Twitter usage in Australia and Saudi Arabia and influence of culture: an exploratory cross-country comparison

Yeslam Al-Saggaf, Charles Sturt University (Australia), yalsaggaf@csu.edu.au
Tharntip Tawnie Chutikulrungsee, Charles Sturt University (Australia)

Abstract

This study compared Twitter's content in Australia and Saudi Arabia using two different techniques, content analysis and thematic analysis. The exploratory findings have revealed that the tweets in the tags that trended in Australia were mostly relevant to the topic of the tag. The tweets in the tags that trended in Saudi Arabia, on the other hand, did not largely observe this protocol suggesting those Twitter users are not mindful of the proper use of Twitter. In one of the tags that trended in Australia Twitter users felt comfortable communicating directly with the Australian prime minister; users who posted to the tags that trended in Saudi Arabia, on the other hand, did not feel comfortable communicating directly with the Saudi King because it may be perceived as inappropriate or disrespectful. Also, the large volume of RTs of offers to re-tweet tweets for money in the tags that trended in Saudi Arabia underpins a desire to have tweets posted re-tweeted. The re-tweeting of tweets suggests that these tweets are important. From a Saudi cultural perspective, the re-tweeting of tweets suggests that the user is also important compared to other users.

Introduction

The exponential growth in Twitter's popularity has been paralleled by increasing attention from a wide range of scholars. However, much of the focus of previous work on Twitter has been from the perspective of western countries. There is little research in this area from the perspective of the Arab world. This paper explores Twitter usage from the perspective of two technologically advanced but culturally different countries, Australia and Saudi Arabia. The main contributions of this paper are two-fold. Firstly, it compared Twitter usage in an Arab country with that in a western country of similar population sizes and SNS penetration rates but totally different cultures; thereby contributing to the scarce literature that focuses mainly on western societies. Secondly, by utilising different content analysis techniques, this paper reflects on the benefit of using qualitative content analysis when studying Twitter; thereby contributing to the scarce literature that focuses mainly on quantitative content analysis techniques.

Prior research highlighted the role of Twitter, its influence, best practices for its use, the notion of public timelines, and nature of Tweets and Re-Tweets (RTs) (boyd, Golder & Lotan 2010; Cha et al. 2010; Hughes & Palen 2009; Jansen et al. 2009; Larsson & Moe, 2012; Mendoza, Poblete & Castillo 2010; Schultz, Utz & Göritz 2011; Suh et al. 2010; Verkamp & Gupta 2014; Yardi, Romero & Schoenebeck 2009;

Zhao & Rosson 2009). Several of these studies collected data from large datasets. In addition, most of these studies employed quantitative techniques involving mainly statistical analysis. Few of these studies investigated Twitter in depth or attempted to couch Twitter content in terms of the cultural context. To address this gap in the literature, this study analyses Twitter's content using two different techniques, content analysis and thematic analysis. The qualitative component of this study explores Twitter's usage from the lens of culture. Comparing Australia to Saudi Arabia provided interesting clues, albeit limited, about the influence of culture on Twitter usage. Researchers who use the lens of culture to interpret their findings need to provide their readers with a rich description of that culture to give their readers the context they need to understand their findings. Cross-cultural comparisons, however, place the findings from one culture alongside the findings from another culture; this gives the readers the opportunity to see how cultures differ from others. The cross-cultural comparisons here allow, albeit to a limited extent, both the Arabic and Western readers the opportunity to see how their culture differs from the other with respect to influence of culture on Twitter usage.

Relevant work

Several researchers have paid attention to Twitter during crises (Bruns et al. 2012; Acar & Muraki 2011; Gupta, Joshi & Kumaraguru 2012; Hughes & Palen 2009; Mendoza, Poblete & Castillo 2010; Schultz, Utz & Göritz 2011). Mendoza, Poblete and Castillo (2010), for instance, performed a preliminary study of Chile earthquake in 2010 by exploring Twitter users' behaviours and assessing the reliability of Twitter information under extreme circumstances. Their results showed that Twitter activity is proportional to the significance of the event and found a difference between rumour tweets and news tweets. Similarly, an analysis of open-ended answers by Acar and Muraki's (2011) revealed the uncertainty surrounding Twitter's reliability due to uncontrollable informal RTs during the Great Tohoku earthquake and the tsunami.

Scholars have also explored the use of Twitter in politics (Stieglitz & Linh 2012; Verkamp & Gupta 2014; Tumasjan et al. 2010; Larsson & Moe 2012). Tumasjan et al. (2010) examined whether or not Twitter messages validly mirror offline political sentiment. Their analysis in the context of the German federal election, found that "the tweets' political sentiment demonstrates close correspondence to the parties' and politicians' political positions" (Tumasjan et al. 2010, p.1). Further, Stieglitz and Linh (2012) tried to verify if there is any relevance between political tweets and their corresponding RTs. Their findings confirmed the presence of words indicating emotions associated with certain political parties or politicians. In Australia, a study by Bruns et al. (2012) showed how the public used Twitter to bring the 2011 Queensland floods to the surface and how the police used it to disseminate timely and relevant information back to the public. In a similar vein, Bruns and Burgess (2011) detailed analysis of the #ausvotes tag, which covered the 2010 election, showed that Twitter users communicated directly with the contenders for the Prime Ministership using their usernames or through the inclusion of an @reply. In Saudi Arabia, Al-Saggaf and Simmons (2015) found evidence of Saudis communicating 'to' the government but not 'with' the government i.e. very limited evidence of government officials replying to messages from the public.

Researchers have also looked at spam in Twitter. Verkamp and Gupta (2014) focused on the use of Twitter as a medium for spammers to suppress political speech. Spam is classified as unsolicited automated posts, or other tweets generated without user's consent, or junk traffic (Pear Analytics 2009). Verkamp and Gupta (2014) found that spam was used to drown popular tags to overwhelm original content. The nature of these spam messages is uncertain across incidents, so it is hard to distinguish them from normal tweets. Other studies have also supported this argument concerning spam on Twitter. Yardi, Romero and Schoenebeck (2010) studied Twitter's behavioral and structural properties by inspecting spam from Twitter meme -'robotpickuplines'. Their findings showed structural network differences between spam accounts and legitimate users; however, it was challenging to draw a distinction between spammers and legitimate users. No evidence has been found in the above mentioned research of attention to cultural differences in the usage of Twitter. Similarly, as of this writing, it appears the influence of culture on Twitter usage has not yet been seriously explored. This study hopes to scratch the surface for future research to tackle these gaps.

Several strategies have been used to study Twitter in recent years. However, the majority of previous studies collected and analysed large Twitter datasets using quantitative approaches. For example, Java et al. (2009) analysed a large dataset of 1.3 million Twitter posts from over 76,000 distinct users to gain deeper insights into the motivations for using Twitter. Similarly, boyd, Golder and Lotan (2010) randomly sampled 203,371 RTs from Twitter public timeline using the search API to find out the reason for RTs. They further classified RTs into groups such as RTs with URLs, tags, replying RTs, RTs within RTs (boyd, Golder & Lotan 2010). It is true, the current study also focuses on RTs, among other things, this study, however, explores the contents of RTs within the scope of relevance, culture, and spam using both quantitative and qualitative approaches. Similarly, Wilkinson and Thelwall (2012) used a mix method of both quantitative and qualitative approaches to identify international differences in trending topics in Twitter. They found trending topics were driven by an international hierarchy of perceived importance or relevance such as Thanksgiving celebrations, rather than being propelled by media. In this respect, this study compares the top three trending tags between Australia and Saudi Arabia in terms of relevance, cultural influence, and spam. As of this writing, an exploratory comparison of this nature has not yet been done.

Although considerable research has been devoted to quantitative approaches, a review of related work has shown that less attention has been paid to qualitative approaches. Marwick (2014) explains that the sheer volume of users and tweets has made Twitter a favourite for quantitative data analysis and big data' analysis approaches. Yet, many inquiries are unable to be fulfilled by using only a quantitative approach (Marwick 2014), such as the work of Wilkinson and Thelwall (2012) mentioned above. There is a need to employ qualitative techniques when designing social media studies (Lyles et al. 2012) even if doing so comes at the expense of making generalisations. Marwick (2014) notes that qualitative research methods, such as interviews, ethnographic observation and content analysis, can provide a rich descriptions about the data. The study by Kieslinger and Ebner (2011), to some extent, seems to answer this call. In their study they used virtual ethnography to find out microblogging practices of scientists using Twitter. They found that three cases out of four were similar in broadcasting styles but in the fourth case Twitter was used for direct communication. However, the purpose and value of each

message has not been explored. This study uses both quantitative (content analysis) and qualitative (thematic analysis) approaches to explore Twitter content from within a cultural context. By drawing upon two different analyses, this work has taken on challenges addressed by two previous works. On one hand, this work responded to the need for future research highlighted by Wilkinson and Thelwall (2012) to compare trending subtopics between different countries. On the other hand, this work addresses the request made by Larsson and Moe (2011) to use qualitative research to understand Twitter messages.

Method

Process of collecting data

From the first author's Twitter account, a note was made of the top three tags trending in the Australian and Saudi Arabian Twitter-spheres on February 8th, 2015. The reason for selecting the three top tags trending in each country was so that a snapshot of Twitter traffic during a specific point in time in these countries can be taken. While taking tweets from a diverse range of tags may have sacrificed depth, this was done so the snapshot depicts different aspects about Twitter usage in these countries; rather than one aspect.

A total of 2970 tweets were returned by the TAGS App from each of the six tags (17,820 in total). The TAGS is a Google Sheet template developed by Martin Hawksey (https://tags.hawksey.info/) and made freely available for users to run automated collection of search results from Twitter. This number is not the total number of tweets tagged to each of these six tags; rather a small subset posted to the tags during a specific point in time.

Content analysis and thematic analysis

The ability to crawl Twitter using Apps such as the above has enabled researchers to extract millions of tweets. This has made less traditional approaches to content analysis, such as social network graph (Catanese et al. 2011) and sentiment analysis (Thelwall 2014), understandably popular given they are more suited to these large datasets (Marwick 2014). To support the analysis of these large Twitter datasets, methodologists recommend using data analysis software (Einspänner, Dang-Anh & Thimm 2014). But the use of software for automating the analysis of Twitter data is not without problems. Automated content analysis is limited to a fixed dictionary; this may lead to superficial relations between words and meanings (Einspänner, Dang-Anh & Thimm 2014). Also misspelled words and abbreviations such as 'rotfl', 'lol', etc. which are often not included in the dictionaries, can lead to incorrect categorisation (Einspänner, Dang-Anh & Thimm 2014). More importantly, even if words are correctly categorised, the word could mean something different in the context of the tweet (Einspänner, Dang-Anh & Thimm 2014). Content analysis involving manual coding is not subject to these limitations. That said, less traditional approaches to content analysis offer Twitter researchers the ability to analyse the metrics of tweets such as how many replies have been exchanged between two Twitter users. Similarly, Social Network Analysis can assist researchers with the examination of conversational structures; while sentiment analysis is capable of assessing the opinions of Twitter users (Einspänner, Dang-Anh & Thimm 2014). Qualitative content analysis, on the other hand, can assist Twitter researchers with understanding the linguistic characteristics of Twitter language and its speech acts (Einspänner, Dang-Anh & Thimm

2014), which the above approaches can't adequately handle. Qualitative methods can also reveal social norms, appropriateness of use and social concerns about technology (Marwick 2014).

The process of content analysis proceeded as follows: (1) the six datasets were downloaded from Google Sheets and opened in Microsoft Excel. (2) Using the random number generator function in Excel, Rand(), 50 random records from each dataset containing the 2970 records were copied into a new Excel spreadsheet bringing the total number of tweets analysed to 300 tweets. (3) Content analysis was then performed by reading the tweet from the Excel spreadsheet and assigning it one of the six Pear Analytics categories namely News, Spam, Pointless Babble, Self-Promotion, Conversational, and Pass-Along Value. Table 1 below provides Pear Analytics's definitions of these categories. The reason for selecting Pear Analytics categories was because a review of the literature revealed that the Pear Analytics study was one of the most cited studies and also because the definition of the categories was clear compared to other reviewed definitions. (4) In addition, each of the 300 tweets from the six tags was further coded as either relevant or irrelevant to the tag to which it was tagged. Coding the tweets in terms of relevance to the tag was done to gain insights with regards to users' awareness of the proper use of Twitter. The relevance to the tag was judged by reading the tweet from the Excel spreadsheet and matching it to the topic of the tag. Finally each tweet was thematically coded to gain some insights into signs of influence of culture on Twitter usage and 'how much of the old is there' in this new mode of communication, thereby addressing one of the questions that this conference raises. Thematic analysis was performed by reading each tweet and assigning it a category from a list of categories developed after 10% of the tweets were thoroughly read and informally coded. During the process of developing the categories, the initial categories were revised and this resulted in making changes to the informal coding. To ensure the categories are used consistently a guideline on when to use them was written. The process of category development did not rely solely on the categories developed in the beginning of the analysis but also used categories that emerged at a later stage. That is, additional categories were added to the list as the analysis continued. To limit subjectivity in the analysis, a second coder analysed 15 tweets (five from each of the three tags that trended in Australia) representing 5% of the sample. An Arabic speaking coder could not be located so intercoder reliability of the Arabic tweets could not be assessed. For the English tweets, a difference of opinion on three tweets was found. Disagreement between the first author, who conducted the content analysis, and the second coder was resolved through discussion until a consensus was reached.

Category	Pear Analytics's Definition
News[1]	*Any sort of main stream news that you might find on your national news stations such as CNN, Fox or others. This did not include tech news or social media news that you might find on TechCrunch or Mashable.*
Spam	*These are the tweets such as "See how I got 3,000 followers in one day" type of tweets.*
Pointless Babble	*These are the "I am eating a sandwich now" tweets.*
Self- Promotion	*These are typical corporate tweets about products, services, or "Twitter only" promos.*

[1] Tweet has to have a link to a media source

Conversational[2]	*These are tweets that go back and forth between folks, almost in an instant message fashion, as well as tweets that try to engage followers in con versation, such as questions or polls.*
Pass-Along Value	*These are any tweets with an "RT" in it.*

Table 1. Pear Analytics (2009) definitions of categories.

Findings

The tags

(1) The tweets in the #spill tag revolved around the liberal leadership spill motion that took place on 9 February 2015. As a result a leadership spill motion was carried but was voted against (61–39) resulting in Mr Tony Abbott remaining as Prime Minister of Australia. (2) The #qanda tag is a regular backchannel for the Q&A Australian TV program, which allows the audience at home to participate in real-time during the televised conversation. Q&A broadcasts on Australian Broadcasting Company (ABC) and is hosted by media journalist Tony Jones. Data collection for this study began on February 8th 2015; six days prior to Valentine's Day so it is no surprise that (3) the tag #ValentinesDay trended on Twitter. Valentine's Day is an international phenomenon that is observed on 14 February of each year and celebrated in most countries around the world. With regards to the tags that trended in Saudi Arabia, (4) the tag #Making_Hafiz_Permanent_Is_A_Nation's_Request (Hafiz) emerged to call on King Salman to make Hafiz program permanent. Hafiz is a SR2000 (AU$686) monthly allowance given to the unemployed Saudis. (5) The tag #For_You _Abeer was established to mock the Al-Ahli football club after their Tifo during a semi-final Crown Prince cup match was interpreted by the non Al-Ahli fans as the name of a female (Abeer). (6) The tag #Something_You_Are_Sure_About is another example of pointless babble (Pear Analytics, 2009). A regular observation of the tags coming from Saudi Arabia over four years and a half revealed that not a single day passes without a tag of this type trending.

Content analysis

The tags that trended in Australia and those that trended in Saudi Arabia differed in many ways but there are also common aspects. Table 2 below shows a summary of these differences and similarities.

Hashtag	News	Spam	Pointless Babble	Self-Promotion	Conversational	Pass-Along Value
#spill	8	0	0	0	16	26
#qanda	0	1	0	1	10	38
#ValentinesDay	0	0	1	13	5	31
#Making_Hafiz_Permanent_Is_A_Nation's_Request	0	0	0	0	23	27
#Something_You_Are_Sure_About	0	5	0	0	0	45
#For_You _Abeer	0	7	0	4	0	39

Table 2. Results of content analysis

[2] Tweets starting with '@' are coded as conversational

Both the tags that trended in Australia and those that trended in Saudi Arabia received more Pass-Along Value tweets than any other category of tweets. That is, the volume of RTs was higher than all other categories of tweets in all the six tags. It is not clear why RTs are more common than other types of tweets. Further research can shed light on this phenomenon. Interestingly, with the exception of one tweet in one of the tags, there is no evidence of pointless babble in all the six tags. Even within the pointless babble tags themselves, #Something_You_Are_Sure_About and #For_You _Abeer, there is no pointless babble. Given the study by Pear Analytics (2009) has found that 40.55% of all tweets are pointless babble, the absence of pointless babble in all the six tags is surprising. Since pointless babble is not present in pointless babble tags and the majority of tweets in these tags are RTs, then one explanation is that these tags must have been drowned by spammers. Having observed on a regular basis pointless babble in Saudi tags, more data should be collected from the Saudi and also the Australian Twitter-spheres to learn more about pointless babble.

In terms of relevance to the tags (see Table 3 below), nearly all tweets tagged to the tags that trended in Australia were relevant to the tags, including the #ValentinesDay tag which received 13 self-promotional tweets. This may mean that Australian Twitter users abide by the topic of discussion. On the other hand, none of the random sample of tweets that were tagged to the last two Saudi tags were relevant to the tag. This may mean that Saudi Twitter users do not stick to the topic of the tag, which goes against Twitter best practices. The Hafiz tag behaved differently from the last tags in that none of the random sample of tweets tagged to this tag were irrelevant. It is not clear why this tag has no irrelevant tweets. It is true the topic is highly important to Saudi society, especially to women, but it is not clear why the tag was not drowned with irrelevant tweets like the other two. Perhaps, random samples of tweets collected over short periods of time could provide clues regarding the absence of irrelevant tweets in this tag.

Hashtag	Relevant	Irrelevant
#spill	50	0
#qanda	48	2
#ValentinesDay	48	2
#Making_Hafiz_Permanent_Is_A_Nation's_Request	50	0
#Something_You_Are_Sure_About	0	50
#For_You _Abeer	0	50

Table 3. Relevance of tweets to tags

The first two tags that trended in Australia received 16 and 10 conversational tweets respectively (see Table 2 above); while the last two tags that trended in Saudi Arabia received zero tweets of this type. The presence of conversational tweets in the Australian tags suggests that Australian Twitter users participate in the discussions about their federal politics and the public affairs of the day. On the other hand, the absence of conversational tweets in the last two tags that trended in Saudi suggests that the large amount of spam messages must have swamped the conversational tweets in the tag. The reason for thinking this way is because 46% of all tweets in the Hafiz tag were conversational tweets, which suggest that conversational tweets are also present in Saudi Twitter. However, the presence of conversational tweets in this tag does not provide evidence of people's participation in their country

politics and the public affairs of the day as the discussion in this case was not political; rather societal. The presence of the large volume of spam messages in the last two tags that trended in Saudi Arabia is consistent with the study by Verkamp and Gupta (2014) which found that spammers use Twitter as a medium to drown popular tags to overwhelm original content.

Thematic analysis

To learn more about the nature of the contents of the Pass-Along Value tweets (dominant group), thematic analysis of all tweets of this group was performed. This additional step has revealed that all the Pass-Along Value tweets in the case of the first two tags that trended in Australia were RTs relevant to the topic of the tag. In the case of the #ValentinesDay, of the 31 Pass-Along Value tweets, 28 were RTs of self-promotional products such as a souvenir [2], iPod [1], women's accessories [4], gift ideas [5], flavoured cookies [3], massages [2], skin care products [2], a bike [1], dinning out [2], personalised e-cards [2], dog food [1], and other [3]. Even though these RTs were self-promotional, given the occasion (Valentine's Day) they are considered relevant.

Thirty one of the 39 Pass-Along Value tweets in the #For_You _Abeer tag were RTs of offers to re-tweet tweets for money, followed by ads about invitations to participate in games [6] and offers on women's handbags [2]. The irrelevant tweets in this tag, which were not in the form of RTs, included five tweets advertising sex services. Similarly, 31 of the 45 Pass-Along Value tweets in the #For_You _Abeer tag were RTs of offers to re-tweet tweets for money, followed by ads about invitations to participate in games [9], sex services ads [4] and other [1]. In addition, two of the irrelevant tweets in this tag, which were not in the form of RTs, were tweets advertising sex services. The presence of a huge percentage of RTs of offers to re-tweet tweets for money suggests that the Saudi Twitter users may be keen to have their tweets re-tweeted for money. Similarly, although to a less extent, the presence of tweets advertising sex services suggest that there is a market for this business. Further, research should investigate these claims.

Interestingly, none of the 27 Pass-Along Value tweets in the Hafiz tag included any RTs of offers to re-tweet tweets for money or sex ads. On the country, the RTs in this tag asked earnestly for Hafiz to stay [1], communicated with the media to publicise the tag [6], prayed to Allah to keep it [5], explained their need for this regular allowance [5], and promoted the tag through RTs and encouraging other users to cause the tag to trend [10]. It is strange that none of the RTs in this tag were spam. Mendoza, Poblete and Castillo (2010) argued that Twitter activity is proportional to the significance of the event. Given the significance of this issue, did users exercise self-regulation? Has the tag been regularly cleaned by someone from spam? Had data were collected from this tag at some other time, would the tag have included spam RTs? These questions can only be addressed by studying the behaviour of Twitter users over a long period of time.

Concluding remarks

Pass-Along Value tweets encompassed also spam tweets but because the messages started with RT they were assigned the Pass-Along Value category. However, the RTs in the case of the tags that trended in Australia, especially the first two tags were not the same as the RTs in the case of the last two tags that

trended in Saudi Arabia; the former were relevant to the tags, sent by accounts known to be major stakeholders in the topics of discussion, the later were spam. The use of the Pass-Along Value did not distinguish between legitimate RTs and spam. A better category should be used to reflect this distinction. The same can be said about the self-promotional tweets. A blind eye can be turned to them if they are relevant to the tag such as those products promoted within the #ValentinesDay tag. But if they are not relevant to the tag, they should be coded as spam.

Although King Salman is active on Twitter (@KingSalman), only one of the random sample of tweets for the Hafiz tag (and 45 tweets of the 2970 tweets in this tag) included his Twitter username. Twitter users asked for this regular allowance to remain and promoted the tag in many ways all so as to bring it to the attention of the Saudi King; yet only one tweet was sent to his mention. It is possible that Saudis perceive communicating with the King directly as inappropriate or disrespectful. On the other hand, the top mention in the #spill tag was that of Mr Tony Abbott suggesting those Twitter users don't have a problem communicating directly with the Australian Prime Minister. This raises another question worth pursuing. To what extent Saudis use Twitter to interact with government officials? Al-Saggaf and Simmons (2015) found evidence of Saudis communicating 'to' the government using social media but not 'with' the government i.e. very limited evidence of government officials replying to messages from the public. Further research is needed to tease out this and the other questions. It is the hope that this paper will pave the way for such future research.

This study attempted to compare Twitter usage in an Arab country with that in a western country of similar population sizes and SNS penetration rates but totally different cultures to uncover clues about the influence of culture on Twitter usage. The exploratory findings have revealed that the tweets in the tags that trended in Australia were mostly relevant to the topic of the tag. The tweets in the tags that trended in Saudi Arabia, on the other hand, did not largely observe this protocol suggesting those Twitter users are not mindful of the proper use of Twitter. In the #spill tag Twitter users felt comfortable communicating directly with the Australian leader; Saudis, on the other hand, did not because it may be perceived as inappropriate or disrespectful. Also, the large volume of RTs of offers to re-tweet tweets for money in the tags that trended in Saudi Arabia underpins a desire to have tweets posted re-tweeted. The re-tweeting of tweets suggests that these tweets are important. From a Saudi cultural perspective, the re-tweeting of tweets suggests that the user is also important compared to other users. This is consistent with Cha et al. (2010) finding in that an active audience who retweets or mentions the user is a more accurate measure of the influence of this user.

Several limitations to the present study and suggestions for future research are outlined. This study analysed 300 tweets from a random sample of 17,820 tweets that were retrieved from six tags that trended in two countries during a specific point in time. While taking a snapshot of Twitter traffic during a specific point in time provided one reality about Twitter usage in these countries, the lack of data collected over multiple periods of time meant more far-reaching and generalisable conclusions could not be drawn from the data. In addition, certain topics, such #qanda, are likely to trend at a specific time every week because it is used by the TV program as regular backchannel for the audience at home to participate in real-time during the televised conversation. It is not likely that users will continue to tweet

using this tag after the program had finished. That is, had the data been collected on a different day, a different tag would have trended. This may result in different conclusions being drawn from the data. That being said, the study exploratory findings generated several new questions that are worthwhile perusing in future research. For example, which Twitter-sphere is more active than the other, the Saudi or the Australian? Why RTs are more common than other types of tweets? Why there was no pointless babble in all the six tags? What is the reason for the absence of irrelevant tweets in some of the tags? What is the reason for the presence of a large percentage of RTs of offers to re-tweet tweets for money and the presence of tweets advertising sex services?

References

1. Al-Saggaf, Y & Simmons, P 2015, 'Social media in Saudi Arabia: Exploring its use during two natural disasters', Technological Forecasting and Social Change, vol. 95, pp. 3-15.
2. Acar, A & Muraki, Y 2011, 'Twitter for crisis communication: lessons learned from Japan's tsunami disaster', International Journal of Web Based Communities, vol. 7, no. 3, pp. 392-402.
3. boyd, D, Golder, S & Lotan, G 2010, Tweet, Tweet, Retweet: Conversational Aspects of Retweeting on Twitter, paper presented at the System Sciences (HICSS) 43rd Hawaii International Conference, 5-8 January, Kauai, viewed 4 June 2015, http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5428313.
4. Bruns, A, Burgess, JE, Crawford, K, & Shaw, F 2012, #qldfloods and @QPSMedia: Crisis communication on Twitter in the 2011 South East Queensland floods: research report, viewed 4 June 2015, http://www.cci.edu.au/floodsreport.pdf.
5. Bruns, A & Burgess, J 2011, '#Ausvotes: How twitter covered the 2010 Australian federal election [online]'. Communication, Politics & Culture, vol. 44, no. 2, pp. 37-56.
6. Catanese, SA Meo, DE. Ferrara, E, Fiumara, G, Provetti, A 2011, Crawling Facebook for social network analysis purposes, paper prsented at the International Conference on Web Intelligence, Mining and Semantics, 25-27 May, viewed 4 June 2015, http://arxiv.org/pdf/1105.6307.pdf
7. Cha, M, Haddadi, H, Benevenuto, F, & Gummadi, PK 2010, 'Measuring User Influence in Twitter: The Million Follower Fallacy', ICWSM, vol. 10, pp. 10-17.
8. Einspänner, J, Dang-Anh, M & Thimm, C 'Computer-Assisted Content Analysis of Twitter Data', in K Weller, A Bruns, J Burgess & M Mahrt (eds.), Twitter and Society, e-book, Peter Lang, New York, viewed 4 June 2015, pp. 97-108, http://www.csuau.eblib.com.ezproxy.csu.edu.au/patron/FullRecord.aspx?p=1632466&echo=1&userid=058OJ7DWhSnanmBCLRlubw%3d%3d&tstamp=1433395998&id=25BDADCC4C05E99ADA87A48730767CCD14AEC08F
9. Gupta, A, Joshi, A, & Kumaraguru, P 2012, Identifying and characterizing user communities on Twitter during crisis events, paper presented at the 2012 workshop on Data-driven user behavioral modelling and mining from social media, Maui, Hawaii, USA 29 October, viewed 4 June 2015, http://ebiquity.umbc.edu/_file_directory_/papers/668.pdf
10. Hughes, AL, & Palen, L 2009, 'Twitter adoption and use in mass convergence and emergency events', International Journal of Emergency Management, vol. 6, no. 3, pp. 248-260.

11. Jansen, BJ, Zhang, M, Sobel, K, & Chowdury, A 2009, 'Twitter power: Tweets as electronic word of mouth', Journal of the American Society for Information Science and Technology, vol. 60, no. 11, pp. 2169-2188.
12. Java, A, Song, X, Finin, T, & Tseng, B 2009, 'Why we twitter: An analysis of a microblogging community', in H. Zhang (ed.), Advances in Web Mining and Web Usage Analysis, Springer-Verlag, Berlin Heidelberg, pp. 118-138.
13. Kieslinger, B & Ebner, M 2011, A qualitative approach towards discovering microblogging practices of scientists, paper presentred at the Interactive Collaborative Learning (ICL) 14th International Conference, September 21 - 23 September, Piešany, Slovakia, viewed 4 June 2015, http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6059547, pp. 51-57.
14. Larsson, AO, & Moe, H 2012, 'Studying political microblogging: Twitter users in the 2010 Swedish election campaign', New Media & Society, vol. 14, no.5, pp. 729-747.
15. Lyles, CR, López, A, Pasick, R, & Sarkar, U 2013, "5 mins of uncomfyness is better than dealing with cancer 4 a lifetime": An exploratory qualitative analysis of cervical and breast cancer screening dialogue on Twitter. Journal of Cancer Education, vol. 28, no. 1, pp. 127-133.
16. Marwick, AE 2014, 'Ethnographic and Qualitative Research on Twitter', in K Weller, A Bruns, J Burgess & M Mahrt (eds.), Twitter and Society, e-book, Peter Lang, New York, viewed 4 June 2015, pp. 109-121, http://www.csuau.eblib.com.ezproxy.csu.edu.au/patron/FullRecord.aspx?p=1632466&echo=1&userid=058OJ7DWhSnanmBCLRlubw%3d%3d&tstamp=1433395998&id=25BDADCC4C05E99ADA87A48730767CCD14AEC08F.
17. Mendoza, M, Poblete, B & Castillo, C 2010, Twitter under crisis: can we trust what we RT?, paper presented at the First Workshop on Social Media Analytics, 25 July Washington D.C., viewed 4 June 2015, http://snap.stanford.edu/soma2010/papers/soma2010_11.pdf
18. Pear Analytics 2009 'Twitter Study', viewed 13 March 2015, http://pearanalytics.com/wp-content/uploads/2012/12/Twitter-Study-August-2009.pdf
19. Schultz, F, Utz, S, & Göritz, A 2011, 'Is the medium the message? Perceptions of and reactions to crisis communication via twitter, blogs and traditional media', Public Relations Review, vol. 37, no. 1, pp. 20-27.
20. Stieglitz, S & Linh, D-X 2012, 'Political Communication and Influence through Microblogging - An Empirical Analysis of Sentiment in Twitter Messages and Retweet Behavior', paper presented at the System Sciences (HICSS) 43rd Hawaii International Conference, 5-8 January, Kauai, viewed 4 June 2015, http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6149247.
21. Suh, B, Lichan, H, Pirolli, P, & Chi, EH 2010, 'Want to be Retweeted? Large Scale Analytics on Factors Impacting Retweet in Twitter Network', paper presented at the 2010 IEEE Second International Conference on Social Computing, 20-22 August, viewed 4 June 2015, http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5590452
22. Thelwall, M 2014 'Sentiment Analysis and Time Series with Twitter', in K Weller, A Bruns, J Burgess & M Mahrt (eds.), Twitter and Society, e-book, Peter Lang, New York, viewed 4 June 2015, pp. 83-9, http://www.csuau.eblib.com.ezproxy.csu.edu.au/patron/FullRecord.aspx?p=1632466&echo=1&userid=0

58OJ7DWhSnanmBCLRlubw%3d%3d&tstamp=1433395998&id=25BDADCC4C05E99ADA87A48730767CCD14AEC08F.
23. Tumasjan, A, Sprenger, TO, Sandner, PG & Welpe, IM 2010, 'Predicting Elections with Twitter: What 140 Characters Reveal about Political Sentiment', ICWSM, vol. 10, pp. 178-185.
24. Verkamp, J-P & Gupta, M 2014, 'Five incidents, one theme: Twitter spam as a weapon to drown voices of protest', paper presented at the Third USENIX Workshop on Free and Open Communications on the Internet, 13 August, Washington D.C., viewed 4 June 2015, https://www.usenix.org/conference/foci13/workshop-program/presentation/verkamp
25. Wilkinson, D, & Thelwall, M 2012, 'Trending Twitter topics in English: An international comparison', Journal of the American Society for Information Science and Technology, vol. 63, no. 8, pp. 1631-1646.
26. Yardi, S, Romero, D, & Schoenebeck, G 2009, 'Detecting spam in a twitter network', First Monday, vol. 15, no. 1, viewed 4 June 2015, http://firstmonday.org/article/view/2793/2431
27. Zhao, D, & Rosson, MB 2009, 'How and why people Twitter: the role that micro-blogging plays in informal communication at work', paper presented at the 2009ACM international conference on Supporting group work, 10-13 May, Sanibel Island, Florida, , viewed 4 June 2015, http://delivery.acm.org/10.1145/1540000/1531710/p243-zhao.pdf?ip=137.166.81.120&id=1531710&acc=ACTIVE%20SERVICE&key=65D80644F295BC0D%2EC3714298A2589389%2E4D4702B0C3E38B35%2E4D4702B0C3E38B35&CFID=680340697&CFTOKEN=31989440&__acm__=1433402496_55f518b1089abeaafab248c6a9358c9b.