Online Social Research in Iran: A Need to Offer a Bigger Picture

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Abstract
Given the limits of in-country and survey research in closed societies, the World Wide Web – in particular online forums - offers an alternative field for observing and understanding these societies and their development. However, the praise given to the Internet's role in bringing about political change in Arab uprisings and the 2009 elections post protests has resulted in a tendency in the existing literature to focus on very narrow political discussions and behaviors on partisan online forums. Consequently, various areas of interest to Iranian users have been neglected or ignored. The aim of this review is to identify the major online spheres of the Iranian web, the most important online forums in each sphere, the issues being discussed, and the characteristics of the users of each sphere and forum. By doing so it recognizes the theoretical and methodological drawbacks of existing online research on the Iranian Web. This review concludes with some suggestions for further online social research in Iran.
Keywords:
Iran, Internet studies, Internet, information and communication technology, media studies, communication studies, social media

Introduction

The social and political implication of the Internet has been important for scholars for more than a decade (DiMaggio, et al. 2001). Scholars and commentators have acknowledged the informational and organizational function of the Internet as well as the coordinating, mobilizing and globalizing role it plays in challenging authoritarian regimes (Castells 2012; Howard and Hussain 2013). Internet use during Iran's Green Movement protests in 2009 and the Arab uprisings in 2011 drew the focus of attention to political use of the Internet (Farrell 2012). The terms 'Twitter revolution' and 'Facebook revolutions' shaped conventional wisdom and expectations about Internet users and their concerns and interests in closed societies. It is widely accepted that political issues are widespread on online forums in closed societies, especially in the Middle East, and that users are limited to oppositional users with political democratic concerns. Therefore, despite the increasing growth of interest in research on the Internet and using online data for social research, globally (Golder and Macy 2014) and in particular in the Middle East (Lynch 2011), little attention has been paid to the wide range of political and social concerns and issues that are discussed online in closed societies.

In Iran, the Internet, particularly online social networks, has attracted significant academic attention for the role it has played in popular protests since the 2009 elections. This has led to a considerable focus of research on political issues on the Web and particularly on partisan forums and platforms. Consequently, it has resulted in a tendency in the existing literature to neglect or ignore various areas of interest to Iranian users and to overlook indirectly political issues and concerns of the Iranian web. However, if one is to obtain the fullest possible understanding of the role of the Internet in society and to understand the society through the lens of the Internet

(Rogers 2013), to have a comprehensive view of a wide range of interests and topics and consequently a diverse group of Iranian Internet users, there is a substantial need to offer a bigger picture and vision of the web in these societies.

The aim of this review is to identify the major 'online spheres' of the Iranian web, the most important 'online forums' in each sphere, the 'issues' being discussed, and the characteristics of the users of each sphere and forum. The literature review covers primary and secondary sources and studies in Farsi and English that deal with: (1) the social and political concerns of Iranian citizens as reflected on the web since 2009 and (2) online forums in which social issues and concerns are discussed.

For reviewing existing literature, I employ the categorization of Internet activity proposed by Faris and Heacock (2013). They divided research on Internet activity into three main categories: 1) infrastructure and access, 2) control, and 3) content and communities. The first section of this review gives a brief overview of *Internet infrastructure*, its background and challenges in Iran. For the second section, *Internet control* and its effects on the online sphere are discussed. The final section of this review --which is the review's primary focus-- deals with the *online activities* of and *forums/platforms* that are used by Iranian Internet users. For each forums/platforms, the demographics of the users, the prevalent topics and the users' activities are discussed based on existing studies. Finally, the findings of this review are amalgamated into one larger picture in order to give suggestions for future studies on the Iranian Web.

Internet infrastructure and access in Iran

Internet infrastructure refers to a set of remote software and hardware that sends and receives information through several systems. Internet access is one of the fundamental features of Internet infrastructure. In 1992 Internet access in Iran was provided for the first time through a single line connecting the Institute for Studies in Theoretical Physics and Mathematics (IPM) (Sreberny and Khiabany 2010). Since that time, the Iranian government has taken steps to expand and develop its telecommunications and informatics infrastructure (ibid). Nevertheless, while the development of Iran's Internet infrastructure enabled the number of people with access to the Internet to rise rapidly since the late 1990s, reports repeatedly reveal that the Iranian Internet -- in terms of limits on content, obstacles to access, and violations of user rights -- is ranked among the least liberated in the world (Kelly, et al. 2013). To assess Internet infrastructure and access in Iran, Internet penetration, Internet speed and Internet service provider are chosen as criterion.

Internet penetration in Iran is amongst the highest in the Middle East. According to a countrywide survey of 53,724 families, Internet penetration in Iran in 2010 was 14.7 percent (Statistical Center of Iran 2011). However, a recent study by the Internet National Development Management Center,[1] reports that the number of Internet users was 40,046,785 and the Internet penetration rate in Iran in 2014 was 53.29 percent, which had been 49.13 percent in 2013 (Mehr News Agency 2014). The Gallup Institute's research on a sample size of 2,000 interviewees at the national level reported 43 percent used the Internet in Iran in 2012 (Gallup/BBG 2012), which differs from another official report that the number of Internet users was 46,267,829 (penetration rate 61.57 percent) in 2012 (Etemad Newspaper 2013). Despite these differences in

the statistics,[2] it can be concluded that Internet penetration rate in Iran has increased significantly over the last few years (see Figure 1).

Figure 1. Internet penetration growth in Iran in the last decade. The data of World Development Indicators is used by me for this diagram (World Bank 2014).

Internet speed in Iran ranks among the lowest in the world, although it has been recently improved. Nonetheless, in 2012, most Internet users used dial-up and only a small percentage of Iranian users had access to high-speed Internet (Radio Zamaneh 2012), the latest official report reveals that only 9 percent of Iranian users still use dial-up (Mehr News Agency 2014). The rate of Internet connection forms most frequently used by Iranian users such as ADSL, mobile (GPRS) and dial-up are in turn 17,53 percent, 14,73 percent, and 9,23 percent (Mehr News Agency 2014).

There is a rather large Internet service providers (ISPs) market in Iran. The Iranian ministry of Communication and Information Technology had licensed more than 1,600 ISPs by August 2013 (Tasnim News Agency 2013). All ISPs must obtain a license from the government, and to do so must meet official governmental restrictions by using software that blocks users from accessing forbidden URLs.[3] Nevertheless, "there is considerable variation in the blocking among ISPs" (Faris and Villeneuve 2008: 16).

It can be concluded, therefore, that although the Internet and ISPs in Iran are controlled by the government, there are a number of large businesses within the private sector in this area. Iran's Internet penetration rate is amongst the highest in the region. Despite the growth in the number of Internet users in Iran, the available bandwidth and speed of Internet remain quite low, allegedly because of the government's efforts to control the Internet (Rezaian 2014).

Internet control in Iran

To what extent does the government control Internet content, in which online spheres and how? In general, to what extent does the filtering shape the Iranian Web?

The Iranian government conducts vast and intensive filtering measures over the Iranian Web, in terms of both content restriction and access to websites (Faris and Villeneuve 2008). This goes

far beyond simply blocking access to particular websites and services (Faris and Villeneuve 2008; MacKinnon 2013). After the 2009 Green Movement protests, "increasingly complex surveillance and monitoring techniques, complementing technical filtration tools with legal frameworks and information manipulation" were adopted by the government (Open Net Initiative 2013). The co-optation of the core Internet infrastructure itself by the Iranian government in the aftermath of the disputed 2009 elections, in order to exert large scale Internet censorship, has also been documented(Bailey and Labovitz 2011).

Open Net Initiative testing "has revealed consistent filtering of websites pertaining to social media, international news channels, non-Shi'ite religions, social and religious taboos, and anything remotely opposed to official government policies" (Open Net Initiative 2013). According to the results of a survey conducted on the websites most visited by Iranian users (based on Alexa web traffic ranking), the most censored category appeared to be adult websites (more than 95 percent of them are blocked), followed by society and news(Aryan, et al. 2013). Another study of inaccessible entries of Persian-language Wikipedia in Iran found that blocked pages are mostly those with socio-political or sexual content. Other themes that are blocked in the Persian Wikipedia are religious matters, human rights issues, the arts, media and journalism, and academia (Nazeri and Anderson 2013).

Despite the comprehensive and sophisticated filtering system in Iran (Open Net Initiative 2009), a thorough study of the Iranian Web shows large numbers of highly responsive Iranian websites (i.e., blocked sites are still functioning) (Rogers, et al. 2012). It has also been discovered that the Iranian web is fresh (i.e., sites have been recently updated). Moreover, the appearance of blocked blogs demonstrates that the Iranian web has an active "censorship circumvention culture" (ibid). Monitoring is accepted by users as what ordinarily happens. Studies show that ordinary users, and even civil society bloggers and dissident news readers, either ignore or adapt to the possibility of being monitored by the government during their online activities (Abadpour and Anderson 2013). Moreover, while a majority of the Iranian users often encounter blocked websites, most of them have heard about tools that help circumvent blocked websites, and they have easy access to such tools (Wojcieszak and Smith 2014). The recent national survey of Iranian youth values showed that 69.3 percent of youth Internet users use web proxies, or other tools, to bypass filtering (Iranian Student's News Agency 2014). In fact, despite the disruption of access to the Internet, users are not persuaded to abandon their activities (Abadpour and Anderson 2013) and the filtering does not have any influence on users' access to the demanded websites (Rasouli and Moradi 2012).

The fact that the use of circumvention tools is widespread inside Iran undermines the premise that filtering plays a key role in leading users to use unfiltered forums. Unfiltered forums and websites are still very popular on their own merits. The huge number of users of unfiltered forums- for example, cloob.com (2,000,000 users), Tebyan (222,000 users), and FaceNama (approximately 500 thousand users)-, together with the fact that accessing filtered forums and websites is not necessarily difficult, indicates that unfiltered forums host content and issues that is of real interest to users.

In summary, the existing literature indicates that there is a wide and diverse range of Internet users who are active in the Iranian online spheres despite governmental control of the infrastructure and massive filtering.

Online activities and online spheres

This section discusses the activities, issues of interest, and demographics of Iranian Internet users. My review of recent studies on Iranian Internet users' activities suggests that the blogosphere, social networking sites (hereafter SNS), and news and information sources are the three main online spheres that Iranian Internet users are actively engaged in and that studies have been conducted on. Each is discussed below.

Blogosphere

The first Iranian weblog was created on September 2001. Two months later, the second and third Persian weblogs (*editor-myself.com* and *i.hoder.com*) were launched by a young Iranian journalist (Sreberny and Khiabany 2010) who is known as the father of the Persian blogs. Since then the number of Persian blogs has rapidly increased. The main reasons for the growing popularity of Iranian blogs are the low cost and flexibility of labor, which makes blogs desirable to users (ibid). Blogging, between 2003 and 2008 was at its height (Akhavan 2013). In the end of this period, according to Kelly and Etling, the Persian blogosphere was a large discussion sphere of approximately 60 thousand routinely updated blogs (2008).

There is a dominant account that Iranian blogosphere contributed to the opening up of society by enabling a political voice, particularly to Iranian youths during the last decade (Bucar and Fazaeli 2008). However, the very account, which characterizes Iranian blogosphere as primarily a political and politicized space, overlooks the diversity of issues and views that are discussed and shared (Akhavan 2013). Although most studies have only been carried out on political weblogs (e.g. Golkar, 2005; Jansen, 2009), among the contents of Iranian blogs Sreberny and Khiabany distinguished five categories in the Iranian blogosphere: personal diaries, intellectual debates, literature, politics, and photo-blogs (2010).

Three studies have intensively and quantitatively examined this diverse areas of interest of Iranian blogosphere, and thus shed light on the primary concerns of Iranian bloggers: (1) an online survey of 1,049 *green movement activists* in February 2013 (Honari, et al. 2014), (2) an online survey of 2,800 *Iranian youth* in January-February 2012 (Wojcieszak and Smith 2014), and (3) the mapping of the Iranian blogosphere using computational social network and content analysis (Kelly and Etling 2008).

In the online survey of the Green Movement supporters conducted by Honari et al. (2014) before and after the 2013 presidential election, respondents were asked whether they had their own blog. Of the 1,051 respondents, 366 (35 percent) answered "yes." The blog owners were then asked what issues were among the main concerns of their blog posts. As can be seen from Table 1, even supporters of the Iranian prodemocracy Green Movement use blogosphere to express a wide variety of concerns and issues; not limited to political issues.

#		Response	%
1	Society	239	65%
2	Political issues	177	48%
3	Art and literature	152	42%
4	Diaries	151	41%
5	Economic issues	73	20%
6	Religious issues	66	18%
7	Science and technology	39	11%
8	Entertaining issues	22	6%
9	Sport	11	3%
10	Others (please indicate)	44	12%

Table 1. Main concern of blog posts (Honari, van Stekelenburg and Klandermans 2014).
* Note: Others include: women's issues 3, human rights 2, war 1, cooking 1, education 2, personal 5, romance 1, photo 1, cinema 1, syndicate issues 1, environmental issue 1, History 3, Linguistic 2, short story 1, trip 1, minimal stories 2, other 16.
** Note: the percentages do not add up to 100 percent as respondents could select more than one issue.

Respondents of the survey conducted by Wojcieszak and Smith (2014) reported that they read blogs to get information about science and IT (61.7 percent), news (44.2 percent), and work (43.5 percent); furthermore, they write blogs to discuss science (39.1 percent), personal issues (32.7 percent), and work (27.7 percent); finally, they comment on blogs discussing science (44.4 percent), social issues (31.9 percent), and news (30.5 percent). It's important to note in this case that the respondents were recruited via a file-sharing platform, 4shared.com, and thus were mostly young and technologically savvy. Table 2 shows the results of the Wojcieszak and Smith survey regarding bloggers' interests.

	Writing blog	Reading blog
Science & IT	39.1%	61.7%
Personal	32.7%	31.6%
Work	27.7%	43.5%
Social	27.0%	37.0%
Religion	24.8%	40.7%
News	16.6%	44.2%
Health	14.4%	20.8%
Culture	9.8%	29.2%
Foreign affairs	9.5%	31.3%
Community	9.0%	22.2%
Economy	4.0%	10.5%
Sport	7.7%	22.8%
Lifestyle	6.5%	21.6%
Gender	3.2%	10.2%

Table 2. Percentage of respondents discussing various issues through blogs. Summary of findings. (Wojcieszak and Smith 2014, 99).

Using computational social network mapping, as well as human and automated content analysis, Kelly and Etling (2008) found four main categories of issues that are discussed in the blogosphere: politics and public affairs, Islam/religion, personal life, and topical issues. They also found a number of subcategories, such as international news, domestic policies, economy, leaders, women's rights, the Quran, theology, personal experience, Islamic revolution, religious poetry, personal life, single life, family life, Iran/Iraq war, poetry, literature, technology, and Western culture. They illustrates that these topics are discussed in four major networks (secular/reformist, conservative/religious, Persian poetry and literature, mixed networks).

Golkar (2005), using content analysis to explore the political culture of Iranian blogosphere, found that 92 percent of sampled political blogs are against the government, though this finding has been questioned by Kelly & Etling (2008) and Akhavan (2013). Contrary to conventional wisdom, Kelly and Etling (2008) demonstrated a considerable cluster of conservative/religious bloggers that support Ahmadinejad. More interestingly, they reported that this cluster in the Iranian blogosphere had expanded as the presidential election approached (Kelly and Etling 2009).

The idealized view of Iranian bloggers as secular prodemocracy political dissidents is consistent with the typical portrayal of Iranian blogosphere in Western media which is mostly made by diasporic bloggers. As St-Louis argues "[t]his portrayal supported by factions of Iranian bloggers outside of Iran presents a perspective of Iranian society that is close to Western standards while being critical of the Islamist government of Iran"(2010). The discourses around gender, women's rights and sexuality issues --which are frequently discussed in a considerable number of blogs (Sreberny and Khiabany 2010)-- are also primarily shaped by participation of the Iranian diaspora in the blogosphere (Shakhsari 2011).

Although a portion of Iranian blogs and oppositional blogging are severely repressed by the government, blocked blogs continue to respond and remain fresh (Rogers, et al. 2012). According to Rogers and colleagues (2012), Iranian websites are healthy overall. Table 3 shows the characteristics of the top ten blog service providers in Iran.

Blog provider	Global Alexa rank	Alexa rank in Iran	# blogs/blogger	Total pages across blogs (million)
Blogfa.com	187	3	4.71	50
Mihanblog.com	427	5	3.25	18.7
Persianblog.ir	572	6	2.64	9.3
Blogsky.com	1045	13	2.56	3.8
Persiangig.com	2473	38	2.72	0.715
Parsiblog.com	2525	34	1.93	8.29
Iranblog.com	3213	55	2.58	1.1
Rozblog.com	4461	71	3.06	5
Parsfa.com	5582	78	1.7	0.817
Loxblog.com	7939	123	2.9	4.53

Table 3. Characteristics of the top ten blog service provider in Iran (Naghavi and Sharifi 2013).

It should be mentioned that Iranian blogosphere is not based primarily on dialogue. Instead, it deals mainly with production, rather than knowledge exchange or the sharing of opinions (Rabiei, et al. 2013). Bloggers hardly respond to each other's posts, and the number of comments on posts is very few. This fact has also been documented for SNSs (Yazdkhasti, et al. 2013), although a recent study shows that commenting on SNSs is more frequent than on blogs (Giacobino, et al. 2014). For political blogs, the lack of communication between blogs, and blog readers and bloggers is more tangible. One study on the Iranian blogosphere relating to online activism, using digital methods and mapping the issue networks of twentyIranian blogger activists, concluded that the activist network is not densely connected in comparison to the Tunisian and Egyptian activist networks(Jansen 2009). Wojcieszak and Smith's findings also show that "even though the respondents *read* blogs about news and current events, foreign affairs or the economy, these topics were far less popular when it comes to commenting the blogosphere" (2014).

Wojcieszak, Smith, and Enayat (2012) have shown that a considerable portion of Iranian Internet users are engaged in writing (8 percent), reading (42 percent), or commenting on (18 percent) blogs. However, a recent claim has surfaced that the blogosphere is declining with the rise of micro blogging, social news aggregators, and SNS's (St-Louis 2010).

Social Networking Sites (SNSs)

Over 85 percent of Internet users in Iran access SNSs such as Facebook and Google+ (Tabnak 2012). Social networking is the most significant activity that Iranian Internet users are engaged in (Abadpour and Anderson 2013). According to Alexa, SNSs accessible in Iran, such as Facenama.com (rank: 7/ users: 435,000), aparat.com (rank: 16), cloob.com (rank: 18/ users: more than 850,000), and Tebyan.net (rank 28/ users: 222,000) are among the most popular and frequently visited websites in Iran. The main international platforms for social networking that are blocked in Iran are Facebook and YouTube. The most popular one is Facebook. In terms of the demographics of users, a study on a national social network, Parsi-yar (78,000 users), shows that most of its users are young, students, and - unlike most international SNSs - mostly male (Esmaeili, et al. 2011).

Some suggest a categorization of online SNSs as either accessible or blocked in Iran. This categorization does not imply, however, that the only factor conducive to choosing a SNS is filtering, considering that the circumvention of blocked websites is easy and widespread among Iranian users. A recent study inside Iran shows that the level of satisfaction between sample groups of Facebook users and *cloob* users is the same. There is no significant relationship between other users' characteristics, such as age, gender or Internet usage and satisfaction, in both forums, except that religious users are more satisfied with *cloob* and politically radical users are more satisfied with Facebook (Mahmoudi 2011). Another comparative study reveals that Iranian using an international SNSs (Facebook and Google+) are more likely to post a photo of themselves than those using a national SNSs (Cloob.com and Facenama) (Naghibulsadat, et al.

2015). These findings confirm that users choose different SNSs for pursuing different interests and discussing different issues.

A study conducted in Tehran, through face-to-face interviews with 18- to 30-year-old active users of SNSs, shows that strengthening and expanding social ties, expressing views and opinions, information seeking and information giving are among the main motives of Tehrani youth for using SNSs (Shahabi and Bayat 2012). Another study among students of one university in a smaller city, Birjand University of Medical Sciences, shows that communication with old friends is the most important reason to use SNSs (Erfanian, et al. 2013). The survey of 2,800 young, educated, metropolitan, and technologically savvy Iranians conducted in 2011 found that personal issues and IT/science were more often discussed via social networks than politics within this group (Wojcieszak and Smith 2014).

However, when Iranian society is politicized SNSs as well as blogs and news websites are used more widely and effectively for political purposes (Akhavan 2013; Dabashi 2010). After the disputed Iranian presidential election in June 2009, SNSs played an important role in mobilizing people, sharing ideas and spreading information among Green Movement supporters (Baldino and Goold 2014; Honari 2013; Rahimi 2011b; Rasouli and Moradi 2012), and also in "catching global media attention and raising human rights concerns" (Sohrabi-Haghighat and Mansouri 2010). The Iranian diaspora also employed social media to influence international media coverage as well as to "disrupt hegemonic narratives about Iran [in the West] and articulate Iranian identities" (Alexanian 2011). Using SNSs in Iran for political purposes is not limited to any particular political views (Abadpour and Anderson 2013).Conservative activists and hardliners increasingly utilize blogging (Akhavan 2013; Golkar 2011; Kelly and Etling 2009)and employ SNSs such as Facebook, Google+ and *Afsaran* for political purposes (Akhavan 2013; Golkar 2015).

A major study on Iranian social networks identified a considerable number of popular, accessible SNSs in Iran, with user numbers ranging from 850,000 to 50,000, such as: *cloob.com* (>850,000), *Tebyan.net* (222,000), *Aparat.com*, *Facenama.com* (435,000), *delshekasteh.com* (77,500), *Bahanehha.net* (63,000), *Hamkelasiha.com* (46,500), and *Google+* (12 percent of Iranian Internet users). Nevertheless, most studies on SNSs in Iran have been carried out on international SNSs which are mostly blocked in Iran. The existing literature is mostly dealing with Twitter(Burns and Eltham 2009; Elson, et al. 2012; Kavanaugh, et al. 2011; Rogers 2009; Zhou, et al. 2010), Facebook (Asghar-kia and Nouri-Moradabadi 2012; Kashani and Zarea 2012; Mahmoudi 2011; Rahimi 2011a), and Balatarin (Bandari, et al. 2013; Rostami 2013).

Twitter

During the post-election mass street demonstrations, some Western media explained the movement's character as a media phenomenon mainly related to Twitter, sometimes even calling the movement the "Twitter Revolution."[4] Although scholars (Aday, et al. 2010; Esfandyari 2010; Honari 2013; Rahimi 2011b) stress that Twitter was hardly used by Iranian citizens in the midst of the 2009 protests, several studies in the West (Burns and Eltham 2009; Elson, et al. 2012; Fisher 2010; Kavanaugh, et al. 2011; Rogers 2009; Zhou, et al. 2010) have been carried out on the Twitter data from Iranian Green movement. Moreover, some scholars drew incorrect

conclusions: for instance, Kavanaugh and colleagues (2011) worked with Twitter data from Iran, Tunisia and Egypt. They claimed that the use of Twitter via cellphones was important in the midst of the demonstrations because it enabled protestors in the streets to share information on police presence to save their lives. This conclusion was drawn despite the number of mobile Internet subscribers being negligible in Iran in 2009. GPRS service began at the end of 2008, and in the beginning it was just for a limited number of Internet users in Tehran. With the subscription of Internet users in the provinces, which began in January 2010, the number of users with access to mobile broadband Internet reached 0.1 percent of Internet users at the end of 2010 (Statistical Center of Iran 2011). The "active mobile- broadband subscriptions" in 2010 in Iran is reported by the International Telecommunication Union as 0.0(2011). These findings reveal that, in the heydays of the protests in 2009, the number of people who could access the Internet via their mobile phones was too few to ascribe impact to Twitter.

Moreover, as was noted by another expert (Esfandyari 2010), the vast majority of the tweets regarding Iran were in English. 'For the ppl of Iran #iranelection RT' is a project that investigated the tweets that have been tagged #iranelection from June 10-30, 2009, during the heated days of the election and post-election(Rogers 2009). The findings of the project demonstrate that the number of tweets in #iranelection in English (612,373) was about a hundred times more than in Persian (6,248); it is highly unlikely that Iranian protesters in Iran coordinated the protests in any language other than Farsi. Above all, Internet access by mobile phones was not possible during the street protests; during these days all mobile services such as SMS, GPRS, and MMS were blocked by the government.[5] A study on the tweets published since three months before till 15 months after the 2009 elections demonstrates that active users emerged after the elections and Twitter played a role solely in globalizing the movement (Tabatabaei and Asadpour 2015).

Twitter still is not widely used by Iranians. Empirical studies demonstrate that Twitter is in fact the least prevalent online forum used by general population and youth (Wojcieszak, et al. 2012). However, it can be predicted that, through the use of the Internet via mobile phones, Twitter will become popular in Iran. Despite having a limited number of users, Twitter is popular among journalists, young activists and campaigners and the Iranian diaspora. Twitter is even used by pro-government activists to discuss political issues (Marchant, et al. 2014).

Facebook

Facebook is the most popular SNS among Iranian users. One study on Facebook (n=500) shows that user penetration in Tehran is 12.3 percent. Users are mostly between 20 and 24 years of age (3.8 percent), male (7.1 percent), and highly educated (11.3 percent). They use Facebook mostly to communicate with friends, and the majority of them use their real name (Kashani and Zarea 2012). According to research on a sample of 750 highly educated Internet users in 2012, 58 percent had a Facebook account(CHIMIGI 2012). Students use Facebook more than other social groups in Iran. A recent survey of social communication students in four main Tehran universities (n=325) found that the vast majority (92.3 percent) use SNSs, particularly Facebook (Rasouli and Moradi 2012).

The respondents in this survey reported using Facebook for obtaining information and news, dating, communicating with friends, and discussing political and social issues. They rarely use

Facebook for academic purposes. What they share and post includes social, political, cultural, and entertaining contents (ibid). Another study among students in Tehran (n=396) reveals that sharing information and news (39.1 percent) and free communication (34.6 percent) are among the most important motivations of users on Facebook in Iran (Asghar-kia and Nouri-Moradabadi 2012). According to an online survey of 188 Iranian Facebook users, the three most shared topics by Facebook users are personal thoughts and opinions, cultural, and societal/civic issues, while the most followed topics are societal/civic issues, domestic politics, domestic news and current events. The least frequently shared and followed topics are religion and health. Other issues that are moderately followed and shared are everyday life, professional issues, community issues, economy, science/It, foreign affairs, gender, environment, sports, and international politics (Iran Media Program 2014).

Facebook in Iran represents an emerging forum for a new kind of activism (Rahimi 2011a). Very close to the disputed 2009 presidential election, "Facebook rapidly expanded into a political forum" (Rahimi 2011a). Then, in the midst of post-election protests, Facebook was extensively employed by Green Movement activists for mobilization (Honari 2013) and "online broadcasting of offline events" (Rahimi 2011b). Users' behavior on some Facebook pages regarding Iranian Green Movement has been used as an indication and predictor of off-line protests, as well (Cross 2010). The quantitative study by Cross (2010) found a causal effect of "like" or comments on Mousavi's Facebook page - the leader of the Iranian Green Movement- on protest activities on the streets of Tehran. Using Facebook as a platform for the mobilization attempts of Green Movement activists was also actively encouraged by Facebook itself (MacKinnon 2013). However, it also be employed by conservatives. In the midst of the 2013 presidential elections, Facebook was considerably used for electoral campaigning by supporters of the most hard-line candidate, Saeid Jalaili (Golkar 2015).

Balatarin

One of the most well-known social news aggregator websites in Iran is "Balatarin" (Alexa Global Rank in 2014: 3215). On Balatarin, which is similar to *digg.com,* users submit the best links of interest to other (Iranian) Internet users around the world. Once a link acquires enough positive votes, it is moved to the top of the front page ('hot posts' page). Balatarin has about 35 thousand users and half a million visitors per month (in 2012). Users are active in seven categories: society, politics, science/ technology, sports, art/literacy, entertainment, and economy. "Balatarin, an aggregator of blog and news content," according to its founder, is "where the postings are prioritized by the voting of its members, [and] used to amplify the voice of the bloggers" (Yahyanejad 2010). During the 2009 post-election protests, Balatarin was one of the most influential Iranian social networks for the Iranian Green Movement (Honari 2013; Sreberny and Khiabany 2010).Although the *political*behavior and discussion of Balatarin's users has attracted the attention of several researchers (Asadpour 2012 [by governmental security and intellegience concerns]; Bandari, et al. 2013; Rostami 2013), other domains of Balatarin remain unexplored.

LinkedIn

A well-known international platform for professional social networking is LinkedIn, with an audience of 12 percent of Iranian Internet users. There are also a number of non-filtered online SNSs that are used for professional purposes inside Iran (e.g. doreh.com and u24.com). However, a study of ten professional SNSs accessible inside Iran[6] found these platforms are neither very successful nor large in contrast to the international options. Apart from problems such as the lower quality of these websites as a reason for their less frequent usage, it seems that using a non-Iranian platform for knowledge sharing and professional experience exchange is more common and popular among Iranian users (Anbari 2011).

News Websites

News websites, and recently newspaper portals, in addition to SNSs, are widely used to obtain news and information. According to the BBG 2012 report, in addition to emails, the Internet is largely used for accessing news and information. The Internet for 13 percent of Iranians is the main platform for accessing daily news and information (Gallup/BBG 2012). Another survey in four major metropolitan cities in Iran reports that for 26 percent of respondents, the Internet is the most important source of information (Wojcieszak, et al. 2012). With regard to regular Internet activities and consumption in Iran, a survey of 750 Iranian respondents in 2012 showed that users use the Internet for several purposes including researching information (67 percent), reading news websites (65 percent), online banking (64 percent), downloading music (49 percent), social networking (44 percent), and shopping online (43 percent) (Social Media in Iran 2012).

Research conducted among students of four Tehran universities reveals that the most important purpose of using SNSs is for obtaining information and news (Rasouli and Moradi 2012). The students reported that they are highly interested in sharing literary quotes, films, daily news, entertaining issues, and photos. Among these individuals, they are most interested in posting and sharing daily news (ibid).

Conclusion and implications for future online social research

This review leads to the following concluding remarks on online social research in Iran:

1. There is a substantial need to provide a bigger picture and vision of the Iranian web. So far, (a) little attention has been paid to the nonpolitical and indirectly political forums of the Iranian web, and (b) there is a lack of research on the SNSs provided and used inside Iran (*unfiltered SNSs*), such as *Tebyan*, *cloob*, despite their widespread popularity.
2. Although the Internet draws a remarkable attention for facilitating *political* participation of *individuated* citizens (Bennett and Segerberg 2013) particularly in closed societies (Howard 2011), it offers broader venues and forums for engagement in society as opposed to only political venues. Online nonpolitical protests, consumer-based collective claim making , culturally oriented petitions, and boycotting are as widespread as online political protests (Earl and Kimport 2009). The growing number of indirectly political activities taking place online has a substantial impact on offline activities. Unfortunately, the literature is focused on the explicitly political behavior of online issues and overlooked such important indirectly political activities and discussions.

3. There is not necessarily a significant difference in the beliefs, demographics, and other characteristics of users of unfiltered and filtered SNSs, but there may be a significant difference of interests. A part of the imbalance in research on international and national SNSs (Akhavan 2013) stems from the availability of tools for gathering and analyzing data from international SNSs such as Facebook and Twitter. Greater efforts are needed to provide toolsto facilitate data gathering from national SNSs and subsequently research on national (unfiltered) SNSs.

4. The primary online spheres of the Iranian web in which Iranian users discuss their issues of concern and interest are categorized into three: the blogosphere, social networking sites (SNSs) and news websites. For studies aiming to obtain information on "ordinary" Iranians, the blogosphere and SNSs - whose contents are created largely out of bottom up processes -- will provide the optimal arenas of study while news sites tend to be designed primarily to push information out in a top-down manner. However, comment sections of news websites are increasingly becoming places for users' participation and discussion of common issues and concerns spurred by news articles. This users' commenting behavior and the content generated by users on online news media would be a fruitful area for further Iranian online social studies.

5. Iranian Internet users are diverse in terms of their views and interests, and a wide range of concerns and topics are discussed on the Iranian web. Users, for example, are not uniformly politicized, nor are they simply anti-government. When severe repression against political reform was sustained for a long period of time, one way of adaption to that repression was shifting from offline to online activities (For the case of women's rights activists see: Abbasgholizadeh 2014). Yet, the most frequently discussed topics in SNSs still are personal, cultural, societal, and science issues. Less frequently discussed topics include domestic and international politics. As noted above, this leads scholars of Iranian online social media to use a sampling plan that begins by capturing a broad population via a range of forums and platforms. With most of the relevant sites, researchers enable a fine-grained examination of topics, and avoid the bias inherent in searching for pre-determined keywords.

6. The studies reviewed provide evidence that there is a lack of exchange and dialogue in the Iranian Web. It will therefore be more useful to focus on themes, discourses and issues to extract Iranian Internet users' interests and concerns, than to attempt to analyze hyperlinks and comments (as for example Kelly and Etling 2008 do), as these are likely to provide much less information.

7. All of the studies reviewed here support the view that the government filtering system in Iran failed to block the user's access to the demanded contents. Internet users in Iran frequently and easily use circumvention tools to bypass filtering. This raises the issue of theoretical drawback of online social research in Iran. The widespread circumventing culture among Iranian users challenges the theories and approaches that put online repressive measures into the center of attention of studies attempting to understand Iranian Internet users as well as Iranian society. So far, studies have tended to equalize repression with structural constraints imposed by government and neglect the alternatives that individuals face in response to repression. Future studies could usefully explore how people cope or deal with repression (Linden and Klandermans 2006), rather than how repression affects individuals' behavior particularly political participation.

Taken together, the findings of this review will serve as a base for the design of further online research on the Iranian Web. The review calls online social researchers' attention to unchartered areas of Iranian Web. The Internet in Iran is an interesting and puzzling case not only for scholars of political communication and social movements who engage in the role of Internet in democratization (Howard 2011; Rogers 2013) but also a broader category and of scholars and scientists who seek to understand Iranian society through the lens of the Internet. Yet, as Earl (2013) pointed out, sampling design, including sampling frame (i.e. identifying cases at risk of being studied) and sampling method (i.e. how cases from the sampling frame are drawn), is crucial for online studies.

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Notes

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[1] Penetration Rate Portal: http://www.iriu.ir/matma/

[2] Great variation in statistics is mainly resulted from the different methods used to measure Internet penetration as well as different definitions of Internet users in different studies.

[3] This is a way if Internet users try to gain access to a blocked URL, a "block page" comes up instead, delivering a warning to the user that access is forbidden.

[4] For some instances, see: The Washington Times, editorial on June 16, 2009 (Iran's Twitter revolution 2009) and Foreign Policy in Focus on June 17, 2009 (Quirk 2009).

[5] Reports of blocking attempts of the Internet services on mobile phones by the government can be seen across the reports of protest days. For instance see:

Aftabnews (15-06-2009) "mobile phones was cut off in Tehran", retrieved from http://bit.ly/1c9ShZA

Tabnak (08-07-2009) "Since yesterday, services such as SMS, GPRS, and MMS has been cut off," retrieved from http://bit.ly/OEiy82

BBC Persian (07-09-2009) Protests in student day in Iran, retrieved from http://bbc.in/Mvv47O

Tabnak (19-09-2009) "Pervasive interruption in the Internet connections," retrieved from http://bit.ly/1hAsFD9

Deutsche Welle Farsi (4-11-2009) "The early hours of Wednesday, coinciding with the start of the rally in the streets of the capital, Tehran, mobile phones transmission in some areas was cut off and in some areas also faced with severe interruptions." retrieved from http://bit.ly/1mDjt3R.

[6] Websites include: cloob.com, Network of Iranian students and professors (doreh.com), Iranian experts (irexprt.ir), social network of Iranian experts (u24.ir), nofa.ir, webzzz.ir, mypardis.com, iek.ir, Virtual forum of Iranian music (noteahang.com), www.iran.ir.