Usage of Electronic Books: A Study of ebrary Database in the United Arab Emirates

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ABSTRACT

This paper presents the results of an analysis of usage reports of ebrary database. The five indicators (pages viewed, pages copied, pages printed, unique documents usage, and user sessions) were identified to determine the extend of ebrary usage by 18 government and private institutions in the UAE based on their counter reports. The analysis of variance (ANOVA) shows significant difference in the average of these indicators among the 18 institutions in the UAE. Results of the study indicate that governments' institutions outperformed private institutions in all these indicators and the *T*-test confirmed the same. In general, the study found ebrary use is relatively low and there was no annual growth in both government and private institutions. The study found that a large number of surveyed institutions do not fully utilise ebrary services as expected. There is a need for aggressively promotion about the use of electronic resources among the faculty members and students through appropriate training, workshops and marketing activities in all these institutions.

Keywords: Electronic books, United Arab Emirates, ebrary, ANOVA

1. INTRODUCTION

Throughout the history, evidences prove that leathers, stones, bones, clay, metals, and leaves, etc., have been used by human beings to record and store information and knowledge[1]. However, these objects were replaced by papers, centuries ago, due to industrial revolution in general and printing industries in particular. The printing industries made significant changes for storing and preserving information and knowledge as in case of printed books. Since then the printed books had served as the most reliable and popular container for storing and preserving information and knowledge. However, the printed books format was dramatically changed in 1990s due to the development of information and communication technology (ICT) which resulted in the evolution of e-books[2,3]. Rao[4] believes that e-book is the most important development in the world of literature after Gutenberg.

E-book can be defined as a published book in the electronic form (e-form). The e-form includes CD-ROMs, web-based resources, and special devices such as personal digital assistants (PDA) and cell phones[3]. From the day of its introduction, libraries realised the importance of e-books and made them as part of their collection development. Libraries acquire e-books through subscription or purchase license polices and provide them to the users via library OPAC, websites, etc.[5]

At least for the past 13 years, libraries in the United Arab Emirates (UAE) have been providing e-books to users as an integrated source of library collection through online databases, library websites or as portable devices such as e-readers or stand alone products like CD-ROMs and DVDs. Some current well-known and popular e-books databases in the UAE are ebrary, NetLibrary, Safari, Ebook library, informaworld, Books@Ovid, MyiLibrary, Oxford Reference Online, and Oxford Scholarship Online.

As part of library collection, e-books save time, space, and effort and are used more than printed books. They also allow multi-user access and use concurrently by users of geographically distributed environment. However, as pointed by Al, Soydal & Tonta[6], libraries need to investigate the trends and choices of users for making an effective e-books collection policy development and management.

This paper addresses some of these issues by exploring the use of e-books in the ebrary database by users of 18 government and private institutions in the UAE during a period of eight years from 2003 to 2010. Findings

of the study would help academic libraries in the UAE to better understand the nature of e-books' usage by the faculty members and students, manage effectively electronic resources (e-resources), and make a better negotiation with database vendors and agents.

2. EBRARY: BRIEF OVERVIEW

ebrary was established in 1999 by Christopher Warnock and Kevin Sayar in Palo Alto, California. ebrary is an online digital library with full-text collection of over 70,000 scholarly e-books. The database contains books, journals, magazines, maps, and other publications in the field of Business, Economics, Computers, Technology and Engineering, Humanities, Life and Physical Science, and Social and Behavioral Sciences from over 500 publishers. ebrary currently has more than 4,500 library customers around the world serving more than 19.2 million end-users. ebrary was privately held until it was acquired by ProQuest in 2011[7,8,9].

3. REVIEW OF RELATED STUDIES

Many studies have assessed and evaluated the usage of e-books in different countries. The review of literature shows that researchers investigating the usage of e-books have used various methods and techniques to collect data such as counter reports[6,10] observation and interview[5], and questionnaire tool[11].

In their analysis of e-book database use by students and faculty members of Hacettepe University libraries in Turkey, Al, Soydal and Tonta[6] used counter reports to investigate the trends and choices of users to be able to build an effective policy for collection development and management. The researchers were able to identify the most frequently used e-book titles by the users in each Library of Congress (LC) subject class. E-books on medicine were used most often, followed by books on education and language and literature. A small number of e-books in each subject class satisfied half of the demand, while an overwhelming majority of e-book titles were never used.

At the University of Liverpool, Bucknell[10] also used counter report to examine the usage of Springer e-book collection to find out how usage of e-books is influenced by subject area, date of publication and the length of time. The study found that all but one of the subject areas have been well used, the number of unused titles continues to diminish each year; older titles continue to attract significant usage and the cost-per-use is relatively low.

Hernon[5], *et al.* used observation and interview method to examine e-books search behaviour and use patterns of undergraduate students in economics, literature and nursing. Findings shows that economics students used current mono figures; literature students checked literary

dictionaries and literary criticisms; while nursing majors limited their search and reading to reference sources.

By using an online survey in a British academic library, Abdullah and Gibb[11] found that 57 per cent of 1372 respondents have low e-book awareness and usage. The authors urged academic libraries to actively and attractively take initiation to promote the e-books awareness and usage through websites, brochures, posters, training sessions, and workshops.

Despite the existence of many advantages of e-books, some studies showed that their usage can be very challenging. In an article, Mikki & Stangeland[12] describes how users find e-books challenging to read because of their user interfaces, restrictions imposed on users to use and specific reading devices required due to proprietary file formats. Similarly, Soule[13] highlighted issues related to technology, readability, access, borrowing, and the level of knowledge that hindering the use of e-books. She believes that there is a need to redefine the concept of e-book. Reviewing 10 years experience of e-books at the University of Auckland Library, Mincic-Obradovic[14] believes that e-books do not satisfy students' needs because publishers keep textbooks in print format and only offer only general reference titles and supplementary collections in e-format.

Meanwhile, the review of the literature showed a dearth of researches concerning the issues related to e-books in the UAE. This paper studied the usage of e-books in the UAE particularly explored the differences between government and private institutions with regard to the ebrary usage. It is expected that the findings of the study would help in improving the usage of electronic resources in the UAE.

4. METHODOLOGY

The main purpose of this paper is to explore the usage of e-books. Specifically, the study surveyed 18 government and private institutions who are subscribing to ebrary database in the UAE (Table 1). The study is based on ebrary usage data reports generated from ebrary database. The reports of each university include monthly and annual statistics starting from the starting year of subscription up to December 2010. The counter statistics reports are obtained from TeckKnowledge, the ebrary agent in Dubai. Previously related studies have used similar reports to assess the usage of e-books in different countries[6,10,14]. Based on these reports, five indicators were identified and analysed to determine the extent of ebrary usage. These five indicators are: Number of pages viewed, number of pages copied, number of pages printed, number of unique documents usage, and number of user sessions users logged into. Therefore, the paper formulated the following two research hypotheses and tested in this study:

(a) There is no significant difference among the institutions in the UAE, in regard to the overall average number of pages viewed, pages copied, pages printed, the usage of unique document, and number of sessions logged into the ebrary database.

(b) There is no significant difference between government and private institutions in the UAE in regard to the overall average number of pages viewed, pages copied, pages printed, the usage of unique documents, and number of sessions logged into the ebrary database.

ANOVA, and independent T-test were to verify the above hypotheses. Also used time-series technique to analyse the number of unique documents used by the students and faculty members of six institutions.

Table 1. Major libraries subscribing ebrary database in the UAE

Type of institution	S. No.	Name	Starting year of subscription
Government	1.	Higher Colleges of Technology (HCT)	2006
	2.	United Arab Emirates University (UAEU)	2005
	3.	Zayed University (ZU)	2003
	4.	Dubai Health Authority (DHA)*	2008
Private	1.	Abu Dhabi University (ADU)	2004
	2.	Ajman University of Science and Technology Network (AUST)	2010
	3.	Al-Ain University of Science and Technology (AAU)	2006
	4.	Al Ghurair University (GU)	2006
	5.	Al Hosn University (HU)	2006
	6.	Al Khawarizmi International College (KIC)	2004
	7.	American University in Dubai (AUD)	2005
	8.	American University in the Emirates (AUE)	2009
	9.	American University of Sharjah (AUS)	2005
	10.	Emirates Academy of Hospitality Management	2008
	11.	Emirates Institute for Banking and Financial (EIBF)	2008
	12.	Hamdan Bin Mohammed E-University (HBMeU)	2008
	13.	Paris Sorbonne University-Abu Dhabi (PSUAD)	2006
	14.	University of Sharjah (UoS)	2008

*Note: For the analysis of the study, 'Dubai Health Authority' is considered as a government institution.

5. DATA ANALYSIS AND DISCUSSIONS

In this study, ebrary database usage by faculties, students, and other users of government and private institutions in the UAE were focused. The analysis is based on counter usage reports generated from the ebrary database. The data includes each of the academic institution's monthly and annual usage figures of ebrary covering starting year of subscription until December 2010.

Table 2 summarises the averages and the standard deviations of ebrary usage indictors. From these indicators it was noticed that the government institutions out perform private institutions in all the indicators with double or sometime triple of its usage number. For instance the number of user sessions on an average is about 215 with a standard deviation of 263.625 in Table 2, while it is about 125 (almost half) users with a standard deviation of 178.441 for the private institutions.

Table 2. Monthly averages and standard deviations of the number of users of ebrary

Indicator	Government institutions		Private institutions	
	Mean	Std. deviation	Mean	Std. deviation
Pages viewed	380.55	314.197	279	293.15
Pages copied	166.91	203.748	84.61	141.883
Pages printed	337.00	307.128	187.97	253.187
Unique documents	232.70	261.751	108.80	188.157
User sessions	215.75	263.625	125.38	178.441

After testing the first hypothesis, the ANOVA table (Table 3) shows a very small p-value (significance is almost close to zero) for all of the indicators (pages viewed, pages copied, pages printed, and the usage of unique document). This indicates that there is significant difference in the average number of pages viewed, copied, printed, and the usage of unique document between the institutions in UAE.

For testing the second hypothesis, 2-independent variables were used for T-test for testing different indicators (pages viewed, pages copied, pages printed, and the usage of unique document) and presented data in Table 4. The p-values of the indicators; average number of pages printed and the average number of unique documents used by students and faculties are almost zero (p-value of overall pages = 0.001 and it is zero for all the other indicators). This indicates that there is significant difference between the government and private universities. This is expected due to lack of facilities, printers, and papers in private institutions compared to government institutions.

The large p-values for the other two indicators; the average number of pages copies (p-value = 0.774) and the average number of pages viewed (0.107); indicate that there is no significant difference between the government and the private institutions in these issues. This is also logical due to the availability of advanced computers and storage devices such as external hard-disk, pen/thum-drive, etc., with students and faculty members in both government and private institutions.

Table 3. Difference among the average number of users of ebrary database in the UAE

		Sum of squares	d*f*	Mean square	F	Level of sig. (*p* value)
Overallavpage	Between groups	620.432	17	36.496	2.555	0.001
	Within groups	2213.850	155	14.283		
	Total	2834.282	172			
Avpagprint	Between groups	980.445	17	57.673	5.904	0.000
	Within groups	3614.425	370	9.769		
	Total	4594.871	387			
Avpagcopy	Between groups	56.914	17	3.348	5.247	0.000
	Within groups	354.758	556	0.638		
	Total	411.671	573			
Avpagviewed	Between groups	4309.683	17	253.511	4.940	0.000
	Within groups	20577.021	401	51.314		
	Total	24886.703	418			

Table 4. Summary of two independent samples *T*-test

Indicator	*T*-value	Sig. (2-tailed)
Average pages viewed	1.618	0.107
Average pages copied	0.288	0.774
Average pages printed	3.800	0.000
Average unique documents	5.262	0.000

To further analyse the number of unique documents usage by the students and faculty members, a Time series analysis for this indicator of each institution was conducted. From the Time series plots, six noticeable cases were identified and summarised (Fig. 1). The first two of these cases are Zayed University (Panel 'a' of Fig.1) and UAE University (Panel 'b' of Figure 1) which are considered as excellent examples of the usage of unique documents. The next two institutions are the Higher Colleges of Technology (Panel 'c' of Fig. 1) and the American University in Dubai (Panel 'd' of Fig. 1) which are considered as good examples. While the last two institutions are considered as not so good examples, and these institutions are Al-Hosn University (Panel 'e' of Fig. 1) and Al-Ain University of Science and Technology (Panel 'f' of Fig. 1). The following para figures will explain the cases of these institutions separately.

Panel 'a': It was observed that Zayed University started its subscription in 2003 with few number of users. The university gradually grew during the following years, at the same time the number of ebrary users also increased significantly. As it can be observed from the panel 'a' of Fig. 1, the fluctuation after 2008 is around 600 per year and the trend is going up with the time.

Panel 'b': UAEU started its subscription with around 400 users in 2005. After 2008 that number reached around 900 users during the normal semesters. However, this number fall-down to about 200 users during the summer vacation. This big downfall of members in the latest years might be due to the moving of the UAEU form teaching university into research university.
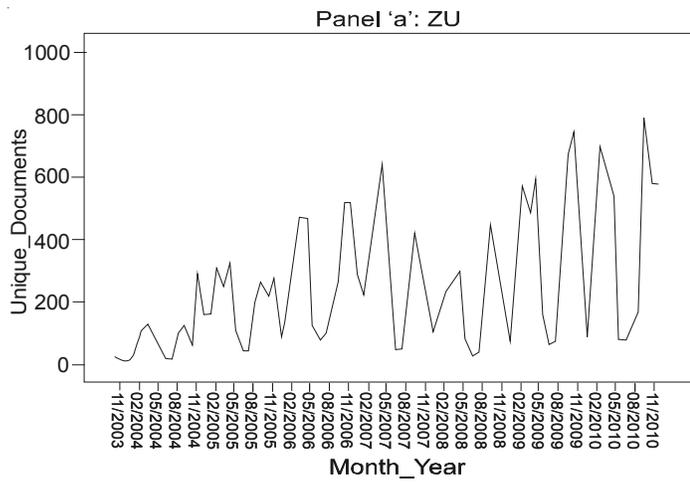
Panel 'c': HCT since the beginning of its subscription, the number of users was fluctuating around 600 users per year. This fluctuation continued till 2010, which indicates that the HCT organises stable orientation programmes and formulated good policies in regards to the use of e-resources in research and teaching activities.

Panel 'd': AUD started its subscription with an acceptable number of users in 2004. However, this number did not change significantly until 2009. After that, the pattern of ebrary database usage changed dramatically to reach almost 500 users per year. This may be due to the new changes and guidance of the Ministry of Higher Education towards research in the UAE.
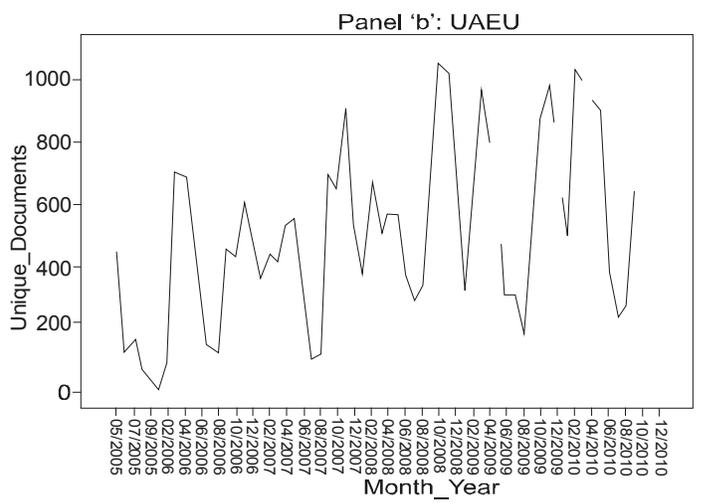
Panel 'e': HU starts from very low level of users in 2006, and then it started to improve slowly in followings years to reach almost 250 users per year. Unfortunately, these figures indicate that this university as a member of private institutions does not apply a stable orientation programs and policies with regard to the use of e-resources in research and teaching activities.

Panel 'f': AAU has almost nil users of ebrary database. However, a little fluctuation was observed around 50 users in the curve of this university (Panel 'f', Fig. 1). This might be due to the training and workshops conducted by the AAU library each semester to train the students and faculties on how to use e-resources.
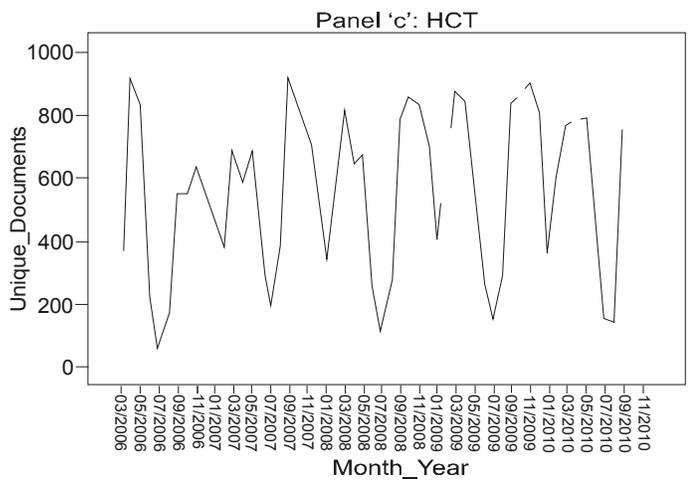
The improvement of ebrary users in the UAE can be seen during the last decade in terms of the number of pages copied under usage of the ebrary database. This improvement is summarised in Fig. 2. Fig. 2 shows the number of pages copied which using the ebrary database by the government and private institutions in the UAE from 2004-2010. From the figures it was noticed that the number of pages copied increased dramatically from 2004 until 2007, and then this number started decreasing in a noticeable way. This might be due to the revolution in computer industry especially increasing the storage
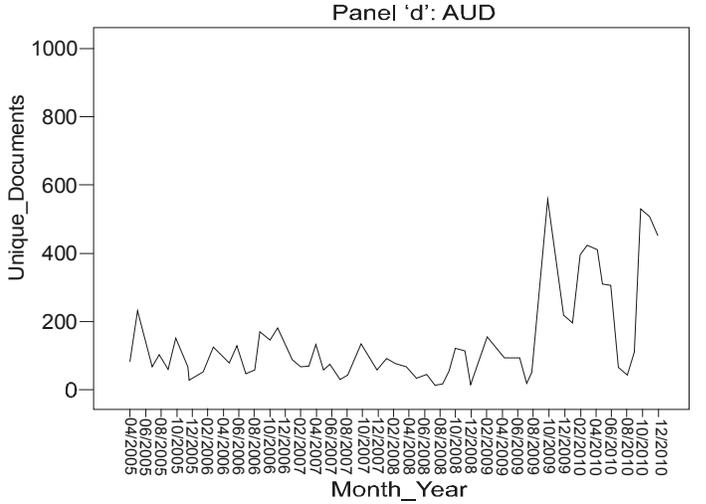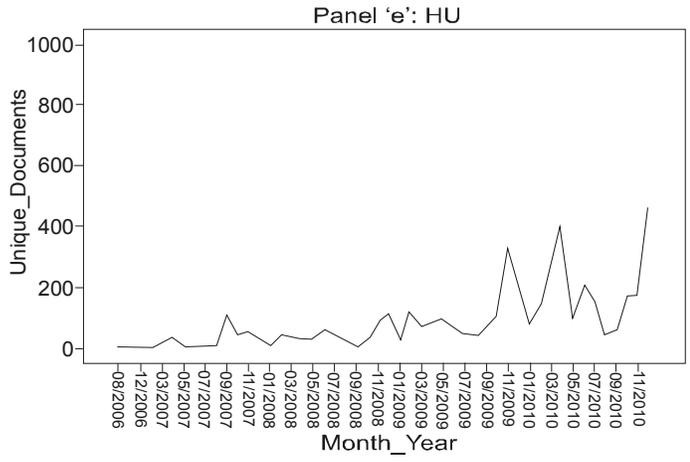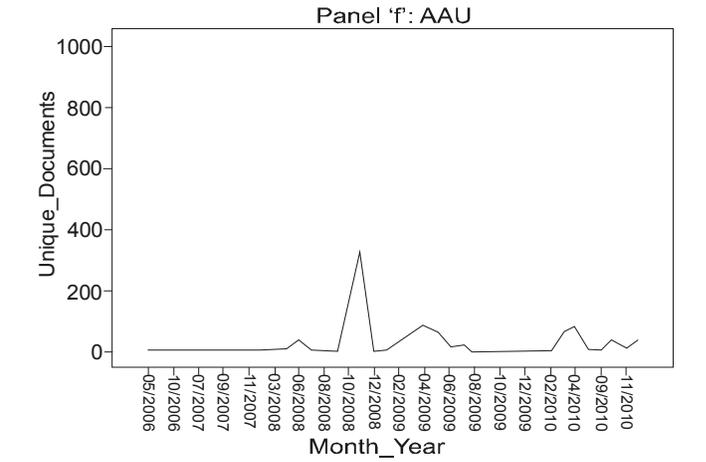
Figure 1. Unique documents of ebrary database usage by the institutions : (a) ZU; (b) UAEU; (c) HCT; (d) AUD; (e) HU; and (f) AAU.

Note: The observed gaps in the Panel b and c are due to some missing values in the original data.
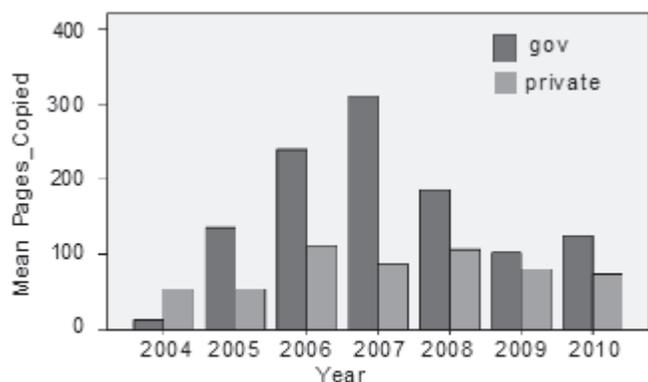
Figure 2. Yearly average number of pages copied using ebrary by government and private institutions.

Figure 3. Monthly average number of pages copied using ebrary by government and private institutions.

spaces and corresponding tools. As shown in Fig. 3, the average number of pages copied each month in both of the private and government institutions increased in the first 5 months of the year and gone down in the next 4 months and then went up during the last 3 months. This is reasonable due to the summer vacation in the UAE in which most of the locals and foreign residents leave the country because these are extremely hot months in the UAE.

6. CONCLUSIONS

Despite its advantages and contributions to the collection development, the use of e-books remains a challenging issue to academic libraries in the UAE. It is evident that for the past eight years ebrary subscribers in the UAE have not been able to fully utilise the services provided by the ebrary database. This might be due to the lack of marketing, training, and orientation programmes that are needed to meet the cost-effective use of ebrary among faculty members and students. Therefore, government and private institutions in the UAE should assess their needs to e-books and adopt a long term strategic plan of marketing, training, orientation, and self-assessment to improve the usage of e-resources.

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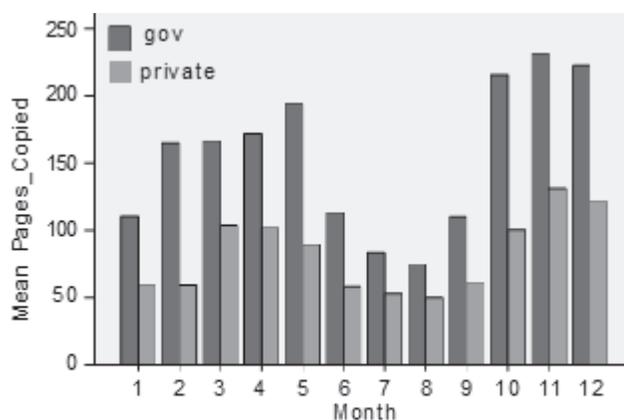
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