

The Impact of Emerging Internet on Students' Uses of Electronic Resources Provided by University Libraries: An Empirical Study

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ABSTRACT. *Although university library is mainly designed to meet the resource needs of students in learning, getting more resources from the public websites is an emerged action of the young. The internet can distract students' attention from study-related information-seeking behavior and may substitute for their beliefs about choosing suitable and reliable information providers. This study explores how experienced users of electronic resources obtain correct information efficiently by way of the librarians' help. According to a questionnaire survey at eight universities in southern Taiwan, the researchers have found that students use the internet as a major vehicle to deal with their social activities. Electronic information is certainly important to those who need to complete academic papers and theses. Ease of use is not a major factor for students who prefer to use some of the university library's electronic resources, just like public websites as a way to obtain the required information.*

Keywords: *Academic library, Electronic resource, Psychological needs, Reader service*

1. Introduction

Internet has become a fast-developing and vital learning partner since it applied in campuses

20 years ago (Abuzaida, 2010). University students searched and obtained abundant information of various types by way of such an important information provider. Students are used to get on the internet rather than retrieve the databases in the library even if they realized that there are many electronic materials in the library and some crucial information are “must see” for the students who acquired them in a simple way, As Soodeen (2007:97) points out, “the problem is that this simplicity is not easily gained when one considers the challenge of providing access to a range of electronic resources from multiple sources”.

Search engines help students to find information quickly online, technological charm and peer influence permeate student life too. Students prefer to immerse interact with others, surf something new or interesting information (IT). “If the IT is truly to be embedded and integrated into learning and teaching further work needs to be done to equip students with the awareness and skills to use electronic resources other than Google” (Griffiths & Brophy, 2004).

University libraries need re-evaluate the retrieving mechanism of electronic recourses as if the internet could provided a new autonomous search context in which seekers can easily find out certain object by themselves (Odaci, 2011). So many options in the internet world, Libraries are no longer so indispensable for the campus, especially regarding economies of time.

Not many years ago, social network platforms created a wind of change in the way people interact. Unlike previously typical communication such as talking via traditional media, nowadays use their body symbols to talk. They have found a special and interesting way of communicating with people (Chen, et al, 2011). Such as the community websites allow individuals to share their voices and learned expressed perspectives mutually.

This is Web 2.0 era (Kim & Abbas, 2010). An example like Wikipedia allows people upload and revise existing materials. It answers the needs of university students because it offers “a mixture of coverage, currency, convenience, and comprehensibility in a world where credibility is less of a given or an expectation from today’s students” (Head, 2011). However, “the university should not only invest in developing/maintaining the e-learning system, it should also promote the system both among lecturers and students” (Lin & Wang, 2012: 92).

University libraries must devise to help user to obtain valuable resources efficiently where much state-of-the-art technology is to be found easily, like to help users friendly to meet their needs, reform their websites to show what is going new (Ho et al, 2012). Libraries spend numerous their budgets on e-collections to satisfy their young users (Johnson, 2012), such as multimedia information and tools enlarge the service options of libraries etc.. All these efforts aim to meet the students with efficient, optional and useful methods of seeking information.

Although tremendous literature on electronic resources in university libraries, existing studies often suggest the uses and the development of electronic resources (Noh, 2010), Namely pay less attention to reflect on how university students respond to those retrieving apparatus mentioned above. For this reason this study would like to answer the following questions:

- (1) What is the pattern of university students' usage of library e-resources?
- (2) Are library e-resources adequate for university students' use?
- (3) Do university students prefer using materials other than the library's e-resources?
- (4) How do university students access e-resources in their libraries?

2. Problem Statement and Preliminaries

There is abundant research in the uses of internet searching at academic universities. The research points out that the growing number of IT products has led to high reliance by users on tools for information searching and transmission. According to Head (2011), who studied 8353 participants, "A large majority of respondents had looked for news... Almost all the respondents used search engines. Despite the widespread use of search engines, the process of filtering relevant from non-relevant search results was reportedly the most difficult part of everyday life research".

There are always some dilemmas, such as "simplistic versus attractive interfaces, default versus customized interfaces, general help versus specific help, individual collection versus cohesiveness of entire collection, traditional services versus unique services, searching cross collections versus searching specific collections, etc. These dilemmas are caused by users'

diverse preferences, experiences, and knowledge structures” (Hong Iris Xie, 2008: 1371).

In universities, discussions continue about the implications of the search engines and information value. “Although there are variations in search engine use among the faculty, graduate and undergraduate students surveyed, there is convergence in means of overall satisfaction with the outcomes of their searches and trust in search engines in supporting their studies and research” (Rieger, 2009). Correspondingly, university libraries have increasingly adopted emerging information technologies such as Library 2.0 functionalities to better serve their users (Kim & Abbas, 2010).

The variations mentioned above may be derived from users' different academic tasks. Meanwhile, students use “a hybrid information-seeking strategy for meeting their everyday life information needs, turning to search engines almost as much as they did to friends and family” (Head, 2011).

University students like to seek information either through sources external to the campus or through internal resources. Libraries play a critical role here. As Hernon and Calvert (2005: 377-378) point out, “the community [receives] benefits from having access to a rich and diverse information environment, one not limited to a print collection housed in a physical setting. E-resources are far from being incidental to the collections and services that libraries now or will provide”.

Dougherty (2010) considers librarians as a better group than other educators to be in charge of developing and promulgating standards for digital materials. “While continuing to provide the necessary access to digital text, academic administrators and librarians need to be aware of students' continued desire to read from print, as well as their need for the availability of appropriate spaces — such as library reading rooms and study halls — suitable to the time-dependent and cognitively intensive activity of deep reading, whether it is done on paper or on a screen” (Cull, 2011). Moreover, “Internet training is also needed to ensure that students acquire the essential skills for Internet use (Agboola, 2010: 65).

It is interesting that “because access to the Internet is a large component of library use, however, further research could focus on library users' use of the Internet and whether this use has any impact on their level of social capital” (Johnson, 2012: 61). User orientation, quality website design and information delivery as well as support services have a direct impact on students' experience in using library resources (Yeo, 2009). Actually, “one of the unanticipated findings was the users' general perceptions on the complexity of the website design” (Kim, 2010: 8).

Therefore, the design of a digital library has to take account of users' preferences, experience, and knowledge structure, especially for students. It does not, however, seem possible to “design a one-size-fit-all digital library to satisfy all types of user needs” (Xie, 2008: 1371). We should bear in mind that the indirect or mediating influence of satisfaction on web and users' behavioral intentions is even stronger than the direct influence of web service itself, according to Udo et al (2010).

Abuzaid (2010) found that the incorporation of e-resources in a web-based system should be emphasized in a collaborative way. Schools should “provide relevant e-resources to support and fill the gap between e-resources and e-learning environment. Through this system architecture, the real practice scenario of the web-based system can play a major role within the e-learning environment” (Abuzaid, 2010: 1275).

In summary, the methods and means used to acquire and manage information providers are of significant concern and importance to libraries (Murdock, 2010). Murdock writes, “these tools and the practical application thereof, particularly and including the personnel issues involved in that application, are a principal focal point of this phenomenon and thereby deserve ongoing analysis, reevaluation, and reformulation” (Murdock, 2010: 25).

3. Main Results

This study investigated university students' use of and preference for electronic resources provided by libraries. The researchers focused on the pattern of students' uses in such resources

as well as their use of materials other than the resources. In total 1088 valid questionnaires were collected and subjected to statistical analysis. Among the student participants, 48% were familiar with e-resources because of a library’s promotion information. From the 7-point scale (7 = completely agree; 1 = completely disagree) responses, the most significant items are shown in TABLE 1. Demographic statistics are presented in TABLE 2.

TABLE 1. Significant items related to students’ use of e-resources

Highest rating (mean response)	Lowest rating (mean response)
1. I’d like to continue using the library’s e-resources. (5.27)	1. I use the library’s e-resources because my classmates use them. (4.24).
2. Using the library’s e-resources provides more chances to me to access the information. (5.25)	2. I spend a fairly long time in using the library’s e-resources every time. (4.36)
3. I’d consider using the library’s e-resources in my study and essay/thesis writing. (5.05)	3. I use the library’s e-resources rather often. (4.24)

TABLE 2. Demographic statistics

Variable	Item	Number	Percentage
Sex	Male	624	57.2%
	Female	465	42.8%
University Type	Comprehensive University	436	40.0%
	University of Technology	368	33.8%
	Normal University	134	12.3%
	Medical University	151	13.9%
Target University	CS (Univ of Tech)	160	14.7%
	IS (Comprehensive Univ)	229	21.0%
	KM (Medical Univ)	151	13.9%
	KN (Normal Univ)	134	12.3%
	SY (Comprehensive Univ)	206	18.9%
Public or Private	KA (Univ of Tech)	209	19.2%
	Public	549	50.4%
Grade Level	Private	540	49.6%
	Year 2 (postgraduate)	270	24.9%
	Year 4 (undergraduate)	819	75.1%
	Arts	84	7.7%
	Sciences	56	5.1%
	Management	233	21.4%

University	Marine Science	15	1.4%
	Engineering	276	25.3%
	Education	32	2.9%
	Technology	27	2.5%
	Social Sciences	70	6.4%
	Fine Arts	20	1.8%
	Medicine	38	3.5%
	Oral Medicine	15	1.4%
	Pharmacology	21	1.9%
	Nursing	13	1.2%
	Life Science	21	1.9%
	Health Science	43	3.9%
	Hospitality Management	17	1.6%
Electrical Information	108	9.9%	
Frequency of using computer/network	Less than 1 hr daily	48	4.4%
	1-3 hr daily	263	24.2%
	3-5 hr daily	377	34.6%
	5-7 hr daily	223	20.5%
	More than 7 hr daily	165	15.2%
	other	13	1.2%
Activities on the Web you use (multiple choice)	Searching info for life needs	825	75.8%
	Homework needs	742	68.1%
	Study needs	464	42.6%
	Entertainment	828	76.0%
	Social (email, msn, facebook, plurk, skype...)	919	84.4%
	other	18	1.7%
Electronic resources you know (multiple choice)	e-book	854	78.4%
	e-journal	828	76.0%
	Full-text database	538	49.4%
	Abstract database	373	34.3%
	Film database	575	52.8%
	Journal citation report	76	7.0%
	other	6	0.6%
How you know library's electronic resources	Library promotion	523	48.0%
	Teachers' recommendation	412	37.8%
	Info on Web	495	45.5%
	Classmates' recommendation	322	29.6%

(multiple choice)	other	30	2.8%
Can you set up Proxy and TCP/ IP	Yes	376	34.5%

There are some of results worth mentioning after cross-factor analysis:

1. In university libraries, users’ “expectation of performance” positively affects their “behavioral intention.”
2. University library users’ “expectation of easy usability” does not significantly affect their “behavioral intention.”
3. University library users are significantly affected by “social groups” in “behavioral intention.”
4. University library users’ “behavioral intention” significantly affects their “use behavior” in e-resources.
5. University libraries’ “friendly use environment” significantly affects users’ “use behavior” in e-resources.
6. University libraries’ quality of websites significantly affects users’ “behavioral intention” in e-resources.

There are some phenomena shown in the analysis listed above. As hypothesized, “behavioral intention” is significantly correlated with “expectation of performance”, “social groups”, and quality of website. In addition, based on the findings of the study, students choose their university libraries as the first option on account of free on using electronic resources . Also, libraries manage the resources well. A clear and friendly user interface on the website is an advantage, with updated product announcements. As well, professional librarians are available for assistance. This indeed establishes a positive image for university libraries.

According to the data analysis, most of the students (84.4%) used the internet for social activities (email, Skype, Plurk, MSN, Facebook); the second major purpose of using the internet was for entertainment (76%) (searching news, watching films, listening to music, etc). Only 42.6% students used the Internet for study purposes. This means that most of the students preferred to use the Internet as a platform of their social network, and they spent a large amount

of time on the Internet.

The findings indicate that university students enjoy developing and maintaining their human relationships not only in face-to-face meetings but also by communicating at a distance. They can log onto a computer or mobile facilities to deal with such talk and check who has responded. Another reason that students use the Internet is to enjoy multimedia programs. News, movies, musical content and games are easily accessed through the Internet. Students love to share good ‘stuff’ with their friends. Online social and entertainment activities occupy students’ after-school time. Hence study would be of secondary importance for them.

Focusing on the preoccupation and bordering on obsession, university libraries may need to think more of utilizing social tools for build new relationships with their student users. For instance, the library could have its own Facebook page, run a blog, have a chat room on the website, and even run webinars. As found in the survey and cross analysis, students want a “quality” website, which to them means largely full-featured, interactive, and preferably multimedia. They regard themselves as technically savvy and are not overly concerned with ease of usability. That their confidence is not misplaced is indicated by the finding in the analysis that, by and large, their behavior was such as to achieve their intention.

Another possible device for reaching and satisfying more students is through electronic books. Although electronic books are still developing, Chinese e-books have attracted many students. Young students are used to reading book contents on screen. They rarely read a book carefully or read the whole book thoroughly. E-books are multifunctional and are in total a much lighter weight than printed books. Students like to take e-books because they are easy to carry in hand.

When looking at the serious side, research papers, theses, databases and e-journals draw the attention of both academics and students. Students may, perhaps, be drawn into making more use of such resources by linkages with more social aspects. That is to say, many library users emerge through social networks and groups.

4. Control Design

This study used a quantitative method, namely a questionnaire survey, to collect data through which the researchers investigated the university students' uses. Eight universities were recruited for survey subjects. The sampling universities were selected because of their different characteristics – half are public (national) and the other are private; and then there are three comprehensive universities, three universities of technology, one medical university and one normal university amid the eight universities. The researchers chose Year 4 undergraduate students and Year 2 postgraduate students as participants.

These are senior students who should be familiar with the library facilities, including the e-resources, and who have more extensive need for study information than junior students. In total 1200 students were selected for participation in the survey, using a cluster random sampling method based on the different characteristics mentioned above.

The questionnaire contained four major dimensions: (1) website, (2) software and hardware, (3) professional effectiveness, and (4) library collections. Likert 7-point scales were employed for survey participants to rank their answers to each question. Factor analysis and Cronbach's α were used to examine the validity and reliability of the questionnaire.

There were 6 hypotheses in the study:

1. The variable "expectation of performance" is significantly correlated with the variable "behavioral intention."
2. The variable "expectation of accessibility" is significantly correlated with the variable "behavioral intention."
3. The variable "influence of social peers" is significantly correlated with the variable "behavioral intention."
4. The variable "behavioral intention" is significantly correlated with the variable "use behavior."
5. The variable "expectation of accessibility" is significantly correlated with the variable "friendly environment."
6. The variable "service quality of website" is significantly correlated with the variable "behavioral intention."

5. Conclusions

As described earlier, university students nowadays have diverse options for obtaining information they need. The internet is their prime surfing medium. However, they also realize that libraries in the campus are sometimes a choice. They can use library resources, including space, people-to-people services, facilities, and printed collections. Electronic materials are certainly among the most popular and useful resources. Students become accustomed to using new database interfaces because they have developed good experience in using such electronic products. On the other hand, online social tools like Facebook and Skype are ubiquitous media for young people. They can search for information online and at the same time talk to the peers via such social media.

To win back the users, university libraries should manage and use their new IT facilities and promote activities through them (Einasto, 2009). According to this study, students consider electronic resources provided by the libraries to be a fairly good instrument because these resources do help with assignments. Moreover, peer use encourages increased student use of library resources. The environment related to use of the library website is likely to be helpful for those who need library information. If the library provides a good space, modern facilities, and a quality interface, its users are likely to like using its resources. However, there is a good case for libraries making more use of social media in their electronic resources.

This study can make the following recommendations to library administrators and library users:

1. Services through library websites can provide attractive and friendly ways to library users in need. A well-designed website not only satisfies users' substantial demands but also meets underlying psychological need that arises for further information. Therefore, librarians are advised to manage their website regularly and to try to include interesting and up-to-date content. They should also consider making more use of social media.
2. Libraries may seize the chance of utilizing new information technologies and promote special services for the students, such as online tutoring courses, easy-to-read texts, personal

record checks, and so on. This can integrate with, supplement and individualize, but should not replace, library facilities. The fact is that students spend a great deal of time daily in mobile facilities.

3. Libraries and their system developers should undertake some activities concerning information-gathering on the statistical study of system use, to obtain feedback on how good or bad their system is, how it can be improved, and what benefits users really want from the system. A suitable system should be dynamic, flexible, and provide a satisfying experience for their users.
4. For library users, especially students, library resources cannot be ignored. This is because they are well prepared, free of charge, and accompanied by librarians who can offer both useful and efficient assistance.

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