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DEFINING TWITTER AGENDA DURING JUNE 2015 TURKEY GENERAL ELECTION, A SOCIAL NETWORK ANALYSIS APPLICATION

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Abstract

This paper investigates Twitter agenda during Turkey general election at the 2015 June 7th with using social network analysis. In total 810 tweets of top 18 most followed accounts of journalist/columnists on Twitter was analyzed during election. Study cover the time period 31 May - 14 June 2015. Content analysis was used for data gathering and five coders were used. Krippendorf Alpha was computed for inter-coder reliability. Calculated KALPHA is 0,80. Eleven main categories were defined at the end of content analysis and two matrices were created based on eleven categories. One matrix for one week before election and the other matrix for one week after election. Data was analyzed with network analysis software named as UciNet and NetDraw. Results show that, politics, election, media, democracy are the most central topics for one week before the election. Besides, politics, election, democracy, media are the most central topics for the one week after election It was found also two matrices (one week before and after election) are related to each other.

Keywords: Agenda Setting, election, Twitter, social network analysis

HAZIRAN 2015 GENEL SEÇIMLERINDE TWITTER GÜNDEMINI BELIRLEME. BIR SOSYAL AĞ ANALIZI UYGULAMASI

Öz

Bu çalışma, 7 Haziran 2015 Türkiye genel seçimlerinde Twitter gündemini sosyal ağ analizi kullanarak incelemektedir. Seçim boyunca en çok takipçisi olan 18 köşe yazarının 810 Twetter gönderisi incelenmiştir. Çalışma 31 Mayıs-14 Haziran dönemlerini kapsamaktadır. Veri toplama aşamasında içerik analizi kullanılmış, Beş kodlayıcı için kodlayıcılar arası güvenilirlik katsayısı olarak Krippendorf Alfa katsayısı hesaplanmıştır. Hesaplanan KALPHA değeri 0,80'dir. İçerik analizi sonucunda 11 kategori belirlenmiş ve bu 11 kategoriye göre iki matris oluşturulmuştur. Bir matris seçimden bir hafta öncesi için, bir matris seçimden bir hafta sonrası için. Veri, ağ analizi programlarından UciNet ve NetDraw kullanılarak analiz edilmiştir. Elde edilen bulgulara göre seçimden bir hafta öncesi için siyaset, seçim, medya ve demokrasi en merkezde olan konular olmuştur. Bunun yanında seçimden bir hafta sonrası için siyaset, seçim, demokrasi ve meyda en merkezdeki konular olmuştur. Ayrıca oluşturulan iki matrisin (Seçimden bir hafta önce ve seçinden bir hafta sonra) birbiri ile ilişkili olduğu görülmüştür.

Anahtar Kelimeler: Gündem Belirleme, seçim, Twitter, sosyal ağ analizi

INTRODUCTION

The basic idea of a social network is very simple. A social network is a set of actors (or points, or nodes, or agents) that may have relationships (or edges, or ties) with one another. Networks can have few or many actors, and one or more kinds of relations between pairs of actors (Hanneman and Riddle, 2005).

In recent years researcher started to use social network analysis widely into agenda setting research as a third level agenda setting research (Guo, 2012; Cheng and Chan, 2015; Vargo, et al. 2014). This paper aims to introduce an application of social network analysis in agenda setting research. Agenda setting theory basically states that media agenda sets public

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agenda (McCombs and Shaw, 1972). Historically, agenda setting theory take place in indirect and long-term effect researches. Indirect and long term researches argues that people's image and values are shaped by mass communication with indirectly and within the long-term (Yüksel, 2001). According to the agenda setting theory the news media have a large influence on audience by their choice of what stories is considered news-worthy and how much prominence and space is given to such stories (McCombs, 2004).

Most discussions of the agenda-setting role of the mass media the unit of analysis on each agenda is an object, a public issue. However, public issues are not the only objects that can be analyzed from the agenda-setting perspective. There are many objects that can define an agenda. Public issues, political candidates, or other items defining an agenda, the term object is used in the same sense that social psychologists use the term attitude object (McCombs, 2004).

Traditional approach to define media agenda is content analysis. In the content analysis, researchers need a codebook, which are included predefined objects for coding. With this traditional approach researchers can only define list of media and public agenda list. Network analysis allow the researcher not only list of media and public agenda objects, it also allow explore interrelationships among these objects (Guo, 2012).

McCombs and Shaw (1972) hypothesized agenda setting theory as salience of objects can be transferred from media to public in their Chapel Hill study. Since then, agenda setting theory evolved three level of agenda setting researches had been conducted (McCombs, Shaw and Weaver, 2014).

- Basic agenda setting, the impact of the media agenda on the public agenda regarding the salience of issues, political figures and other objects of attention (the first level of agenda setting).
- Attribute agenda setting, the impact of the media agenda on the public agenda regarding the salience of the attributes of these objects (the second level of agenda setting).
- Network agenda setting, the impact of the networked media agenda of objects or attributes on the networked public agenda of object or attribute salience (the third level of agenda setting).

At the fist level of agenda setting researchers tried to investigate rank order of object of salience which is mentioned in media and transferred to public (McCombs and Shaw, 1972; Winter andEyal, 1981).

Second-level agenda setting contends that the attributes of the issue emphasized by the media affect the salience of these attributes in the public opinion (Lee and Len-Rios, 2014; McCombs, Lopez-Escobar and Llamas, 2000; Wu and Seltzer, 2006). Second level agendasetting explains that, through media coverage of an event, the public will develop an opinion about the event based on the type of coverage the news gives to those specific attributes. By covering attributes in either a positive, negative or neutral tone, the media help the public not only to decide on the importance of the issues being covered but also how to feel about the issue (McCombs et al 1997).

At the third level agenda setting researcher tried understand interrelationship objects and attributes both media and public (Guo, 2012; Cheng and Chan, 2015; Vargo et al. 2014).

Methodology

This paper aims to define Twitter agenda with using social network analysis. This study analyzed columnists' tweets during the two weeks preceding the election. Study covers

the dates between 1st June and 15th June.In other words one-week period before election and one-week period after election. For this research the eighteen columnists with most followers in Turkey were selected. They are AhmetHakan, Can Dündar, Ayşe Özyılmazel, Ayşe Arman, UğurDündar, BekirCoşkun, FatihAltaylı, YiğitBulut, YektaKopan, EzgiBaşaran, EkremDumanlı, ÖzgürMumcu, HaykoBağdat, Abdurrahman Dilipak, KorayÇalışkan, Abbas Güçlü, NihanBengisuKaraca, NedimŞener. All tweets of these columnists were analyzed in the electoral period. In total 810 tweets were analyzed. In the fallowing, the details of data collection procedures were explained.

Collecting Data

In the fist stage of data collection procedure, the content analysis was held on columnists' tweets. In order to obtain code list and intercoder reliability pre-test was held in one-week period on randomly selected five columnists' tweets. In these process five coders was used. At the end of pre-test eleven main categories (attribute) was defined and Krippendorf Alpha coefficient was calculated for inter-coder reliability. Calculated KALPHA is 0,80.The list of defined categories are Election, Economy, Foreign policy, Environment, Terror, Culture-art, Politics, Media, Democracy, Religion and Secularism.

The goal of network analysis is to probe the inter-relationship between elements, so researchers need to explore attribute co-occur in the content (Guo, 2012). Each tweet of columnists was selected as coding unit. Coders were asked for read the tweet and find out which attribute presented together. Coders were asked for define at least two objects on the tweets. For example if the tweeted content mention to foreign policy and terror, it was accepted these two attribute connected together.

Creating Matrices

In the second stage of data collection procedure, content analysis data was transferred to symmetrical matrices. This is necessary for the network analysis. Network analysis matrices, depending on number (N) of predefined attributes under the study, include N rows x N columns. In this study eleven attributes was defined and matrices includes 11 rows and 11 columns. For each time period, two different matrices were created. Matrices were created based on interrelationship between the attributes found in content analysis. For example if 13 interrelationshipswere found between "economy" and "media" in the content analysis, this frequency number was entered to the cell in the matrix. Created matrices can be seen in Table 1 and Table 2.

Table 1. Matrix Of Columnists' Agenda Based On One Week Before Election

	A	B	C	D	E	F	G	H	I	J	K
A	-	18	1	0	9	4	55	29	30	10	0
B	18	-	1	3	8	1	12	6	16	2	2
C	1	1	-	0	1	0	17	3	1	0	0
D	0	3	0	-	1	0	1	0	1	0	0
E	9	8	1	1	-	1	10	3	5	1	0
F	4	1	0	0	1	-	1	5	6	0	0
G	55	12	17	1	10	1	-	63	27	0	5
H	29	6	3	0	3	5	63	-	17	2	2
I	30	16	1	1	5	6	27	17	-	2	0

J	10	2	0	0	1	0	0	2	2	-	0
K	0	2	0	0	0	0	5	2	0	0	-

A: Election, B: Economy, C: Foreign policy, D: Environment, E: Terror, F: Culture-art, G: Politics, H: Media, I: Democracy, J: Religion, K: Secularism

Table 2. Matrix Of Columnists' Agenda Based On One Week After Election

	A	B	C	D	E	F	G	H	I	J	K
A	-	9	0	0	1	0	55	2	13	0	0
B	9	-	1	0	3	0	11	0	6	0	0
C	0	1	-	0	1	0	4	1	0	1	0
D	0	0	0	-	0	0	0	0	2	0	0
E	1	3	1	0	-	0	6	0	7	0	0
F	0	0	0	0	0	-	1	2	3	0	0
G	55	11	4	0	6	1	-	28	32	6	0
H	2	0	1	0	0	2	28	-	9	2	0
I	13	6	0	2	7	3	32	9	-	3	0
J	0	0	1	0	0	0	6	2	3	-	0
K	0	0	0	0	0	0	0	0	0	0	-

A: Election, B: Economy, C: Foreign policy, D: Environment, E: Terror, F: Culture-art, G: Politics, H: Media, I: Democracy, J: Religion, K: Secularism

Network Analysis

Network analysis displays relationships as consisting of nodes (individuals or organizations) and ties (which are also called links or edges). These nodes represent actors within the networks, and ties represent the relationships between them (Kadry, 2014). Centrality is an important measurement concept in network analysis. Centrality concept in network analysis is identification of the most important actors in a network (Wasserman and Faust, 1994). One of the centrality measurement tools is "degree centrality". Degree centrality considers nodes with the highest degrees (number of adjacent edges) as the most central (Kadry, 2014, p.19). The more ties an attribute has with other elements, the more centrally it is located in the network (Guo, 2012). "Density" measurement can be used in order to identify overall level of connection within network. Data was analyzed with network analysis software named as UciNet and NetDraw.

Table 3. Degree centralities of Nodes

Nodes	Before Election	After Election
Election	156	80
Economy	59	30
Foreign policy	24	8
Environment	6	2
Terror	39	18
Culture-art	18	6
Politics	191	143
Media	130	44

Democracy	105	75
Religion	17	12
Secularism	9	0

For the before election data, "Politics" has highest degree centrality (191) and density value is 6.9. For the after election data, again "politics" has highest degree centrality (143) and density value is 3.8.

Visual representation, which most new modeling tool support, help to better understanding the network, since visualization tools can be used to change size, colors, layout and other attributes (Kadry, 2014, p.25). Visualization of network data gives better understanding of what networks look like. In this study, NetDraw software was used for visualization.

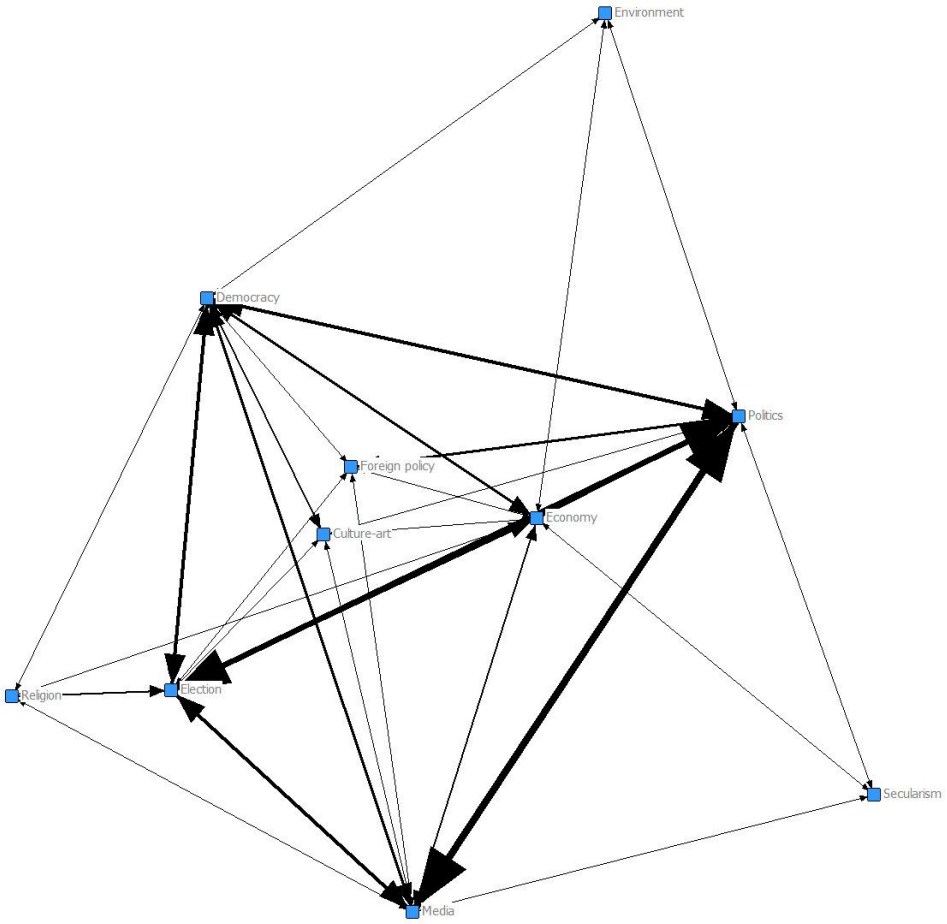

Figure 1. Before Election Network

Network visualization of before election data shows that politics, election and media most central attributes. Also, thickness of lines shows strength of association of those attributes. Network visualization of after election data shows that politics, election and media most central attributes. Also, thickness of lines shows strength of association of those attributes. One interesting finding can be seen figure 2. One week after election period, secularism has no connection with other nodes. Traditional content analysis results probably

will show amount of frequency about secularism. As mentioned before, network analysis shows interrelationship between nodes. Figure 2 shows this advantage of network analysis.

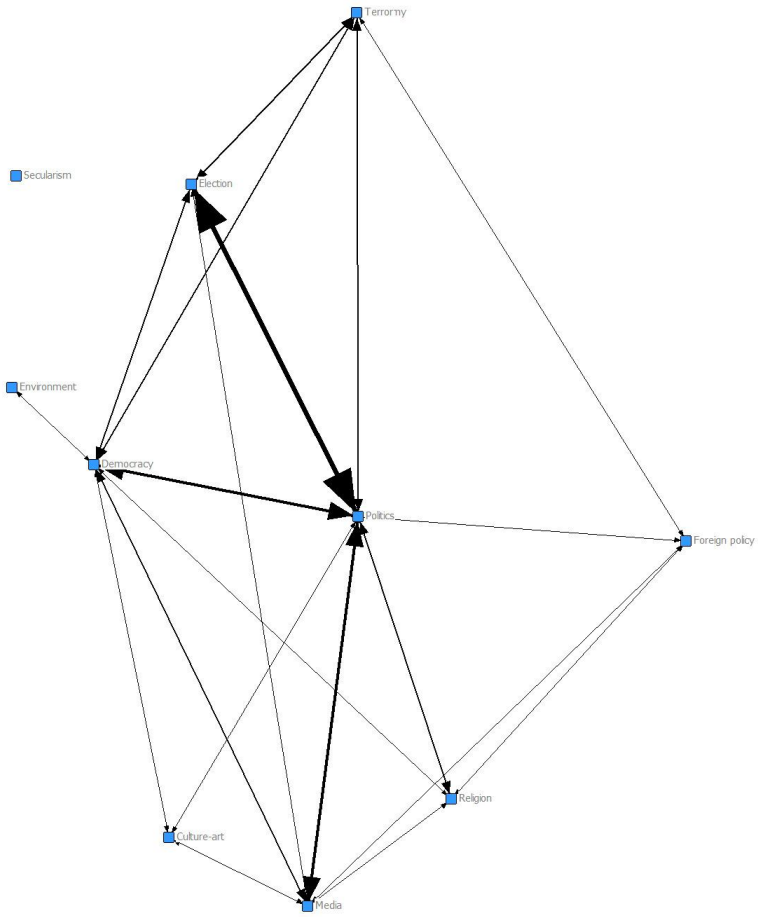

Figure 2. After Election Network

Additionally, to test associations between matrices QAP (Quadratic Assignment Procedure) correlation can be used. UciNet allows the researcher to calculate QAP correlations.

QAP correlation test compute correlation and other similarity measures between entries of two square matrices, and assess the frequency of random measures as large as actually observed. The procedure is principally used to test the association between networks. Often, one network is an observed network while the other is a model or expected network. The algorithm proceeds in two steps. In the first step, it computes Pearson's correlation coefficient between corresponding cells of the two data matrices. In the second step, it randomly permutes rows and columns (synchronously of one matrix) and recomputes the correlation and other measures. The second step is carried out hundreds of times in order to compute the proportion of times that a random measure is larger than or equal to the observed measure calculated in step 1. A low proportion (< 0.05) suggests a strong relationship between the matrices that is unlikely to have occurred by chance (http://www.analytictech.com).

Table 4. QAP Correlation Results

	Before Election	After Election
Before Election	-	0.85*
After Election	0.85*	-

*p<0.05

QAP correlation test result shows that each matrix related to each other. In other word, columnists' agenda of before election and after election are related to each other.

Conclusions

This study presents the uses of network analysis in to the communication research, specifically agenda setting. This study investigated only media agenda. Results show that uses of network analysis enables researchers to see detailed image of media agenda. Traditional media agenda researches show that only rank order of objects but network analysis shows that relationships between objects. This is most advantage of network analysis.

Some statistical tools such as centrality provides to researchers to see which elements are the center in the media. Additionally, QAP correlation enables researchers to see similarities between different agendas.

Both first and second level agenda setting researches focused on individual objects and attributes, which are disconnected elements of whole. (Guo, 2012) Network analyses, presented here, gives exact pictures of individual's mind constructed by news media. Previous third level agenda setting researches (Guo, 2012; Cheng and Chan, 2015; Vargo et al. 2014) tried to answer the question that the news media and other communication media, such as twitter, are able to transfer an integrated image. They found that there are positive relationships between integrated image of media and public. As a limitation of current research, public agenda was not examined and no clues about transfer of media agenda. According to the previous researches' and this study's findings shows that potential of the network analysis to agenda setting research.

For the future researches, both media and public agenda should be investigated with network analysis and researchers should investigate similarities between media and public agenda. To find out public agenda, mind-mapping survey could be use. In the mind mapping survey, focusing on certain individuals are usually asked to write down the things that first come to mind and then expand outward into branches and sub-branches as fast as they can (Guo, 2012, p.621).

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