Understanding Twitter as an e-WOM

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Abstract

Purpose – This paper aims to research as to how Twitter is influential as an electronic word-of-mouth (e-WOM) communication tool and thereby affecting movie market. In present days, social media is playing an important role in connecting people around the globe. The technology has provided a platform in the social media space for people to share their experiences through text, photos and videos. Twitter is one such online social networking media that enables its users to send and read text-based messages of up to 140 characters, known as "tweets". Twitter has nearly 200 million users and billions of such tweets are generated by users every other day. Social media micro-blogging broadcasting networks such as Twitter are transforming the way e-WOM is disseminated and consumed in the digital world. Twitter social behaviour for the Hollywood movies has been assessed across seven countries to validate the two basic blocks of the honeycomb model – sharing and conversation. Twitter behaviour was studied for 27 movies in 22 different cities of seven countries and for six genres with a total tweets of 9.28 million. The difference of Twitter social media behaviour was compared across countries, and "sharing" and "conversation" as two building blocks of the honeycomb model were studied. *t*-Test results revealed that the behaviour is different across countries and across genres.

Design/methodology/approach – The objective of the paper is to analyse Twitter messages on an entertainment product (movies) across different regions of the world. Hollywood movies are released across different parts of the world, and Twitter users are also in different parts of the world. The objective is to hence validate "conversation" and "sharing" building blocks of the honeycomb model. The research is confined to analysing Twitter data related to a few Hollywood movies. The tweets were collected across nine different cities spanning four different countries where English language is prominent. To understand the Twitter social media behaviour, a crawler application using Python and Java was developed to collect tweets of Hollywood movies from the Twitter database. The application has incorporated Twitter application programming interfaces (APIs) to access the Twitter database to extract tweets according to movies search queries across different parts of the world. The searching, collecting and analysing of the tweets is a rather challenging task because of various reasons. The tweets are stored in a Twitter corpus and can be accessed by the public using APIs. To understand whether tweets vary from one country to another, the analysis of variance test was conducted. To assess whether Twitter behaviour is different, and to compare the behaviour across countries, *t*-tests were conducted taking two countries at a time. The comparisons were made across all the six genres. In this way, an attempt was made to obtain a microscopic view of the Twitter behaviour for each of the seven countries and the six genres.

Findings – The findings show that the people use social media across the world. Nearly 9.28 million tweets were from seven countries, namely, USA, UK, Canada, South Africa, Australia, India and New Zealand for 27 Hollywood movies. This is indicative of the fact that today, people are exchanging information across different countries, that people are conversing about a product on social media and people are sharing information about a product on social media and, thus, proving the hypothesis. Further, the results indicate that the users in USA, Canada and UK, tweet more than the other countries, USA and UK being the highest in tweets followed by the Canada. On the other hand, the number of tweets in Australia, India and South Africa are low with New Zealand being the lowest of all the

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countries. This indicates that different countries' users have different social media behaviour. Some countries use social media to communicate about their experience more than in some other country. However, consumers from all over the world are using Twitter to express their views openly and freely.

Originality/value – This research is useful to scholars and enterprises to understand opinions on Twitter social media and predict their impact. The study can be extended to any products which can lead to better customer relationship management. Companies can use the Internet and social media to promote and get feedback on their products and services across different parts of the world. Governments can inform the public about their new policies, benefits of governmental programmes to people and ways to improve the Internet reach to more people and also for creating awareness about health, hygiene, natural calamities and safety.

Keywords Twitter, e-WoM, Hollywood movies, Twitter social media behaviour

Paper type Research paper

Introduction

When the Steven Spielberg movie, The Terminal, was released, on the very first weekend, the movie made US$19 million dollars which was comparable to other Tom Hank's movies (You've Got Mail, Forest Gump and The Green Mile). But, eventually, the movie flopped in the box office with a total collection of only US$75 million. The reports cited that unfavourable online word-of-mouth (WoM) from customers, and online reviews, was the reason for the flop (Dellarcos *et al.*, 2007).

Businesses rely largely on WoM marketing; the social media has now become e-WOM (electronic word-of-mouth) marketing tool. The customers are relying on product ratings, reviews in blogs, micro-blogs and other social media before making purchasing decisions (Park and Lee, 2012). WOM has always been considered as an important means by which information can reach a large population and possibly influence adoption of a new product or brand awareness (Lee *et al.*, 2011). Social media has evolved to be the hub for instant sharing of information through e-WOM. The information can reach millions of people, who are connected through social media, in the blink of an eye (Hanna *et al.*, 2011). The power of its reach to millions of people instantaneously, and the openness in sharing experiences, without fear, has challenged the core value propositions of business entities. Whether it is Facebook or Twitter or any other web 2.0 application tool, consumers are becoming smarter in their choices and concerned about what brands they buy.

Social marketing is not new and has been around for many years. Social marketing is the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programmes designed to influence the voluntary behaviours of target audiences to improve their personal welfare and that of their society (Anderson, 1995). Social marketing is a programme planning process that promotes the voluntary behaviour of target audiences by offering benefits they want, reducing barriers they are concerned about and using persuasion to motivate their participation in their activity (Kotler and Roberto, 1989).

The growing number of users on Twitter and Facebook are exposing companies and influencing a huge number of consumers (Haubi and Trifts, 1999). The social media has changed the focus of marketing from a "supplier" to "customer" perspective. Customers are controlling the flow of marketing information, not companies, as they are able to share information on the social web. The web is a virtual environment where customers are able to experience products before buying (Steuer, 1992). As a result, many

companies are adopting social media as their marketing strategy to gain business values by creating brand awareness, building reputation, improving customer satisfaction and retention (Culnan *et al.*, 2010). Twitter, Facebook and other social media have become prominent in today's social media marketing (e-WOM). Micro-blogging platforms users are growing every day. Data from these sources can be used for marketing, opinion mining and sentiment analysis. Twitter micro-blogging is the most popular micro-blogging site, as the message size is only 140 characters and users have to express their opinions, views or feelings within these 140 characters.

Many of the recent research have used IMDb.com, boxofficemojo.com and Yahoo! Movie sites to study the effect of e-WOM on movie box office revenues (Neelamegham and Chintagunta, 1999; Duan *et al.*, 2008; Liu, 2006; Sharda and Delen, 2006) and the results are mixed.

The objective of this research paper is to study Twitter as a social media and how Twitter is being used as an e-WoM tool by the people for an entertainment product like a movie. The analysis should be able to provide the movie trend in a particular location or geography and help the companies to take the strategic business decisions.

Literature review

e-WOM has profoundly changed the way information has been transmitted across the globe and transcended the traditional medium of marketing and communication (Laroche *et al.*, 2005). Many studies have shown the importance of e-WOM communication as a widely accepted form of communication in marketing. Online product reviews, feedback and opinions provide valuable information for not just other consumers but also the companies to monitor consumer attitude towards their products and adopt the feedback effectively (Dellarcos *et al.*, 2007). Studies have also shown that the e-WOM communication affects consumer behaviour towards purchasing decisions (Lee *et al.*, 2011).

The consumer created information is helpful for decision-making on purchases because it provides the consumer an idea about others' experiences. There are evidences that consumer reviews have become important for product sales (Clemons *et al.*, 2006; Chevalier and Mayzlin, 2006; Ba and Pavlou, 2002; Park and Lee, 2009).

The basic building blocks of social media, based on the honeycomb model, are identity, conversation, sharing, presence, relationship, reputation and groups as shown in Figure 1.

The identity is extent to which users reveal their personal identity. The conversation block represents the extent to which users communicate with each other on social media. Sharing allows users to share information on social media. Information could be text, pictures or videos, and carries information, experience or opinions expressed by users. Presence is the existence of an online user during the conversation. Relationship is how users are related to each other – friend, family, etc. Reputation is the reputation of the user who is sharing the information. Conversation occurs within a group (set of users) (Kietzmann *et al.*, 2011) (Figure 1).

Conversation as a block, refers to the discussions on the social media which have an influence on the company's brand, product or services. Kietzmann *et al.* (2011) states, "the conversations are like pieces of a rapidly changing puzzle, when aggregated, combines to produce an overall image or message". The conversation happens on all

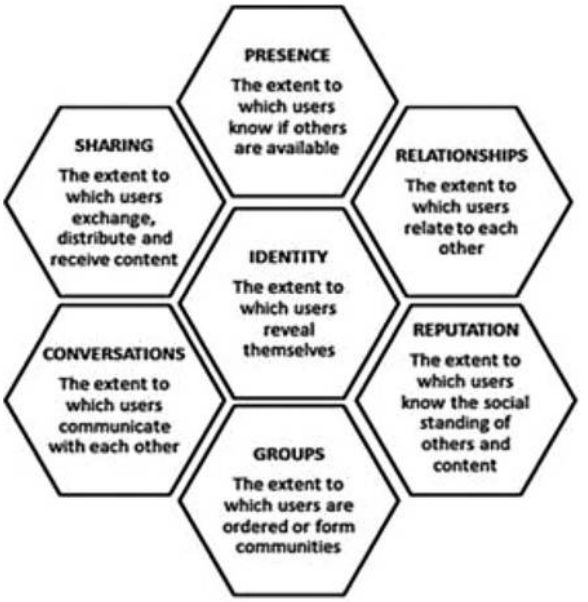

Figure 1.
The honeycomb of social media

Source: Kietzmann *et al.* (2011)

sorts of topics including politics, movies, environmental problems, technology, economic issues or love (Beirut, 2009).

Tweets are relatively a new type of e-WOM in recent days. Twitter is a micro-blogging site founded in 2006. It allows people to post their thoughts in a text format using just 140 characters. These posts are popularly known as tweets, which may include texts and URLs. Today, Twitter has more than 300 million users (Twitter.com, 2014). There are a billion tweets being sent every three days which reaches millions of people (Twitter.com). People are using Twitter to track news, to find out what others are talking about, the latest in politics, technology, events around their city, the latest phone or gadget, jobs in their area and what are people talking about the latest movies. Twitter allows sharing of the latest information, news, ideas and also solicits suggestions or ideas instantaneously across the globe unlike ever before. Some users may just be active listeners and some may be actively participating and exchanging information. Tweets may also contain people's opinions, views or experiences relating to a product, services or brand, and these tweets are available to the public (Smith *et al.*, 2012). Businesses, academicians and researchers have a huge amount of Twitter data to analyse.

Twitter, if used effectively, can be an extremely useful e-WOM tool for businesses to attract customers, increase traffic and generate more leads. Because of Twitter's ability to reach a large number of users with a short message, Twitter is the most popular micro-blogging site used today for public relations, advertising and marketing campaigns. The businesses can build a strong customer base easily and influence millions of people instantaneously. Businesses can use the Twitter channel to listen to what the customers are talking about their products, brands, services and other

competitor's brands as well. For businesses, it can also provide a rich canvas for broadcasting promotions, services and sales and can connect them to their customers directly. Having a great business profile by sharing useful information gives a brand credibility on social media, and it can easily garner thousands of followers following the brand updates. Twitter also offers promotions and advertisements to get the businesses more fans. These days, every business has a Twitter sharing icon button embedded in the home website to extend their reach. Businesses can also influence by participating directly and understanding the customer needs as both are part of Twitter (Jansen *et al.*, 2009). The companies can get feedback of the products from their customers that could then be used for improving their products and services. Sentiments on a product may vary from one place to another or one country to another, depending on the local market, local culture or many other factors. This is useful information for the companies for formulating their marketing strategy.

Many research studies have been conducted on movies, selection of movies, impact of e-WoM and how long a movie can run (Neelamegham and Chintagunta, 1999; Elberse and Eliashberg, 2003). There are several studies to understand the online reviews of movies, social media behaviour and its impact on box office revenues. To predict the success or failure of Hollywood movies is hard, as box office revenues depend on a number of factors, and the following predictors are significant: production budget, expert ratings, distributor, Oscar or superstar actors and the time of release (Sochay, 1994). An empirical study by Chang and Ki (2005) indicates that the box office revenues depend on production budget, the number of screens, expert rating and sequels. Research has also been conducted on box office revenues in international market and expert reviews. The studies reveal that the expert reviews have no significant impact on box office revenues in the international market. This could be due to language barriers, understanding of accents or inclination to local/regional movies (Hoskins *et al.*, 1995).

Asur and Huberman (2010) have studied the Twitter micro-blog buzz and the pre-release buzz and attention created for different movies and examined how the behaviour changes before the release of the movie and after the release of movie. The study further focuses on how Twitter sentiments have an impact on box office revenues. The study has been conducted by extracting 2.89 million tweets before and after the release of 24 movies to find the pre-release and post-release buzz and pattern. The results indicate that the greater number of tweets contains URLs, promotions, television ads, before the release to create a buzz than after the release of the movie. The tweets buzz has been compared with Hollywood Stock Exchange index to predict the price using a regression model. The results were found to be positively correlated. Further, a study was conducted to investigate the importance of sentiments in predicting box office outcomes using a simple linear regression model, and the results show that there is a correlation between the sentiments and box office revenues.

Rui *et al.* (2013) have studied the Twitter data of 63 movies and 4,166,623 tweets sentiments, and examined its impact on box office revenues. They used the Naïve Bayesian and support vector machines sentiment classifier to classify the sentiments into positive, negative and neutral with an accuracy of 75 per cent. To determine the impact on the box office collection, a dynamic panel data model was used with a dependent variable – box office revenue and independent variables – total tweets, positive tweets ratio and negative tweets ratio. The results reveal that the positive

sentiments have a positive effect on box office revenues and negative sentiments have negative effect on box office revenues.

Research questions and hypothesis

Social media, such as Twitter and Facebook, provide a platform for the companies to interact with the customers, business partners and suppliers. In 2009, McKinsey surveyed 1,700 business executives worldwide about their use of social media platform for customer interactions, external partners and suppliers. According to the study, about 64 per cent used social media internally, 56 per cent to interact with customers and 40 per cent to work with external partners (Yoo and Gretzel, 2009; Culnan *et al.*, 2010).

Based on the literature, it can be concluded that social media and its content have an impact on consumer behaviour and their purchase decisions. Micro-blogging is becoming increasingly important because of its short and simple messages that can reach millions of people instantly. As such, micro-blogging can have a greater influence on product branding. Even so, there are many unanswered questions related to micro-blogging and social behaviour. How do people across different countries use micro-blogging to express their views? How and why are some products liked by certain countries and the same products are not liked by other countries? Is it country specific? These are the questions that motivate this research work. As per the literature that has been reviewed, there are limited studies on cross-country social media behaviour. Hence, there is a need for this kind of a study that studies social media behaviour across countries. Twitter has been selected as the social media, as it is a popular social media today, and researchers and academicians all over the world are interested to study more about Twitter.

The objective of the research is to study Twitter as a social media tool and to understand the basic three components of the honeycomb model – *conversation, sharing* and *reputation* with respect to movies, as a product category. Movies are the most common interest among all ages – whether children or adults; young or old; whether they are in cities or small towns. Most of the Hollywood movies are released all over the world. People from all over the world watch Hollywood movies and express their opinions on social media. Hence, in this study, Hollywood movies are chosen as a product of study. The study is carried out for the following objectives:

- to understand the existence of three building blocks of *honeycomb* model in Twitter, namely, *reputation, conversation* and *sharing*; and
- to understand the Twitter behaviour and to validate the proposed model from different countries, whether people *share, converse* and express opinions in different parts of the world.

Hypothesis

Twitter messages from one country to another vary.

The objective is to analyse Twitter messages on an entertainment product (movies) across different regions of the world. Hollywood movies are released across different parts of the world and Twitter users are also in different parts of the world. The objective is to hence validate "conversation" and "sharing" building blocks of the honeycomb model.

Research methodology

To understand the Twitter social media behaviour, a crawler application using Python and Java was developed to collect tweets of Hollywood movies from the Twitter database. The application has incorporated Twitter application programming interfaces (APIs) to access the Twitter database to extract tweets according to movies search queries across different parts of the world. The searching, collecting and analysing of the tweets is a rather challenging task because of various reasons. The tweets are stored in a Twitter corpus and can be accessed by the public using APIs. Each API represents a facet of Twitter, and allows developers to build their own application on top of this API. It is important to note that the Twitter APIs are constantly evolving and developing. There is no guarantee that the application that is working today will work after six months.

To understand whether tweets vary from one country to another, the analysis of variance (ANOVA) test was conducted. To assess whether Twitter behaviour is different, and to compare the behaviour across countries, *t*-tests were conducted taking two countries at a time. The comparisons were made across all the six genres. In this way, an attempt was made to obtain a microscopic view of the Twitter behaviour for each of the seven countries and the six genres.

Designing a software system to collect tweets automatically from the Twitter database is quite challenging because of the limitations imposed by Twitter, and the task of understanding the semantics and the dependencies of Twitter APIs, which are ever-changing. Many researchers have built tools to collect the tweets using Twitter APIs, which are based on their requirements (Perera *et al.* 2010; Anderson and Schram, 2011).

Perera *et al.* (2010) have developed a tool to collect Twitter data using Twitter API, MySQL and a Python interface to extract tweets from users who are following Barak Obama. To collect the required data for the analysis, they used REST API and Twython for temporal behaviour of social networks. Anderson and Schram (2011) have also developed a tool to collect tweets of keyword "Haiti earthquake" for three weeks continuously on concurrent systems architecture. The infrastructure was built using production-class software frameworks (Spring & Spring MVC, Hibernate and JPA) and infrastructure components (Tomcat, MySQL and Lucene).

The Search API 1.1 allows us to search all the tweets in the specified geographical location. The geographical area is specified using latitude and longitude of the location and the radius. The parameter required by location-based search is called "geocode", as described in Table I.

In this study, Twitter Data Crawler (TDC) application using the search API was developed for collecting tweets. Twitter search API can be used to retrieve the tweets based on a certain search criteria including query word, location, user name, etc. The search API returns only a limited number of tweets. The rate limit puts a constraint on

Parameter	Description
Geocode	Returns tweets by users located within a given radius of the given latitude/longitude. The parameter value is specified by "latitude, longitude and radius", where radius units must be specified as either "mi" (miles) or "km" (kilometers) Example: 12.9715987,77.5945627,300 mi (Bangalore)

Table I.
Twitter API geo-location parameters

how many tweets can be retrieved per hour. Hence, the tweets obtained from the search API is only a sample and not the complete database of tweets. It should be noted that because of the per-hour rate limit, it is quite challenging to retrieve the tweets in the following hour without any duplication. The response that we get from the search API is in JSON format.

The TDC application supports the following requirements:

- collects tweets based on a keyword search;
- collects tweets based on geographical location;
- extracts the tweet text from the JSON format and write them to a file;
- runs the application programme continuously for different keywords and different locations;
- the application programme automatically runs daily on a specific time;
- stores the tweets automatically in a database; and
- the overall architecture consists of a crawler manager, a database and a scheduler.

The crawler connects to the Twitter database through Twython. Twython is the premier Python library providing an easy way to access Twitter data. The crawler makes a call to the Twitter API through Twython. For each HTTP request, the result contains the status code of the result and the content of the result in JSON format. The TDC application is based on Python interface. In future, the same may be migrated to the web interface. The architecture uses Twitter Authentication OUAth protocol for authentication, Twitter Search API and a database to store the tweets. Figure 2 depicts the overall architecture.

As there is a limitation to the number of tweets that can be retrieved from the Twitter database, a scheduler was introduced. The scheduler process calls the crawler process automatically to retrieve the tweets over a period of time. Both the movie name and the location are passed on as parameters to the crawler. In the Twitter search API's location

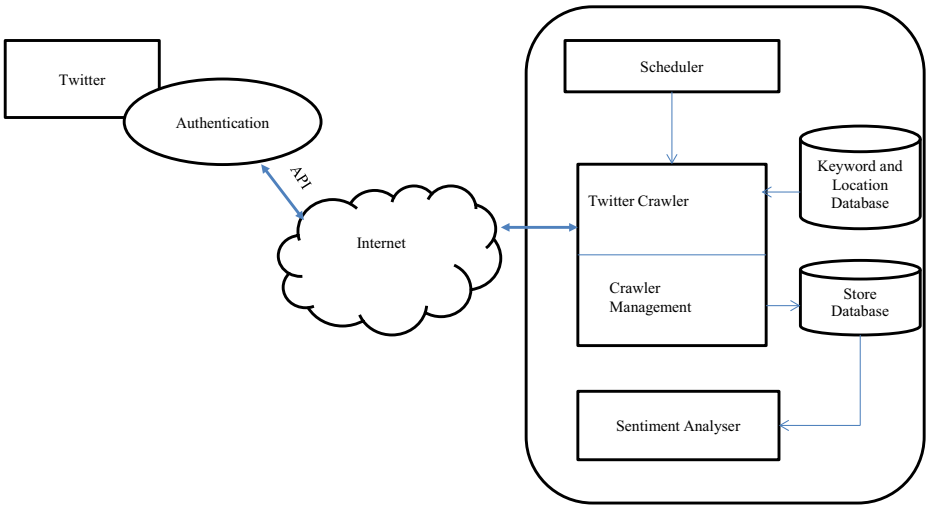

Figure 2.
Software architecture

"geocode" parameter, the value is specified by the latitude, the longitude and the radius. Search API returns the tweets by users located within a given radius of that particular latitude and longitude. For example, to retrieve tweets from Bangalore, the "geocode" parameter is: 12.9715987, 77.5945627, 300 mi. The crawler connects to the Twitter database, Twitter authenticates the user and then pulls the relevant data based on the parameters. The tweets are then stored in a database.

All the programmes for the experiments were run on a quad-core windows 7 operating systems machine. For each movie, tweets from different locations were retrieved and stored in the flat file database. The tweets are further processed and cleaned before they were entered into a sentiment analyser application.

Results

To test the proposed model of building blocks of social media behaviour – conversation and sharing, tweets for different movies from different countries were analysed using descriptive statistics, ANOVA and *t*-tests.

The tweets' corpus contains key words as different movies. In this study, tweets were collected about Hollywood movies released over the period of 2013 and 2014. Approximately 9.28 million tweets were collected from 27 movies, seven countries and 22 cities. In each country, the first three most populous cities were chosen. The USA was an exception, as four cities were considered there. For each movie for which the tweets were collected, the movie name and the geo-location code (to identify a specific city of a country) were specified, and tweets were polled from the Twitter database daily. To summarize, tweets of approximately 9.28 million, from 27 across 22 cities, world-wide, were collected over a period of more than 60 days. Figure 3 summarizes the tweets sub-corpus used for this study. The sub-corpus contains nearly 9.28 million tweets.

Tweets' statistics for each country is given in Table II. The analysis revealed that UK had the highest number of tweets, which numbered to 3,279,280 tweets, followed by USA with 3,269,542 tweets, and Canada with 1,265,180 tweets. The lowest tweets were from New Zealand, and they numbered 184,179 tweets. India, South Africa and Australia ranked closely with 407,928, 435,370 and 4,477,584 tweets, respectively.

Figure 4 and Table III shows the total number of tweets collected from seven different countries for 27 Hollywood movies. USA and UK has the highest tweets compared to all other countries. New Zealand has the lowest tweets. India, Australia and South Africa have more or less the same number of total tweets.

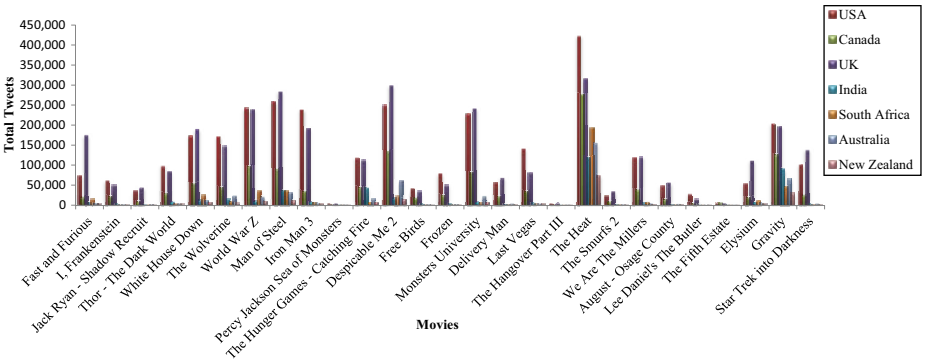

Figure 3.
Total tweets from 27 movies and seven countries

To facilitate the data analysis process, and come with generalizations, the 27 movies were categorized into six genres, namely, *action, adventure, animation, comedy, drama* and *sci-fi*. Genre-wise, *action* had tweets for seven movies, *adventure* for four movies, *animation* for four movies, *comedy* had tweets for six movies, *drama* had tweets for three movies and *sci-fi* action had tweets for three movies. Table III summarizes the movies studied for this research by category.

To analyse the data at a macro-level and assess the differences in social media behaviour across countries, the ANOVA test was conducted. The ANOVA was performed to determine whether there is any significant difference between the tweets collected from different countries. Further, to study the differences at a micro-level, two countries were taken at a time and *t*-tests were conducted across seven countries and six genres.

Analysis of variance

The ANOVA test was performed on the tweets of movies collected of the same "genre" between different countries. Tweets from *action, animation, adventure, comedy, drama* and *sci-fi* are grouped by different countries, namely, Australia, Canada, India, New Zealand, South Africa, USA and UK and comparisons made across. The results of ANOVA are as shown in Tables IV and V.

Country	Total tweets
Australia	447,584
Canada	1,265,180
India	407,928
New Zealand	184,179
South Africa	435,370
UK	3,279,280
USA	3,269,542
Total	9,289,063

Table II.
Tweets statistics of the seven countries

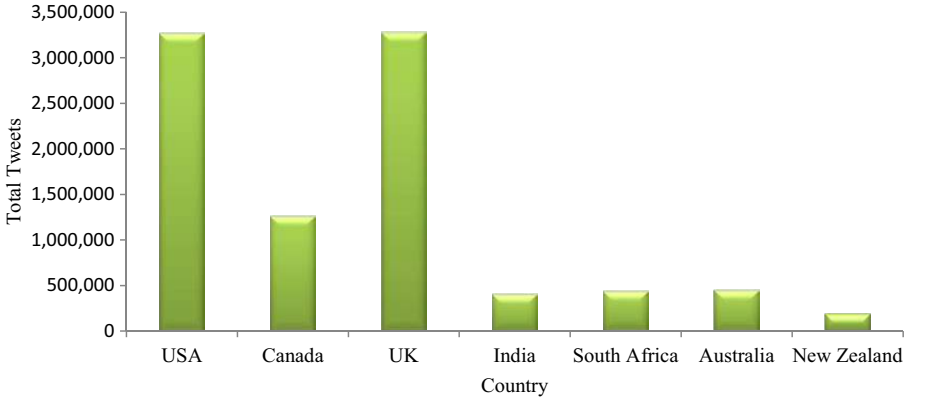

Figure 4.
Twitter social media – *sharing* and *conversation* as building blocks from seven countries

Movie name	USA (New York, San Francisco, Chicago, LA)	Canada (Vancouver, Toronto, Calgary)	UK (London, Birmingham, Glasgow)	India (Bangalore, Mumbai, Delhi)	South Africa (Durban, Johannesburg, Cape Town)	Australia (Brisbane Melbourne, Sydney)	New Zealand (Auckland, Christchurch, Willington)	Total
Despicable Me 2	250,002	134,427	298,712	16,947	22,093	59,997	13,134	838,925
Elysium	53,077	18,092	110,444	6,523	11,236	4,559	2,490	206,421
Gravity	203,301	125,067	196,375	90,956	46,576	66,628	29,935	758,838
Iron Man 3	237,894	33,472	191,097	7,073	5,949	4,506	2,602	482,593
The Smurfs 2	23,420	7,830	33,882	1,734	1,325	1,497	665	70,353
We Are The Millers	118,438	37,729	119,462	6,086	7,195	3,685	1,965	294,560
Wolverine	171,018	43,017	147,212	15,415	9,054	22,862	4,892	413,470
Delivery Man	56,271	21,288	67,079	1,957	1,475	2,850	1,244	152,164
Fast and Furious 6	74,170	19,899	174,397	5,964	15,555	4,092	2,447	296,524
Man of Steel	258,235	89,704	283,015	36,309	36,367	31,207	11,300	746,137
Star Trek into Darkness	100,645	24,931	137,426	2,350	1,625	2,869	1,271	271,117
The Fifth Estate	5,236	5,909	4,151	267	19	1,003	101	16,686
World War Z	242,052	96,765	237,785	10,115	35,190	20,110	8,139	650,156
Lee Daniel's The Butler	27,632	3,984	15,192	280	243	372	266	47,969
Percy Jackson Sea of Monsters	2,460	1,106	3,701	742	578	583	352	9,522
The Hangover Part III	3,734	1,092	4,634	322	344	217	28	10,371
White House Down	172,465	53,136	189,432	12,210	25,453	11,181	6,215	470,092
The Heat	422,416	275,812	315,204	118,771	193,257	154,534	74,431	1,554,425
Monsters University	226,858	81,405	241,015	6,959	5,932	22,105	6,516	590,790
August - Osage County	48,102	14,381	55,447	1,945	891	2,073	1,382	124,221
Free Birds	41,534	17,490	34,854	2,354	1,001	1,801	627	99,661
The Hunger Games: Catching Fire	117,635	43,594	112,052	42,703	6,640	16,201	6,544	345,369
Frozen	78,633	24,064	49,878	4,069	525	1,892	952	160,013
I, Frankenstein	61,095	20,941	49,257	2,237	576	1,891	1,316	137,313
Thor – The Dark World	97,423	29,278	83,882	7,471	3,322	4,045	2,058	227,479
Last Vegas	140,557	33,119	80,489	5,008	2,071	3,139	2,586	266,969
Jack Ryan – Shadow Recruit	35,239	7,648	43,206	1,161	878	1,685	721	90,538
Grand total (9.28 million tweets)								9289,063

Table III.
Total tweets from different countries

Genre	Movies	No. of movies
Action	Fast and Furious 6, I, Frankenstein, Jack Ryan: Shadow Recruit, Thor-The Dark World, White House Down, Wolverine, World War Z	7
Adventure	Man of Steel, Iron Man 3, Percy Jackson Sea of Monster, The hunger games: Catching Fire – The hunger games: Catching Fire	4
Animation	Despicable Me 2, Free Birds, Frozen, Monsters University	4
Comedy	Delivery Man, Last Vegas, The Hangover Part III, The Smurfs2, We Are The Millers	6
Drama	August – Osage County, Lee Daniel's The Butler, The Fifth Estate	3
Sci-Fi	Gravity, Elysium, Star Trek Into Darkness	3
Total		27

Table IV.
Six genres and categorization of movies

Genre	*F*-statistic	*p*-value	*F*-critical	Null hypothesis
Action	11.125	0.0001	2.8477	Reject
Adventure	2.6342	0.0051	2.6571	Reject
Animation	3.4490	0.0258	2.8320	Reject
Comedy	16.079	0.0000	2.6407	Reject
Drama	2.7228	0.0046	2.6571	Reject
Sci-Fi	4.0400	0.0098	2.6571	Reject

Note: Mean difference is significant at 0.05 level

Table V.
ANOVA results summary between different countries and genres

H0. There is no difference between means of tweets of seven countries.

HA. There is a difference between means of tweets of seven countries.

The *F*-statistic was found to be greater than the F-critical value for a degree of freedom of 41. The *p*-value is very close to zero, as shown in Table IV. As *F*-statistic>F-critical, the *H0* is rejected. This implied that the mean tweets from each country and for each genre were found to be different, and thus, significant differences exist in social media behaviour. To study the differences at a micro-level, comparisons were made by taking two countries at a time, and *t*-tests were performed for each of the genres. A total of 126 *t*-tests were conducted across seven countries and six genres, taking two countries at a time.

t-*Tests*

t-Tests were conducted to compare social media behaviour across genres and countries. The analysis has been done:

- studying genres country-wise, where a particular genre has been taken, and the various country combinations have been compared; and
- studying countries' genre-wise, where a particular country combinations has been taken, and the various genres have been compared.

A total of 126 *t*-test combination were tested.

Genre 1: action movies

The objective was to statistically test the significance of sample tweets. *t*-Tests were performed to confirm that the means of tweets in one country were similar to means of the other country for "action" genre. Table VI summarizes the results of the *t*-tests for "action" genre between two different countries.

H0. There is no difference between the tweets of one country to another country.

HA. There is a difference between the tweets of one country to another country.

The *H0* gets rejected in 7 out of the 21 different pairs of countries, implying that social media behaviour differs across combination of countries. The findings revealed that so far as the "action" genre is concerned, significant differences are found only in the means of tweets between Canada and India, Canada and South Africa, Canada and UK, UK and Australia, UK and India, UK and New Zealand and UK and South Africa. The *H0* fails to get rejected in 14 out of the 21 different pairs of countries, implying that social media behaviour does not differ across combination of countries.

Genre 2: adventure movies

The objective was to statistically test the significance of sample tweets. *t*-Tests were performed to confirm that the means of tweets in one country were similar to means of the other country for "adventure" genre. Table VII summarizes the results of the *t*-tests for "adventure" genre between two different countries.

H0. There is no difference between the tweets of one country to another country.

HA. There is a difference between the tweets of one country to another country.

The *H0* gets rejected in only 1 out of the 21 different pairs of countries. The findings revealed that so far as the "adventure" genre is concerned, significant differences are found in the means of tweets between Canada and New Zealand only. The *H0* fails to get rejected in 20 out of the 21 different pairs of countries, implying that social media behaviour does not differ across these countries.

Genre 3: animation movies

The objective was to statistically test the significance of sample tweets. *t*-Tests were performed to confirm that the means of tweets in one country were similar to means of the other country for "animation" genre. (Table VIII) summarizes the results of the *t*-tests for "animation" genre between two different countries.

H0. There is no difference between the tweets of one country to another country.

HA. There is a difference between the tweets of one country to another country.

The *H0* gets rejected in 5 out of the 21 different pairs of countries, implying that social media behaviour differs across combination of countries. The findings revealed that so far as the "animation" genre is concerned, significant differences are found in the means of tweets between Canada and New Zealand, South Africa and New Zealand, UK and India, UK and New Zealand and UK and South Africa. The *H0* fails to get rejected in 16 out of the 21 different pairs of countries, implying that social media behaviour does not differs across these countries.

S. no.	Groups (Country X and Y)	Mean	SD	*t*-value	*p*-value (two-tailed)	Null hypothesis
1	Australia and New Zealand	15,688 5,159	10,316 2,855	2.208	0.157	Fail to reject
2	Canada and Australia	53,227 15,688	39,437 10,136	1.915	0.191	Fail to reject
3	Canada and India	53,227 10,498	39,437 4,737	1.9150	0.019	Reject
4	Canada and New Zealand	53,227 5,159	39,347 2,855	2.272	0.152	Fail to reject
5	Canada and South Africa	53,227 19,933	39,437 13,607	2.0148	0.018	Reject
6	Canada and UK	53,227 186,464	39,437 46,476	−8.862	0.012	Reject
7	India and Australia	10,498 15,688	4,737 10,136	−1.438	0.282	Fail to reject
8	India and New Zealand	10,498 5,159	4,737 2,855	2.202	0.181	Fail to reject
9	India and South Africa	10,498 19,933	4,737 13,606	−1.039	0.401	Fail to reject
10	South Africa and Australia	19,933 15,688	13,606 10,136	0.433	0.692	Fail to reject
11	South Africa and New Zealand	19,933 5,159	13,606 2,855	1.842	0.202	Fail to reject
12	UK and Australia	186,464 15,688	46,476 10,136	6.211	0.022	Reject
13	UK and India	186,464 10,498	46,476 4,737	6.522	0.021	Reject
14	UK and New Zealand	186,464 5,159	46,476 2,855	6.741	0.023	Reject
15	UK and South Africa	186,464 19,933	46,476 13,606	5.951	0.035	Reject
16	USA and Australia	162,413 15,688	84,271 10,136	3.346	0.072	Fail to reject
17	USA and Canada	162,413 53,227	84,271 39,437	3.912	0.054	Fail to reject
18	USA and India	162,413 10,498	84,271 4,737	3.211	0.083	Fail to reject
19	USA and New Zealand	162,413 5,159	84,271 2,855	3.3437	0.071	Fail to reject
20	USA and South Africa	162,413 19,933	84,271 13,606	3.2463	0.083	Fail to reject
21	USA and UK	162,413 186,464	84,271 46,476	−0.624	0.594	Fail to reject

Table VI.
t-Test results summary for "action" genre

Note: Mean difference is significant at 0.05 level

S. no.	Groups (Country X and Y)	Mean	SD	*t*-value	*p*-value (two-tailed)	Null hypothesis
1	Australia and New Zealand	12,098 4,751	16,664 5,781	0.727	0.524	Fail to reject
2	Canada and Australia	414,427 12,098	44,831 16,664	1.062	0.366	Fail to reject
3	Canada and India	41,427 14,708	44,831 18,972	0.9506	0.411	Fail to reject
4	Canada and New Zealand	41,427 4,751	44,831 5,781	3.402	0.049	Reject
5	Canada and South Africa	41,427 14,298	44,831 19,300	0.9627	0.406	Fail to reject
6	Canada and UK	41,427 159,271	44,831 142,350	−1.367	0.304	Fail to reject
7	India and Australia	14,708 12,098	18,972 16,664	0.465	0.866	Fail to reject
8	India and New Zealand	14,708 4,751	18,972 5,781	0.869	0.476	Fail to reject
9	India and South Africa	14,708 14,298	18,972 19,300	0.0262	0.980	Fail to reject
10	South Africa and Australia	14,298 12,098	19,300 1,664	0.1436	0.888	Fail to reject
11	South Africa and New Zealand	14,298 4,751	19,300 5,781	0.8207	0.4980	Fail to reject
12	UK and Australia	159,271 12,099	142,350 16,664	1.7785	0.1086	Fail to reject
13	UK and India	159,271 14,708	142,350 18,972	1.7435	0.2223	Fail to reject
14	UK and New Zealand	159,271 4,751	142,350 5,781	1.8785	0.201	Fail to reject
15	UK and South Africa	159,271 14,298	142,350 19,300	1.7479	0.222	Fail to reject
16	USA and Australia	166,196 12,098	142,164 16,664	0.1016	0.203	Fail to reject
17	USA and Canada	166,196 41,427	142,164 44,831	1.4497	0.284	Fail to reject
18	USA and India	166,196 14,708	142,164 18,973	1.8294	0.208	Fail to reject
19	USA and New Zealand	166,196 4,751	142,164 5,781	1.9653	0.188	Fail to reject
20	USA and South Africa	166,196 14,298	142,164 19,300	1.8338	0.208	Fail to reject
21	USA and UK	166,196 159,271	142,164 142,350	0.0593	0.055	Fail to reject

Note: Mean difference is significant at 0.05 level

Table VII.
t-Test results summary for "adventure" genre

S. no.	Groups (Country X and Y)	Mean	SD	*t*-value	*p*-value (two-tailed)	Null hypothesis
1	Australia and New Zealand	27,967 6,759	2,537 625	1.216	0.341	Fail to reject
2	Canada and Australia	77,774 27,967	58,553 2,537	1.315	0.279	Fail to reject
3	Canada and India	77,774 8,753	58,553 7,460	2.022	0.180	Fail to reject
4	Canada and New Zealand	7,774 6,759	58,553 6,257	2.098	0.017	Reject
5	Canada and South Africa	77,774 9,675	58,553 11,033	1.979	0.186	Fail to reject
6	Canada and UK	77,774 191,527	58,553 13,871	−1.308	0.281	Fail to reject
7	India and Australia	8,753 27,967	7,460 2,953	1.092	0.388	Fail to reject
8	India and New Zealand	8,753 6,759	7,430 6,257	3.354	0.074	Fail to reject
9	India and South Africa	8,753 9,675	7,460 11,033	−0.119	0.910	Fail to reject
10	South Africa and Australia	9,675 27,967	11,033 2,537	−1.0002	0.389	Fail to reject
11	South Africa and New Zealand	98 6,759	11,033 625	3.3982	0.031	Reject
12	UK and Australia	19,527 27,967	18,715 2,953	1.9922	0.091	Fail to reject
13	UK and India	191,527 8,753	18,715 7,460	2.278	0.015	Reject
14	UK and New Zealand	191,527 6,759	18,715 6,257	2.306	0.014	Reject
15	UK and South Africa	191,527 9,675	18,715 11,033	3.929	0.015	Reject
16	USA and Australia	172,798 27,967	142,465 29,537	2.125	0.167	Fail to reject
17	USA and Canada	172,798 77,774	114,265 58,553	1.281	0.289	Fail to reject
18	USA and India	172,797 8,753	114,265 7,460	1.000	0.422	Fail to reject
19	USA and New Zealand	172,798 6,759	142,465 6,257	2.512	0.128	Fail to reject
20	USA and South Africa	172,798 9,675	1142,465 11,033	2.461	0.132	Fail to reject
21	USA and UK	117,279 191,527	114,265 138,715	−0.180	0.865	Fail to reject

Table VIII.
t-Test results summary for "animation" genre

Note: Mean difference is significant at 0.05 level

Genre 4: comedy movies

The objective was to statistically test the significance of sample tweets. *t*-Tests were performed to confirm that the means of tweets in one country were similar to means of the other country for "comedy" genre. Table IX summarizes the results of the *t*-tests for "action" genre between two different countries.

H0. There is no difference between the tweets of one country to another country.

HA. There is a difference between the tweets of one country to another country.

The *H0* gets rejected in 9 out of the 21 different pairs of countries, implying that social media behaviour differs across combination of countries. The findings revealed that so far as the "comedy" genre is concerned, significant differences are found in the means of tweets between Canada and Australia, Canada and New Zealand, Canada and South Africa, Canada and India, UK and Australia, UK and India, UK and New Zealand, UK and South Africa and USA and South Africa. The *H0* fails to get rejected in 12 out of the 21 different pairs of countries, implying that social media behaviour does not differ across these countries.

Genre 5: drama movies

The objective was to statistically test the significance of sample tweets. *t*-Tests were performed to confirm that the means of tweets in one country were similar to means of the other country for "drama" genre. Table X summarizes the results of the *t*-tests for "action" genre between two different countries.

H0. There is no difference between the tweets of one country to another country.

HA. There is a difference between the tweets of one country to another country.

The *H0* gets rejected in 2 out of the 21 different pairs of countries, implying that social media behaviour differs across combination of countries. The findings revealed that so far as the "drama" genre is concerned, significant differences are found in the means of tweets only between Canada and Australia, and USA and Australia. The *H0* fails to get rejected in 19 out of the 21 different pairs of countries, implying that social media behaviour does not differ across these countries.

Genre 6: sci-fi movies

The objective was to statistically test the significance of sample tweets. *t*-Tests were performed to confirm that the means of tweets in one country were similar to means of the other country for "sci-fi" genre. Table XI summarizes the results of the *t*-tests for "sci-fi" genre between two different countries.

H0. There is no difference between the tweets of one country to another country.

HA. There is a difference between the tweets of one country to another country.

The *H0* gets rejected in 4 out of the 21 different pairs of countries, implying that social media behaviour differs across combination of countries. The findings revealed that so far as the "sci-fi" genre is concerned, significant differences are found in the means of tweets between UK and Australia, UK and India, UK and New Zealand and UK and South Africa. The *H0* fails to get rejected in 17 out of the 21 different pairs of countries, implying that social media behaviour does not differs across these countries.

S. no.	Groups (Country X and Y)	M	SD	*t*-value	*p*-value (two-tailed)	Null hypothesis
1	Australia and New Zealand	3,224	424	2.811	0.062	Fail to reject
		1,931	671			
2	Canada and Australia	30,712	8,480	5.602	0.033	Reject
		3,224	424			
3	Canada and New Zealand	30,712	8,480	5.852	0.027	Reject
		1,931	671			
4	Canada and South Africa	30,712	8,480	5.191	0.016	Reject
		3,580	3,114			
5	Canada and UK	30,712	8,480	−3.542	0.073	Fail to reject
		89,010	2,721			
6	Canada and India	30,712	8,480	5.227	0.013	Reject
		4,350	2,141			
7	India and Australia	4,350	2,141	0.897	0.464	Fail to reject
		3,224	424			
8	India and New Zealand	4,350	2,141	1.865	0.209	Fail to reject
		1,931	671			
9	India and South Africa	4,350	2,141	0.357	0.747	Fail to reject
		3,580	3,114			
10	South Africa and Australia	3,580	3,114	0.197	0.864	Fail to reject
		3,224	424			
11	South Africa and New Zealand	3,580	3,114	0.887	0.464	Fail to reject
		1,931	671			
12	UK and Australia	89,010	2,721	5.454	0.032	Reject
		3,224	424			
13	UK and India	89,010	2,721	5.372	0.034	Reject
		4,350	2,141			
14	UK and New Zealand	89,010	2,721	5.545	0.034	Reject
		1,931	671			
15	UK and South Africa	89,010	2,721	5.404	0.038	Reject
		3,580	3,114			
16	USA and South Africa	105,088	43,699	4.034	0.056	Reject
		3,224	3,144			
17	USA and Australia	105,088	43,699	4.016	0.055	Fail to reject
		3,224	424			
18	USA and Canada	105,088	43,699	2.893	0.104	Fail to reject
		30,712	8,480			
19	USA and India	105,088	43,699	3.988	0.054	Fail to reject
		4,359	2,141			
20	USA and New Zealand	105,088	43,699	4.088	0.052	Fail to reject
		1,931	671			
21	USA and UK	105,088	43,699	0.543	0.621	Fail to reject
		89,010	2,721			

Note: Mean difference is significant at 0.05 level

Table IX.
t-Test results summary for "comedy" genre

S. no.	Groups (Country X and Y)	Mean	SD	*t*-value	*p*-value (two-tailed)	Null hypothesis
1	Australia and New Zealand	1,149	859	−1.882	0.422	Fail to reject
		583	656			
2	Canada and Australia	8,091	5,531	2.143	0.0163	Reject
		1,149	859			
3	Canada and India	8,091	5,531	2.233	0.151	Fail to reject
		830	565			
4	Canada and New Zealand	8,091	5,531	2.336	0.145	Fail to reject
		583	656			
5	Canada and South Africa	8,091	5,331	2.403	0.132	Fail to reject
		384	452			
6	Canada and UK	8,091	5,531	−1.058	0.400	Fail to reject
		24,930				
7	India and Australia	830	565	0.345	0.694	Fail to reject
		1,149	859			
8	India and New Zealand	830	565	0.360	0.735	Fail to reject
		583	656			
9	India and South Africa	830	565	0.721	0.524	Fail to reject
		384	452			
10	South Africa and Australia	384	452	−1.364	0.265	Fail to reject
		1,149	859			
11	South Africa and New Zealand	384	452	−1.411	0.073	Fail to reject
		583	656			
12	UK and Australia	24,930	26,998	1.526	0.267	Fail to reject
		1,149	859			
13	UK and India	24,930	26,998	1.549	0.269	Fail to reject
		830	565			
14	UK and New Zealand	24,930	26,998	1.562	0.259	Fail to reject
		583	656			
15	UK and South Africa	24,930	26,998	1.578	0.257	Fail to reject
		384	452			
16	USA and Australia	26,990	21,440	2.085	0.0172	Reject
		1,149	859			
17	USA and Canada	26,990	21,440	1.478	0.277	Fail to reject
		8,091	5,531			
18	USA and India	26,990	21,440	2.111	0.169	Fail to reject
		830	565			
19	USA and New Zealand	26,990	21,440	2.132	0.166	Fail to reject
		583	656			
20	USA and South Africa	26,990	21,440	2.148	0.164	Fail to reject
		384	452			
21	USA and UK	26,990	21,440	0.103	0.922	Fail to reject
		24,930	26,998			

Note: Mean difference is significant at 0.05 level

Table X. *t*-Test results summary for "drama" genre

S. no.	Groups (Country X and Y)	Mean	SD	*t*-value	*p*-value (two-tailed)	Null hypothesis
1	Australia and New Zealand	24,685	3,633	1.587	0.591	Fail to reject
		11,232	1,608			
2	Canada and Australia	56,030	5,985	0.776	0.492	Fail to reject
		24,685	3,633			
3	Canada and India	56,030	5,985	0.5151	0.637	Fail to reject
		33,276	4,995			
4	Canada and New Zealand	56,030	5,985	1.253	0.335	Fail to reject
		11,232	1,608			
5	Canada and South Africa	56,030	5,985	0.945	0.403	Fail to reject
		19,812	2,370			
6	Canada and UK	56,030	59,885	−2.144	0.093	Fail to reject
		148,081	4,945			
7	India and Australia	33,276	4,995	0.242	0.825	Fail to reject
		24,685	3,633			
8	India and New Zealand	33,276	4,995	0.724	0.547	Fail to reject
		11,232	1,608			
9	India and South Africa	33,276	4,995	0.420	0.704	Fail to reject
		19,812	2,370			
10	South Africa and Australia	19,812	2,370	−0.196	0.858	Fail to reject
		24,685	3,633			
11	South Africa and NZ	19,812	2,370	0.518	0.631	Fail to reject
		11,232	1,608			
12	UK and Australia	148,081	4,945	3.748	0.012	Reject
		24,685	3,633			
13	UK and India	148,081	4,945	2.985	0.042	Reject
		22,376	4,995			
14	UK and New Zealand	148,081	4,945	5.0659	0.014	Reject
		11,232	1,608			
15	UK and South Africa	148,081	4,945	4.456	0.029	Reject
		19,812	2,370			
16	USA and Australia	119,007	76,776	1.928	0.158	Fail to reject
		24,685	3,633			
17	USA and Canada	119,007	76,776	1.121	0.321	Fail to reject
		56,030	59,885			
18	USA and India	119,007	76,776	1.624	0.205	Fail to reject
		33,276	4,995			
19	USA and New Zealand	11,907	76,776	2.370	0.145	Fail to reject
		11,232	1,608			
20	USA and South Africa	119,007	76,776	2.137	0.167	Fail to reject
		19,812	2,370			
21	USA and UK	119,007	76,776	1.562	0.693	Fail to reject
		14,081	4,945			

Table XI. *t*-Test results summary for "sci-fi" genre

Note: Mean difference is significant at 0.05 level

To arrive at generalizations regarding country-wise comparison across genres, the findings from the *t*-tests obtained genre-wise were then studied across countries genre-wise. Twitter behaviour was studied for all the countries, taking two countries at a time, thus making it 21 combinations studied for six genres (Table XII).

The results of the *t*-tests show that for 7 out of the 21 combinations, there is no difference between the mean of tweets of one country to another country for any of the genres. For example, for the first combination, *Australia and New Zealand*, no significant difference in means was found for any of the genres, be it *action, adventure, animation, comedy, drama* and *sci-fi*. There is no difference in the mean of tweets across both the countries for the action, *adventure, animation, comedy, drama* and *sci-fi* genre. If each of these is treated as a hypothesis, this would imply that six out of six hypotheses failed to get rejected (see the last column of Table XII, 6/6). Similarly for combinations like India and Australia, India and New Zealand, India and South Africa, South Africa and Australia, USA and Canada and USA and UK, no significant difference in means was found for any of the genres. The data provided in the Table may be interpreted accordingly.

Similarly for 5 out of the 21 combinations, there is no difference between the mean of tweets of one country to another country for five out of the six genres. These combinations were Canada and UK, South Africa and New Zealand, USA and India, USA and New Zealand and USA and South Africa. In the case of Canada and UK, differences were found in the "action" genre, between South Africa and New Zealand, differences were found in the "animation" genre, whereas in the case of others, differences were found in the "comedy" genre.

Again for 4 out of the 21 combinations, there is no difference between the mean of tweets of one country to another country for four out of the six genres. These combinations were Canada and Australia, Canada and India, Canada and South Africa, and USA and Australia. In the case of Canada and Australia, and USA and Australia, differences were found in the "comedy" and "drama" genres. In the case of Canada and India, and Canada and South Africa, differences were found in the "action" and "comedy" genres.

Findings revealed that 2 out of the 21 combinations, there is a difference between the mean of tweets of one country to another country for three out of the six genres. These combinations were Canada and New Zealand, and UK and Australia. In the case of Canada and New Zealand, differences were found in the following genres, namely, "adventure", "animation" and "comedy", whereas in the case of UK and Australia, differences were found in the "action", "comedy" and "sci-fi" genres.

Finally, for 3 out of the 21 combinations, difference between the mean of tweets of one country to another country were found for four out of the six genres. The combinations were UK and India, UK and New Zealand, UK and South Africa, and for all the three combinations, differences existed for the same four genres, namely, "action", "animation", "comedy" and "sci-fi".

Findings and discussions

The findings show that the people use social media across the world. Nearly 9.28 million tweets were from seven countries, namely, USA, UK, Canada, South Africa, Australia, India and New Zealand for 27 Hollywood movies. This is indicative of the fact that today, people are exchanging information across different countries, that people are

Table XII.
t-Test results summary group-wise across genres

S. no	Countries Group-wise	Action	Adventure	Animation	Comedy	Drama	Sci-fi	Null hypothesis Failed to get rejected
1	Australia and New Zealand	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	6/6
2	Canada and Australia	Fail to reject	Fail to reject	Fail to reject	Reject	Reject	Fail to reject	4/6
3	Canada and India	Reject	Fail to reject	Fail to reject	Reject	Fail to reject	Fail to reject	4/6
4	Canada and New Zealand	Fail to reject	Reject	Reject	Reject	Fail to reject	Fail to reject	3/6
5	Canada and South Africa	Reject	Fail to reject	Fail to reject	Reject	Fail to reject	Fail to reject	4/6
6	Canada and UK	Reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	5/6
7	India and Australia	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	6/6
8	India and New Zealand	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	6/6
9	India and South Africa	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	6/6
10	South Africa and Australia	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	6/6
11	South Africa and New Zealand	Fail to reject	Fail to reject	Reject	Fail to reject	Fail to reject	Fail to reject	5/6
12	UK and Australia	Reject	Fail to reject	Fail to reject	Reject	Fail to reject	Reject	3/6
13	UK and India	Reject	Fail to reject	Reject	Reject	Fail to reject	Reject	2/6
14	UK and New Zealand	Reject	Fail to reject	Reject	Reject	Fail to reject	Reject	2/6
15	UK and South Africa	Reject	Fail to reject	Reject	Reject	Fail to reject	Reject	2/6
16	USA and Australia	Fail to reject	Fail to reject	Fail to reject	Reject	Reject	Fail to reject	4/6
17	USA and Canada	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	6/6
18	USA and India	Fail to reject	Fail to reject	Fail to reject	Reject	Fail to reject	Fail to reject	5/6
19	USA and New Zealand	Fail to reject	Fail to reject	Fail to reject	Reject	Fail to reject	Fail to reject	5/6
20	USA and South Africa	Fail to reject	Fail to reject	Fail to reject	Reject	Fail to reject	Fail to reject	5/6
21	USA and UK	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	Fail to reject	6/6

conversing about a product on social media and people are *sharing* information about a product on social media and, thus, proving the hypothesis.

Further, the results indicate that the users in USA, Canada and UK tweet more than the other countries, USA and UK being the highest in tweets followed by the Canada. On the other hand, the number of tweets in Australia, India and South Africa are low, with New Zealand being the lowest of all the countries. This indicates that different countries' users have different social media behaviour. Some countries use social media to communicate about their experience more than in some other country. However, consumers from all over the world are using Twitter, to express their views openly and freely. This supports the research argument by Java *et al.* (2007) and Zhao and Rosson (2009).

Berthon *et al.* (2012) illustrate how both Web 2.0 and social media provide a platform and opportunities for international marketing. In their study, the social media platform was YouTube, Blogs, etc. Kaplan and Haenlein (2010) in their research discuss about the contents on social media being used for exchanging product-related information and how the user-generated contents can be used by the businesses. This study also supports a similar argument. Further, this study validates the concept of two out of the three building blocks of social media as specified by Kietzmann *et al.* (2011). This study is also different from the other studies mentioned above, as in this study, the contents from different parts of the world are assessed to see whether any significant product-related information exists or not.

From the findings, it can be concluded that the Twitter social media behaviour varies from one movie to another and from one country to another. In the USA, UK, Canada and Australia, "conversation" of "animation" movies are higher than "action" or "comedy" or "drama" or any other genre. In India, "drama" movies are talked about more than "action" or "animation" or other movies. In South Africa, "action" movies are talked more than others. In USA, Canada and UK, "drama" movies conversation on Twitter is significantly low compared to any other movies. Another interesting finding from the study is, in Canada and the UK, the "conversation" follows a similar trend for all the movies than in other countries. Findings also show that people in New Zealand tweet significantly less compared to all other countries.

To validate the fact that the sample tweets are different from one country to another country, ANOVA and *t*-tests were performed. From the *t*-test results, it can be inferred that there is enough evidence to show that Twitter social behaviour for "action" movies in UK and Australia, UK and New Zealand, UK and India, UK and South Africa, Canada and UK, Canada and South Africa and Canada and India are different. There is enough evidence to show that Twitter social behaviour for "adventure" movies in Canada and New Zealand are different. Similarly, from the study, it can be inferred that there is enough evidence to show that Twitter social behaviour for "animation" movies from Canada and New Zealand, South Africa and New Zealand, UK and India, UK and South Africa, UK and New Zealand and South Africa and New Zealand are different. Twitter social behaviour for "comedy" movies from Canada and Australia, Canada and India, Canada and New Zealand, Canada and South Africa, UK and Australia, UK and India, UK and New Zealand, UK and South Africa, USA and Australia, USA and India, USA and New Zealand and USA and South Africa are different. For "drama" movies behaviour from USA and Australia, Canada and Australia are different. Further, it can be inferred that there is enough evidence to show that Twitter social behaviour for

"sci-fi" movies from UK and India, UK and South Africa, UK and Australia and UK and New Zealand are different.

To conclude, the hypothesis proposed in this chapter is tested through ANOVA and *t*-test.

Hypothesis

Twitter messages vary from one country to another country.

The hypothesis holds supported by ANOVA and *t*-tests between different countries at 0.05 significance level.

t-Tests were conducted to compare social media behaviour across genres and countries. The analysis was done for the following objectives:

- to study genres country-wise, where a particular genre has been taken, and the various country combinations have been compared; and
- to study countries' genre-wise, where a particular country combinations has been taken, and the various genres have been compared.

The inference that can be drawn from the analysis is that Twitter behaviour with respect to Hollywood movies both across countries and across genres is different.

Managerial implications

The finding that social media behaviour differs across different countries can be made use of by governments, companies/corporations and researchers. Companies can use the Internet and social media to promote and get feedback on their products and services across different parts of the world. Governments can inform the public about their new policies, benefits of governmental programmes to people and ways to improve the Internet reach to more people and also for creating awareness about health, hygiene, natural calamities and safety. Researchers can use online social media to conduct surveys, understand social behaviour, study people's reactions to a certain situation and many other psychological behaviour.

Different countries have different Internet and social media behaviour. For example, in the USA, Canada and the UK, people are more advanced in terms of using the Internet. According to the latest world, Internet users' report, USA, Canada and UK have the highest Internet penetration – 78 per cent in North America, 63 per cent in Europe, 15 per cent in Africa and 27 per cent in Asia. According to another study (www.sysomos.com), the USA has the highest number of Twitter users amounting to 61 per cent, the UK is the next with 7 per cent and Canada with 4.5 per cent. This implies that the Twitter social media behaviour is also following the same path as that of the results obtained in the research. It can be further inferred that Internet penetration and social media are directly linked to each other. Unless people see the advantage of social media, people may not use it.

Further, this study also leads to an understanding culture of the different countries and whether it has any pattern in using social media. For example, USA, Canada and UK have a more open cultures of sharing and expressing views than in India, where people are more conservative and do not express their feelings freely. The total number of Indian Twitter users is also less compared to that of other countries. Similarly, the Australian English language has more slangs than other countries. In UK, where language is given highest respect, it was found that tweets had the least grammatical errors.

Hollywood movies are popular in USA, Canada and UK and run for a longer time than in other countries. In India, it is released at a later date than the USA and stays in the theatres for a very short period of time. However, people in India start talking about the movies as soon as they get released in the USA which explains the higher percentage of the cognitive class. As the film industry in India is a thriving one with both Hindi and regional fares, Indians do not have an exclusive interest in Hollywood movies alone. That may also explain the reason why there are a lesser number of tweets in India regarding Hollywood movies. The case may be similar in countries like New Zealand, Australia and South Africa.

Conclusion

Based on the findings, it can be concluded that people "converse" and "share" about products and services, on Twitter from different parts of the world. The study further states that social media behaviour varies from one country to another country. The product people liked in one country may not be liked in other countries. Social media behaviour depends on the culture, people and products of the local markets. As more and more people are "conversing", "sharing" and using social media tools, it is essential for companies to have a strong presence on social media to monitor their own products and services' "conversation" and what type of information is being "shared". The social media competitive strategy not only helps companies to understand how their own products are performing in the market, but it also leads to greater understanding of their competitors and, more significantly, into the consumer needs. The extension of this study was analyses of sentiments expressed in the tweets collected and its impact on box office revenues.

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