Analysis of Iranian faculty information sharing in social networks: the case of Shahid Chamran University

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Abstract

Purpose. Today, the role and importance of social networking in sharing information, ideas, experiences, information, and facilitating team research is undeniable. Thus, the purpose of this research is to analyze scientific information sharing of Shahid Chamran University of Ahvaz (Iran) faculty in social networks**.**

Method. This study which is conducted through quantitative and qualitative methods, is an applied research in terms of aim, and is of a descriptive-analytic type in nature. The population included all faculty members of Shahid Chamran University. Using Krejcie-Morgan Table, 220 people were randomly selected as the sample among 599 total population. Of 220 questionnaires distributed, 193 completed questionnaires were returned and used in data analysis (87.72% response rate). Interview was also applied to complete the information gathered through the questionnaire. To analyze the data, descriptive statistics (such as frequency, frequency percentage, mean, and standard deviation) as well as inferential statistics including one-sample t-test, and Friedman rank test were applied.

Findings. The findings showed that most respondents spend less than 30 minutes daily to share scientific information through social networks. They use Telegram network for this purpose more frequently. They use social networks especially for "finding relevant information sources" and "sharing and receiving new scientific news". Among different capabilities of social networks, respondents mostly use their personal profiles to share their publications and interests. The most important barriers for them to use the social networks is lack of instruction on how to use social networks to share scientific information.

Results. Using social networks among faculty members will encourage them to share scientific information and exchange ideas, and hence, help to develop science, create new information, and increase scientific production.

Originality/Value. Review of the literature in this field shows that most of the previous studies investigated and described effective factors in information sharing in social media, role of social networking in scientific information communication, and the amount they are used in information sharing. None of the previous studies did consider information sharing behavior of Shahid Chamran University.

Keywords. Information sharing behavior; social networks; faculty members; Shahid Chamran University

Introduction and problem statement

Social networking sites are often thought of as places to catch up on the personal information and current activities of social ties. In addition to social and playful uses, however, many users are harnessing their social networks as sources of information and productivity (Morris, Teeran and Panovich, 2010).

In the new era of information, social networks have changed from a source of entertainment to a very effective, penetrating and powerful means to communicate information and research findings. Using social networks in academic communications can increase scientific transparency in universities and speed up information flow and effectiveness and trust among scholars.

Traditionally, consumers used the Internet to simply expend content: they read it, they watched it, and they used it to buy products and services. Increasingly, however, consumers are utilizing platforms such as content sharing sites, blogs, social networking, and wikis to create, modify, share, and discuss Internet content. This represents the social media phenomenon, which can now significantly impact a firm's reputation, sales, and even survival (Kietzmann et al, 2011).

Faculty members, as researchers or professors have a key role in information sharing in the universities and other research institutions (Atanda et. al, 2012; Cheng et. al, 2009; Julaie et. al, 2014; Wei Chong et. al., 2014). It is noteworthy that some of social network users are researchers in different fields of sciences who use networks' sources and capabilities to obtain and share scientific information, and thus, have more scientific communication and collaboration. Therefore, social networks with their special features and capabilities provide the ground for sharing ideas and information among the researchers and have substituted traditional channels of scientific interactions and cooperation.

Thus, due to the importance and promotion of social networks and increasingly use of these networks among researchers and due to the role they play in information sharing and hence development of sciences, the study and analysis of scientific information sharing behavior of faculty members as people who influence the society is vital. The study's results may help managers and policy makers of the country to plan for easy access and increase use of these networks in the line of developing research and raise the rank of the country and the region. They may also help to pave the path to increase collaboration and communication among researchers to facilitate more research of higher quality, as well as to keep researchers up-to-date.

So far, many studies have been conducted about social networking. The results of Kowsari (2007) and Ziaipour and Aghili (2009) showed that the participants of the research are a member of a variety of virtual social networks and they use them not only for finding friends, but for getting information and news. The findings of Akbaritabar (2010) showed that of 1941 active groups in Iranian Specialists U24 Social Network, 8 groups were active in terms of books.

Bashir and Afrasyabi (2010) found that the main reason for the majority to use social networking is getting information and news, finding new friends, communication with friends, chat about political and social issues, entertainment and generating content. In another study, Rasuli and Moradi (2012) found that most respondents are members of one of the Internet social networks such as Facebook. The main reason for the majority to use social networking is getting information and news, finding new friends, communication with friends, chat about political and social issues, entertainment and generating content. However, most of them did not use social networks for scientific purposes. Shahabi and

Bayat (2012) found that users use social networking environments such as Facebook to facilitate their relationships and create and maintain friendly communications.

The findings of Eslami (2012) showed that social networks have influenced different aspects of people's life, including individual, social, economic, and political aspects. So, they deserve more attention. Anari, Asemi and Riahinia (2012), found that Esfahan University librarians' use of social networks for sharing information is decreasing. Librarians use Wikis more than other applications, and micro blogging the least in this respect. The relationship between social trust and subjective norms and attitudes towards sharing knowledge was not seen. Sarrafzadeh and Alavi (2013) found that 35 percent of masters students in the field of Knowledge and Information Science were not members of any social networks; respondent believed that filtering the Internet is the most important barrier to use social networking.

Aryani et al. (2014) found that social networks with their hypertext capability have caused differences in research potentiality of student users compared with others. In another study, Khalili (2015) showed that most students use social networks. Viber and Line were the most widely used networks, and the most important reason was the use of social networking for entertainment. Amini (2015) reported that librarians of main libraries of government universities in Tehran rarely use social networks and are on the view that the networks do not help their job and scientific promotion. Kharabi Masouleh (2016) found that there is a relationship between use of virtual social networks and sustainable friendship and communication. There is also a relationship between being informed and easy communication through social networks and the amount they are used.

Findings of Mirzai, Rahimi and Moradi (2015) showed that 70% of postgraduate students at Razi University (Kermanshah) spend more than 60 minutes daily to use social networks, 66.7% of them used Telegram. The respondents believed that social networks do not affect their scientific communication; they are mostly used to find scientific resources, ask questions, and be up-to-date. Only 5.18% of respondents view social networks as places for sharing knowledge; however, they enjoy using social networks. Low speed of the Internet was reported as the main obstacle to use social networks. Lotfi Harsini (2017) found that students' main purposes for using social networks were to obtain information and news, search, find new friends, keep relationships, entertainment, and scientific and research activities, respectively.

Review of the literature shows that in other countries research was conducted on the topic of social networking. Among them, we may mention the followings: Lenhart and Madden (2007) who found that 91% of users in the United States use social networks to keep relationship with friends. Findings of Chow and Chang (2008) showed that Social networks and common aims negatively affected their tendency to share knowledge.

Zhou et al (2009) claimed that there is a linear relationship between the number and quality of users' interaction, and increasing creativity and reasoning; and social networks play an important role in interactions. Haneefa and Sumitha (2011) reported that most students are aware of social networks and use them to make friends. Respondents believed their most concern is security and privacy in virtual social networks. According to Kumar (2012), students of Sikkim University prefer Facebook; and security and privacy are their main concerns. In another study, Hamade (2013) showed in Kuwait, Twitter is the dominant social network, and students usually use it for entertainment. Abdelraheem (2013) found that students often use social networks for social affairs rather than academic purposes; Facebook is the most popular. Findings of Alufi and Fulton (2014) showed that there is an increasing trend towards using social networks for informal scientific communications and these networks affect informal scientific communication.

Devi and Yameena's findings (2015) showed that capability of creating scientific communications is the advantage of social networks. They claimed that lack of enough time, authority, technology, copyright issues, and low speed of the Internet are barriers in using social networks. In another study, Alufi and Fulton (2016) found that most of respondents use social networks for informal scientific communication. Their barriers were lack of motivation, digital literacy, and security concerns on the Internet. They mostly used Facebook and Twitter, and both universities' members used them to connect with other academics worldwide.

In sum, literature review shows that most people use social networks for entertainment and finding friends. The studies mostly focused on the factors which affect sharing information, people's purposes and motivations, as well as the role of social networks in scientific communications and use of social networks. None of the previous studies attempted to analyze scientific information sharing of users in social networks environment; especially in Shahid Chamran University.

As social networks are potentially powerful media to create scientific environment and to produce and share information, faculty member can easily and globally share their ideas, experiences, and information; this will facilitate team-work and group research and productivity of scientific products.

In line with this, the present research attempted to answer the following questions:

1- How much do Shahid Chamran University faculty use social networks to share their scientific information?

2- Which social networks do Shahid Chamran University faculty use to share their scientific information?

3- Does use of social networks affect Shahid Chamran University faculty's share their scientific information?

4- Which utilities of social networks are mostly used by Shahid Chamran University faculty to share their scientific information?

5- Does use of social networks affect Shahid Chamran University faculty's promotion?

6- What are the most important barriers to use social networks by Shahid Chamran University faculty to share their scientific information?

Methodology

This survey is applied in terms of purpose and descriptive-analytical in nature. The study was conducted in two phases. The first phase conducted qualitatively using interview, and in the second stage which is quantitative, a questionnaire was used to collect the data.

In the first stage, using snowball sampling method, 7 specialists in the fields of information technology, knowledge management and information-seeking behavior were interviewed through deep semi-structured interview method. Interview was continued until saturation so that new interviewees did not add any new information.

The outcome of the interviews was the items of the questionnaire. The questionnaire was developed and formed in three sections. Section one consisted of demographic information; section two consisted of four components each having 8 items which formed the body of the questionnaire; the third section was comprised of 2 questions about the amount and type of social networks used to share scientific information among the faculty members of the University. Thus, the questionnaire consisted of 34 items. Likert 5- option scale was used, from very much (5) to very little (1).

The population of the study consisted of 599 members among whom 220 people were selected as the sample based on Krejcie and Morgan Table (1977) through stratified random sampling method. Of these, 193 questionnaires were completed and returned which shows the response rate 87.72%. The validity of the questionnaire was determined through face validity method benefiting the views and comments of 8 faculty members in the fields of information technology, knowledge management, and information-seeking behavior.

To determine the reliability of the questionnaire, copies were distributed among 30 people of the whole population, and using Cronbach's alpha method, it was determined 0.92.

Data analysis was performed using SPSS 22 and descriptive statistics including frequency, frequency percentage, mean and standard deviation was applied; inferential statistics (one-sample t-test and Friedman rank test) was also applied.

Findings

Demographic characteristics of the respondents are as follows: 31 (16.06%) of the respondents were female and 162 (83.93%) were male. 16 (8.29%) were tutors, 122 (63.21%) associate professors, 37 (19.17%) assistant professors, and 18 (9.32%) were full professors. In terms of years of service, 19 (9.84%) worked for less than 5 years, 106 (54.92%) 5-10 years, 42 (21.76%) 5-10 years, 15 (7.77%) 11-15 years, and 11 (5.69%) for over 20 years. 26 (13.5%) of the respondents used social networks dailyless than 30 minutes, 69 (35.8%) 0ne hour, 36 (18.7%) 2 hours, 44 (22.8%) 3 hours, and 18 (9.3%) for more than 3 hours.

Purpose of using social networks were varied widely. 45 (23.3%) used social networks for communication with friends and relatives, 18 (9.3%) for just spending time, 85 (445) receiving news, 36 (18.7%) educational and research purposes, and 9 (4.7%) for sharing scientific information.

Question 1- Table 1 below shows the amount of time respondents spend daily to use social networks.

Table 1- Time spent daily to use social networks

time	frequency	percentage
Less than 30 minutes	110	56.99
1 hour	53	27.46
2 hours	18	9.32
3 hours	9	4.66
More than 3 hours	3	1.55

According to table 1, most respondents (56.99%) daily use social networks less than 30 minutes; only 3 people (1.55%) use social networks more than 3 hours to share scientific information. Overall, faculty spend little time to share scientific information with others.

Question2- Table 2 shows the type and usage of social networks to share scientific information.

Table 2- Type and usage of social networks

network	frequency	percentage
Facebook	8	4.14
Researchgate	36	18.65
Linkedin	26	13.47
Academia	2	1.03
Instagram	27	13.98
Telegram	82	42.48
Other networks	12	6.21

Table 2 shows that almost half of the respondents (42.48%) use TELEGRAM to share scientific information. RESEARCHGATE, INSTAGRAM and LINKEDIN follow it. ACADEMIA is used less than other networks, and 6.21% of the faculty use networks other than those listed in the questionnaire.

Question 3- To answer question 3, to know if social networks affect information sharing of the faculty through social networks, one-sample t-test was used. The result is shown in Table 3. Since 5-option Likert scale was used in the study (scored 1 to 5), 3 was considered as the average (mean) for the level of affecting information sharing.

Table 3- the results of one sample t-test

variable	mean	sd	t	df	significance
Sharing scientific information	3.75	0.72	8.94	192	0.00

Test value= 3

The results indicate that the mean for using social networks to share scientific information (3.75) is higher than that of the test value (3), and the result is significant ($p < 0.05$). Thus, it is implied that using social networks by the faculty members of Shahid Chamran University affects their scientific information sharing.

Further, to know the purpose of using social networks to share scientific information by respondents, Friedman rank test was used. The results are shown in table 4 below.

Table 4- The results of Friedman rank test

purpose	mean rank	rank(importance)
Finding relevant scientific resources	5.75	1
Sharing and receiving new scientific news	5.38	2
Identifying and communication with distinguished researchers	4.89	3
Discussion and exchange of ideas with different groups	4.69	4
Sharing and receiving new scientific ideas	4.11	5
Communication with foreign professors	3.91	6
Sending questions and receiving answers about different scientific topics	3.90	7
Co-authorship with other researchers	3.37	8

$x^2 = 233.17$, df=7, sig= 0.00

Table 4 shows that respondents are on the view that using social networks for "finding relevant scientific resources" with the mean rank 5.75, "sharing and receiving new scientific news" with the mean rank 5.38, and "identifying and communication with

distinguished researchers" with the mean rank 4.89 are, respectively, the most important purposes of the faculty to share scientific information through the social networks.

Question 4- To find which utilities of social networks are used by Shahid Chamran faculty to share scientific information, Friedman rank test was applied. The results are shown in table 5.

Table 5- The results of Friedman rank test about social networks utilities

item	Mean rank	Rank(importance)
Using personal profile to share research interests	5.88	1
Using personal profile to share own publications	5.83	2
Using personal profile to share specialized skills	5.04	3
Sharing highly cited articles in SCI in RESEARCHGATE	5.02	4
Using social networks to participate in research	4.54	5
Using personal profile to share in process research projects	4.32	6
Membership in specialized groups, discussion and exchange of ideas through them	2.88	7
Using social networks to communicate with distinguished professors and researchers	2.50	8

x2= 484.90, df= 7, sig= 0.00

The results of Friedman test shows that Shahid Chamran University faculty members, among various utilities of social networks, use the followings more than others, respectively: sharing publications with mean rank 5.88, sharing research interests with mean rank 5.83, and sharing specialized skills with mean rank 5.04.

Question 5- To find out whether social networks help faculty to promote their knowledge, one-sample t-test was used; the results are shown in table 6.

Table 6. The results of one-sample t-test for promotion of knowledge

variable	mean	sd	t	df	significance
promotion	3.82	0.71	9.31	192	0.00

Test value= 3

The results show that the mean for using social networks to share scientific information (3.82) is more than the test value (3) at the 0.00 significance level. Thus, using social networks is affecting the faculty members' promotion. Then, to find out the rank(importance) of each factor in this regard, Friedman rank test was used; the result of this test is shown in table 7.

Table 7- The result of Friedman test on role of social network in promotion of faculty

items	Mean rank	Rank(importance)
Willingness to share findings and experiences	4.98	1
Materials available in social networks are helpful to update self knowledge	4.88	2
So far, obtained scientific materials from social networks	4.87	3
Believe documents in social networks are valid	4.84	4
Social networks are safe and trustful places to share information	4.82	5
Interested in using others' experiences and knowledge through social networks	4.12	6
Social networks are proper places to share knowledge	3.92	7
Need social networks to develop my knowledge	3.57	8

x2= 117.06, df= 7, sig= 0.00

According to table 7, the most important factors for promotion of knowledge of the faculty through using social networks were "sharing scientific findings and their invaluable experiences" with the mean rank (4.98), "updating knowledge" with the mean rank (4.88), and "obtaining scientific materials from social networks" with the mean rank (4.87), respectively.

Question 6- In order to find out the barriers of using social networks to share scientific information, Friedman's rank test was applied. The results are shown in table 8.

Table 8- Friedman test for ranking barriers

items	Mean rank	Rank(importance)
Lack of education to use social networks for sharing information	5.75	1
Uncertainty about copyright in social networks	5.37	2
Truth and validity of resources in social networks	4.61	3
Inadequate familiarity with social networks and their educational and research capabilities	4.41	4
Unestablished culture for sharing information in social networks	4.39	5
Low speed of the Internet	4.12	6
Lack of security and privacy in social networks	3.96	7
Filtering social networks	3.40	8

$x2= 189.96$, df= 7, sig= 0.00

Table 8 shows that Shahid Chamran University faculty members believe that the followings are, respective, the most important factors which influence using social networks: "Lack of education to use social networks for sharing information" (mean rank= 5.75), "Uncertainty about copyright in social networks"(mean rank= 5.37), and "Truth and validity of resources in social networks"(mean rank=4.61). These factors limit sharing scientific information through social networks.

Discussion and conclusion

Findings of the present research show that over half of Shahid Chamran University faculty members spend less than 30 minutes daily to share scientific information via social networks; this is in agreement with the findings of Rasouli and Moradi (2012), Anari, Asemi, and Riahinia (2012), and Amini (2015). Research shows that using social networks for sharing information and scientific information has a decreasing trend. Although, it has an increasing trend in the society as a whole, factors such as lack of time, higher load of works, inadequate awareness about educational and research capabilities of social networks and the problem of security may cause faculty not to use social networks enough.

Over half of the respondents use TELGRAM followed by RESEARCHGATE, INSTAGRAM, and LINKEDIN. This finding is in line with the findings of Mirzaie, Riahini, and Moradi (2016). It is not in agreement with the findings of Sarrafzadeh and Alavi (2013), Kumar (2012), Hamade (2013), Abdelrahim (2013) and Alufi and Fulton (2016). The difference may be due to rapid speed and evolution of technologies which cause emergence of new technologies with more advanced capabilities. Hence, new social

networks with more attractions and easier access, are welcomed eagerly by users. For instance, TELEGRAM is one of popular messaging software which is younger than many other similar messaging software. It seems that simplicity, speed and other unique capabilities of TELEGRAM is the reason for this software to be widely used to share information as well as for other academic usages among Shahid Chamran University faculty.

The results also show that Shahid Chamran University faculty extensively use social networks to share scientific information. They believe that using such networks to "find relevant scientific resources", "share and receive new scientific news" have been more welcomed to share scientific information. This finding is in line with that of Alufi and Fulton (2016); however, it is not in agreement with the findings of Amini (2015) and Mirzaie, Rahimi, and Moradi (2016). They claimed that using social networks did not have any role in their scientific interactions. Presumably. Shahd Chamran faculty are fully aware of the necessity and capabilities of these networks in their scientific communications to improve their research activities.

They use personal profiles more to share their publications and research interests. Sharing research interests in social networks helps them to find researchers in the same field and benefit the results and experiences of each other. Development of scientific communications among the faculty will inevitably lead to increase scientific productions and development.

The present research also found that using social networks increases the faculty's knowledge. This finding is not in agreement with the findings of Amini (2015) who studied librarians. The difference may be due to lower eagerness of librarians to use social networks for *scientific* purposes. However, this finding agrees with that of Mirzaie, Rahimi, and Moradi (2016). They found that social networks increases Razi University students' knowledge. Shahid Chamran faculty believe that using social networks to "share scientific findings and invaluable experiences", and "Update knowledge" are the most important factors in promoting faculty's knowledge through these networks. They believe that social networks are good places to share scientific information and help to exchange knowledge and experiences as these networks have capabilities such as limitless and free access to scientific information, learning, and being informed of scientific and occupational/work news. Thus, social networks prepare the ground to increase awareness and knowledge in various disciplines which will ultimately lead to decision making and planning in different scientific affairs.

Respondents are on the view that "lack of education on using social networks to share scientific information" and "uncertainty about copyright in social networks" are the most important barriers to using social networks. Therefore, considering user education to use social networks properly plays an important role in proper and practical ways to use them. Another important issue in this regard is copyright and security of the networks. Probable illegal access to these networks seriously detriments sharing ideas and information by users; this part of findings agrees with findings of Kumar (2012). The previous studies showed that security and privacy of social networks is the most important concern of users.

However, the present research finding is not in line with that of Sarrafzadeh and Alavi (2013).

The research findings show that various capabilities of social networks is the reason for inclination of scientific collaboration through these networks. Based on the findings of the research, the following suggestions are made:

- Using social networks in different disciplines should be included in each academic discipline's curriculum.
- In universities and educational institutions, use of social networks should be introduced through workshops and posters.
- Specialized groups under the supervision of the university supervision should be established to discuss and analyze the issues related to sharing ideas and information through social networks, and faculty members and students should be encouraged to actively participate in these groups and discussions.

References

Abdelraheem, A.Y. (2013). University Students Use of Social Networks Site and their Relation with Some Variables. *WEI International Conference Proceeding*. Turkey: Antalya. January 14-16 from http://www.westeastinstitute.com/wp.

Akbaritabar, (2010). Group-Based Book-Based Activity in Virtual Social Networks, Access Date: 24/1/2016, Available at: http/www.iricap.com/magenty.asp?Id=9577. (in Persian)

Al-Alufi, A., & Fulton, C. (2014). Use of social networking tools for informal scholarly communication in humanities and social science disciplines. *Procedia-Social and Behavioral Sciences*. 147, 436-445.

Al-Aufi, A., & Fulton, C. (2016). Science networking tools for informal scholarly communication prove popular for academics at two universities. *Evidence Based Library and Information Practice*, 11 (2), 195-197.

Amini, T. (2015). Investigating the Role of Virtual Social Networks in Academic Exchanges: Studying the Librarians of Tehran State Universities. In the Proceedings of the eighth National Social Media Conference in Information Centers (pp. 46-59), the Student Associations Association of Information Science and Science, Tehran. 20 November 2015, Shahid Beheshti University. (in Persian)

Anari, F.; Asemi, A.; Riahinia, N. (2012). Study of the use of social networking tools in information sharing among librarians of Isfahan University. Journal of Epistemology. 6 (20), 10-23. (in Persian)

Aryani, E.; Zahedbabelan, A.; Moainikia, M.; Khalqkhah, A. (2014). The role of virtual social networks in the research capabilities of graduate students. *Interdisciplinary Journal of Virtual Learning in Medical Sciences (IJVLMS),* 6 (2), 26-39. (in Persian)

Bashir, H.; Afrasyabi, M. (2010). Social media work in Iran. *Journal of Media*, 83, 31-34. (in Persian)

Devi, B., & Yameena, A. (2015). Science communication through social networking sites. SRELS *Journal of Information Management*, 52 (5). 53-71.

Eslami, P. (2012). The study of social networks and their effects on different dimensions of life. In the collection of articles on cybercrime and emerging social harm (p. 4-5). Ministry of Cooperatives, Labor and Social Welfare, Tehran, Dec. 19, 2012. (in Persian)

Hamade, S. (2013). Perception and use of social networking sites among university students. *Library Review*, 62 (6), 388-397.

Haneefa, K. M., & Sumitha, E. (2011). Perception and use of social networking sites by the students. *Library Review*, 31 (4), 295-301.

Khalili, L. (2015). Students use social networks, *Human Information Interaction*, 2 (1), 30-59. (in Persian)

Kharabi Masouleh, S. (2016). Study of rate and type of students use social networks: The Case of graduate students of Islamic Azad University, a master's thesis of communications, Islamic Azad University, Tehran. (in Persian)

Kietzmann,Jan H.; Silvestre, Bruno S.; McCarthy, Ian P. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*. 54 (3), 241-251.

Kowsari, M. (2007). Cultural world of Iranian users in the network of friendship. Tehran: Research, Culture, Arts and Communication Ministry of Culture and Islamic Guidance. (in Persian)

Kumar, N. (2012, March 1-3). User perception and use of social networking sites by Sikkim university students. 8th Convention PLANNER-2012. INFLIBNET Center Ahmedabad.

Lenhart, M. and Madden, M. (2007) Teens, Privacy and Online Social Networks. How Teens Manage Their Online Identities and Personal Information in the Age of MySpace. Pew Internet & American Life Project Report, 1-45.

Lotfi Harsini, SH. (2017). Study of the motivations of using social networks among students of information science and science. *Science and Technology of Information Management*, 3 (2), 70-90. (in Persian)

Mirzaie, M.; Rahimi, S. Moradi, M. (2016). The Role of Social Networking in Academic Exchanges (Case Study of Graduate Students at Razi University), *Library and Information Science*, 19 (1), 108-130. (in Persian)

Morris, Meredith R.; Panovich, K. (2010). What Do People Ask Their Social Networks, and Why? A Survey Study of Status Message Q&A Behavior. Proceedings of the 28th International Conference on Human Factors in Computing Systems, CHI 2010, Atlanta, Georgia, USA, April 10-15.

Rasuli, M. Moradi, M. (2012). Factors Affecting Content Production in Social Networks, *Social Sciences*, 56, 57-66. (in Persian)

Sarrafzadeh, M.; Alavi, S. (2013). The status of online social networking among students of MSc in Information Science and Science. *Human Information Interaction*, 1 (1), 44-56. (in Persian)

Shahabi, M.; Bayat, GH. (2012). Virtual social networks and young users; from real life to cosmopolitan experience. *Majlis and Rahbord*, 19 (69), 180-151. (in Persian)

Shirani, F.; Hadani, H. (2015). Factors Affecting Information Sharing Behavior among Faculty Members of Research Institutes of the Country. In the collection of research papers on management and humanities in Iran (p. 1-18). Research Institute for Management, Tehran, November 20, 2015, Tehran University. (in Persian)

Zhou J, Shin SJ, Brass DJ, Choi J, Zhang ZX (2009). Social networks, personal values, and creativity: evidence for curvilinear and interaction effects. *Journal of Applied Psychology*, 94 (6), 1544-1552.

Ziaipour, H.; Aghili, V. (2009). Investigating the influence of virtual social networks among Iranian users. *Journal of Media*, 20 (80), 42-23. (in Persian)