Exploring and Evaluating the Patterns of How Iranian Twitter Users Are Affected by the Political Attitudes of Influencers

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ABSTRACT

In this research, through identifying the components of what is called “Iranian Twitter”, we tried to identify and evaluate the patterns of how Iranian Twitter users are affected by the political attitudes of the Iranian Twitter Influencers. For this purpose, Influencers and Followers including 917,318 Iranian users of Twitter were categorized based on their political attitudes; then, patterns of how Followers were affected by Influencers were identified and evaluated for various political attitudes. To categorize Influencers and Followers, we used data mining techniques, and to analyze network data, we applied Gephi software. The results showed that although none of the political attitudes in Iranian Twitter have significant superiority to others, a significant proportion of users who favored a political attitude, displayed little tendency to be exposed to different political messages.

Keywords: Online Social Networks, Twitter, Influencer, Political Attitudes

Introduction

In recent years, along with a significant increase in the number of Twitter users, the diversity of users of this online social network has increased, too. According to the latest statistics, Twitter has 326 million active users. Among internet users, 24% of men and 21% of women are Twitter members. About 37% of Twitter users are between 18 to 29 years old, and 25% of them are between 30 and 49 years old. Also, among politicians, 83% of the UN members have Twitter accounts (OMNICORE, 2018). It is obvious that online social networks cannot be regarded as representative of the community; however, given the continuous mutual interactions between online social networks and offline reality of the society, it is important to have a better understanding of the nature of online social networks and its interactions.

Given the definitions of “social networks”, “social media” and “microblogging” and considering the fact that Twitter encompasses features of all...
these three types of media (Mertia, 2014), we cannot easily determine its position among various media. For example, one of the big differences between Twitter and Facebook is that nobody finds a “friend” on Twitter, but “Follow” others and in turn finds “Followers” for herself. In fact, to participate in Twitter, a user tries to recognize others and be recognized by them (Faina, 2012). Meanwhile, Twitter is not just a social network of friends and acquaintances. Yet, in general, Twitter has the features of an “online social network” more than other types of media.

Until recently, Twitter in Iran was often seen as a communication platform for activists and journalists; nonetheless, over the past two years, it has grown dramatically in terms of both the number and diversity of users, and this upsurge has been drastic over the past year. On October 2017, Twitter’s share of Iranian users of online networks and social media was only 4.65%; however, a year later and on October 2018 it increased to almost 8.69% and nearly doubled (Statcounter, 2018). However, it seems that this rise has been largely due to the state decisions. Since Telegram was blocked, the number of Iranian Twitter users has increased. The reason is that by blocking the Telegram, many Iranian Telegram users turned to use proxies and, as a result, their presence in other blocked media have been facilitated. So, today we can talk about an online social network called “Iranian Twitter”: A set of relationships that are formed between Iranian Twitter users. This network usually publishes contents related to the facts of the Iranian society. It should be noted that our definition of Iranian Twitter is not limited to Farsi-spoken Influencers and users.

Referring to Marshall McLuhan’s “Global Village”, Maurice describes Twitter this way: “Twitter, is closer to the global village that the internet was envisioned to be” Morris (2009, as quoted in Mertia, 2014). Some of the analyses about online social networks are full of such admirable descriptions.

This optimistic and praiseworthy tone is also visible in Manuel Castells's (2012) analyses. In analyzing online social networks, Castells emphasized on the horizontality of relationships, autonomy of users, and the lack of leadership of movements emerging from such media. In analyzing the actions of online social networks users, by ignoring the influences of institutions and structures, he resorted to concepts that neuropsychologists have suggested. In Networks of Outrage and Hope he says.

Indeed, social change involves an action, individual and/or collective that, at its root, is motivated emotionally, as is all human behavior, according to recent research in social neuroscience. In the context of the six basic emotions that have been identified by neuropsychologists (fear, disgust, surprise, sadness, happiness, anger), the theory of affective intelligence in political communication argues that the trigger is anger, and the repressor is fear. Anger increases with the perception of an unjust action and with the identification of the agent responsible for the action. Fear triggers anxiety, which is associated with avoidance of danger. Fear is overcome by sharing and identifying with others in a process of communicative action. Then anger takes over: it leads to risk-taking behavior. When the process of communicative action induces collective action and change is enacted, the most potent positive emotion prevails: enthusiasm, which powers purposive social mobilization. Enthusiastic networked individuals, having overcome fear, are transformed into a conscious, collective actor, thus, social change results from
communicative action that involves connection between networks of neural networks from human brains stimulated by signals from a communication environment through communication networks (Castells, 2012).

Another feature which Castells attributes to online social networks is that they are based on the “culture of autonomy”. He says:

Furthermore, there is a deeper, fundamental connection between the Internet and networked social movements: they share a specific culture, the culture of autonomy, the fundamental cultural matrix of contemporary societies. [...] This is because the technology of the Internet embodies the culture of freedom, as shown in the historical record of its development (Castells 2001). It was deliberately designed by scientists and hackers as a decentered, computer communication network able to withstand control from any command center. (Castells, 2012)

Castells also emphasizes that “in social movements which are based on online social networks, relations between users are horizontal and their actions do not have a definite leadership” (ibid, p.). However, empirical studies do not approve the Castells's claims. For example, Laura Pérez-Altable who did her Ph.D dissertation on “online social networks in the Arab Spring in Tunisia,” believed that the digital elites in the Arab Spring had a major role in selecting and publishing materials (Pérez-Altable, 2016), and in fact, contrary to what Castells describes, social movements in the age of online social networks are not leaderless.

Another important point about Castells analysis is that he sees online social networks as a platform to form movements and revolutions, and does not pay much attention to their function in daily life. In one of his recent interviews, (Bauman, 2016) criticized social networks from this viewpoint:

Social media don’t teach us to dialogue, because it is so easy to avoid controversy... But most people use social media not to unite, not to open their horizons wider, but on the contrary, to cut themselves a comfort zone where the only sounds they hear are the echoes of their own voice, where the only things they see are the reflections of their own face. Social media are very useful, they provide pleasure, but they are a trap.

(Bauman, 2016) referred to the situation described as ‘Echo chamber’. The idea of an ‘echo chamber’ in politics is a metaphor to describe a situation where only certain ideas, information and beliefs are shared and people inside this setting will only encounter things they already agree with (Dubois & Blank, 2018).

However, it seems that according to their political tendencies, users have different behaviors in the online social networks. For example, according to the result of a study on 3.8 Million users of Twitter, liberals were more likely to engage in cross-ideological dissemination than conservatives (Barberà, Jost, Nagler, Tucker, & Bonneau, 2015). According to results of another research, in general, Democrats exhibit higher levels of political homophily. But Republicans who follow official Republican accounts exhibit higher levels of homophily than Democrats. In addition, levels of homophily are higher in the network of reciprocated followers than in the non-reciprocated network (Colleoni et al., 2014).

In this research, keeping an impartial stance and relying on statistical data, we tried to examine which of the narratives, Castells optimism or Bauman pessimism, could better describe the realities of Iranian Twitter.
Accordingly, we first identified and described the Iranian Twitter Influencers. Then, by classifying them based on their political attitudes, we mapped their network; finally, we identified and evaluated the patterns of how followers were affected by the Influencers. The current investigation aimed at providing answers to the following questions:

1. Which individuals or organizations are the Iranian Twitter Influencers and what are their characteristics?
2. What are the characteristics of the network that these Influencers mutually form?
3. How far do Iranian Twitter users are affected by the various Influencers?

It should be noted that in this context, the title “Influencer” refers to those Twitter accounts that: a) Iranian users are among their main audience; b) Have more than 10,000 followers; and c) The number of their “Followers” are at least twice as the number of their “Following”.

Methodology

Most studies about Twitter have used techniques such as content analysis, discourse analysis, text mining, etc. One of the main advantages of such methods is that collecting and analyzing data does not take much time, as much of the data collection process can be fostered with the help of programming tools, and the researcher only needs to interpret the software outputs. However, the main deficiency of such methods is that the researcher only collects and analyzes the data of the “contributors”. Thus, the data collection is systematically biased; because a significant portion of users, for various reasons, do not have notable activities on Twitter: No tweet, no retweet, no likes, no quote; but they always read the posts and, based on their attitudes, follow different people. Naturally, in methods like content analysis and text mining, the data of these users are not collected or analyzed.

Considering the mentioned reasons, in this study we decided to analyze the data on the communication networks between users and Influencers. The steps we took to answer the three questions of research were as follows:

1. We identified the Iranian Twitter Influencers using snowball sampling. For this, we first recorded the information of some of the more well-known Influencers in our list. Then we reviewed the list of their Followers and added other peoples to our list who, based on the mentioned criteria, were considered to be Influencers. We repeated this process for various types of Influencers until we reached saturation. However, identifying some of the Influencers (including pages containing pornographic contents) was not possible. So, we turned to similar lists provided by different websites or Twitter bots, and made our list more complete. We continued the process until we made sure that the information of all the Iranian Twitter influencers was gathered.

2. Then, by reviewing the pages of the Influencers one by one, we recorded their characteristics in our list. The information collected at this stage included: the number of Followers, the number of Following, account type, gender, real name or pseudonym, political orientation, Twitter blue tick, geographic location, and distinguished feature. This information is displayed in the next section.

3. Then, we collected the information about the communication network between the Influencers, and used that as input for Gephi software. Gephi is an open-source network analysis and visualization software which helps
analysts to directly display patterns and trends, to reveal irrelevant data and to describe the data (Gephi, 2018). The output of this software helped us to shape a crispier and more objective understanding of the communication network between the Influencers and their interactions.

4. We then collected the data of the Followers of each Influencer. For each Influencer, a list of about 5000 followers was extracted. This big data was collected through the Blockspring website (Blockspring, 2018). Finally, by removing the inactive or possibly non-Iranian data (i.e., accounts that only followed one Influencer), we reached a list of 308,021 users. Given the fact that for each of these users we had the information about the hashtags which they had published and also knowing the political tendency of some hashtags, we estimated political attitude for each user. For example, the users that had published tweets with are necessarily Principalist. However, the political attitude of a number of users was not recognizable in this way and we had to remove them from our data. By doing this, 213,140 users remained in our list.

5. Finally, we calculated that each group of users attributed to each political attitude, how much expose themselves to Influencers with different political attitudes, on average. In other words, how much these users are exposed to their like-minded, and how much to people with different ideas.

Findings

We will review the research findings in the following pages.

1,075 of Iranian Twitter Influencers have more than 10,000 followers. Only 40 Iranian Twitter Influencers have more than 200,000 followers.

![Figure 1. Iranian Twitter Influencer (by number of Followers)](image_url)

About 80% of the Influencers were personal accounts, 14% of them belong to the organizations that were active in the outside world (such as news agencies, newspapers, soccer clubs, etc.), and 4% of them were related to Twitter pages (with no activities in the real world).
Figure 2. Account Type

As we move towards Influencers with more followers, the proportion of personal accounts is reduced and the share of organizations increases.

Figure 3. Account Type (Based on Number of Followers)

More than one-third of personal influencers with more than 10,000 Followers had pseudonym in Twitter. This ratio decreased to about a quarter among Influencers with more than 20,000 Followers.

Figure 4. Real name or pseudonym of the Influencer
About a third of the Influencers with more than 10,000 Followers were women. This ratio was reduced to one-sixth among Influencers with more than 200,000 Followers.

![Figure 5. Influencers Gender](image)

As shown in Figure 6, the share of political attitudes among the Influencers was less than one-third. The criteria of assigning an attitude to an Influencer were as follows:

- **Non-politicals**: The contents that she publishes are not political and do not refer to political issues;
- **Principalists**: She is consistent with the principalist movement or supports conservatives;
- **Reformists**: He is consistent with reformist or supports reformism;
- **Subversives**: She seeks to overthrow the current political regime;
- **Transformationalists**: She writes about political issues, but is not consistent with the three previous attitudes. She is not necessarily a supporter of overthrow, neither a reformist nor a principalist (either as a political attitude or as a method);
- **Separatist**: He seeks to separate a part of the country.

![Figure 6. Political attitudes of Influencers](image)
50% of the subversives Influencers in Twitter had pseudonyms.

**Figure 7.** The Real Name/Pseudonym of Various Political Attitudes

In the non-political and Transformationalist groups, women had a larger share (compared with other political attitudes).

**Figure 8.** (Personal) Influencers Gender for Various Political Attitudes

About a quarter of the Influencers with more than 10,000 followers had a Twitter blue tick. This ratio reached 90% among the Influencers with more than 200,000 followers. It's worth noting that Twitter usually gives the blue tick to users (and organizations) who have completed their Twitter profile and are reputed outside the online space.

**Figure 9.** The Ratio of Having Twitter Blue Tick
While only one-third of the Influencers with more than 10,000 Followers live outside Iran, the ratio reached about three quarters in Influencers with more than 100,000 Followers.

**Figure 10. Geographical Location of Influencers**

About a quarter of the Influencers with more than 10,000 Followers were followed in Twitter as daily writers. These people published daily tweets about their lives or their associates, and had many Followers for the charm in their writings. “Influencer feature” was the main reason that Followers followed an Influencer. Needless to say, this variable is not synonymous with the “Influencer profession”. For example, someone may be a medical practitioner, but writes as an activist on Twitter and his Followers follow him as an activist. As a result, his feature is “an activist” and not a “medical practitioner”.

While about one-fifth of the activist Influencers had real names on Twitter, the share of “political groups” among Influencers was only 2%.

**Figure 11. The Distinctive Feature of Influencers**
As shown in Figure 12, the more we move towards the Influencers with more Followers, the share of media and celebrities increases.

![Figure 12. The Distinctive Feature of the Influencers (Based on the Number of Followers)](image)

According to Table 1, more than two thirds of daily-writers were among non-political users and about two-fifths of the activists who had a real name, had a reformist attitude.

**Table 1. Political Attitudes of Influencers (Considering Distinctive Feature)**

<table>
<thead>
<tr>
<th>Distinctive feature</th>
<th>Daily writer</th>
<th>Activist with real name</th>
<th>Artist</th>
<th>Journalist</th>
<th>Activist with pseudonym name</th>
<th>Humorist</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-politica ls</td>
<td>57%</td>
<td>30%</td>
<td>24%</td>
<td>15%</td>
<td>17%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Reformists</td>
<td>21%</td>
<td>57%</td>
<td>16%</td>
<td>41%</td>
<td>41%</td>
<td>0%</td>
<td>7%</td>
</tr>
<tr>
<td>Subversives</td>
<td>14%</td>
<td>13%</td>
<td>20%</td>
<td>18%</td>
<td>18%</td>
<td>0%</td>
<td>12%</td>
</tr>
<tr>
<td>Transformationists</td>
<td>7%</td>
<td>16%</td>
<td>17%</td>
<td>6%</td>
<td>6%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td>Principals</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Separatists</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

So far, we have dealt with the first question and described the characteristics of the Influencers. From now on and by using Gephi software, we will analyze the communication network formed between the Iranian Twitter Influencers.

Figure 13 shows how the influencers are positioned next to each other; the more two nodes have common communication networks, they are closer to each other. It is worth mentioning that each node represents an Influencer. In this section, for
the purpose of better visualization, we focused on Influencers with more than 30,000 followers. In this graph, the blue color indicates non-political influencers, the yellow color indicates the principalists, the green color indicates the reformists, the pink color represents the transformationalists, the red color represents the subversives, and the brown color indicates the separatist Influencers. Perhaps the most important point of this graph is that, unlike the speculation that there is a relative convergence of non-political Influencers with a reformist tendency, these Influencers (the blue nodes) are closer to subversive (red) and transformationalist (pink) Influencers. Another important notion is that separatists (brown) not only have the smallest number among different political attitudes, but are insignificant in the communication network of the Iranian Twitter Influencers.

![Communication Network of Iranian Twitter Influencers](image)

**Figure 13.** The Communication Network of Iranian Twitter Influencers (with more than 30,000 Followers)

Now we change the size of the network nodes according to the “Betweenness Centrality” indicator, which is an important indicator for measuring the penetration of a node within the overall network. The Betweenness Centrality of each node indicates how much that node is placed on a network in the shortest path between two randomly selected nodes. The significance of this indicator is that in calculating it, the overall network is calculated, not merely the nodes associated with that node (NODUS LABS, 2018).

As shown in figure 14, subversive and transformationalist Influencers are in a relatively better position in terms of the betweenness centrality indicator. The calculations of Gephi software reveals that Kambiz Hosseini, Nima Akbarpour and Vahid Online accounts have the highest rate of betweenness centrality, while Hesamodin Ashna is in the fourth place.
Figure 14. The Betweenness Centrality Indicator in the Communication Network of Iranian Twitter Influencers (with more than 30,000 followers)

The “page rank” is also one of the important indicators which is calculated in Gephi and measures the significance of each node. The size of this indicator for each node shows how likely a user will reach the desired node after a lot of clicks (Heymann, 2015). Indeed, it could be said that the more the Influencer has more powerful followers (followers with more followers), the likelihood of being chosen after many clicks is higher and, in other words, its page rank will be higher.

Both yellow nodes in figure 15 which are larger than the others, belong to Ayatollah Khamenei (khamenei_ir and Khamenei_fa). It can be concluded that Mr. Khamenei’s English and Persian pages are more likely to be targeted by the Influencers (and not necessarily ordinary users) than any other page on Twitter. Ayatollah Khomeini’s Twitter page is ranked third.

Figure 15. The Page Rank Indicator in the Communication Network of Iranian Twitter Influencers (with more than 30,000 followers)
So far, we have answered two questions out of the three research questions; we have identified the Iranian Twitter Influencers and their characteristics, and determined and analyzed their communication network.

Now, to answer the third question, we are going to explore how the Twitter users are under the influence of the political attitudes of both groups (Influencer and Follower).

First, we need to identify the political attitudes of users. As explained in the Methodology section, we identified the political attitude of each user by considering the share of different political attitudes among the Influencers followed by that user. Of course, this method of identifying the political attitude of users is not very accurate, but its possible errors can be ignored, especially as here we are faced with big data and there is no alternative way.

As can be seen in Figure 16, 46% of users tend toward reformists. Of course, this does not mean that all of these users are in favor of a “reformist movement”; rather, the more precise meaning is that they prefer the “reformist” method over the other ways. A quarter of the Twitter users have subversive tendencies. Transformationalists, Principalists, and separatist attitudes place at the next ranks with 15%, 11%, and 3%, respectively.

As shown in Figure 17, two-fifths of Principalist users are considered to be fanatic users. A fanatic user is a person who follows more than 70% of the Influencers and has the same political attitude. In fact, the fanatic user is one who is often exposed to one type of political attitude and is less inclined to be exposed to different opinions. Only 1% of transformationalist users were fanatic users.
According to Table 2, on average, 56% of the Influencers followed by a reformist user had reformist attitudes. Also, transformationalist users are more likely to follow non-political Influencers (44%) than to follow transformationalist Influencers (33%). The complete isolation of separatists is evident in this table, as they have no share in the Influencers followed by reformist, transformationalist, and principalist users, and only 1% of the Influencers followed by subversives supported the separation of Iran. Further, 64% of Influencers followed by principalist users tended to be principalist. This result confirms the result obtained in Figure 17. Another important point about Table 2 is that users, depending on their political attitude, exposed themselves to Influencers different from the Influencers followed by other users (with a different political attitude). For example, on a principalist user page, there was only 3% of the subversive Influencers, and on the page of a subversive user, only 2% of principalists Influencers were followed.

**Table 2. Influencers Political Attitudes (according to political attitudes of Followers)**

<table>
<thead>
<tr>
<th>Influencer</th>
<th>Non-political</th>
<th>Separatist</th>
<th>Principalist</th>
<th>Transformationalist</th>
<th>Subversive</th>
<th>Reformist</th>
</tr>
</thead>
<tbody>
<tr>
<td>17%</td>
<td>0%</td>
<td>6%</td>
<td>12%</td>
<td>9%</td>
<td>56%</td>
<td>Reformist</td>
</tr>
<tr>
<td>21%</td>
<td>1%</td>
<td>2%</td>
<td>12%</td>
<td>53%</td>
<td>11%</td>
<td>Subversive</td>
</tr>
<tr>
<td>44%</td>
<td>0%</td>
<td>2%</td>
<td>33%</td>
<td>9%</td>
<td>12%</td>
<td>Transformationalist</td>
</tr>
<tr>
<td>11%</td>
<td>0%</td>
<td>64%</td>
<td>3%</td>
<td>3%</td>
<td>18%</td>
<td>Principalist</td>
</tr>
<tr>
<td>2%</td>
<td>65%</td>
<td>3%</td>
<td>5%</td>
<td>23%</td>
<td>2%</td>
<td>Separatist</td>
</tr>
</tbody>
</table>
Conclusion

The results of this research show that although none of the political attitudes in Iranian Twitter - in terms of popularity among users and Influencers - have significant superiority to others, but a significant proportion of users who favors a political attitude, have little tendency to be exposed to different political messages; i.e., they are more likely to read material related or close to their political attitudes. As we can see in Table 2, except for Transformationalists that agree with only one third of the influencers that they follow, the other groups are exposed to more than half of influencers with mutual political tendency. It seems that the five groups of Iranian Twitter Users (Principalist, reformist, transformationalist, subversive, and separatist) live in five parallel worlds and have little communication with each other. Of course, as Castells says, users in the online environment are free to determine their communication network. However, paradoxically, they become captured by the same network that they freely choose, and are often exposed to the same news and messages and thus form a biased image of the realities around them. Therefore, the current status of the online space seems to be more like a “global archipelago” than to the promised “global village”. Nonetheless, we think the current status of online social networks is not their final fate. In addition, online social networks have caused very positive developments even in their current state of affairs. One of the major achievements of these networks is breaking the monopoly of media; those which used to manipulate the reality and prevented the release of a lot of important news via gatekeeping, today are in difficult times. Another important point is that online social networks should not necessarily be seen as a tool for organizing movements or revolutions. Influencers of online social networks affect attitudes of ordinary users by the contents that they publish constantly in long term. The continuous and daily influence of these new media in shaping the lifestyle, habits and attitudes of users is also important. If we do not understand the important role of online social networks in daily lives of users, we could not understand how they influence in political contexts too, and we may turn to sensational and far-reaching analyses.

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