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Analysing Socio-Demographic Differences in the Use of Academic Digital Libraries of Postgraduate Students in Malaysia

[1]Razilan Abdul Kadir, [2]Saiful Farik Mat Yatin, [3]Muhammad Khairulnizam Zaini, [4]Wan Ab Kadir Wan Dollah

[1,2,3,4]*Universiti Technology MARA (UiTM), Faculty of Information System, Puncak Perdana Campus, 40150 Shah Alam, Selangor, Malaysia.*

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ABSTRACT

The use of academic digital libraries does witness the spectacular impact on academic societies' way of performing their study in Malaysia, a country with a multi-racial people. This paper highlights a case study on examining the socio-demographic differences on the use of academic digital libraries at public higher learning institutions. A total of 240 postgraduates surveyed at four public universities where findings indicate that use of digital libraries differed only between race but not between gender, age and university. Indians ethnic inclined to be different from Malay and Chinese. Moreover, only age factor is statistically significant in terms of being frequent user of digital libraries. Older age group is found to be more frequent user in using digital libraries as compared to the younger age groups.

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INTRODUCTION

Background:

The use of modern technologies at learning centers and higher institutions are prominent. Explosion in information management and information system technology have brought dramatic changes in learning and library system environments. Through the passage from physical library to digital library era, the use of academic digital library systems does witness the spectacular impact on academic societies' way of performing their study/research. Malaysia is a multi-racial and multi-cultural country where different races have their own traditions and customs which gives Malaysia a colourful heritage.

This paper highlights an exploratory research on analysing the socio-demographic differences on using academic digital libraries among multi-racial postgraduate students at higher learning institutions in Malaysia. Digital libraries consist of e-journals, e-book and e-media that maintained by the institutions' libraries. Due to the advanced of the information and communication technology (ICT), traditional libraries adopt the technology to migrate from physical to digital. According to Butdisuwan (2005), the transition has made the library to be inevitably digital where in his study the Thailand academic libraries started preparing for the in-house digital collections like theses, archives and research papers serve for this purpose. In addition, through ICT, digital library concept has introduced digital resources such as e-journals, e-books and online databases. These online library resources have become dominant resources in education especially at higher learning institutions. Academic libraries in Malaysia are also heading in the same direction despite on the on-going issues such as on the intellectual copyright and network connection (Razilan *et al*., 2009a).

Problem Statement:

Many existing studies focusing on information-seeking behavior however very little research investigating on socio-demographic factors such as age, ethnicity and gender, in the use of digital libraries at higher learning institutions. Such socio-demographic factors play important roles to provide knowledge of socio-demographics gap that could lead to differences in digital libraries use as well as acceptance. This study aims at investigating the socio- demographic differences in the use of digital libraries among postgraduate students at higher learning institutions in Malaysia. The null hypotheses generated are as follows:

1. H_{0_1}: There is no significant difference of socio-demographic factors (age, gender or citizenship status) on using digital libraries.

Corresponding Author: Razilan Abdul Kadir (Ph.D), University Technology MARA (UiTM), Faculty of Information Management, Puncak Perdana Campus, 40150 Shah Alam, Selangor, Malaysia.
Phone: +6 03 79622142. E-mail: mrazilan@salam.uitm.edu.my

2. H_{0_2}: There is no significant difference of socio-demographic factors (age, gender or citizenship statu) on being frequent users of digital libraries.

Related Works:

Demographic influence was found to be significant with concerned to inclusion of digital library on e-learning in higher learning institution in Malaysia Islam *et al*. (2011). The research revealed that demographic factors such as level of education and gender are the major factors in understanding and appreciating e-learning. From a study conducted by Okiki and Asiru (2011), age was found to be correlated with computers and use of electronic resources. Findings from University of Rhode Island (2006) indicated that even though awareness of and experience with repositories (digital libraries) is low, respondents are willing to investigate further and recognise a variety of benefits of a centralised system. Asemi and Riyahiniya (2007) pointed out that scholars, students, teachers and researchers actively seek current information through the various media available in the libraries. They emphasised that if users were aware of one helpful resource, it would usually lead to greater use of that resource. A case study conducted by Tammaro (2008) in Italy on users perceptions of digital library services indicate that users have different perceptions with regard to digital libraries and that they tend to use the services of more than one cultural institution. The study also revealed that users often do not know how to use the libraries and are unaware of all of the services offered. Moreover, students' ability to find and retrieve information effectively is a transferable skill useful for their future life as well as enabling the positive and successful use of the electronic resources when they are at school (Tella *et al*., 2007).

Olatokun (2009) established that there were socio-demographic differences in access and use of Information and Communication Technology (ICT) facilities in Nigeria. His study revealed the existence of digital gap of gender, Bimber (2000) discovered that there exists gender gap in the Internet (on intensive Web use) among postgraduate students at Fuzhou University, Fujian, People's Republic of China.

Methods:

The study focuses on the usage of end users towards using digital libraries throughout their learning process at the university. In order to capture the essence of the study, a survey design approach was adopted. It was done at four Research Universities (RUs) in Malaysia, namely University of Malaya (UM), National University of Malaysia (UKM), Putra University of Malaysia (UPM) and Science University of Malaysia (USM).

Ethnic of respondents is divided into majority of ethnic group in Malaysia i.e. Malay, Chinese and Indian. While minorities e.g. Kadazan, Iban, Dusun, and etc., including foreigner; are categorized as *Others*. Age classes consist of 5 groups as given below. Students' citizenship status is included due to reason that international postgraduates are basically part of university students who are using digital libraries for their study journey throughout the course taken. International students include from Indonesia, Iran, Jordan and Somalia.

Self-administered structured questionnaires were distributed to 240 postgraduates at the selected four universities. The item instruments were composed by majority of close-ended and a five-point scale items questions. The Likert scale items are ranging from "1=strongly disagree" to "5=strongly agree". SPSS was used to carry out statistical analyses of the study data.

The study focuses on use of digital libraries with respects to the following variables:

1. Intention of using and using digital libraries for academic purposes.
2. Being frequent users digital libraries.

The socio-demographic variables of the study are as follows:

1. Ethnic: Malay, Chinese, Indian and Others.
2. Age: ≤25, 25-29, 30-34, 35-39, ≥40-44 years.
3. Gender: Male and Female.
4. Citizenship status: Malaysian and Foreigner.
5. University: UKM, UM, UPM and USM.

RESULTS AND DISCUSSIONS

Sample of study consists of 60% female and 40% male students with rate of return of 92.1%. Dominant of ethnic comes from the Malays (46%) followed by Others (39%), Chinese (14%) and Indian (2%). A total of 70% is domestic students and the rest is international. Majority (45.7%) of respondents get access to digital libraries from their homes (refer to Fig.1).

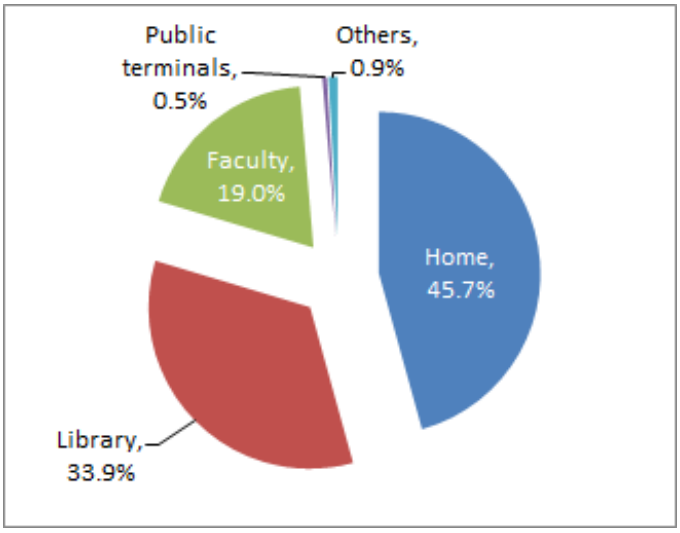

Fig. 1: Background of study

Use:

As emphasized by Razilan *et al*. (2009b), the continuity of digital libraries *usage* should be taken using user-based measure, particularly to evaluate such system. Usage defined in the context of Information Systems is the *use* of a digital library Koohang (2004). In this context, use of universities' digital libraries denotes the use of the system throughout students' learning process at the university for academic purposes. The results are taken from question of "*I am aware and use university's digital libraries for my study activities*". The following ANOVA test results are shown.

Table 1: ANOVA test results of race, age and university versus digital libraries use

	ANOVA test
Race	$F_{3,215}$ =2.587 *p*=0.049*
Age	$F_{5,213}$ =0.804 *p*=0.548
University	$F_{3,215}$ =0.322 *p*=0.809

*Note: *p < 0.05*

Table 2: *t*-test results of gender versus digital libraries use

	t-test
Gender	T_{217} =2.174 *p*=0.142
Citizenship status	T_{217} =0.07 *p*=0.791

*Note: *p < 0.05*

Table 1 (ANOVA test) and 2 (t-test) shows only race is significant at 5% level. The results are in contrast with undergraduate students where all socio demographic factors are statistically significant (Razilan *et al*., 2014). Although *p*-value = 0.049 (for race factor) is still considered acceptable but the difference of digital library use between Malay, Chinese, Indian and other races of postgraduates may not prominent. In order to identify which groups are differed from each other in race factor, Bonferroni post-hoc test is performed (this test is only applicable for groups ≥3). Indian students showed lower preference towards using digital libraries as compared to Malay (mean difference = -1.129, *p*=0.046) and Chinese (mean difference = -1.172, *p*=0.048). However, there is no significant different between Indian and Others ethnic group, at 5% significance level.

Frequent of use:

Definition of frequent user of digital libraries is taken from Likert scale items answering the question of: "*I am a frequent user of university's digital library*". The question measures the use of digital library with respect to respondents' own academic digital library. Directly, hence the question ignores the use of other digital libraries other that provided by their universities.

Table 3: ANOVA test results of race, age and university versus digital libraries frequent of use

	ANOVA test
Race	$F_{3,215}$ =1.025 *p*=0.382
Age	$F_{3,213}$ =2.264 *p*=0.049*
University	$F_{3,215}$ =0.758 *p*=0.519

*Note: *p < 0.05*

Table 4: *t*-test result of gender versus digital libraries frequent of use

	t-test
Gender	T_{217} =2.060 *p*=0.153
Citizenship status	T_{217} =0.208 *p*=0.649

Table 3 (of ANOVA test results) and 4 (*t*-test) show, again, only one socio-demographic factor is significant at 5% level i.e. age. It indicates that being frequent digital libraries users is related only to age factor. Further test of Bonferroni is done on age factor showing that age group of more than 45 years is different from age group of <24 years, 25-29 years, 35-39 years and 40-44 years. The ≥45 years age group shows they are more frequent user as compared to other groups indicated earlier. The rests of demographic factors, race, university, gender and citizenship status do not significant.

Discussion:

Race factor shows a statistically significant difference but at *p*-value of 0.05. Race difference may not prominent but can be considered exist based on the post-hoc analysis. Other socio-demographic factors lead to the result of non-statistically significant difference in the use of digital library. This is an indication of students of differing age groups, gender and university did not differ with respect to use of digital libraries.

Moreover, age is statistically significant at 5% level on being frequent users of academic digital libraries. It is in line with study done by Owalabi (2013) on ICT usage at universities in Nigeria. Based on Bonferroni post-hoc result, older age groups (≥45 years) are likely using more frequent as compared to younger age groups. Such finding is achieved could due to reason of such group consists of university's own staff pursuing to doctorate study at the same university. They might engage more to university's materials and products. However, there is no significant difference of other three socio-demographic factors (ethnic, gender or university). It indicates there are no differences between demographic factors in terms of being academic digital library frequent users.

Conclusion:

A case study on the digital libraries use by investigating socio-demographics differences among multi-racial students at higher learning institutions in Malaysia is presented in this paper. This study contributes to a field of knowledge on the academic digital libraries use of postgraduate students at higher learning institutions in Malaysia. Socio-demographic factors of ethnic, age, gender, citizenship status and university are examined with respect to postgraduates' use of digital libraries. The study provides ample of evidence that **ethnic** differences exist but not for age, gender, citizenship status and university factors. Indirectly, the findings imply the use of digital library is benefitted by all irregardless of users' socio-demographic backgrounds.

We also conclude that being **frequent** digital libraries user did not differ between the socio-demographic factors used in the study except the **age** factor. The study provides the evidence that a gap exists in the frequency of digital libraries use between older postgraduate students and the younger ones. Older generation of students (≥45 years) might engage with higher responsibilities of researching and teaching activities. It is a common scenario in this country where mostly senior lecturers prefer to undergo their doctorate studies in their 40s.

Information Management and Information System technologies, accompanied with digitization of academic resources, have major impact in shaping education process to a higher level. Academic digital library is created with sense of urgency to handle large scale of academic information through network. Scholars, librarians and internet technology experts are playing great role to realize this objective. From the study findings, we might consider a further research on considering other socio-demographic factors such as family income, marital status and location of residence which could pose interesting findings on their effects on the use of academic digital libraries at higher learning institutions. Moving forward, the findings may contribute to national plan on fortifying higher learning institutions capability and credibility. As highlighted by Bhattacharyya (2014), digital library use can be related to demand of organizational (in this context it would refer to institutional) environment, it also helps to see how ICT enabled tool helps to meet organizational goals.

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