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JETFIGHTER DOWN!

PREDICTING OPINIONS WITH TWITTER AND THE ROLE OF SOCIAL MEDIA IN TURKEY WITHIN CONTEXT OF ATTRIBUTE AGENDA-SETTING THEORY*

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Abstract

Newspapers have important role of agenda setting. They have the unique power and opportunity to inform. However, the way to gather, disseminate and follow repercussions of their news is changing. Newsmedia is affected by social media. This change should be carefully analyzed using opinion mining methods on social media like Twitter, where political deliberations are heavily made. We investigated contents of news about a jetfighter incident in 2012 between Turkey and Syria from nine national newspapers and compared them with over 100,000 messages containing reference to the incident from more than 34.000 people on Twitter to find whether messages on Twitter mirror the opinions in newspapers. Using content analysis and semi-supervised opinion mining method, our results show that agendas of newspapers and Twitter users widely differ on the incident, indicating a possible agenda mismatch.

Keywords: Attribute Agenda-Setting; Newsmedia; Social Media; Twitter; Opinion Mining.

1. Introduction

Communication gets faster and news can quickly turn around the world. As Marez points out, the concept of agenda setting can be divided into two. The first one is called "issue agenda setting" which indicates the influence of media power on what the public thinks about. The second one is "attribute agenda setting" which means how the public thinks about it. Into the 21st century, with the introduction of Web 2.0 and new media tools to publish news on-the-fly, agenda setting theory, which was "predicated on newsmedia's monopoly ownership of news production and distribution tools", has been left in the past. (Marez, 2011:107-108). The basic function of journalism such as news-making and forming public opinion, in fact, have not changed, but from process of gathering the news until distribution and consumption, the change of media brought differences in the basic publication process and reader habits (Regan,

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1995:53; Schultz, 1999: Berghel, 1999: 19-23; Koganuramath, Suresh, and Mallikarjun, 1999:46; Shaver and Shaver, 2003: 73-80).

This fast moving social structure has been conceptualized as "Information Age" -also defined as '*the post-industrial society*', '*network society*', or 'information society' in the literature (Castells, 2004: 148). Marez emphasize that contrary to the assumptions of media theories, in the age of networked media, citizens can find alternative ways to newsmedia to share their opinions with other, like-minded citizens (Marez, 2011:108). Later it has been seated with the framework of "Social Media" (Lis and Berz, 2011: 194-198).

According to Murty, a distinction should be made between 'social network' and 'social media'. "Social networks such as Facebook and LinkedIn are considered as web services which facilitate users maintaining a public or semi-public profile within a bounded system which they can articulate a list of other users with whom they share a connection", whereas "social media are mainly conceived of as a medium wherein ordinary people in ordinary social networks (as opposed to professional journalists) can create user-generated news.[…] The 'social' part of social media refer to its distinction from 'traditional' media (Murty, 2012: 1061).

In this new media, based on speed, sharing and interactivity, one of the things that most attracts people in the sense of journalism, undoubtedly, is the elimination of intermediaries. In other words, they attain an environment where they are able to "freely" express their thoughts and actions. Among the reasons behind the success of social media, is allowing different/alternative discourses that people want to hear. Although there are deficiencies of being deprived of the skills of journalism profession as well as technological constraints in discourses on social media, after all, what was not said is said, and masses that were not reached are reached.

Today, social media's role has been, along with the pressure that was felt on newsmedia businesses, to contribute to the formation of a more democratic environment, make it possible for everyone's voice heard, and ensure the awareness of other people who struggle for their voice heard. However, this does not mean that we cannot interrogate the other side of the coin. Pressures on newsmedia, and evidence of the increasing pressures influencing social media itself like sayings such as "pulling the plug of social media" actually in last several years have been heavily discussed by the public.

This article discusses emergent social media as a news channel in the context of attribute agenda setting. We try to answer the question "how much unique is social media content?"The aim of the study is threefold. First, by using content analysis, we examinenews and determine their opinion categories and representative keywordsfor each category (Table 5 and Figure 1). Second, based on the keywords obtained from news, we empirically determine the opinion categories of Twitter messages (Figure 2). Also, we matched keywords from news/columns andTwitterposts to test how Twitter messages coincide with the opinions in news. Third, we evaluate semi-supervised opinion mining method to predict the success ratio of determining positive and negative Twitter messages (Table 7). The byproduct of this research is expected to develop a sentiment analysis program for Turkish language.

2. Conceptual Framework

2.1. News Sharing on Social Media

The ZDNet editor, Tom Foremski says that when he started to work as a blog author-journalist in 2004 it has been widely accepted that social media would be a significant alternative to the gate keepers of the mass media. But he thinks that this did not happen because citizen journalists around as blog authors are a relatively small group, producing rarely original news. He concludes that instead of changing it, social media has been distributor and amplifier of traditional media. He calls this effect as "*Social Distribution of Mass Communication (SoDOMM)*" (Foremski, 2011).

Several researches in the United States indicate approximately 30% of people describe their news source as social media.Also, an interesting research dated December 15, 2011 made by Pew Research (http://pewresearch.org/about/) found that the use of social networking sites for political purposes is more widespread within the young adult population (Smith, 2011: 5).

In particular, the year 2011 was a year that contributes to the spread of social media. Significant events both cyclical and incidental had been experienced. For last several years, it is possible to say that social media is synchronized with mass communication media. The following table from a research conducted by Pew Research, shows that social media users intensively followed the incidents that took place in 2011 (Pew Research, 2011: 5-6).

Table 1: Important incidents of 2011 in the USA and their reflections on social media and mass media

Incident	Percent of people following the news about incident among all Social Media users	Percent of newshole
Earthquake in Japan	57	57
Killing of Bin Laden	42	69
Resign of Mubarak	48	39
Violence in Libya	23	28

Excerpt from Source: http://www.people-press.org/2011/12/21/2011-a-year-of-big-stories-both-foreign-and-domestic/12-21-11-6/, (Accessed 13Jan. 2012).

According to the same research, some extreme differences were observed between the density of the news in mass media and the interest on social media. The following Table 2 gives an idea about the situation.

Table 2: Instances When Coverage and Public Interest Differed in 2011 in the USA

	Percent followed most closely	Percent of newshole
When press coverage exceeded public interest		
U.K. hacking scandal (July 21-24, 2011)	3	17
Dominique Strauss-Kahn's arrest (May 19-22, 2011)	2	15
When public interest exceeded press coverage		
Gas and oil prices (April 28- May 1, 2011)	24	2
Helicopter crash in Afghanistan kills 30 US troops (Aug 11-14, 2011)	27	7

Source: http://www.people-press.org/2011/12/21/2011-a-year-of-big-stories-both-foreign-and-domestic/12-21-11-7/, (Accessed 13Jan. 2012)

By giving a special importance to young masses during Obama's election campaign (Yes We Can) for his first nomination for the Presidency and using social media intensively made politicians think that they also should use social media to communicate with their voters. Later on, the politicians started to take advantage of the opportunities offered by social media in many countries. Both politicians and voters gained more experience in use of social media tools in the political sphere. They are trying to keep the pulse of more voters by using various methods from the answering questions of voters in real-time, up to public opinion polls whose results can be seen at real time (Preston, 2011; West, 2012: 1).

At its widest extent, Social media is a web-based formation, where individuals create and share content, and moreover be in contact with each other (Kim, et al. 2010: 215; Lerman, 2007: 17; Goode, 2009: 1302; Murty, 2012: 1061-1063). As Kara mentions, they also peep in other users' profiles and relations (Kara, 2013: 54). This kind of social networking sites gives individuals the opportunity to share personal information, and include various links (such as work, hobbies, etc...) with other people. According to Kirschner and Karpinski, news, information, or idea sharing of individuals lead to the establishment of relationships with other individuals who adopt similar interests and needs; in this way, the groups that feed with common interests and needs, cumulatively increase (Kirschner and Karpinski 2010:3). Murty also notes that, social media is about self-presentation. For example, the act of tweeting is about

self-production. He adds that "microblogging services depend on regular posting by users. Without this regularity, the utility of social media such asTwitter diminishes significantly" (Murty, 2012: 1062).

Social media also provides users many news reporting functionality of newsmedia. Users, who are followers (subscribers)of journalists or various news sites, easily reach news they are interested. At the same time they have the opportunity to access independent news sources apart from the mainstream media through accounts of independent journalists (Cho, et al. 2010: 1198; Dunne et al. 2010: 49-52; Goode, 2009: 1302). In this manner, asnews delivery process of newsmedia is maintained; a one-to-one relation between "reader" and "journalist" is established in contrast to newsmedia.

News flow is one-way in newsmedia. As reader does not contribute to production or content of the news, the chance of expressing thoughts and comments about news is limited through "reader representatives", "ombudsman" and "published disclaimers". Social media is changing this structure. In fact, the most remarkable feature of social media that is often emphasized in recent years is the passive audience or consumers can be turned into active producers (Nov et al, 2010: 556). "News" and "reader" relationship on social mediamay appear in different ways. First of all, social media users can become a part of the process not only by transmitting the news content, but also by sharing their own thoughtsrelated to the content (Szabo and Huberman, 2010: 83; Fortunatiet al. 2013: 4). On the other hand, social media is also used by journalists. As Lysak et al. cite from R. Jewitt (2009) and J. Howe (2006)that journalists are increasingly seeing social media such as Twitter as a productive tool in their professional routines like news dissemination and newsgathering. They mention disseminating at high speed and crowdsourcing news as strengths and unreliability of posts as its weakness (Lysak et al. 2012: 188).Sivek also mentions similar uses of Twitter by individual journalists along with its risks and benefits (Sivek, 2010: 153-154).

As for Turkey, recent incidents of 2013 June, in TaksimGeziparki, and of 2014 March incidents for protesting the death of a 15 year-old boyBerkin Elvan after staying 269 days in hospital being in coma show us social media havemore information than traditional newsmedia outlets.Many people used social media to access real-time information. For example, in the case of the death of the boy, there were over 14 million tweets for Berkin,reaching 70 million people worldwide in two days,and at the time of Gezi Parki incidents 20 million tweetssent each day (Can, 2014). But they were unfiltered/uneditedmessages. Some of them were disinformation. Incidents could be followed on social media, especially Twitter by hashtags like #direngeziparki, #occupygezi and #berkinelvanolumsuzdur. During the incidents, Prime Minister of Turkey, Mr. Erdogan announced that social media is "the worst menace to society"; saying "incorrect" information was being spread via tweets (Kotsev, 2013). After a series of leaks of allegedly his private telephone conversations on the Internet, he blamed political enemies for abusing social network sites with stream of fabricated postings. He suggested that after 30th March 2014 elections they can close access to Facebook and YouTube, (Dombey, 2014; The Guardian, 2014). He later told the press that a complete close is out of question (Kural, 2014). On 20th March, 2014, Turkey has blocked access to Twitter; hours after Prime Minister Recep Tayyip Erdoğan vowed to close down the social media platform (Hurriyet Daily News, 2014).

2.2. Attribute Agenda-Setting Theory

The agenda setting concept first has been used in a study that questioned whether there was any relationship between the importance of the ranking of the issues on the agenda of the media and the importance of the ranking of issues in the minds of undecided voters during the 1968 United States presidential election campaign in Chapel Hill, North Carolina. Then, "agenda setting theory" has been mentioned as "a function of the mass media" (McCombs and Shaw, 1972, p.177).

The first study in the literature that inspired many scientific studies including the works of McCombs and Shaw was "Public Opinion" which is an article by Walter Lippmann in 1922. In that article, Lippmann argued that the dominant elements in media images also become dominant or primary images in the minds of the media audience. An expression that is similar to this in 1963 by Bernard Cohen has been expressed in the form of "The press may not be mostly successful in saying what people think, but it is supremely successful in saying what readers think about" (Yuksel, 2001: 34). In 1920s and 1940s, it was a common belief that the media had powerful influence on people. But by the 1960s, it was thought that it hasn't a strong impact as previously thought. In the studies after 1960s, it was put forth that the impact of the media are much more powerful on people than it was thought (Severin and Tankard, 1994: 459; Yuksel, 2001: 17).

McCombs published a research review about agenda setting's past, present and future in 2005. He emphasized that the Internet has been the new arena for research on effects of traditional agenda setting. In that paper he coined a new term called "Attribute Agenda Setting". He explains the term involving the transfer of salience as the changing fashion of news media landscape. According to him, "when the news media talk about an object – and when members of the public talk and think about an object – some attributes are emphasized, others are mentioned in passing" (McCombs, 2005: 545-546).At that time social media was a relatively new phenomenon and less ubiquitous than today.This effect is more easily seen in cases where public share their opinions about a particular subject on social media.McCombs points that although majority of the public do not know what blog is, many journalists seek them out for news. He emphasizes the intermedia agenda setting issue, by questioning who sets whose agenda as blogs are part of the journalism landscape (McCombs, 2005: 549).

According to Matei, newsmedia make its viewers or readers think that they are selecting, reading, and evaluating the news, and they reach a decision on the subject. In doing so, it uses the advantage of the power of visual aids such as photographs. The readers and viewers think that judgment or idea which they have acquired is a result of their processes of thought, or their decision-making. However, according to Matei, this is exactly what newsmedia wants to do: creating the opinion that conviction was created by the audience (Matei, 2010).

According to some research, social media does not cause any change in political views and preferences of the users. According to the research "The Overall Impact of Social Networking Sites on Users' Political Views" by Lee Rainie and Aaron Smith, only 16% of users stated that their opinion have been changed after following news on social media. 9% have expressed that social media does not create an awareness for news or event. 25% of users indicated that they were politically more active after discussion and comments on social media (Rainie and Smith, 2012).

Interactivity between "news" and "user" on social media help user to go beyond newsmedia's agenda-setting process. However, the more important thing is not the transformation of the channel, but diversification of the points of view and sources of information.

In this regard, there are some opinions questioning the relevancy of agenda-setting theory. For example, Freeman and Berger argue that idea of "time lag" is important in explaining what issues are deemed valuable to the public. They reflect that as the Internet evolves toward networked societies, boundaries become more permeable and interactions and linkages between multiple networks are diffuse. This leads us questioning who new media consumers are and who new media gatekeepers are. Besides, active audience theory, which criticize viewing audience as singular,is also related to this discussion,as they quoted from Kevin Williams' book "Understanding Media Theory" (2003), "individuals are not simply wired to accept the media's message"(Freeman and Berger, 2011: 6-7). Therefore, they state that mass media is no longer framing the story and the role of consumers [social media users] as

gatekeepers prevails,since the Internet allows them to be the author and reporter of information. And finally, as time lag is not an issue in new media outlets anymore, it is difficult to maintain a "common agenda" when so much information flowing and updated from many sources (Freeman and Berger, 2011: 14-18).

3. Twitter and Opinion Classification Studies

We see the emergence of widespread new technologies; new applications for sharing (such as YouTube, Flickr and Dropbox); content production; new services for communication and collaboration (such as wikis, blogs, and Twitter) and applications that connect people support different communities (such as Facebook, Elgg and Ning) (Conole and Culver, 2010: 681; Sütcü and Aytekin, 2013: 40-69).

Twitter is classified as microblogging service users with similar interests meet through "following", and produce contents using 140 character-messages. As Gleason notes that "researchers have suggested that individuals are more likely to associate with people who are similar to them, a principle known as homophily" (Gleason, 2013: 467).In addition, as users voluntarily take place there, data such as views, feelings, interpretations, opinions, expectations and approaches that can be difficult to obtain by other means, can be accessible through search facilities of Twitter and their contractors like Hootsuite (hootsuite.com), or paid/unpaid software like archivist (archivist.com). Therefore, this data piles in the form of text actually containing valuable information for policy makers and businesses.

Businesses that are looking for answers to questions such as 'what individuals think about products or services?', 'what is the portion of positive and negative opinions about these products or services they have?' and 'what kind of products or services individuals prefer to have?' or political parties that want to know whether citizens support the party programs, or social organizations who are curious about people's opinions on the current debates, need to analyze this data (Pak and Paroubek, 2010: 1320). In aresearch on Twitter by Chen and Zhao, using "Twititude" system that is described as "message clustering" and "opinion mining", they found that instead of a general opinion (feeling) and content analysis, a more detailed search based on opinion analysis that automatically records different points of view can be made about attitudes and interpretations of individuals. For example, Apple Inc. could want to be informed about the user experiences of the iPhone device users in the matter of "Product is bright enough" or "Whether it is more cost-effective" (Chen and Zhao, 2012: 1).

On the other hand, because of its potential applications, there was an increase in use of general-purpose political opinion classifier tools in the analysis of public opinion. Objective of classifying political opinions is to sort political texts correctly in a political issue under discussion together with its supported and not-supported aspects (Yu, Kaufmann, and Diermeier, 2008: 82). The Turthy Project conducted at the Center for Complex Networks and Systems Research (CNetS) in Indiana University, and constitutes a good example for this kind of studies (http://truthy.indiana.edu/, 2011).

Today, there are plenty of text data containing the user's opinions in many areas on the Internet. Thesetext data are not in a structured format such as the data in corporate databases. Relevant information can be obtained from the structured data of corporations by using data mining techniques. However, in our case, unstructured text data of Twitter makes it difficult for knowledge extraction. This is a very important issue for news media.

Text data can be made structured with content analysis and opinion mining methods, and valuable information is obtained. Thus, the hidden and unknown meanings can be extracted. When text data are expressions of "opinion", opinion mining tasks are concerned (Sütcü and Aytekin, 2013: 95-99). Tasks that are defined variously by some authors in the literature are given in Table 3.

Table 3: Opinion Mining Tasks

Tasks Defined by Esuli and Sebastiani	Tasks Defined by Levene	Tasks Defined by Liu
Defining S/O (Subjective-Objective) polarization of text	Emotion classification	Direct opinions
Defining P/N (Positive-Negative) polarization of text	Feature based mining and summarization	Comparisons
Defining intensity of P/N (Positive-Negative) polarization of text	Comparative sentence, extracting relations and Mentioning an issue as classification problem	

Source: Esuli A. and S. Fabrizio. (2006: 417-422),Levene, M. (2010: 416) and Liu, B. (2007: 114)

4. Research

In this study, we seek to answer the basic question of "How Much Unique is Social Media Content?", and for this purpose, a way of classification of opinions expressed on Twitter has been proposed. We elaborate two tasks, defining S/O (Subjective-Objective) polarization of text and defining P/N (Positive-Negative) polarization of text.

The message of SerdarKuzuloglu, who is a columnist of Radikal newspaper (radikal.com.tr) and programmer in TRT television about Social Media, that he sent on Twitter on 13.09.2012, saying that "instead of accompanying to the noise of current events, social media should do opinion/incident monitoring insistently, shouldn't they? For example, that Turkish jet that was down, you know it? #WhatHappened?[#NeOldu?]" (Kuzuloglu, 2012)is a typical example of expectations from social media.

Basic research questions in this study are the following:

1. How news media frame the topics in the news?
2. How do newsmedia and social media overlap in generating and sharing of news content?
3. What are the criteria for the success of an automated opinion mining method to semantically analyze Tweets in Turkish?

4.1. Methodology of the Research

Related to the incident of the downed jetfighter on June 22, 2012 and other events evolving around it, news and articles of columnists that mention about it in nine national newspapers published in Turkey between June 22, 2012 and July 21, 2012 (Table 4), were gathered by scanning the newspaper archives on the Internet. A total of 143 news and columns were found and analyzed. These dates were the time interval within which the subject most intensely remained on the agenda.

This study has some limitations. As in the case of similar researches (Tumasjan, et.al, 2010: 184), sampling of Twitter messages and news/columns cannot represent the opinion of Turkish society.

Table 4: Weeks and Dates of Research

Weeks	Dates
Week	22-24 June 2012
Week	25 June-1 July 2012
Week	2-8 July 2012
Week	9-15 July 2012
Week	16-22 July 2012

First, we determine the attributes of news objects by looking at news and columns in newspapers using content analysis. By "object, we mean to say as in McCombs' explanation "the thing that an individual has an attitude or opinion about" (McCombs, 2005: 546).

Articles of a total of 67 columnists with a widely different political viewwere examined. News and commentaries were also individually examined. By analyzing the frequency and

accentuation of words in textsof each article/column, 581 unique keywords or phrases were empirically determined that were thought to represent these texts. We then classified these keywords/phrases into their representative opinion categories shown in Table 5.We defined nineteen distinctive categories of frames, which make the opinions more salient in communicative texts of newsmedia.

It is observed that thisnews have reflected distinct opinions at times when they were published. Nineteen categories were observed in a specific order from the most positive one (1-Discourses againstwar) to the most negative one (19-Pro-war discourses). Positive categories were marked with the letter "P" and negative categories with the letter "N". Also, categories evaluated as neutral news and columns were marked with letter "O".

Second, the frequency of each keyword and phrase extracted from newspapers during the same period has been analyzed on Twitter. To collect data, the keywords "Syria" and "the Turkish jet" (in Turkish) searched in posts on Twitter between June 29, 2012 and July 20, 2012. For this purpose, "The Archivist" software (http://www.tweetarchivist.com/) was used. The posts in which the keywords/phrases exist were classified into nineteen categories. The analyses were carried out on 106.450 Twitter posts. They were gathered from 34.880 users. 51.264 of these posts were the repeated (RT - retweeted) messages. In other words, 48% of the messages on the subject were the messages that were posted by others.

The following Figure 1 shows the research process.

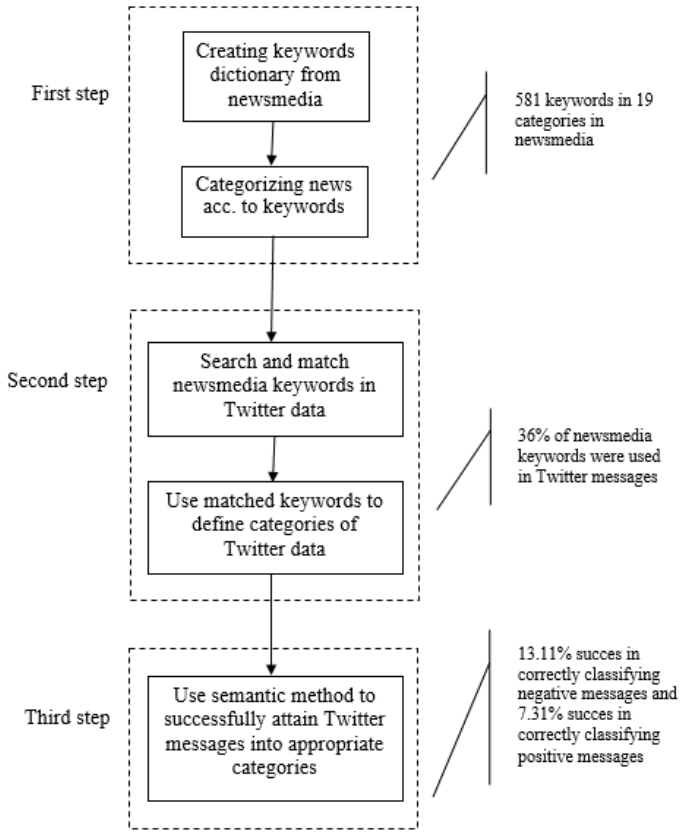

Figure 1: Steps of research process

Table 5: Opinion Categories Obtained from the Analysis of Newsmedia

Rank	Name of the Opinion Category	Value

(Category No)		Type
1	Discourses against war	P
2	Necessity of closure of the issue by Syria's apology	P
3	Mindful approach of Turkish government in the crisis	P
4	Diplomatic solution	P
5	Successful foreign policy of the Turkish government in Syria	P
6	Lack of intelligence efforts	O
7	Inadequate communication of information to the public	O
8	Insufficient rescue operation	O
9	Deficiency of the armed forces	O
10	Syria's intentionally hitting of the jetfighter	N
11	Assad regime's intention to leave Turkey in a difficult situation	N
12	Suspicion that the incident is a game of foreign powers	N
13	Concealment efforts of the Turkish government	N
14	Unsuccessful foreign policy of the Turkish government in Syria	N
15	Hard sanctions apart from the war	N
16	Possibility of transforming of current political crisis into military crisis	N
17	Necessity of such a reaction similar to the incident	N
18	Preparation of causes for a possible intervention in Syria	N
19	Pro-war discourses	N

Third, we tried to determine the success of polarity assignment of the semi-supervised opinion mining method. We propose that when categories of keywords and categories of their polarity values (positive, neutral and negative) are known, it will be possible to determine the polarity of emerging opinions on the subject by looking at the distribution of posts into the categories on social media.

4.2. Findings of the research

4.2.1. Analyses for determining opinion categories

In Figure 2, the opinion categories "4-Diplomatic solution","1-Discourses against war" and "15-Hard sanctions apart from the war" is the most popular news categories in newsmedia. Each different colored line shows a different week as in Table 4 above. Opinion categories are on the horizontal axis. The number of news (frequencies) is on the vertical axis. Thus, the graphic shows fluctuations of opinions on newsmedia across the 5-week period.

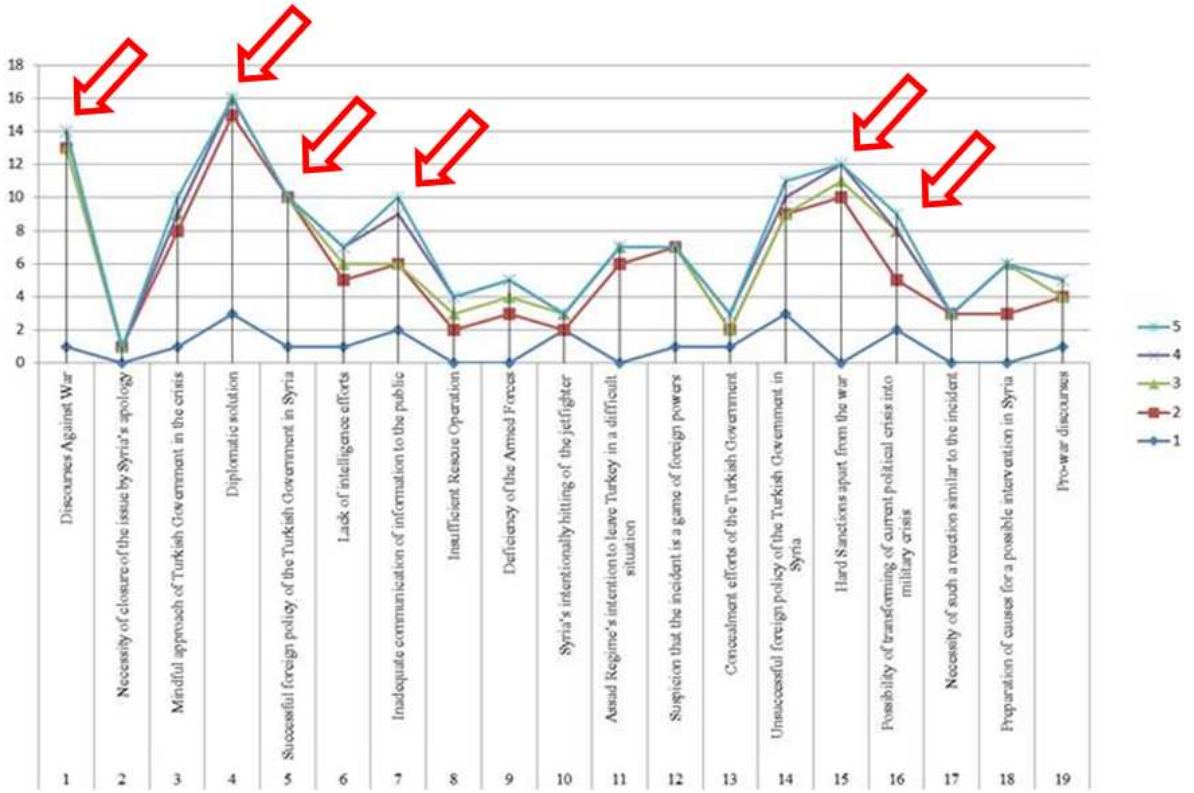

Figure 2. Frequency of Opinion Categories in Newspapers

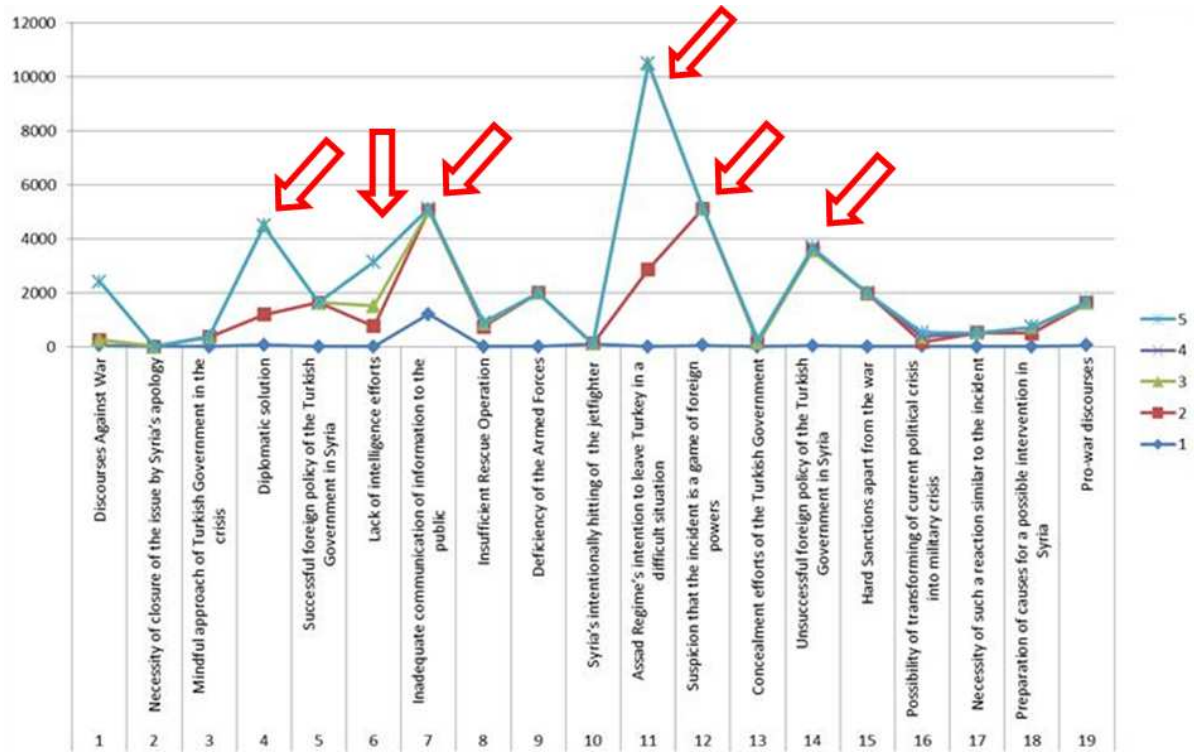

Figure 3. Frequency of Opinion Categories in Twitter Messages

Twitter data categorization results are shown in Figure 3. As seen in the graph, in this period on Twitter "11-Assad regime's intention to leave Turkey in a difficult situation", "12-Suspicion that the incident is a game of foreign powers" and "7-Inadequate communication of information to the public"opinion categories have been the most discussed topics on Twitter.

When the graph in Figure 2 is compared to graph in Figure 3, we see that the opinion "4-Diplomatic solution" come to prominence in newsmedia. On the other hand, frequently spoken opinion categories on social media are "11-Assad regime's intention to leave Turkey in a difficult situation" and "12-Suspicion that the incident is a game of foreign powers". Besides that "7-Inadequate communication of information to the public" has been a highly discussed common topic in both media. Interestingly, while "14-Unsuccessful foreign policy of the Turkish government in Syria" is talked intensively on Twitter, the opinion "5-Successful foreign policy of the Turkish government in Syria" has been the subject of news in newsmedia.

We can say that newsmedia, as expected about the incident, is requesting an approach that emphasizes "diplomatic solution". On the other hand, social media is more likely to assess the incident with a kind of conspiracy theory approach mostly saying "Assad regime's intention to leave Turkey in a difficult situation" and "suspicion that the incident is a game of foreign powers".

Comparison of data from newsmedia and social media is shown in Table 6. The most important ratio we pay attention in this table is that of 581 keywords, only 210 of them were found in Twitter messages /comments. In other words, keywords obtained from social media covers about 36% of the keywords obtained from newsmedia.

Table 6: Comparison of Data from Newsmedia and Social Media

Newsmedia		**Social Media**	
Number of national newspapers in research	9	Number of Twitter user in research	34.880
Number of columnists	67	Number of messages/comments about the incident	106.450
Number of news/columns about the incident	143	Number (Percent) of retweeted posts	51.264 (%48)
Number of keywords in news/column	581	Number (Percent) of common keywords that exist both in news and inTwitter data	210 **(%36)**

One possible explanation to this ratio is that social media followers sent message/comments on Twitter by using approximately 36% of keywords from newsmedia. Hence, we can possibly say that Twitter users have begun to develop a discourse more different from newsmedia.

4.2.2. Predict the Success of the Opinion Mining Analysis

In the thirdstep of the study, it is examined that whether the keywords obtained from newsmedia could be used as a training set for the classification of opinions on social media.

In order to automatically perform the classification process that referred to as "Positive/Negative Pole", we developed a program on Microsoft NET Framework. Microsoft SQL Server 2005 was used as database. The program, classifies text data according to the rules of Naive-Bayes Bit Weighting Algorithm,which is easy to use and gives efficient results in most cases. As we want to develop an algorithm for sentiment analysis program for our ongoing project analyzing posts in Turkish, we did not use third party sentiment analysis tools like LICW (http://licw.net) and Semantria (http://semantria.com).

The user opinions collected from Twitter used for creating a text database. This database is a sample of 305 negative and 82 positive posts. These posts randomly selected from 106,450 messages obtained from 34,880 Twitter users. The total of 387 posts were read and then manually assigned to positive and negative polarities.

The vector of the text whose class is to be found is assigned to the associated class by making comparisons with text mining algorithms. But in this study, there is no text at hand

indicating a polarity to train the system. However, to detecting polarity, there are opinion categories, which are tied to the keywords in the first step (see Fig. 1). Therefore, the method was evaluated as semi-supervised. In this context, assuming that keywords obtained from newsmedia can be used as training set, their probabilities of being in positive polarity have been calculated.

The calculation of the probabilities of the effects of result of each criterion is based on Naive-Bayes Bit Weighting Algorithm that, one of the most preferred methods in cases of detection of a class where two possibilities (positive/negative) exists.

The algorithm works on the following basis:

$$P_p = P_n = ½$$

(1) $$P_p = ½ * X_p$$

$$P_n = ½ * X_n$$

Pp: Probability of text being in positive polarity
Pn: Probability of text being in negative polarity
Xp: Each keyword from text which is in positive polarity in test database
Xn: Each keyword from text which is in negative polarity in test database

Among P_p and P_n, the higher value will give its sign to the text.

At this stage, we analyzed Twitter data to look for keywords which can represent 19 opinion categories. We found 49 common keywords/phrases.

To make a comparative analysis, using test database, the program has been developed covering two groups of keywords: "keywords from newsmedia" and "keywords from both newsmedia and social media". We proposed that if we add keywords from social media to the keywords from newsmedia the success ratio may increase. Related polarity assignment results obtained from the test database, are shown in Table 7.

The success of the model designation related the polarity assignment was evaluated with sensitivity (precision) measure. Sensitivity measure is one of the methods commonly used to measure the effectiveness of text classification

(2) $$P = \sum d/T$$

P: Sensitivity
d: Number of correctly classified posts
T: Total number of posts

Table 7:Sensitivity Measures: Polarity Assignment Results using Test Database

	Correctly Classified Positive Message/Comment **Success Ratio** (%)	Correctly Classified Negative Message/Comment **Success Ratio** (%)	Total Positive Posts	Total Negative Posts
First training set with the keywords from newsmedia	**7.31**	**13.11**	82	305
Second training set with keywords from both newsmedia and social media	**7.31**	**16.39**	82	305

Here, the success rate for *positive* messages/comments is 7.31%. The success rate for *negative* messages/comments is16.39%. While the success rate of positive posts remains the same for both keyword groups, the success rate of negative postsincreased from 13.11% to 16.39%. The reasons for this limited increase might be spelling errors in Twitter messages, difficulty in selecting proper keywords, tongue differences and sampling adequacy. This increased rate might also show that, as an assumption, if we can combine keywords from social media and the keywords from newsmedia, success rate increases.

The reasons for this limitation can be summarized as follows:

- An important part of the difficulties encountered in the field of opinion mining is "spell checking" issue. The vast majority of users in Social media, make spelling errors caused by use of slang language, English-Turkish keyboard layout differences, typing mistakes and the "Internet jargon" (for example, using emoticons and abbreviations such as "u r" instead of "you are"). Spell checks of the test database was carried out by Microsoft Word 2010 in Turkish program. Also, suffixes of keywords have been neglected.

- The social media test data might not fully reflect the subject that was dealt with. This is a different opinion mining task to reach at a maximum level of reflection. Therefore, the proper keyword selection is an important issue.

- Calculations related to the probability values of keywords may also be affected by these limitations.

5. Conclusion

We analyzed 9 national newspapers, 143 news /columns from columnists and newspapers headlines and 106.450 messages from 34.880 users. We found that Twitter platform has explicitly different tongue and agenda than newsmedia.It is assumed that social media benefited newsmedia as a source. It has a sort of amplifier effect on news. But there is also a second opinion saying that communities, institutions, organizations, associations, ordinary citizens, politicians, bureaucrats and celebrities about whomnewsmedia make news have a firsthand opportunity to disseminate all kinds of information about their status and opinions by creating an account on social media.

With respect to first research question, we found that newsmedia outlets were framing the incident under 19 distinct categories. On the other hand, we found that while the outlets focus on topics of "4-Diplomatic solution","1-Discourses against war" and "15-Hard sanctions apart from the war" while social media were focusing on topics of "11-Assad regime's intention to leave Turkey in a difficult situation", "12-Suspicion that the incident is a game of foreign powers" and "7-Inadequate communication of information to the public". This indicates that social media has a tongue that exhibits a critical view close to mockery, while the presentation of newsmedia content is more "formal/structural" tongue.

With respect to our second research question, we found that if we leave aside the style differences between newsmedia and social media, even in this particular case, only a limited overlap exists in the content. Because only 36% of the keywords obtained from news/columns exist in Twitter posts.

Finally, as for the third research question, we can conclude that it may be one of the most important issues for the future for newsmedia outlets to use such software that do "opinion mining" research by processing very large amounts of text data. Manual examination of these text data is very difficult, and in many cases, is impossible. The need for analysis of text data and desire to reduce the spent time manually will be crucial for these outlets. Because, on the other side of the coin, using technology to create the "intended attitudes" on targeted audience through media is "one click away".

This study has certain limitations in sampling of Twitter data, selecting proper keywords and dictionary, and using opinion mining methods. Therefore some important points may be missing in this research. Simply because we collected only the messages containing "Syria" and "Turkish jet" due to limited capacity of Archivist program. That means, we excluded the messages about the incident in which these keywords were not included. This also limits the content of the keyword dictionary we used to analyze the messages. We therefore try to use basically simple methodology in the study to be able to get plausible results. As Twitter recently decided to have data grant project (https://blog.twitter.com/2014/introducing-

twitter-data-grants) for academic purposes, we may expect more research on data from social media.

REFERENCES

BERGHEL, T. (1999). Value Added Publishing, Communications of the ACM, January, Vol. 42, No: 1.

CAN A. (2014). #Berkin Rekoru. Hurriyet Daily Newspaper, March14, http://www.hurriyet.com.tr/ekonomi /25995283.asp?utm_source=twitterfeed&utm_medium=twitter [Accessed March 14, 2014]

CASTELLS, M. (2004). An Introduction to the Information Age.in The Information Society Reader, Edited by Frank Webster, Routledge, pp. 138-149.

CHEN, K. and H. Zhao. (2012). Twititude: Message Clustering and Opinion Mining on Twitter. http://bid.berkeley.edu/cs294-1-spring12/images/3/36/Proposal-twititude.pdf, 1-3, [Accessed March 15, 2012].

CHO, H., M. H. Chen, and S. Chung. (2010). Testing an Integrative Theoretical Model of Knowledge Sharing Behavior in the Context of Wikipedia. Journal of the American Society for Information Science and Technology, 61(6), 1198–1212.

CONOLE G. and J. Culver. (2010). The design of Cloudworks: Applying social networking practice to foster the exchange of learning and teaching ideas and designs. Computers&Education. 54, 679-692.

Dombey D. (2014). Erdogan weighs Turkish ban against Facebook and YouTube. Financial Times Europe, March 6th, http://www.ft.com/intl/cms/s/0/1816aa1c-a585-11e3-8070-00144feab7de.html?siteedition=intl#axzz2vxOljcXc [Accessed March 13, 2014]

Dunne, Á., M. Lawlor, and J. Rowley. (2010). Young People's Use of Online Social Networking sites – A Uses and Gratifications Perspective. Journal of Research in Interactive Marketing, 4(1), 46–58.

ESULI A. and S. Fabrizio. (2006). Sentiwordnet: A Publicly Available Lexical Resource for Opinion Mining. In Proceedings of Language Resources and Evaluation (LREC). Genoa: Italy, 417-422.

FOREMSKI, T. (2011). More Evidence of the So DOMM Effect on social media. http://www.zdnet.com/blog/foremski/more-evidence-of-the-sodomm-effect-in-social-media/2031, [Accessed March 12, 2012].

FORTUNATI, L., M. Deuze, and F. de Luca. (2013). the New About News: How Print, Online, Free, and Mobile Coconstruct New Audiences in Italy, France, Spain, the UK, and Germany. Journal of Computer-Mediated Communication

FREEMAN, M. and L.J. Berger, (2011). The Issue of Relevance of Agenda-Setting Theory to the Online Community. Meta-communicate, Chapman University's Department of Communication Studies' Undergraduate Research Journal, http://journals.chapman.edu/ojs/index.php/mc/article/view/267

GLEASON, B. (2013). #Occupy Wall Street: Exploring Informal Learning About a Social Movement on Twitter. American Behavioral Scientist, 57(7), 966–982. DOI: 10.1177/0002764213479372

GOODE, L. (2009). Social News, Citizen Journalism and Democracy. New Media and Society. 11(8), 1287–1305.

http://licw.net

http://truthy.indiana.edu/[Accessed Nov. 15, 2011].

http://www.people-press.org/2011/12/21/2011-a-year-of-big-stories-both-foreign-and-domestic/12-21-11-6/, (Accessed 13Jan. 2012).

http://www.people-press.org/2011/12/21/2011-a-year-of-big-stories-both-foreign-and-domestic/12-21-11-7/, (Accessed Jan. 13, 2012)

http://semantria.com

http://www.tweetarchivist.com/ [Accessed June 30, 2012].

Hurriyet Daily News. (2014). Turkey blocks Twitter, after Erdogan vowed 'eradication'. Hurriyet Daily News, March 21, 2014, http://www.hurriyetdailynews.com/turkey-blocks-twitter-after-erdogan-vowed-eradication.aspx?pageID =238&nID =63884&NewsCatID=338, [Accessed March 21, 2014].

KARA, T. (2013). Sosyal Medya Endüstrisi. İstanbul: Beta Yayınevi.

KIM, W., O.R. Jeong, and S.W. Lee. (2010). On Social Web Sites. Information Systems. 35(2), 215–236.

KIRSCHNER, P.A. and A.C. Karpinski. (2010). Facebook and Academic Performance. Computers in Human Behavior. 26(6), 1-9.

KOGANURAMATH, M. M.,J. Suresh and A. Mallikarjun. (1999) Electronic publishing: an analytical study, In: Vision of future library and information systems: Dr. S.S. Murthy festschrift. Viva Books (New Delhi, India), pp. 45-53. [Book chapter] [http://eprints.rclis.org/4971/ Accessed: 06.11.2012]

KOTSEV, V. (2013). "Turkish PM Erdogan lashes out at the 'menace that is called Twitter'". The Globe and Mail. http://www.theglobeandmail.com/news/world/turkish-pm-erdogan-lashes-out-at-the-menace-that-is-called-twitter/article12304876/ [Accessed June 03, 2013]

KURAL, S. (2014). Basbakan Erdogan Cark Etti: "Facebook ve YouTube'u Tamamen Kapatmayiz". Sosyalmedya.co, 11 March 2014, http://sosyalmedya.co/facebook-youtube-facebook-youtube/ [Accessed, March 12, 2014]

KUZULOGLU, M. S. (@mserdark). (13.09.2012 11:29). Sosyal medya guncel olaylarin gürültüsüne eşlik etmek yerine fikir/olay takibi yapsa ya ısrarla? Mesela o düşen Turk jeti hani? #NeOldu? https://twitter.com/mserdark/status/246163780592078848.

Lerman, K. (2007). Social Information Processing in Social News Aggregation. IEEE Internet Computing: Special Issue on Social Search. 11(6), 16–28.

Levene, M. (2010). An Introduction to Search Engines and Web Navigation. New Jersey: Wiley Publisher.

Lis, B. and J. Berz, (2011). Using Social Media for Branding in Publishing. Online Journal of Communication and Media Technologies, Vol:1, Issue: 4, October, 193-213.

Liu, B. (2007). From Web Content Mining to Natural Language Processing. ACL-2007 Tutorial, Prague: 2-185, http://www.cs.uic.edu/~liub/acl-07-tutorial-wcm-to-nlp.pdf. [Accessed Sept. 13, 2012].
Lysak, S., M. Cremedas, and J. Wolf (2012). Facebook and Twitter in the Newsroom: How and Why Local Television News is Getting Social with Viewers? Electronic News, 6: 187-207. DOI: 10.1177/1931243112466095.
Matei, S.A. (2010), Does Agenda Setting Theory Still Apply to Social Media?http://matei.org/ithink/2010/07/28/does-agenda-setting-theory-apply-to-social-media/, [Accessed, 08.09.2012].
Marez, S. (2011). The fight for 'how to think': Newsmedia, social networks, and issue interpretation. Journalism 12(1) 107–127. DOI: 10.1177/1464884910385193.
McCombs, M. E. (2005). A Look at Agenda-setting: past, present and future. Journalism Studies, 6: 4, 543 – 557.
McCombs, M. E. and D.L. Shaw. (1972). The Agenda Setting Function of the Mass Media. Public 156 Opinion Quarterly. 36, 176-187.
Murty, D. (2012). Towards a Sociological Understanding of Social Media: Theorizing Twitter. Sociology, 46 (6), 1059-1073.
Nov, O., M. Naaman, and C. Ye. (2010). Analysis of Participation in an Online Photo Sharing Community: A Multidimensional Perspective. Journal of the American Society for Information Science and Technology. 61(3), 555–566.
Pak, A. and P. Paroubek. (2010). Twitter as a Corpus for Sentiment Analysis and Opinion Mining. Proceedings of the Seventh conference on International Language Resources and Evaluation LREC'10 Valletta. Malta: European Language Resources Association, 1320-1326.
Pew Research. (2011). 2011: A Year of Big Stories Both Foreign and Domestic http://www.people-press.org/files/legacy-pdf/12-21-11%20NII%20Year%20In%20Review.pdf, [Accessed, Feb. 8, 2012].
Preston, J. (2011). Republicans Shake More Hands Using Social Media. The New York Times. http://www.nytimes.com/2011/12/29/us/politics/republicans-shake-more-hands-using-social-media.html?_r=4sq=Republicans+Shake+More+Hands+Using+Social+Media+&st=cse&adxnnl=1&scp=1&adxnnlx=1325175922-UfPtKj5X/qxd8+VIrxZxhw&, [Accessed Jan. 26, 2012].
Rainie L. and A. Smith. (2012). the Overall Impact of Social Networking Sites on Users' Political Views. http://pewinternet.org/Reports/2012/Politics-on-SNS/Main-Findings/Section-3.aspx, [Accessed Sept. 8, 2012].
Regan, T. (1995). 7 principles of on-line publishing. Nieman Reports. Cambridge: Spring.Vol.49, Iss. 1; 53.
Severin, W.J. and J.W. Tankard. (1994). Iletisim Kuramlari. A.A. Birve S. Sever. (cev.), Eskisehir: Kibele Sanat Merkezi.
Shaver, D. and Shaver, M.A. (2003). Books and Digital Technology: A New Industry Model. Journal of Media Economics, 16 (2), 71-86.
Schultz, T. (1999). Interactive Options in Online Journalism: A Content Analysis of 100 U.S. Newspapers. Journal of Computer-Mediated Communication, 5(1).
Sivek, S.C. (2010). Social Media under Social Control: Regulating Social Media and the Future of Socialization. Electronic News, 4(3), 146-164. DOI: 10.1177/1931243110383266
Smith, A. (2011). 22% of Online Americans Used Social Networking or Twitter For Politics in 2010 Campaign. http://pewinternet.org/~/media//Files/Reports/2011/PIP-Social-Media-and-2010-Election.pdf, [Accessed Feb. 15, 2012].
Sütcü, C. and Aytekin, Ç. (2013).Elektronik Ticaretten Sosyal Ticarete Dönüşüm Sürecinde Ölçümleme. İstanbul: Derin Yayınevi.
Szabo, G. and B.A. Huberman. (2010). Predicting the Popularity of Online Content. Communications of the ACM. 53(8), 80–88.
The Guardian (2014). Turkey may ban Facebook and YouTube if Erdogan wins elections. The Guardian, March 7, http://www.theguardian.com/world/2014/mar/07/turkey-erdogan-facebook-youtube-ban-elections [Accessed March13th, 2014]
Tumasjan, A., T. O. Sprenger, P. G. Sundner, and I. M. Welpe. (2010). Predicting Elections with Twitter: What 140 Characters Reveal about Political Sentiment, Proceedings of the Fourth International AAAI Conference on Weblogs and Social Media.
West, D.M. (2012). M-Campaigning: Mobile Technology and Public Outreach. Issues in Technology Innovation. Center for Technology Innovation. 15.
Yu, B., S. Kaufmann, and D. Diermeier. (2008). Exploring the Characteristics of Opinion Expressions for Political Opinion Classification. Dg.O '08 Proceedings of the 2008 International Conference on Digital Government Research. Digital Government Society Of North America. Montreal, Canada: 82-91.
Yuksel, E. (2001). Medyanin Gundem Belirleme Gucu. Konya: CizgiKitabevi.