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The use of Library 2.0 and Mobile Messaging Applications: (Case Study: Central Library of Islamic Azad University, Science and Research Branch of Tehran)

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Abstract

Purpose: This study aimed to investigate the familiarity of librarians and users of the Central Library of Islamic Azad University, Science and Research Branch of Tehran with Web 2.0, Library 2.0 and Librarian 2.0 and the use of mobile messaging applications. Another goal of this study was to provide practical solutions for using applications to provide library services.

Methodology: In essence, this study was an applied research and it was conducted with a survey approach. The population was consisted of librarians and users of the Central Library of Islamic Azad University, Science and Research Branch in Tehran. An electronic questionnaire was prepared for data collection and data analysis was performed using SPSS software.

Results: The findings indicated that librarians and library users were more familiar with Web 2.0 applications than Librarian 2.0 and Library 2.0. The frequency of librarians and users' responsiveness to use the mobile messenger applications was quite high, respectively, 0.35 and 0 .40. In both groups, the use of mobile messaging applications was moderate. Library users also agreed on providing a variety of virtual social media services in the library.

Conclusion: The analyses of this study on services offered by libraries using mobile messaging applications would make libraries adopt new technologies and move towards changes in the new era.

Key Words: Web 2.0, Library 2.0, Librarian 2.0, Social Media, Mobile Messaging Applications, Islamic Azad University, Science and Research Branch of Tehran

Introduction

The concept of Library 2.0 was originated from the Web 2.0 infrastructure philosophy (Mishra, 2008). According to Maness (2006) and Thanuskodi (2012, p. 78), in Library 2.0, collaboration, interactions and the use of multimedia technologies for web-based library services are pivotal and the appeal of both Library 2.0 and Web 2.0 is on their level of integration and interoperability that is designed for the user interface of the library portal. Library 2.0 requires Librarian 2.0. Librarian 2.0 is a set of skills that a librarian needs to know to be able to create value using those skills (the more general meaning of value creation is entrepreneurship), to compete with day-to-day information technologies through internet, and to guide clients to access the latest information in their field of expertise (Heidari, 2015).

Under the protection of Web 2.0, libraries have provided ground for accessing high quality scientific information at any time and place. However, despite the contents that academic libraries have brought through the university's website, they are still a little visited. This is due to two main reasons: the technical difficulties of organizing information and mass production of information outside the library's website. These conditions push libraries to use applications for more visits and use of their resources. In this context, it is necessary to use mobile messaging applications in libraries. Applications that are widely used to search information and today libraries can not ignore

them (Torres et al., 2016). The use of these applications has dramatically changed the role of librarians and their information literacy. An instant messenger is a new technology for telecommunication over the Internet for real-time text messaging and chat. With the advent of wireless networks and mobile technologies such as 3G and 4G, Internet access via mobile phones has increased significantly. So these applications evolved in the form of mobile phones as mobile instant messaging applications such as such as WhatsApp, Telegram, Imo, etc., and grew rapidly in terms of both types and numbers of users (Yoon et al., 2015, p. 139). Given the various features mentioned in Table 1, these applications allow users with different tastes to choose. Since libraries are interested in providing users with their resources at any time and in any place, the use of mobile devices is a golden opportunity for libraries, in particular reference librarians, to provide their services on a mobile platform.

Table 1. Features of Telegram, WhatsApp, Line and Emo (Maleki, 2015)

Features	Telegram	WhatsApp	Line	Imo
Date	2013	2009	2011	2014
Price	Free	Free	Free	Free
Voice call	No	Yes	Yes	Yes
Video call	No	Yes	No	Yes
File sharing	All files	Photo, song and video	Photo and video	Photo and video
Voice messaging	Yes	Yes	Yes	Yes
Search in text messages	Yes	Yes	Yes	yes
Group and super group	Yes	Yes	No	Yes
Backup of messages	Yes	Yes (through Google Drive)	Yes	No
Number of users[2]	Over 100 million active users per month (more than 45 million Iranian users)	More than one billion active users per month	218 million users per month	Over 200 million active users[1]
Rank in Iran[3]		47	14	
Secret chat	Yes	No	No	No
Channel	Yes	No	Yes	No
Security	It only uses encryption in secret chats. It is weaker than competitors	End-to-End Encryption – after Signal, it is the second secure messaging tool[4]		It encodes chats and calls
App compatibility	Telegram applications are available on a variety of platforms, and they work completely independently	To use WhatsApp apps on other platforms, the mobile app must be active and running.		

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[1] https://imo.im/careers
[2] http://vincos.it/social-media-statistics/
[3] http://www.alexa.com/topsites/countries/IR
[4] http://www.bestook.com/blog

Considering the widespread use of some of these applications, such as Telegram, WhatsApp, Imo and Line in Iran, the present study seeks to investigate their use among users and librarians of the Central Library of Tehran University of Science and Research[5] and to evaluate the use of these applications in a variety of library services according to users 'and librarians' perspective of the target library. It is hoped that the results of this paper will be an introduction to making these applications more widely available to provide a variety of library services, in particular academic libraries.

Studies on the use of the mobile version of the university library websites began by applying them by the Massachusetts Institute of Technology and Stanford University since 2008. These studies focus on designing and delivering services in terms of applicability, accessibility, and identification process (Arroyo, 2015; Abarca et al., 2012; Seeholzer & Salem, 2011). Mobile messaging applications have provided students and researchers with education and research and numerous studies have been done in this regard (Kroski, 2008; Chipunza, 2013; Barhoumi, 2015; So, 2016). However, the application of these applications has slowed down in libraries. Aldrich (2010) has examined the use of mobile services to provide services in 111 libraries of the Association of Research Libraries (ARL). In a study "mobile connections to libraries devices," Rainie (2012) explored the use of this tool in the library. Along these studies, the impact of linguistic and cultural indicators on the use of mobile devices in China and Spain has been studied due to the high rate of applying mobile services (Li, 2013; Merlo, 2012). Xu et al. (2015) examined the use of WeChat application in more than 39 Chinese academic libraries. The results showed that about a third of libraries applied WeChat as a marketing tool to promote collections and services for users. Liu and Briggs (2015) examined the mobile services of top 100 American universities through questionnaire and the library's website visit. Later, in a more complete study, Torres-Pérez et al. (2016) studied library service through mobile phone at the world's best academic libraries. In another study, Ansari (2016) has explored the use of WhatsApp in Iranian libraries. In this study, he has described the benefits and impact of using this application in libraries. In their study, Asnafi et al. (2017) have studied the use of Telegram and various types of sources shared by Iranian academic libraries.

What can be found from the literature review is that the studies on the mobile version of library websites have been started since 2008. Besides these studies, case studies have been conducted on the use of mobile messaging applications in libraries such as Telegram and WeChat due to more uses in some countries. In these studies, the current uses of these applications and some suggestions have been presented in order to make them more useful for providing more extensive

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[5] The applications used in this study are Telegram, WhatsApp, Imo and Line. These four applications were selected with reference to various sources based on the popularity of various types of mobile applications in Iran and with regard to the types of services provided by them (Table 1). See the following sources for more details:

- https://www.engadget.com/2016/09/30/12-most-used-messaging-apps
- https://financialtribune.com/articles/sci-tech/39700/top-10-android-apps-in-iran
- محبوب-ترین-شبکه-های-اجتماعی-در-ایران/http://gadgetnews.ir

services in libraries. Consistent with these studies, extensive studies have been conducted on the use of mobile messenger applications in the field of education and research in different libraries and centers. A researcher's search in the target texts showed that there was no independent study on the use of mobile messenger applications among librarians and users of the Central Library of Islamic Azad University, Science and Research Branch of Tehran.

This study aims to evaluate the familiarity of librarians and users of the Central Library of Islamic Azad University, Science and Research Branch of Tehran with Web 2.0, Library 2.0 and Librarian 2.0 and the use of mobile messaging applications, including Telegram, WhatsApp, Line, and Imo in the target library. Another goal of this study was to provide practical solutions for using the applications to provide library services. Moreover, the analysis of the use of these applications in providing library services from librarians and users' perspective is also another goal of this study. Accordingly, the researcher seeks to answer the following questions:

1. To what extent are librarians and users of Central Library of Islamic Azad University, Science and Research Branch of Tehran familiar with the concepts of Web 2.0, Library 2.0 and Librarian 2.0?
2. To what extent is the use of mobile messenger applications among librarians and users of the Central Library of Islamic Azad University, Science and Research Branch of Tehran?
3. From the perspective of librarians and users of the Central Library of Islamic Azad University, Science and Research Branch of Tehran, for what purpose can virtual social media be used in the library?

Method

In essence, this study is an applied research and it is conducted with a survey approach. The library method has been used to collect data and provide a relevant literature. For collecting basic information from librarians and users, two researcher-made electronic questionnaires (librarians, users) were developed using library resources at the national and international levels. The validity of the questionnaires has been confirmed according to the researcher's observations, as well as consultation with the relevant professors. To determine face (structural and content) validity, the views of several experts and scholars in this field are evaluated and, if necessary, resolved and corrected. Cronbach's alpha coefficient is used to measure the reliability of the questionnaires, which is 0.84 for the user's questionnaire and 0.95 for librarian's questionnaire. The population of this study consists of twenty-eight librarians working in the Central Library of Tehran Science and Research Branch and over 18500 library users (both student and faculty members). Due to the limited number of librarians, all of them are selected as the target population. Of twenty-eight librarians, seventeen librarians responded to the questionnaires. The users' questionnaire was randomly distributed among the population. According to Krejcie-Morgan model, with a = 0.05, the sample size was estimated to be 377. All 377 questionnaires were completed and analyzed. Data were analyzed by SPSS software. Descriptive statistics such as frequency distribution tables, frequency percentage and mean were used for data analysis and answering the research questions.

Results

Studies indicate that of the study librarians, 52.9% are women and 47.1% are men. Of these, 5.9% are in the age group under 30, 52.9% are between 31 and40, 29.4% are between 41 and 50, and 11.8% are 51 years and older. Based on observations, 17.6% had a diploma and 5.9% had a bachelor's degree and 79.5% had a master's degree. 76.5% have been educated in knowledge and information science, 17.6% humanities and 5.9% other fields. Librarians who responded to the questionnaires were 5.9% in the reference department, 52.9% in the lending department, 23.5% in the library technical services department, 11.8% in the management department and 5.9% in the other departments. Library users who were 18500, including students and faculty members, were randomly selected based on Morgan's table and 377 completed questionnaires were examined. Studies showed that the users' population was composed of 50.9% women and 49.1% men. Of these, 23.1% are undergraduate students, 57.3% are postgraduate students, 16.4% are Ph.D. students, 1.9% are faculty members, and 1.3% are other groups. 1.9% have been educated in knowledge and information science, 22.0% humanities and arts, 11.4% business and management, 44.6% engineering, medicine and technology, 20.2% other disciplines.

Answering the research questions

Question 1: To what extent are librarians and users of Central Library of Islamic Azad University, Science and Research Branch of Tehran familiar with the concepts of Web 2.0, Library 2.0 and Librarian 2.0?

35.3 % of librarians have said that they are not familiar with Web 2.0 and 41.2% are not familiar with the Library 2.0 and Librarian 2.0. In addition, 53.6% of users have stated that they are not familiar with Web 2.0 and 61.5% are not familiar with Library 2.0 and Librarian 2.0. The mean comparison of both variables studied separately among librarians and users shows that the population's unfamiliarity with the Library 2.0 and Librarian 2.0 is more than Web 2.0.
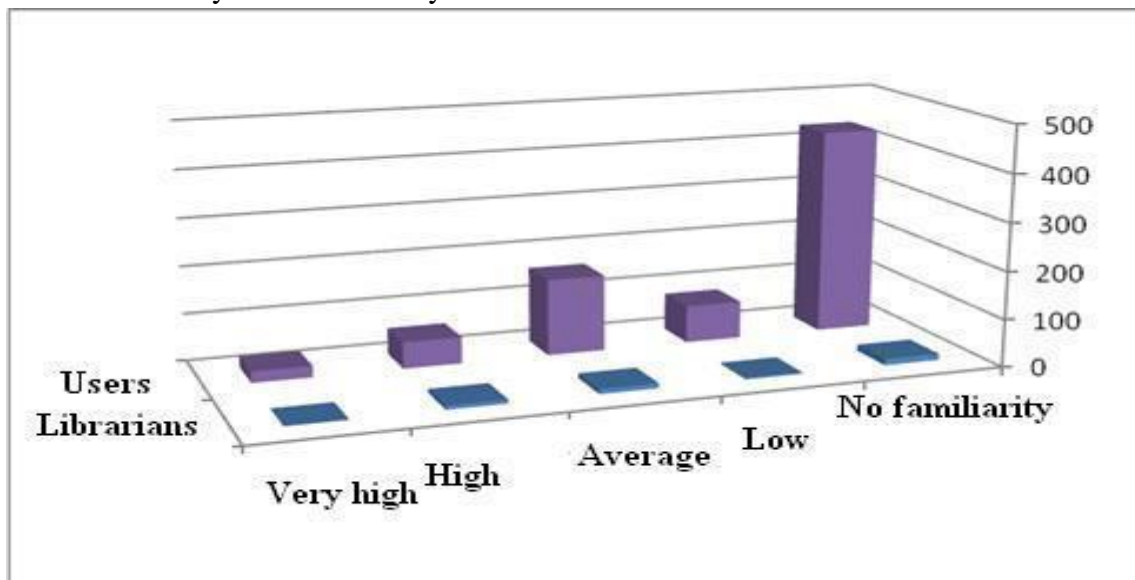

Fig.1. Comparative descriptive analysis of familiarity with Web 2.0, Library 2.0 and Librarian 2.0 among users and librarians

Fig.1 aims to show the greatest options selected by librarians and users. As shown in Fig.1, "no familiarity" was more frequently claimed by users and librarians.

Question 2: To what extent is the use of mobile messenger applications among librarians and users of the Central Library of Islamic Azad University, Science and Research Branch of Tehran?
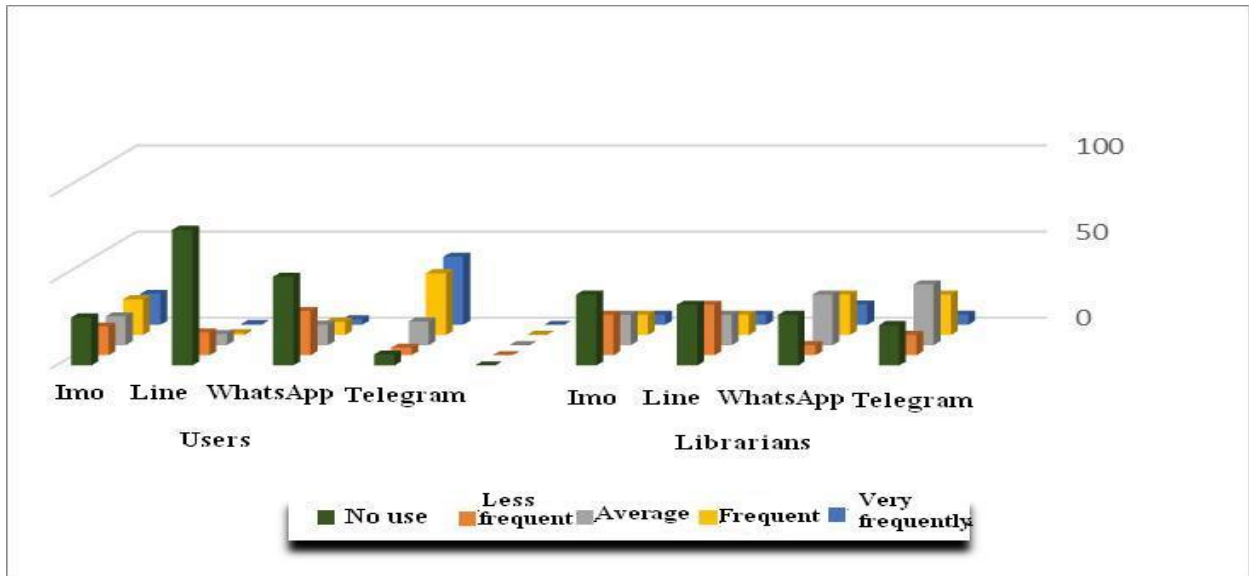
Fig.2. Comparative descriptive analysis of the usage of mobile instant messaging applications among users and librarians
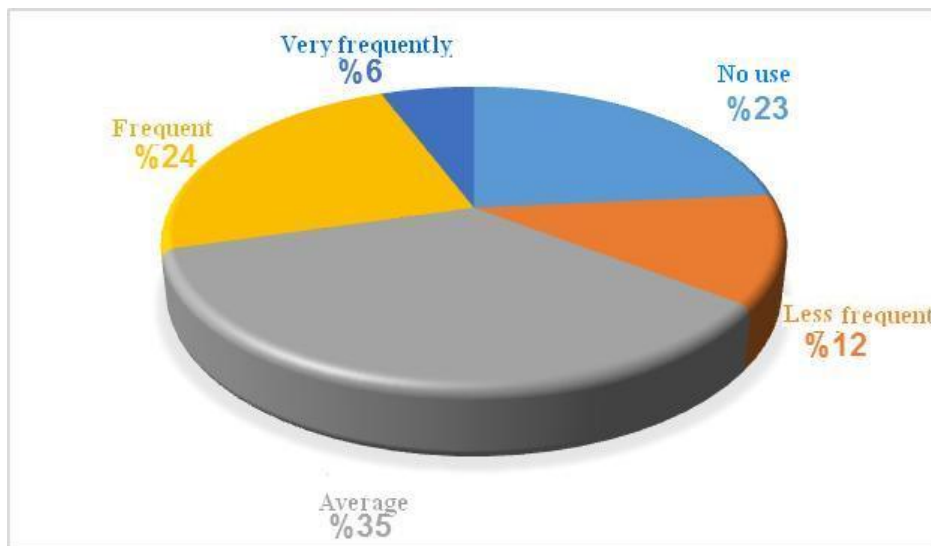
Fig.3. The usage percentage of mobile social messenger networks among librarians
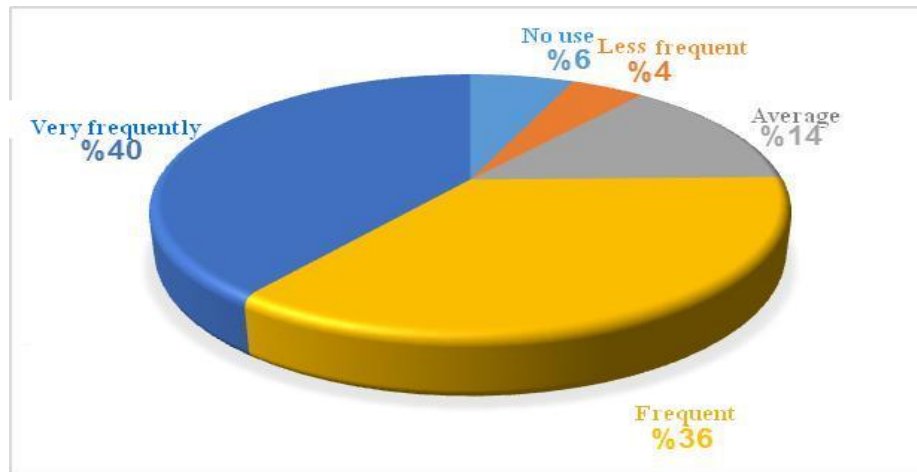
Fig.4. The usage percentage of mobile social messenger networks among users

According to the analyses, the following results are obtained. It should be noted that the percentages in each question is based on the means obtained from each question. Librarians stated that 35.3% of them used Telegram on average and 29.4% of them did not use WhatsAPP or used on average, 35.3% did not use Line, and 41.2% used Imo less frequently. According to Fig.3, the frequency of librarians' responsiveness to use mobile messenger networks was average (35.0%). The usage of mobile messenger applications was average (2.49%). In addition, 39.5% of users also stated that they used Telegram APP very frequently, and 51.5% and 78.8% didn't use WhatsAPP and Line, respectively, and 27.9% used Imo less frequently. Therefore, according to Fig.4, the frequency of users' responsiveness to apply mobile messenger networks was very high (40.0%). The usage of mobile messenger applications was average (2.49%).

Question 3: From the perspective of librarians and users of the Central Library of Islamic Azad University, Science and Research Branch of Tehran, for what purpose can virtual social media be used in the library?
 Items applied in the study are divided into five categories, and librarians and users are asked to refer to their items of interest:
  ➢ Provide public news and university and library news
  ➢ Share useful links
  ➢ Provide a list of books, magazines, databases and other new library sources
  ➢ Create discussion and chat groups and collaborative and research works among library users
  ➢ Access to library site via social networks
15 of the 17 librarians answered this question. 23.5% of librarians agree with the usage of virtual social media in the library for the first four services, including providing public news and university and library news, sharing useful links, providing a list of books, magazines, databases and other new library sources, and creating discussion and chat groups and collaborative and research works among library users simultaneously. 21.8% of the users agree

to use the virtual social media to provide all the services mentioned in this question simultaneously.

Discussion

As the results showed, the population used mobile messaging applications on average. According to Fig.2, among these tools, WhatsApp and Telegram were most used among the librarians and users of the target university, respectively. Based on the results of the third question, virtual media was applicable to all services listed in the library. Mobile messaging applications allow the library to serve its users in a better way, emphasizing the participation and creativity of the users, and allowing them to use the available resources in the best way. Under the umbrella of such tools, libraries become a place to generate knowledge and allow their users to consume on their own. Therefore, it is essential to use them in libraries. Based on the results obtained and the differences between the mobile tools mentioned in Table (1), in the following, the services offered in the target library (according to the services mentioned in the third question) using the mobile messaging applications are discussed. The following is based on the main tasks of libraries i.e. information communication, knowledge distribution, knowledge organization, and information gathering.

- For information services, using mobile messaging apps, librarians can interact online with colleagues, users, and faculty members.

- Informing new sources by library's Telegram channel: Channels are the way to widely disseminate content to a wider audience. They can have unlimited members. All Telegram users can access public channels by searching and they can join them if they wish. To do this, the library can use several channels to share various new resources, including magazine channel, reference resource channel, and specialized book channel. Therefore, it is very useful and suitable for informing librarians and library users about current news and issues of the library (current awareness service (CAS)) and new sources. Since Telegram has a search feature in the messages, it enables users to search for shared resources and awareness of them, and it does not require them to go to the library in person. In his study, Ansari (2016) addressed current awareness services using WhatsApp tool.

- Informing useful links, especially in the field of Iranian Library and Information Association through the library's Telegram channel: Today there are many channels and groups among librarians and students of this field. However, if these channels are created by a library Telegram, users of various academic disciplines become more aware of the services provided by these associations and their affiliated groups, particularly knowledge and information science. Since Telegram is better than WhatsApp in terms of its capabilities and user experience, and its popularity among Iranian users has made it a comfortable choice for everyone[6] (based on Fig.2, this situation is also evident among the

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[6] According to a new infography released by Institute of Cyberspace, Telegram with exchanging daily 15 billion messages is the most popular social network in Iran. The Iranian people have launched more than 170,000

target library users), the library officials can use this application to provide most of their services.

- Provide customized reference services for library users and selective dissemination of information services through the WhatsApp. These services are similar to current awareness services, but in a customized way and the library can provide services through the WhatsApp to a group of users who have the same information needs. Ansari (2016) discussed these services using WhatsApp. According to McGlaun (2014), WhatsApp users are increasing. As outlined in Table 1, the new WhatsApp features such as voice conversation and end-to-end encryption can attract librarians' attention and they utilize this tool to share important library files for more security

- Online discussions and virtual reference services by the experts using Imo and Line: According to Ansari (2016), this service is possible using WhatsApp.

- Knowledge distribution is a critical part of the profession that should be considered in the digital design of the library. Since customer satisfaction is to provide the right information at the right time and place, librarians should therefore strive to apply Web 2.0.

- Librarians can use Telegram and WhatsApp to share files of books and articles and images of their new collections, workshops, and conferences organized on campus.

- Electronic library educational videos and other related videos, such as conferences and workshops, can be shared via Telegram, WhatsApp, and Line.

- By creating a training channel in Telegram, the library can educate users of a variety of scientific social networks such as Academia, ResearchGate, and LinkedIn etc. to share scientific resources.

- Document lending services are available in the library to share content gathered using the WhatsApp. As Ansari (2016) also pointed out, users can be informed about the return of their required source and borrow it with a message via the WhatsApp from the library.

- Share library access link via Telegram and WhatsApp to share library information in a wider community.

Knowledge-based activities and the need for systematic knowledge organization, on the one hand, and the massive amount of information, especially on the Web, and the need to change or design powerful technological tools for organizing it, on the other hand, have made traditional tools lose their efficiency in organizing knowledge in the Web environment and increase the capabilities of technological tools in sharing knowledge. Semantic Web is a proper platform for organizing knowledge and ontologies are useful tools for analyzing, categorizing and linking semantic concepts. These tools are designed for wider use by web users (Kaffashan & Fatahi 2011). Social applications help professionals organize knowledge to access useful information that is accessible through social networks.

- By applying Telegram and WhatsApp over certain time periods, librarians can help introduce social apps to find useful information. A tool is a kind of social bookmarking by

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Telegram channels, including 11,000 channels with more than 5,000 members. Each Iranian user has an average of 10 channels and he/she studies more than 100 items per day.

which librarians can create a guide for users and help them search for appropriate labels and find research links (Del.icio.us, …). A reference tool enables users to organize reference links and share them (Connotea). According to LibraryThing, this tool is a social network containing a book list for librarians. The Amazon list, the Library of Congress, and the world's top 200 libraries are available for selection and ordering. It is also possible through Line tool in the form of educational videos.

- One of the goals of the library is information gathering. Nowadays under the protection of Web 2.0, this is supported by tools such as blogs and wikis (Moradi, 2011, P.114). According to the author, this is also applicable with the use of mobile messaging tools.

- Librarians can gather library-related criticisms or audio and video files by creating groups in Telegram, WhatsApp and Imo. The introduction of wikis in Telegram and WhatsApp is also useful for this purpose. Wikis are organized based on the topic and can be used in libraries as manuals, resource lists and educational resources. They can also be used by faculty members to improve and extend the thematic guide in each field (Moradi, 2011, p. 114).

Conclusion

Libraries are always trying to achieve their main goal, which is the rapid availability of resources and information. In this regard, the provision of modern library services will help them achieve this goal. Meanwhile, library service by the means of mobile messenger applications has a special place. These tools are able to plan for users' information needs, save time and money, and ultimately provide them with satisfaction. As noted, although under the support of mobile messaging tools, information communication services, knowledge distribution, knowledge organization and information gathering are faster, cheaper and more modern in libraries, the use of these tools, along with their many advantages, will challenge librarians. These challenges include the amount of time spent on these tools by librarians to meet users' needs, the pressure on librarians to provide a quick response to the network, the variety of skills required by librarians to work with these tools, dealing with expert and non-expert individuals, coordinating library activities to prevent repetition of services, and copyright issues that library hosts them through these tools. Therefore, the value added services of libraries using mobile messaging tools require detailed planning and appropriate policies from library management to reduce the challenges. Most Iranian libraries, including target library, spend most of their time, manpower, and expenses on providing resources. While they do not pay much attention to ways to make the resources more efficient and easy to use, they do not exchange their users, and they do not welcome several modern technologies. One of these factors is some cumbersome policies and programs that exist in most libraries. Managers and librarians' unfamiliarity with modern technologies has also contributed to this issue. So it's time to keep pace with the widespread and rapid changes in technology. While some libraries in the world, like Miami University's Library, which has attempted to use the technology since 2013, have taken advantage of advanced applications such as augmented reality technologies to provide services in their libraries, it is better for Iranian libraries to embrace it

rather than resist change and turn threats into opportunities. It is obvious that the central library of Islamic Azad University, Science and Research Branch of Tehran, is of interest to users due to the richness of information resources and diverse library services. The library's endeavors to deliver more and better service to users will require the use of mobile messaging tools.

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