EFFECTIVENESS OF SOCIAL NETWORKING IN A UNIVERSITY LIBRARY ENVIRONMENT

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Abstract: As social networking becoming commonplace among the young patrons of the libraries, many libraries are incorporating their services into existing social networking environments. However, there have not been many studies on the effectiveness of such services. In this paper, we describe how the National University Library utilizes two social networking platforms, Facebook and Plurk, to provide better services to its webized community. The effectiveness of these services is demonstrated through a quantitative analysis. Different behaviour due to the different propagation mechanisms of Facebook and Plurk is also discussed. Our results indicate that certain library services using social networking services are easy to build, easy to maintain, easy to analyze, and are effective for reaching out to webized patrons.

1 INTRODUCTION

A university library serves a central role as a provider of academic material and information services to its patrons: faculty, researchers and students of the university. This role, however, has been threatened by the rapid growth of the World Wide Web with its abundant information and easy-to-use services. Young patrons, especially undergraduate and graduate students, not only use the Web as a major source of information, but also as their personal working and social environments, among the most popular are Facebook, MySpace, Twitter, and Plurk. We call these patrons "webized patrons", whose daily life and social activities are often closely tied with the Web through social networking. Social networking platforms, thus, should also provide the libraries a new channel to reach out to their webized patrons. Indeed, such an approach has been advocated (Breeding 2007; Breeding 2009; Chu & Meulemans 2008; Harris & Lessick 2007; Milstein 2009) and some libraries have already set up such services. However, we have found little discussion or analysis of the effectiveness of these library services. In this paper we describe the social networking services provided by the National Taiwan University Library (NTULIB). We also provide a quantitative analysis of the effectiveness of these services. Our studies show that they are easy to build and effective in practice.

The services we describe are provided via Facebook and Plurk, two of the most popular social networking platforms among college students in Taiwan. They also use different mechanisms to propagate information, which makes our experiments even more interesting. There are three phases in our experiments. We first incorporated a social bookmarking service to provide evidence that there are indeed webized patrons in the community that the library intends to serve. In the second phase we incorporated different services of NTULIB into Facebook and Plurk without announcing them officially. In the case of Facebook, NTULIB acquired 2,400 fans, 90% of which under the age of 34. This number is quite significant for a university with a student population of about 30,000. After announcing the service (in the third phase) officially, the number jumped to 3,572 in 3 months and 5,686 in 8 months. Plurk's way of defining friends and fans is less transitive than Facebook and thus makes the rippling effect less transparent. However, the NTULIB Plurk page still acquired 150 friends before the official announcement and 644 afterwards. The number of friends reached 1,057 after 8 months. In another interesting experiment, we announced a friends-only service (only friends of NTULIB Plurk could see) within our webpac that required a password to use. During that week, we saw an

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increase of 2,000 hits to our webpac. This shows the word-of-mouth effect of Plurk.

We feel that our experiments demonstrate the positive effect of social networking services to reach out to webized patrons in a university library environment. Incorporating these services is inexpensive and all the statistical analysis tools and logs are readily available from the Web. We hope our studies will encourage more libraries to use these services.

This paper is organized as follows. We first present a simple study that shows that there are indeed webized patrons at NTU. We then describe our services and experimental results on the Facebook platform, followed by the same on Plurk. Further experiments that demonstrate the different behavior caused by the different propagation mechanisms in the two services are also given. The paper concludes with a brief discussion.

2 SOCIAL BOOKMARKING IN NTULIB

Before launching social networking services at NTULIB, we ran a small experiment to find out if there is indeed a webized population among our patrons. This pre-project is necessary to be certain that the webized community and the library patrons within the university environment are not mutually exclusive.

This experiment was done via a social bookmarking service, launched in the summer of 2007. This is a "Bookmark and Share" function (provided by addthis.com http://addthis.com) on the detailed (catalogue) page of every book item that our patrons find through the NTULIB webpac (see Figure 1).

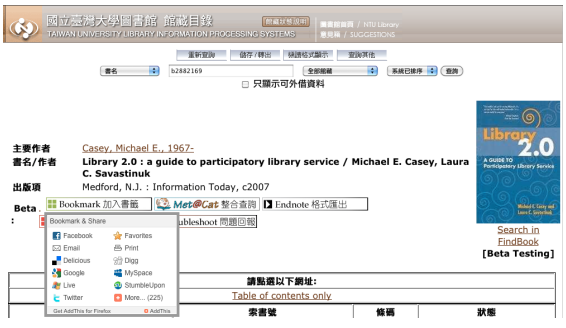

Figure 1: The social bookmarking service in NTULIB's webpac.

This feature allows the patron to either add the book item to his browser's favorite list, email the item to someone, print out the page, or add the item to one of a list of social bookmarking websites (including Facebook, Twitter, MySpace, and others). This service is added at this particular point in a webpac session because it is the last web page that a patron sees before checking out a book. Figure 2 shows the usage numbers between July 2007 and April 2010 (obtained from logs provided by addthis.com). Comparing to other options provided in the function, social networking wins out every month. Furthermore, the numbers of social networking users never dropped below 200 except once since December 2008. Even during winter holiday, February 2010, the number was still more than 200.

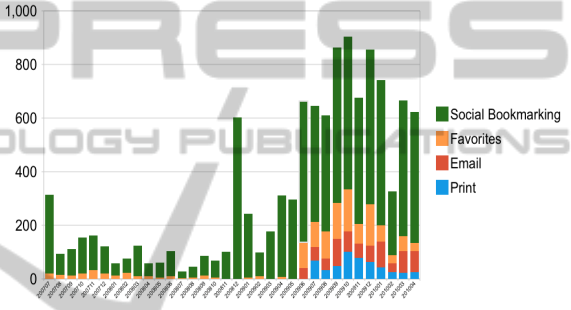

Figure 2: NTULIB webpac bookmark numbers.

This experiment reveals that there is indeed a fairly significant number of webized patrons in our library community.

Further reviewing the logs shows that the largest percentage of those uses involves Facebook. Thus we chose Facebook as one of the testbeds. We also chose Plurk as the second testbed because (1) its social networking mechanism is different from Facebook, and (2) it is more popular among college students in Taiwan than other similar services such as Twitter (Lai 2009).

3 NTULIB IN FACEBOOK

We set up a Facebook fans page (http://www.facebook.com/NTULIB) in April 2009. In order to test how the ripple effect of social networking works on its own, we intentionally withheld the announcement of the availability of this service. Our Facebook page contains library information, librarian selected library events, library news, and an NTULIB Search box. New messages are posted irregularly. Six months after being

registered with Facebook, our page acquired 2,400 fans (note, *without* any public announcement). The way the propagation works is that whenever a user becomes a fan of the NTULIB page, gives a "like" flag to an NTULIB announcement, or leaves a comment, it will be recorded on that user's own Facebook page. This information can be seen by the user's friends, who may choose to become a fan himself; thus propagating the NTULIB page.

We then gave the first public announcement in November 2009. By 14 July 2010, the number of NTULIB fans increased to 5,686 (in comparison, ALA Library has 3,236 fans at that time (http://www.facebook.com/alalibrary)). After analyzing the statistics provided by Facebook, we observed that almost 90% of our Facebook patrons are under the age of 34, and that there are more undergraduate students than graduate students.

The NTU Search box, which incorporates the NTULIB webpac interface in the Facebook platform, however, produced mixed results. There were only 36 active users of this service in the month of January 2010 and 21 active users in July 2010. Such low returns were also observed in services of other libraries (see Table 1). Indeed, even global library services such as JSTOR and WorldCat did not show impressive numbers. This seems to indicate that social networking is still largely a social activity and is somewhat disconnected with the patrons' academic activities. How to improve this situation remains a challenge.

Table 1: Monthly active users of library applications in Facebook, sampled in 23 Jan, 24 May and 19 July, 2010.

Application name	Monthly Active Users			In App
	Jan 2010	May 2010	July 2010	
JSTOR Search	**1,376**	**572**	**298**	**Y**
WorldCat	**765**	**924**	**809**	**Y**
UM Library Search	**242**	**17**	**9**	**Y**
Penn State University Libraries Search	**47**	**28**	**27**	**Y**
UQ Library Search	**41**	**28**	**11**	**N**
Loughborough University Library	**37**	**50**	**26**	**N**
NTULIB Search	**36**	**20**	**21**	**Y**
Mississippi State University Library App	**22**	**24**	**12**	**N**

4 NTULIB IN PLURK

Similar to Twitter, Plurk is a free micro-blogging service that allows users to post micro-blogs (called "plurks") of up to 140 text characters in length. There are, however, some differences between Plurk and Twitter. Someone who follows a user is called a *fan*, and two mutual fans are *friends*. A user's Plurk page shows the plurks written by the user, his friends, and the people of whom he is a fan. They are shown in chronological order using a timeline, with replies to the same plurk grouped together as a thread. However, Plurk does not show the change of activities of friends (and fans) like is done in Facebook. Therefore it is harder for a new Plurk to be noticed.

We set up a Plurk account (http://www.plurk.com/NTULIB) on 15 July 2009. The NTULIB Plurk provides library announcements, new books suggestions from the NTULIB's Featured New Books Blog (http://newbooks.lib.ntu.edu.tw) and an integrated webpac service. We wrote a program that transports library announcements as new plurks every hour (if any). A daily summary of new book suggestions is also provided automatically.

Since Plurk does not provide ways to incorporate plug-in APIs, we provide NTULIB webpac search facility in a different way. We implemented a software agent that automatically searches for keywords such as "find book" in any new plurks of friends of NTULIB. The program will then use the title of the book to perform a search in the NTU webpac and, if finds books that match, returns the links to the user.

Similar to the experiments with Facebook, we did not make an announcement of the NTULIB Plurk when the service was launched in July 2009. It acquired 150 friends and 30 fans before the official announcement was made in November 2009. By 14 July 2010, it has accumulated 1,057 friends and 145 fans.

The propagation mechanism of Plurk is more limited than Facebook. Plurk does not provide updates on the activities of friends. Neither does Plurk provide facilities that cite other plurks (such as "retweet" in Twitter). Thus our Plurk page is propagated only through friends' plurks and auto-replied messages. Patrons may also write plurks to tell their friends about NTULIB plurk page out of their freewill. This lack of transitivity makes the accumulation of friends and fans more challenging.

By analyzing the statistics provided by Google Analytics between 1 November 2009 and 17 July

2010, we noted that there were 1,448 visits (via 656 different Plurk pages) from Plurk to the NTULIB webpac system. Plurk also ranked 1st in visits (from external sites) to the NTULIB's Featured New Books Blog, recording 2,024 such visits (Figure 3).

1.	plurk.com	2,024
2.	facebook.com	322
3.	baidu.com	282
4.	images.google.com.tw	264
5.	tiprc.org.tw	255
6.	tw.knowledge.yahoo.com	243
7.	google.com.tw	239
8.	ig.gmodules.com	208
9.	images.google.com	144
10.	crimenigma.pixnet.net	102

Figure 3: Top 10 referral domains to NTULIB Featured New Books Blog.

Because of Plurk's lack of transitive propagation, we made another experiment to see how information propagates through Plurk. On the early morning of 24 December 2009, we made a friends-only announcement (to only the 644 friends of NTULIB Plurk) that there was a limited-time only hidden Christmas greeting hidden in our webpac that can only be accessed with a password. When analyzing the logs later, we noted a peak with 2,000 more visits to our webpac during that period. This was quite surprising exactly because of the lack of transitive propagation in Plurk. In other words, these extra visits we received can only be caused by the word-of-mouth rippling effect of Plurk users.

5 DISCUSSION

In this paper we showed that social network can be an effective new medium for reaching out to webized patrons. We demonstrated this point by conducting experiments using two popular social networking platforms, Facebook and Plurk. We first introduced a social bookmarking service to justify that there are indeed webized patrons in our university environment. We then showed the effectiveness of our services first through unannounced services, and then showed the differences by officially announcing them eight months later.

Our analysis shows that there is indeed a webized population among university librarian patrons. Even when the social networking services were not announced, they already attracted a significant size of users. However, the relatively small numbers of users that use the webpac search services also indicate that these patrons use our services mainly to keep up to date on the various activities such as exhibitions and new book announcements that they library provides.

Another important feature is that the services that we described are technically easy to implement and require very little additional resources to maintain. Even the analysis tools and traffic logs are readily available and free. This is particular useful since library budgets everywhere are shrinking. (The necessity of additional human resources as required in (Milstein 2009) is also why we do not recommend that approach.) Using traffic logs and statistics from the Web should also be more accurate in capturing the user behavior of webized patrons than traditional surveys since the data are implicitly extracted from their working environment.

The difference in the ways of propagating information in Facebook and Plurk is also worth mentioning. Since Facebook is more transitive in the propagation of activities of friends, it is easier to accrue a large number of fans. On the other hand, having lots of fans does not mean that they are all interested in library-related activities. In comparison, the relative lack of transitivity in Plurk could produce more loyal followers, as indicated through the analysis of the logs and our last experiment with the Christmas greetings.

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