Information services by SMS texting in an academic library: an experience at the Tarbiat Moallem University

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Abstract

Information and communication technologies have affected information services during the past years. This was led to major changes in tools and procedures used for such services. The current study focuses on the possibility of using Short Message Service (SMS) to serve users outside an academic library. To achieve this purpose, evolution of information services in introduced in brief, Short Message Service is defined and its application in libraries is considered. Then, a case of such an implementation in an academic library is presented. Findings show that SMS technology may not be currently a powerful communication channel in some of the Iranian universities. The service received unfavorable reaction on and off campus and the volume of text message questions remained very low. Results of this research can shed light on the current status of the problem and opens new discussions in this area of research.

Keywords: Information Services, Short Message Service (SMS), Academic Libraries, Tarbiat Moallem University, Iran

Introduction

Reference service is still one of the main missions of information profession. In terminology of Library and Information Science (LIS), the term "reference services" has been gradually replaced with "information services". A search in bibliographic databases reveals this replacement from about five decades ago. When we talk about an information service we are in fact referring to the new form of a traditional service, namely reference service. In recent years, changes in information and communication technologies (ICTs) have created new dimensions and opened new eras for information professionals. Apart from the effects of these technologies on LIS education, they have also had many impacts on the profession. Various sections of libraries and different parts of library processes including reference services have been affected by technological waves. To exemplify the current discussion, I have to remember you

a usual problem in libraries before they have been involved in digital technologies and procedures.

You can remember the day when there was no mechanism for serving patrons remotely. The user had to refer to the library physically. Sometimes, s/he could search, find, retrieve and use the information resources. But in many cases, dissatisfaction was the outcome of the user request. Following were some of the possible causes:

1. The library was closed;
2. The library was open, but the requested item has had not been acquired;
3. The library was open and the item has had been acquired, but it was not accessible because of borrowing by another member;
4. The library was open and the requested item has had been acquired, but it was not available because it has had been sent for binding;
5. The library was open and the requested item has had been acquired, but it was missed; for example because of carrying away by theft; and
6. So on.
   We all, have experienced such situations. What did you do when one of these situations were happened?

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1. You referred again in work hours;
2. You asked the librarian to acquire your requested item. It was just acquired whereas the collection development policy allowed the librarian to acquire such an item;
3. You reserved the item to make an opportunity for yourself to get it when it was rejected to the library;
4. You waited till the requested item came back of the binding;
5. You asked the librarian to reacquire the item; and
6. Any other solution.

What did you do if no one of these solutions replied? You wished at least to have access to the catalog records consisting of bibliographic information and monitoring the availability and accessibility status remotely. Isn't it? You said:

Only if I could
How wonderful it would

The abovementioned scenario has happened for many times. Wasting time and energy was not an unusual problem in those days. Unfortunately, it is still an acceptable situation for a number of users around the world. To tackle this shortcoming and to decrease the failure ratio, information professionals tried to apply new information and communication technologies. Designing Online Public Access Catalogs (OPACs) and uploading them on the web sites of libraries and information centers were just a part of the efforts regarding the making holdings accessible for those who are far away from the library. What the user should do if there is no OPAC? Is there an alternative solution? Yes, there is. Another technology that is being used to solve the problem is Instant Messaging (IM). IM is a truly new technology applied for connecting peoples digitally disconnected from each other physically. There is an important and popular evidence for this technology, i.e. chat. These are wired channels that mainly do the job on the Web. Beside wired channels wireless technology can be manipulated for connecting peoples. Currently, the most used wireless technology is Short Message Service (SMS). In this research, we focus on using SMS to serve users outside an academic library.

What is the Short Message Service (SMS)?

Short Message Service (SMS) is a communication protocol allowing the interchange of short text messages between mobile telephone devices. SMS text messaging is the most widely used data application on the planet, with 2.4 billion active users, or 74 percent of all mobile phone subscribers sending and receiving text messages on their phones (Short Message Service, 2009). A researcher claims that in 2005, about 5 billion text messages were sent each month in the U.S. In January 2006, cell phone users in the U.K. also sent 5 billion text messages in a single month (Farkas, 2007). Another study shows that in the United States, 700 million text messages are sent each year (Hill and Hill and Sherman, 2007) and this is just the activity of 35 percent of U.S. mobile phone subscribers (Buczynski, 2008). According to the Mobile Data Association (MDA), the total number of chargeable person-to-person text messages sent across the four UK GSM networks reached 1.73 billion during September 2003, marking the high point of a steady and continuous rise since the MDA began collating data on behalf of the UK network operators in 1998 (Reid and Reid, 2004). In Australia, over five billion SMS messages were sent in the period 2003-2004, and that figure jumped to over 6.7 billion in 2004-2005 (Herman, 2007). For China Mobile (HK), the usage volume of the SMS has increased to 172.6 million messages in 2004 (Yan and Gong and Thong, 2006). 74 percent of the subscribers in Malaysia send at least one SMS a day and as many as 31.7 percent are reported sending out more than 5 SMS messages in a day on average (Karim and Darus and Hussin, 2006). In Iran, about 60 million text messages are sent and received every day (Iranians became pioneers in sending SMS, 2008).

The SMS technology has facilitated the development and growth of text messaging. The connection between the phenomenon of text messaging and the underlying technology is so great that in parts of the world the term "SMS" is used as a synonym for a text message or the act of sending a text message, even when a different protocol is used (Short Message Service, 2009). SMS text messages are usually sent from one mobile phone to another. Although the

method varies slightly depending on the model of the phone, generally an individual composes a text message using the keys on his/her phone, then selects a phone number the message is to be sent to, and sends the message. Messages can be up to 160 characters in length, including spaces. Most phone vendors allow concatenation of phone messages. This means that messages over 160 characters are joined together - often enabling messages up to 740 characters to be sent, received and read either as one long message, or as a separate series of 160 character segments (Giles and Grey-Smith, 2005).

Using SMS in libraries

For many years, libraries have replied queries in person, via telephone conversations, and over the last decade through the use of email and online Web-based forms. In an attempt to meet client needs, libraries are becoming more flexible in the way they deliver services. SMS as a new communication channel appears to be relatively inexpensive to set up and maintain in terms of costs and staffing resources. SMS is a simple, quick and un-demanding technology to adopt and is relatively easy to integrate. Currently, libraries are looking for ways to communicate with their users in such an effective manner.

Nowadays, by texting mobile phone number clients can receive information on demand, such as sports scores, stock prices, exchange rates, and weather reports. Library as a central organ in supplying information to the community is also expected to face the same service transformation as experienced by various other services. Many library services are potential targets for this different mode of delivery and libraries could make effective use of such technology. SMS services are ideal for simple questions that can be answered with short responses (Kroski, 2009). In general, adopting such a cutting edge service is an easy way to impress clients at minimum cost. Today, the convergence of mobile phones presents libraries with a real opportunity to deploy wireless phone technology to manage their operations for the following services:

1. checking records of books borrowed;

2. getting alerts on overdue books;

3. getting alerts on outstanding fines;

4. receiving reminders to return library items that will be due soon;

5. renewing library items;

6. reference enquiry services;

7. receiving text alerts to new resources on the library web site;

8. getting alerts on library event information;

9. getting information from the library OPAC/database; and

10. Contacting librarian for help.

In the past few years, text messaging reference services have been initiated in libraries in Australia, Japan, Malaysia, Norway, United Kingdom and the United States. In other countries, a number of libraries may currently be interested in this service. They may enquire that have ability to provide a meaningful response in so few characters. But, it must be kept in mind that there are 3 inherent problems with SMS:

1. There is no reference interview process;

2. Clients have a limited number of characters to express their query; and

3. Library staff has a limited number of characters in which to respond.

Because of this reason, an SMS query service may not be appropriate for every library. Three steps should be left out before involving in such a program including:

1. Evaluate the needs of your clients and reply an important question; do they take advantage of SMS services?

2. If so, which specifications should have the selected system? Look for a system that suits your needs. Different libraries have different requirements, and SMS services can be expanded to deal with these requirements. Just for this reason, keep an eye on new developments. As an explanation, remember that SMS technology can be manipulated in a library in two ways. One as reported in some researches is that the user sends request via a mobile phone number and the library replies through a web-based form (Giles and Grey-

Smith, 2005; Herman, 2007; Hill and Hill and Sherman, 2007). Another solution is that the user sends request via a mobile phone number and the library replies through the same channel. In this study, the second approach has been followed.

3. When you replied these two important questions you should take into account the staffing issue. Staffing such a service may be considerably easier than staffing the virtual reference desk, primarily because SMS messaging is asynchronous, and therefore less demanding on reference desk staff. Minimal staff training is required. Staffs appear to enjoy the novelty and challenge of responding to queries, and ensuring the answer is within the limited range of characters.

Literature review

Few studies have yet been done on SMS texting. In fact, it is still a new branch of LIS research. Nevertheless, having attention to this limited number of projects would be of benefit for every library intends providing mobile information services to its community of users. Here, six related studies are reviewed chronologically.

1. N.S.A. Karim, S.H. Darus, and R. Hussin (2006) with the aim of exploring the utilization of mobile phone services in the educational environment, exploring the nature of mobile phone use among university students, and investigating the perception of university students on mobile phone uses in library and information services surveyed 206 undergraduate students from two academic faculties in a Malaysian public university. The respondents' perceptions on the application of wireless hand services in the context of library and information services were found to be very positive. A high majority of the respondents indicated their willingness to become the users of such services if offered.

2. S. Herman (2007) investigated providing a short message service (SMS) for students to text the library for information and its possibility to be an alternative to e-mail and live chat services. Findings showed that implementing SMS reference allowed the library the opportunity to access students via a familiar accessible service.

SMS a Librarian has become part of the Southbank Institute Library Ask a Librarian service, which includes e-mail, phone and live chat access for students and staff. By adding this new technology to the reference services, users are now able to send questions to and receive answers from the Southbank librarians by using the text messaging facility on their mobile phones.

3. J.B. Hill, C.M. Hill, and D. Sherman (2007) initiated Text a Librarian service at the Sims Memorial Library at Southeastern Louisiana University. The service enabled Southeastern students, faculty, and staff to use the text message feature of their cell phones to send questions to and receive answers from the library. Librarians at Sims used a dedicated text messaging telephone number and "e-mail/SMS" conversion software, provided by Altarama Systems and Services, to send and receive text messages.

4. S.K. Profit (2008) in order to gather data about the software and equipment used and their costs, staffing, hours of operation, transaction turnaround time, the length of time the service has been offered, and patrons' use of the service surveyed eight libraries in an American college through a questionnaire. Six of the eight libraries chosen for this study responded. Only five of the six respondents are actually using SMS. Findings showed that among the five respondents that are currently using text messaging to deliver reference assistance, there are a variety of ways and means employed for doing so. Convertor software and mobile phone are two communication tools.

5. D. Tao et al. (2009) reviewed the Mobile Reference Service at the School of Public Health at Saint Louis University. Such a service was started because of a great distance between the school's location and library users that diminishes the ease of access to direct reference services for public health users. To bridge the gap, the library developed the Mobile Reference Service to deliver onsite information assistance with regular office hours each week. Between September 2006 and April 2007, a total of 57 in-depth reference transactions took place over 25 weeks, averaging 2 transactions per week in a 2-hour period. Overall reference transactions from public health users went up 28%, while

liaison contacts with public health users doubled compared to the same period the year before. Findings showed that the Mobile Reference Service program has improved library support for research and scholarship, cultivated and strengthened liaison relationships, and enhanced marketing and delivery of library resources and services to the Saint Louis University School of Public Health.

6. Goh and Liew (2009) investigated potential users' cognitive beliefs of and intention to use a proposed SMS-based library catalogue system. The motivation for this research was the growing popularity of mobile information systems and the need to explore it. In this research, a review of literature on SMS-based services and applications within the library sector was followed by a prototyping of an SMS-based library catalogue system and the development of a number of hypotheses using the Technology Acceptance Model (TAM) as the base framework. The study investigated potential users' cognitive beliefs and intention to use the systems as well as the effect of self-efficacy on these. A survey questionnaire was distributed to a purposeful and convenient sample of university students who were also users of the university library online public access catalogue. The results of the data analysis showed that self efficacy (SE) has a positive impact on the perceived ease of use (PEOU) and a negative impact on perceived usefulness (PU). The findings also showed that SE does not have direct impact on intention to use (IU). The overall model explained 55.2% of behavior intention in using the proposed system.

Purpose of the research

At present, almost every student studying in a tertiary institution owns a mobile phone. With many institutions aiming to position themselves at the forefront of tertiary education in the twenty-first century, it is inevitable that mobile solutions will be the best access point in providing convenience to the modern campus. This can be done by extending the service delivery channels from PC to mobile devices via SMS. Although library related services via a mobile phone have not yet been implemented in the Iranian higher education system, such services are inevitable in the near future.

Despite the various information services provided through mobile phone services, assessments need to be made in order to understand the needs and requirements of the mobile phone users. This study seeks to understand the nature of mobile phone use among respondents at an Iranian higher education institute; i.e. the Faculty of Psychology and Education at the Tarbiat Moallem University.

The research questions

There are four research questions as follows

1. How many mobile phone subscribers are there among staff and students of the Faculty of Psychology and Education?

2. To which operators they have subscription?

3. How many subscribers send and receive SMS?

4. Is the SMS texting a suitable channel for providing reference services at the Faculty of Psychology and Education?

Research method

This study has adopted two research methods simultaneously. In order to extract some reports about SMS texting, literature of the subject was reviewed. Thus, in this research documentary method was used. Also, the case study method was used to determine the status of SMS texting at the Tarbiat Moallem University.

Research population

Staff and students of the Faculty of Psychology and Education at the Tarbiat Moallem University (totally 1018 persons) comprised our statistical society. Their combination is provided respectively as follows:

* 34 faculty members including 5 Full Professors, 3 Associate Professors, 23 Assistant Professors, and 3 Lecturers.

* 984 students including 28 Ph.D. students, 156 Master students, and 800 undergraduate students.

Findings and discussion

The library of the Faculty of Psychology and Education at this university was chosen not to use SMS messages to alert clients of items on hold, or send overdue notices, but decided instead to focus on SMS as a medium to receive

clients' queries. This library was opened in 2002 and currently serves using an MLIS and several volunteer LIS students.

The research was conducted from 2009-02-11 to 2009-05-11. To be informed of the quantitative and qualitative status of the mobile phone subscribers among users teaching and studying at the Faculty, a pilot study was conducted before the starting of SMS texting. The survey was accomplished through the face to face interview at the classrooms in 2009-02-08 (Sunday, the day in which the greatest number of classes held at the faculty) and its results were generalized to the whole society. We had three research questions as follows:

1. Do you subscribe an operator?, if so

2. Which one of the operators do you subscribe? and

3. Do you use SMS texting?

These three questions were asked to get information on the following areas:

1. The number of subscribers and their percentage to the total number of the statistical society;

2. The number of subscribers of each operator and their percentage to the total number of the subscribers; and

3. The number of subscribers sending and receiving SMS and their percentage to the total number of the subscribers.

Findings of this phase were then compared to the results obtained from the analysis of the SMSs sent and received via the library's mobile phone. The survey showed that the majority of the users (94 percent) subscribe an operator, i.e. have a mobile phone (Figure 1).
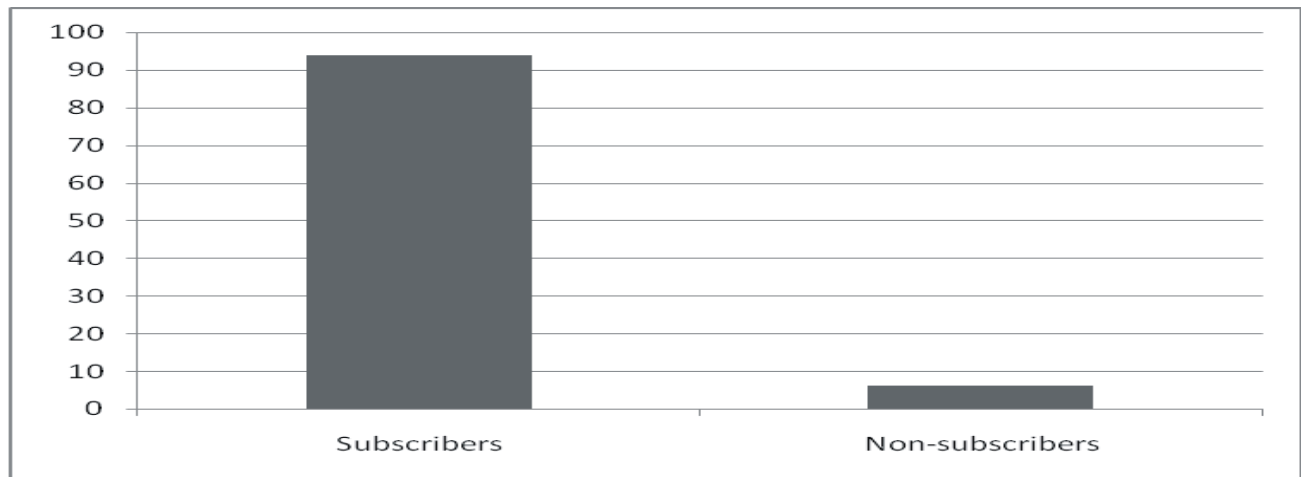
Figure 1. The percentage of mobile phone subscribers

In response to the second question (Figure 2), it was found that the Ministry of ICT has more subscribers (51 percent) than other operators and stands at the top of the list. Irancell and Hamrahe Avval have second (33 percent) and third (15 percent) ranks and the Talia is at the bottom of the list (about 1 percent).
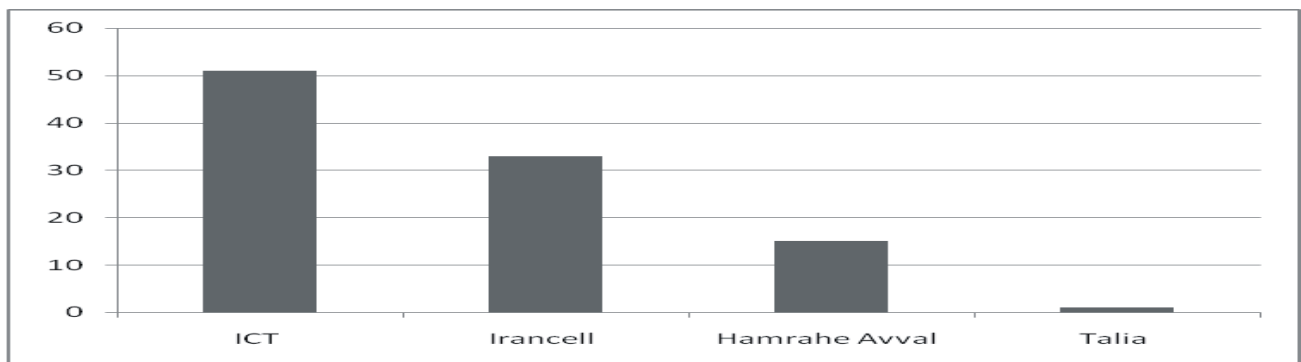
Figure 2. The percentage of subscribers of each operator

It is because students are the majority of users; those who have not yet been employed and hence do not have regular income. At the one hand, they are financially supported by their parents and because of this reason some of them subscribe a post-charge operator, i.e. Ministry of ICT. At the other hand, a large number of them prefer to subscribe a pre-charge system through which managing contacts to save money would be possible. Being first, second and the third among Ministry of ICT, Irancell, and Hamrahe Avval may be affected by their primary subscription cost and later charge prices, their advertisements and also technical supports that let them to be more popular than Talia among young persons.

For the third question, we gained the response we predicted. All of the subscribers (100 percent) used SMS texting to have asynchronous communication with other peoples. Of course,

the aims were different. There was a wide range of various purposes including getting information about academic affairs, setting meetings with friends, sending jokes, and so on.

After gaining quantitative and qualitative data on the status of the mobile phone subscribers among users teaching and studying at the Faculty, SMS texting was provided for a period of three months. To inform users about the project, an announcement was distributed through the faculty. In the announcement, it was emphasized that users can ask the librarian for four purposes including:

1. To search an author, a subject, or a title;

2. To renew item/s;

3. To reserve item/s; and
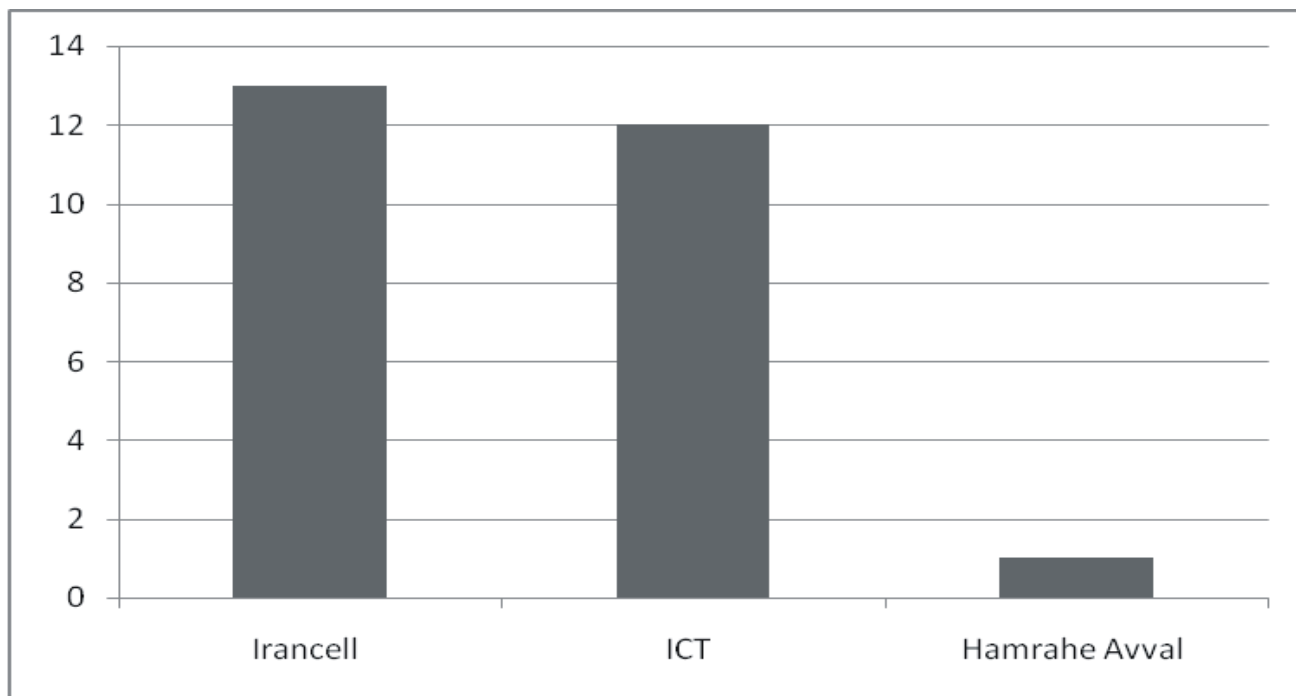
4. To be referred to other libraries.

As figure 3 illustrates, only 26 subscribers (2.5 percent) used the service.
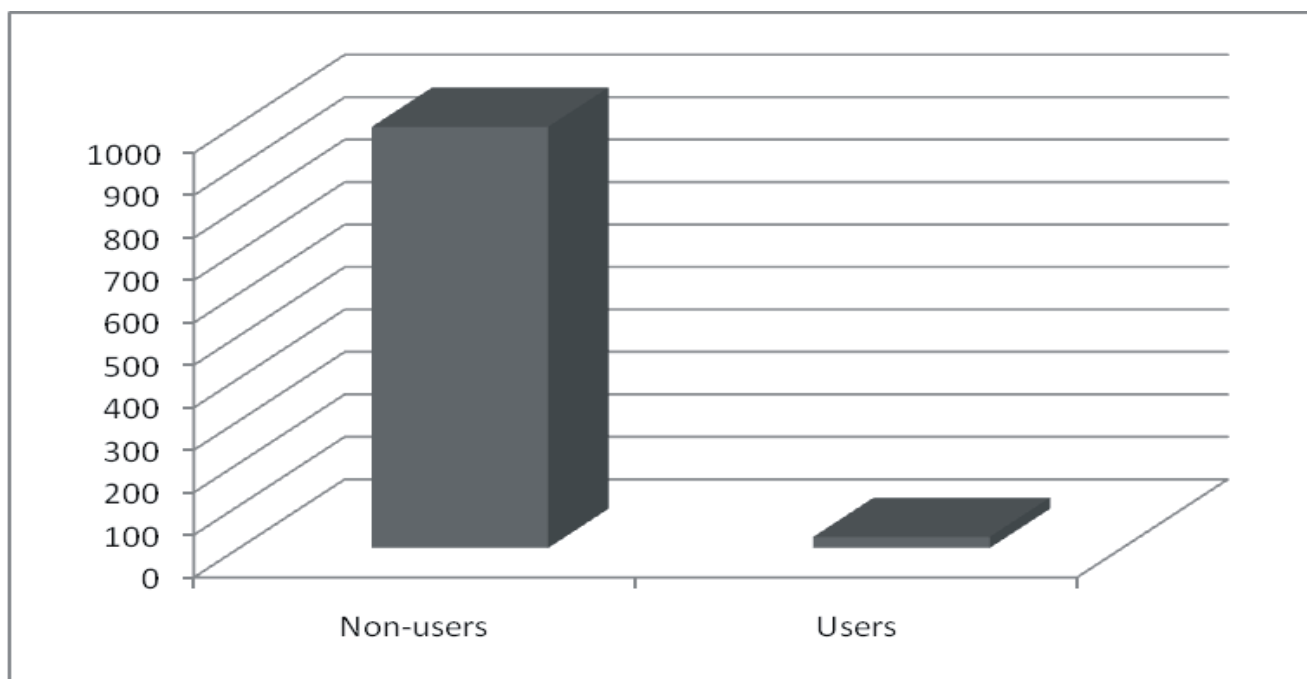
Figure 3. The number of subscribers used the system

Among this small group of users, 13 persons were Irancell subscribers, 12 persons were ICT subscribers and 1 person was *Hamrahe Avval* subscriber (Figure 4).

Figure 4. Ranking of users according to the operator they subscribe

Users of the service are not sorted according to their primary ranking (Figure 2). ICT has been replaced by Irancell; and no subscriber of the Talia SMSed the library. The change in ranking of the first two operators may be affected by the social and economic classes of the subscribers of each operator. We can, for example, express this assumption that the students from the low classes of the society are commonly more interested in academic achievements and changing their social classes. For this reason, there may be a difference between rich and poor students in mobile phone uses. Those who are more interested in changing the social class are more interested in academic use of their mobile phones. In other words, the more motivation for class changes, the more academic use of properties. In this interpretation, ICT subscribers are representatives of rich students and Irancell subscribers are representatives of poor students. However, such an interpretation should be tested in another research.

Conclusion

This experience has shown that SMS technology may not be a powerful communication channel in a number of Iranian universities. There were interested students at the Tarbiat Moallem University. Karim, Darus,

and Hussin (2006) found such willingness among students of a Malaysian public university. But, findings of this research do not support findings of Herman (2007), Hill, Hill, and Sherman (2007), Profit (2008) and Tao et al. (2009). The service has received unfavorable reaction on and off campus. For this reason, the volume of text message questions remained very low. Perhaps use for text messaging reference on a college campus will always be low due to the nature of the technology itself. This means that text messages are limited to 160 characters per message, restricting utility to short reference communications. Another possible reason for low use may be the fact that the service is new. The third reason may be low advertisement on this new service through the campus. The fourth reason is the record of the library. The library of the faculty is too young. Apart from this characteristic, there is not a good collection at the library and the existed collection has not yet been completely organized. Even the organized section of the collection has not yet been borrowed and consulted, because of the limitations in space and manpower. Library software is another major issue. There is a MS-DOS based version of the library software that is unable to manage transactions well.

Nevertheless, the use of mobile phones among

users of the system might have lead to the positive opinion and perception on its application in the library related services. This application is also seen as beneficial by the users perhaps due to the fact that they are visiting the library less frequently, and only when needed. On the other hand, this decreased in visits should not be seen as a threat by the librarians, but instead as an opportunity for them to be more visible to the users. Such services, will allow the libraries to reach a wider range of user groups, giving them more opportunities for better promotion. Librarians need to figure out how to best serve the users using this new mode of communication. The results of this study may provide the necessary information on what the users really want. Thus, this study has perhaps given a clear signal for libraries to begin participating in this kind of services. Libraries should not wait too long to work with the respective authorities in making the mobile phone services a reality.

Currently, services such as searching, renewing, reserving, and referring based on the SMS technology should be made a priority in the context of the Iranian academic library services. Such services should also be provided by other types of libraries such as the public libraries, the corporate information centers and the national library for better access. More investigations need to be done on the extension of various library services that can be provided through wireless communication technologies.

Appendix 1

Currently, there are four mobile phone operators in Iran including Hamrahe Avval, Irancell, Ministry of ICT, and Talia. Table 1 shows the specifications of these operators.

No	Name of the Operator	Code	Charging System	Ownership Status
1	Hamrahe Avval	0919	Pre-charge	Governmental
2	Irancell	0935-7	Pre-charge	Private
3	Ministry of ICT	0912-8	Post-charge	Governmental
4	Talia	0932	Pre-charge	Private

Table 1. Specifications of the Iranian mobile phone operators

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