

The Influence of Twitter: Super Bowl Commercial through Social Network

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Abstract. Applying data mining techniques to social media can yield interesting perspectives to understanding individual and human behavior, detecting hot issues and topics, or discovering a group and community. This study aims to address the question of how people use Twitter and to assess the power of Twitter in terms of creating consumer interest in commercials based on an analysis of Twitter messages about various Super Bowl ads by applying data-mining techniques to a case study.

Keywords: social networks; twitter; data-mining; super bowl;

1 Introduction

In recent years, online social network sites, such as Facebook, Twitter, Blogger, LinkedIn, and MySpace, have changed the way people communicate each other. People share information, report news, express opinions and update their real-time status on the online social network sites. With the increasing popularity of the online social network sites, a huge amount of data is being generated from them in real time. Analyzing the data in social media can yield interesting perspectives to understanding individual and human behavior, detecting hot topics, and identifying influential people, or discovering a group or community [2][3].

Twitter is an online social network site based on text message of up to 140 characters, which generates 340 million tweets per day as of 2013. According to the Pew Research Center's Internet & American Life Project, 15% of online adults in the U.S. used Twitter in 2012. It also provides Application Programming Interface (API) to allow researchers and data analyzers to access a variety of data in Twitter. Numerous researchers have paid attention on gathering and analyzing the data to detect issues, such as detecting earthquakes [4] and influenza using Twitter or recommending tags to users [1].

In section 2, we provide an analysis of Twitter data gathered about Super Bowl in a case study. The case study aims to address the question of how people use Twitter and to assess the power of Twitter in creating consumer interest in brands and commercials. The main objective of this study is to find the relationship between Twitter and Super Bowl ads by analyzing data on Twitter.

The remainder of this paper is constructed as follows: In section 2, presents result of data collection and analysis for Super Bowl 2014. The last part, section 3, concludes the work by summarizing this paper.

2 Case Study

This exploratory study aims to address the question of how people use Twitter and to assess the power of Twitter in terms of creating consumer interest in brands and commercials.

2.1 Data Collection

To gather the tweet data about Super Bowl 2014, we decided to gather data one week before and one week after the Super Bowl game. This is necessary to track the trends of messages about Super Bowl advertising since marketers released their commercials to social media sites (e.g., YouTube) prior to the actual broadcast of the game, hoping to create more buzz and interest from consumers.

As a data collection result, 1,092,537 tweets are collected through Twitter API, and 939 out of 1,092,537 tweets are commercial-related tweets. Table 1 shows the frequencies of Tweets about commercial-related and non-commercial-related Tweets by date.

Table 1. Frequencies of Tweets about commercial-related and non-commercial-related Tweets by Date

Date	overall (n = 1092537)		commercial-related (n = 939)	
	Freq.	%	Freq.	%
01/26/2014	67,074	6.14	6	0.64
01/27/2014	62,778	5.75	25	2.66
01/28/2014	67,316	6.16	17	1.81
01/29/2014	66,784	6.11	228	24.28
01/30/2014	66,221	6.06	35	3.73
01/31/2014	64,192	5.88	32	3.41
02/01/2014	65,807	6.02	17	1.81
02/02/2014	81,329	7.44	313	33.33
02/03/2014	71,137	6.51	74	7.88
02/04/2014	70,369	6.44	33	3.51
02/05/2014	79,532	7.28	25	2.66
02/06/2014	79,946	7.32	11	1.17
02/07/2014	76,163	6.97	7	0.75
02/08/2014	81,601	7.47	27	2.88
02/09/2014	92,288	8.45	89	9.48
Total	1,092,537	100	939	100

2.2 Experimental Results

Collected twitter data is visualized again as shown in Fig. 1. The number of tweets that are related to commercials at the Super Bowl is higher than other days, which means the Super Bowl commercials created buzz on Twitter, and many Twitter users were interested in them.

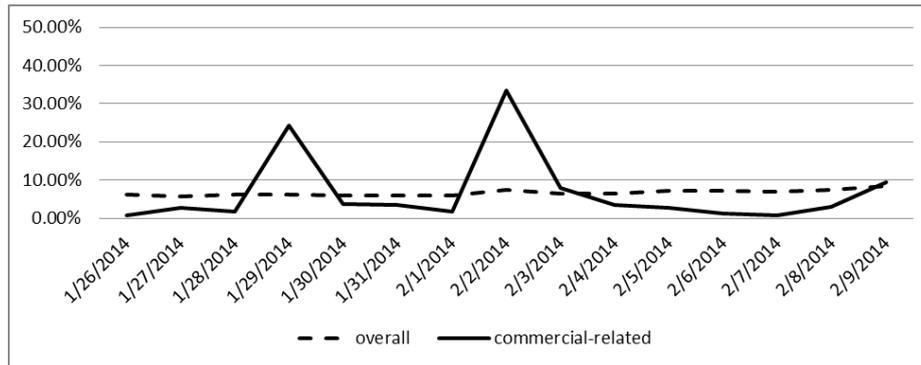


Fig. 1. The Increased Number of overall and commercial-related tweets during the Super Bowl 2014 period.

4 Conclusion

The purpose of this study was to examine Twitter usage during a sports broadcasting. Instead of relying on the audience's response, this study used a data-mining approach and utilized existing data.

When comparing the fifteen dates, the Super Bowl game day had a larger portion of Super Bowl-related tweets (33.33%) than the other days, respectively. This indicates that the overall number of Super Bowl-related tweets peaked on the game day. Even if this study didn't analyze specific motivations behinds such Twitter usage, we speculate that as the audience got excited about the game, they became more engaged and exchanged information and opinions on Twitter.

This study can be further extended by applying other data-mining techniques to collected data to discover new knowledge. For example, applying natural language processing techniques or text mining to the Twitter data can be used to analyze or detect social opinions [5][6].

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