1. Business administration</li> <li>2. Management/organisation science</li> </ol>	MBA MSc
Etisalat College of Engineering	<ol style="list-style-type: none"> <li>1. Computer science &amp; engineering</li> <li>2. Information science &amp; technology</li> <li>3. Telecommunication engineering</li> </ol>	MSc MSc MSc
American University of Sharjah	<ol style="list-style-type: none"> <li>1. TESOL</li> <li>2. Translation and interpretation</li> <li>3. Urban planning</li> <li>4. Business administration</li> <li>5. Engineering systems management</li> <li>6. Mechatronics engineering</li> </ol>	MA MA MUP MBA MSc (MSESM) MSc (MSME)
University of Wollongong Dubai campus	<ol style="list-style-type: none"> <li>1. Business administration</li> <li>2. International business</li> <li>3. Quality management</li> </ol>	MBA MBA MSc
University of Southern Queensland in Dubai	<ol style="list-style-type: none"> <li>1. Business administration</li> <li>2. International business</li> <li>3. Management information technology</li> </ol>	MBA MBA MMIT
British Univ. in Dubai	<ol style="list-style-type: none"> <li>1. Finance &amp; banking</li> <li>2. Environmental design of building</li> <li>3. Information technology</li> <li>4. Project management</li> <li>5. Education</li> </ol>	MBA MSc MSc, PhD MSc, PhD MEd, PhD

<sup>1</sup>ME= *Master of engineering science*    <sup>2</sup>EM= *Executive master*

In a distinctly global step, many UAE-based universities have cemented their partnership particularly with many American, British and Australian graduate schools. In this context, Dubai developed *Knowledge Village* as a global locus of higher education investment and a centre

of excellence for e-learning innovation. These graduate programmes are being considered as potential hatcheries of the theses and dissertations.

### **3.4 Studying Abroad**

The scholarships that provided for the UAE students to study abroad are granted purposely to pursue their graduate studies at PhD-degree level since many UAE-based universities sufficiently answered the needs for Master-degree holders. The scholarship donors include Ministry of Education, Abu Dhabi Investment Authority, ADNOC, and Dubai Government (UAE yearbook 2005). The main destinations of studying abroad are USA, UK, Australia, and Canada, whereas South Africa, Singapore, and Japan recently gained an increasing interest. On the other hand, Egypt, Jordan, and Morocco are favourite destinations for Arabic and Islamic studies. Some other students are individually funding their own graduate studies favourably in India, Malaysia, Pakistan, and the Sudan where the tuition fees are more affordable.

## **4. EMBRACE DIGITAL SCHOLARSHIP**

Realising the immense dynamic capabilities that offered by the present-day digital IT, and rapid development of networked information grid in UAE-based universities, the UAEU is seriously thinking of embarking on web-based ETD services. This would be achieved by webbing, at one-stop portal, all the TDs generated from the active graduate programmes at the UAE-based universities, in addition to those TDs conducted abroad.

### **4.1 Networked ETD Services: *Raised Questions***

The graduate programmes in UAE-based universities have realised that they can no longer be self-sufficient in regard of their own scholarly information resources to meet the growing varying needs of their enrolled students. This challenge is confronted with the advent of networked information technologies. In response to increasing number of theses and dissertations produced from these programmes and abroad, the need for a new resource sharing paradigm is becoming primary necessity.

Network technologies might be providing practical answers to materialise sharing ETD resource; however, some questions have to be raised:

- Is an ETD networked consortium feasible for UAE-based universities?
- What are the technical and managerial obstacles to effective implementation and access service of ETD network among shared UAE-based universities?
- Which suitable IT shall be used for ETD archiving and preservation?
- What will be the most cost-effective means of launching such ETD network?
- What would be the potential impacts of ETD access on the quality and rigour of graduate research?

### **4.2 SWOT Analysis**

The paper takes the ND LTD advantages for restoring the project's strengths; averting its weaknesses; escalating the opportunities, and overcoming the threats.

#### **4.2.1 Strengths**

- The UAE economic atmosphere promotes and facilitates secured investment in the graduate education.
- Increasing public consciousness towards graduate education as a vital component of professional career development in a world moving fast towards global economy.
- The UAE government supports graduate and research studies abroad through generous financial scholarship system.
- Theses and dissertations that conducted by the UAE students or on the UAE issues constitute an important body of scientific literatures and research wealth.

#### **4.2.2 Weaknesses**

- Weak marketing campaign to attract international students.
- Lack of systematic policy and mandatory procedures to acquire awarded TDs.
- Lack of bibliographic tools contributed in faint access to TD literature.
- Many students have no intention to publish scholarly works based on their theses or dissertations i.e. TD literature remains unutilised and represent frozen asset.

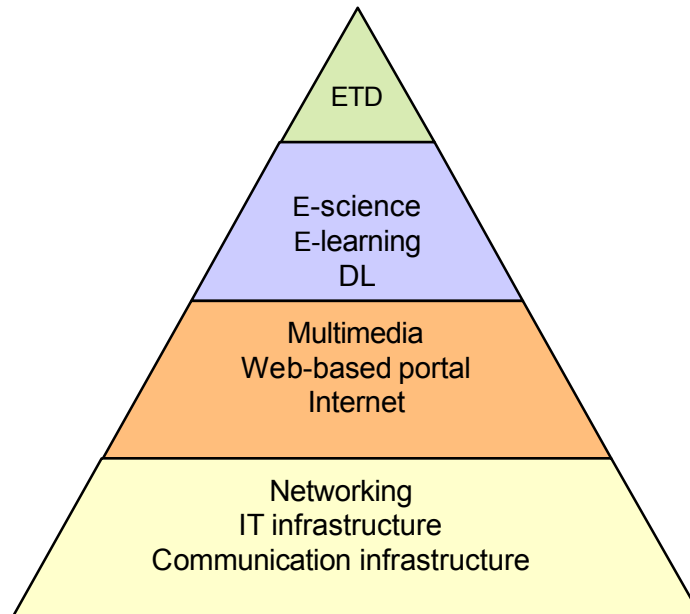
#### **4.2.3 Opportunities**

- The tremendous possibilities offered by the cutting-edge IT facilities and grid in UAE making the growth of the graduate education vibrant and sustainable.
- Partnership in graduate programmes would increase the extent of TD literatures generated in UAE towards international audience.

#### **4.2.4 Threats**

- Despite the graduate degree appears to be an academic obsession, the sky-rocketed tuition fees might be reducing the expansion in new graduate programmes.
- The “political” tensions in the region might be generating adverse effects on attracting more investments to maintain continuum of the graduate education.

**Fig. 1:** Evolving genre of UAE information grid and proposed ETD network



## 5. BUILDING UP AN ETD-NETWORK: *WHERE SHOULD WE START?*

### 5.1 Vision and Mission

The issue of resource sharing among educational and research organisations is a long-standing and has become paramount in the networked learning environment. The robust information grid of the UAE-based universities represent a solid platform for creating an ETD network that would be a national pool of the digital scholarly research. University that slows down to embrace digital scholarship will lose the attractiveness of its graduate education to more supportive universities (Moxley 2001). Those universities interested in sharing with their TD resources within an ETD network, should agree upon common visions as a basis to fulfil the network mission, among these are:

- Creating a one-stop portal behind a central server.
- Unifying the standards of MARC21 and record display in OPAC environment.
- Creating a bibliographic tool or database of dissertation abstracts.
- Enacting mandatory rules for ETD deposition and copyright
- Encouraging graduate students to publish their theses in digital format.
- Promoting sharing and access to ETD within research communities.
- Joining the NDLTD to get the most of international scholarship.

### 5.2 Workflow Model

Currently, theses and dissertations are being catalogued by many UAE university libraries as books regardless their particular bibliographic information. These unappreciable differences resulted in tedious OPAC search for retrieving only TD. Therefore, a necessity has been crystallised to creating a web-based portal for search and access to ETD holdings. The theses and dissertations find their way to central digital library repository through the following proposed steps as seen in Fig. 2:

- The involved universities submit the TD awarded by their respective graduate programmes or individual submissions.

- Submissions either as original digitised or hardcopy to be digitised.
- Acquisition of overseas theses and dissertations in digital format from UMI and the British Library.
- Copyright signature for e-publishing.
- Metadata extraction using MARC21 to be ready for OPAC access.

## 6. CONCLUSION AND SUGGESTIONS

With the advent of the digital network technologies in academe, academic and research libraries are increasingly being called upon to provide satisfactory timeless information services. To answer the varying needs of a wide range of research community, they require availability and robust accessibility to a variety of e-resources. The digital writing technology effectively enhanced the evolving genre of the electronic theses and dissertations, which sparked strong interest in the establishment of a global digital library for international scholarship i.e. NDLTD, which inspired UAEU libraries to follow its course.

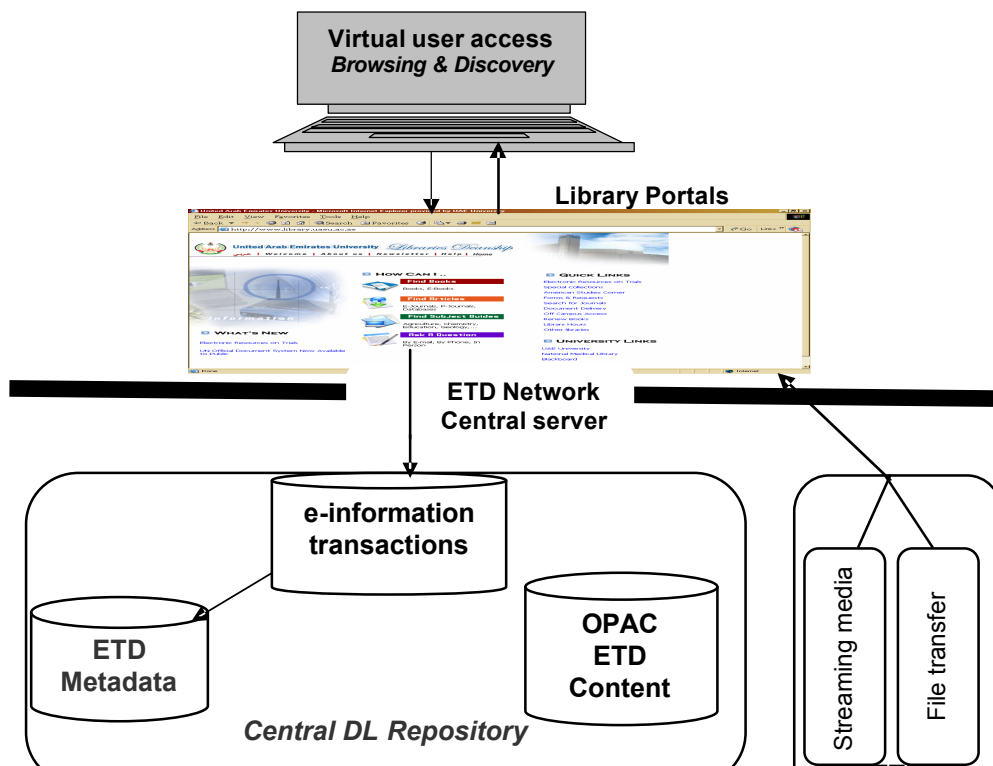
The proposed ETD network in the UAE are still experiencing some difficulties such as:

- Absence of an agreed-upon national strategic plan for ETD network consortium.
- Lack of TD acquisition process and policy.
- Funding and budgetary issues.
- Technicalities associated with archiving and preservation.
- Varying hardware specifications of each university is a key obstacle to building a functional network.
- Lack of experienced personnel

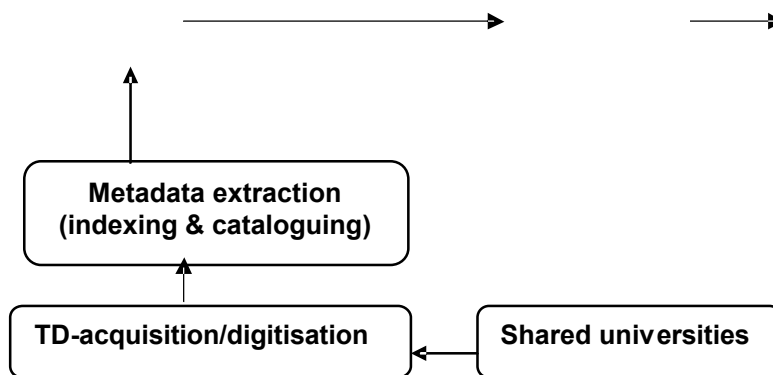
The study suggests the following:

- Adoption of a suitable model of workflow.
- Creating an effective acquisition mechanism for obtaining completed TD.
- Providing a training and skill development programme
- Providing a digital literacy programme for supporting effective use of ETD network.

**Fig.2:** Functional components of proposed ETD network (author's own design)







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