What Makes Online Micro Blog Content Go Viral:

A Study on Sina Weibo

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ABSTRACT

Social networking sites (SNSs) such as Facebook, Twitter and SinaWeibo have attracted millions of users. They make social interaction become important and frequent in people’s daily life. In China, Sina Weibo is one of the most popular SNSs. People enjoy sharing Weibo posts with their friends frequently. However, different posts gain different levels of attention. Some posts are forwarded and shared exponentially, sometimes referred to as viral messages while other posts are rarely shared among SinaWeibo users. Some posts about consumer experience receive passionate responses while others obtain sparse followers. Some posts top the ranking list of hot topics while others languish unknown. Why certain contents on SNSs are more viral than others in micro blog has attracted many researchers. However, there is little research in Chinese context and similarly little research work has proposed a relatively complete research framework.

The main objectives of this study were to explore the characteristics of online content that make micro blogs go viral on SinaWeibo and to provide suggestions to companies for conducting successful viral marketing on SinaWeibo. An empirical research approach in tandem with a questionnaire survey that uses both quantitative and qualitative data collection has been applied in this study. The primary data collection was obtained from 3066 pieces of micro blogs from SinaWeibo. SPSS was used to perform several statistical tests, namely linear regression and factor analysis. Also, two lab experiments have been conducted in Shanghai Jiao Tong University and Shanghai Flory Company to further analyze and verify the statistical results. Finally, an action research was conducted to promote Flory brand on SinaWeibo using the findings of this research.

The findings suggested that if a SinaWeibo post had the attribute of ease of engagement by users, or visual effect, or new knowledge, then it was more likely to go viral than other posts. This study defined (1) ease of engagement as “a little effort required for the Weibo readers to engage in topics covered by micro blogs”, (2) visual effect as “attractive pictures or videos” and (3) knowledge as “rich and useful information”. Logistic regression results in Study 1 showed ease of engagement, visual effect and knowledge positively and significantly affect the virality of weibo posts in Sina Weibo. Findings of lab experiments further verified the positive roles these above three factors had in leading weibo posts go viral and concluded several popular kinds of engagement from Sina Weibo: moral encouragement (e.g. good luck from micro-blogs forwarding), material reward (e.g. lucky draw) and topic discussion (e.g. product design; seeking for resonance; emotional appeal). Choosing suitable tactics to manage online content can help companies operate Weibo marketing much better.
DECLARATION

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CHAPTER 1
INTRODUCTION

1.1 Introduction

With the growth and evolution of Web 2.0 technology, the Internet is now able to dramatically facilitate inter-connections among users (Kaplan and Haenlein, 2010), especially on social networking sites (SNSs). People post comments on restaurants, share photos and experiences with others, and forward and praise micro blogs on social networking sites. Their daily life is enriched by these social media promoted sharing behaviors.

The sharing behaviors and social interactions also affect branding strategies of enterprises. Social media sites help firms to identify preferences of target consumers and their opinions and perceptions of the brand (Abedniya and Mahmoudi, 2010). A well-known Chinese mobile vendor XiaoMi is one example of a company that successfully used micro-blog marketing to increase sales and customer awareness. Weibo, is a Chinese microblogging service similar to Twitter. Large Chinese IT firms such as Sina, Tencent and Sohu provide Weibo services and among them, Sina Weibo is the most influential in China. December 19, 2012, XiaoMi’s official Sina Weibo posted a Weibo post (a short micro blogging post) to encourage Sina Weibo users to share the “first social shopping on Sina Weibo Promotion” with their friends. Sina Weibo users that shared the promotion were entered into a lucky draw to win a free smart phone. According to weiboreach (www.weiboreach.com, 2012), this Weibo post was forwarded 2.6 million times by the end of December 31st, with nearly 1.5 million users forwarding. In addition, the number of Xiaomi’s fans rose to 1.5 million from 0.7 million in just 2 days (Leijun, 2012). XiaoMi was the first company to market smart phones in 2012 via Weibo and as a result it gained high brand recognition.

Social media interaction is important and a frequent aspect of many people’s daily life and in China, many enjoy sharing Weibo posts with others. However, different posts gain different levels of attention. Some posts are forwarded and shared like the growth of virus and these posts are able to increase their reach exponentially while other posts are rarely shared among Sina Weibo users. Some posts receive passionate responses while others obtain sparse followers. Some posts top the ranking list of hot topics while others languish unknown. The key problem is to understand why some content is viral
while others are not.

This research investigates which characteristics that affect general online content virality from three aspects: the publisher of content (general users), the content itself, and the context of the content. This study uses Sina Weibo, the most popular social networking site in China, as research platform to explore the influence factors of virality. In this research, virality or viral is defined as “whether this piece of micro blogs in Sina Weibo ranked among weekly Top 100 or not, that is, if this piece of micro blogs succeeded in being among weekly Top100, then it can be regarded as having virality. On the contrary, it is not viral”. The points that need to be explained for this definition are: (1) this definition uses well-known scholar Jonah Berger’s works for references, he took “news ranking top list in New York Times” as viral news with the value “1” and the contrary is “0” (Berger and Milkman, 2012). (2) This research also works with the definition that virality refers to ‘amount of people who accessed the given content in a given time piece (Guerini et al., p.507). Considering that micro blogs in Sina Weibo quickly lose popularity and are only viral for short period of times, this research set the ‘given time piece’ to “a week”. (3) Weekly top 100 Sina Weibo results from a comprehensive calculation of forwarding times, reading volume and thumb up amount during the week.

The findings also shed light on Weibo marketing strategies applicable for companies that want to market their products and promote their brand on the Sina Weibo platform.

1.2 Research Background

I started to study Sina Weibo since 2012, when it was flourishing in China. Whether strong relationships like friends or weakness relationships such as people who do not know you but you know were on fire for using Sina Weibo. Relatives and friends extend their greetings and share their interesting experiences, pictures or books with each other every day. Fans give continual attention to the micro blogs these stars who they follow post. A Chinese young idol group- TFBOYS is made up of 3 boy singers. All of them have more than 10,000,000 fans. As long as they post a piece of micro blog, simply like “Do you miss me? I am back!” with a photo, the forwarding number of this micro blog can quickly reach several millions. It is surprising that their micro blogs almost succeed ranking in the weekly Top 100 List each week.

It is worth mentioning that some pieces of micro blogs also succeeded in acquiring
thousands of forwarding though they were not posted by celebrities. Besides, some companies relied on Sina Weibo to build their brands, such as two famous flower companies the Beast Shop and Roseonly. The Beast Shop was the first one to open a flower shop through Sina Weibo without a physical store and a Taobao shop. The Beast Shop has attracted hundreds of thousands of fans, even many frequent actor customers, since it opened a Sina Weibo account at the end of December, 2011, which only depended on some pictures of flower gift box and 140 words’ introduction in Sina Weibo. If the customers wanted to order flowers, the only way was sending a private message to the Beast Shop on Sina Weibo. Even though the Beast Shop acquired a big success, Roseonly, as a rising star, made a breakthrough and surpassing. Roseonly adopted two different propaganda ways in Sina Weibo, one was entertainment stars’ forwarding to recommend like famous Chinese actress Xiaolu Li, and the other one was venture and IT companies’ support like Entrepreneur Magazine and 36 Krypton. “Only one person to give in all your life” as Roseola’s brand culture helped obtaining more than 270,000 fans in two weeks' time.

In 2014, WeChat suddenly rose and strong relationships turned to WeChat instead of Sina Weibo. However, weakness relationships such as celebrities and companies still used Sina Weibo. Up to this day, Sina Weibo has been listed on NASDAQ and its market value has surpassed Twitter in October, 2016. An increasing number of companies begin to choose Sina Weibo to advertise. All in all, the study of Sina Weibo has a certain and important significance.

1.3 Literature Review

A brief introduction of the literature from three aspects: content, publisher and context is showed as following. Content refers to the content itself of micro blogs which covers the words, sentences and the additional elements like pictures, videos and so on. Publisher refers to people who post this piece of micro blog. Context refers to the background of this piece of micro blog such as temporal settings and event background.

1.3.1 Literature Review of Content

The first part of this thesis focuses on the nature of the content.

Some researchers hold the opinion that the valence (positive or negative) of the content directly affects the virality (Anderson, 1998; Chevalier and Mayzlin, 2006; Berger and Milkman, 2012; Chen, Wang and Xie, 2010; Mizerski, 1982). Previous
research has studied the influence of valence from online shopping sites like Amazon (Chen, Wang and Xie, 2011), and online news sites like The New York Times (Berger and Milkman, 2012). However, they received different results. This thesis explores how valence plays its role in Sina Weibo.

Some researchers propose that whether positive or negative, viral social transmission was in part driven by arousal emotions, such as surprise (Dobele et al., 2007; Derbaix and Vanhamme, 2003; Lindgreen and Vanhamme, 2005), excitement (Phelps et al., 2004), interest (Hirsh, 2001; Masland, 2001; Huang and Cai, 2011; Kaplan and Haenlein, 2011), and humor (Phelps et al., 2004). However, the major aim of this thesis is not to explore the influence of different kinds and degree of emotions. In congruence with previous research, this thesis took surprise and humor into consideration. In addition, this thesis affirmed the importance of visual effects, pictures and videos, in Sina Weibo.

In addition, researchers took the motivations to transmit information into consideration, which are classified into two types: egoism (Dichter 1966; Gatignon and Robertson, 1986; Berger and Milkman, 2011) and altruism (Sundaram, Mitra and Webster, 1998, Litvin, Goldsmith and Pan, 2008; Dellarocas et al., 2004). This thesis studied egoism by exploring the impact of self-promotion and studied altruism from public welfare, search notices and knowledge under the observation and analysis of micro blogs in Sina Weibo.

1.3.2 Literature Review of Publisher

The second stream of research focuses on the nature of the publisher. Previous studies show that the types, the influence and the gender of the publisher are relevant to the virality of the online content.

Some researchers hold the opinion that types of publisher have an important impact on virality (Gladwell, 2000; Kaplan and Haenlein, 2011; Goldsmith and Flynn, 1996; Liu and Liu, 2011). Some researchers suppose that influential users lead viral topics or marketing (Probst, Grosswiele and Pfleger, 2013; Cha et al., 2010; Aral and Walker, 2012). Other researchers suggest that the gender of the user also affects the viral effect of the content and many of them hold the opinion that messages are more likely to be forwarded by male recipients than female recipients (Dobele et al., 2007; Aral and Walker, 2012). In regards to the content publishers, this thesis continues to study gender and popularity, but changes the types of publisher according to Sina
Weibo.

1.3.3 Literature Review of Context

The third section of research focuses on the context/environment of the content.

Gladwell (2000) proposes the power of context in such that the environment (the circumstance and conditions of the places and times in which it occur) strongly influences human behavior. Some researchers view the context as the structure of the network and community (Bampo et al., 2008). Other researchers propose that seeding an infectious message to disconnected subcultures such as virtual social worlds were much more important than the quantity of seeds (Kaplan and Haenlein, 2009a; Kaplan and Haenlein, 2009b). Different from previous research, this thesis focuses on current events, or events occurring in this context, rather than the characteristics of context itself. Culturally, Chinese people attach great importance to special dates such as holidays and memorial dates. This thesis takes current events and special dates into consideration.

1.4 Context

Social networking sites (SNS) have become one of the most popular applications of web 2.0 (Phulari et al., 2010). Among the variety of social networking sites, there are three prominent types: space-type networking sites in which people have their own space like Facebook and RenRen, micro blog-type networking sites which has the 140 words limitation like Twitter and Sina Weibo (news.cnw.com.cn, 2010) and instant messaging software like WhatsApp and WeChat.

This chapter provides a brief introduction of these three kinds of social networking sites at home and abroad. Foreign social networking sites introduced in this thesis include Facebook, Twitter and WhatsApp, in addition to Chinese social networking sites like RenRen, Sina Weibo and WeChat. Facebook, Twitter, WhatsApp, RenRen, Sina Weibo and WeChat all ranked list of top social networking sites respectively in west context and Chinese context. Introducing theses social networking sites shows several benefits: (1) they can be compared with each other after introduced one by one. (2) Literature that this thesis has chosen for reference mostly focus on the study on these west social networking sites especially Facebook and Twitter. In order to better understand the background of these useful previous research, brief introduction of these social networking sites shows necessity. (3) This research tries to fill the gap of the
stream of research on online content virality in Chinese social networking sites. Learning about different social platforms can help me choose the right one for my research. RenRen, of which website structure is similar to Facebook, is mainly used among college students in China, and WeChat, of which website structure is akin to WhatsApp, prevails in people who are acquainted with each other. In conclusion, Sina Weibo is the most appropriate social networking site to carry out my research. (4) Otherwise, different social networking sites have different properties and functions, and they have different levels of influence, which will show different influence factors on own virality.

1.4.1 Facebook

Today, Facebook is a publicly listed company on NASDAQ. According to (Unruly Media 2012), Facebook users share 7 billion pieces of content each week and content sharing has become the fastest growing activity. According to the report “Facebook Reports Fourth Quarter and Full Year 2015 Results” posted by Facebook, Mark Zuckerberg, Facebook Founder and CEO, points out that 2015 is Facebook’s great year to date. Not only does the revenue of the full year 2015 reach 17.93 billion dollars, an increase of 44 percent year-over-year, but also the active users increased as well. By the end of December 2015, Facebook’s Daily Active Users (DAUs) average at about 1.04 billion, which is 17 percent more than 2014. Facebook’s Monthly Active users (MAUs) are listed as 2.00 billion as of June 2017, an increase by more than 17 percent compared with June 2016 (Facebook, 2017).
What is the obvious thing just looking at the figure is that Facebook’s Monthly Active Users (MAUs) are steady growth?

Many famous companies, such as Dell, Levi’s and Coca-Cola, choose to use Facebook to undertake brand communication. Levi’s embeds the “Facebook” function in its corporate websites (Levi.com) and all products carry the “Like” button offered by Facebook. Users can login to Facebook by pressing “Like” and update the information of the products they choose on their Facebook page (Tang, 2012). Coca-Cola Enterprises also makes good use of Facebook and has become one of the most high-profile brand symbols on Facebook and has obtained over 35 million fans.

1.4.2 Twitter

The social media site Twitter is also listed on NASDAQ. By the end of December 2015, the number of Twitter’s MAUs reaches 0.31 billion, 11 percent more than 2014. The following figure shows the development trend of MAUs of Twitter from 2012 to the second quarter of 2017.
Companies such as Dell and Coca-Cola both use Twitter to undertake brand communication. Dell claims that Twitter has brought them 6.5 million dollars in sales performance since they opened a Twitter account (@DellOutlet) and now they have more than 1.5 million followers (tech.sina.com.cn, 2009). Coca-Cola official related films have been clicked more than 33.5 million times on YouTube and Coca-Cola has more than 400,000 followers on Twitter (site.qudong.com, 2011).

1.4.3 WhatsApp

In February 2014, Facebook acquired WhatsApp for 19 billion dollars in what is regarded as the biggest acquisition over the past decade (tech.163.com, 2014). The original purpose of WhatsApp was to create a pure instant messaging tool. The founders of WhatsApp, Jan Koum and Brian Acton regard “No Ads! No Games! No Gimmicks” as their aphorism.
The figure 3 presents the trend of MAUs of WhatsApp from 2013 to 2017. The figure clearly shows significant growth since being acquired by Facebook in 2014.

Statista calculations based on data published by Facebook show that users of WhatsApp send more than 1.6 billion photo messages per day as of February, 2016. In addition, the report published by Statista concludes that an average WhatsApp user sends 1,267 messages, receives 2,267 messages, uploads 40 photos and sends 13 voice messages and 7 video messages (www.statista.com, 2016).

1.4.4 RenRen.com

Since Facebook is inaccessible in China, Chinese people use RenRen as a substitute. Different from Facebook, users who register on RenRen are required to fill in their school information in addition to their real name. Most RenRen users are young people, and it is particularly popular with college students.

A report posted by Statista shows Monthly unique log-in active users decreased from approximately 46 million in March 2015, to approximately 37 million in March 2016. Data also shows that RenRen.com and its mobile application have approximately 232 million activated users as of March 31, 2016, (www.statsita.com, 2016).

Durex and Anerle are two companies that use RenRen as a platform to conduct brand marketing. For example, the daily operation of Durex on RenRen includes updating status, publishing posts and holding events activities with prizes. Anerle's RenRen public homepage acquired 245,266 page views and comments through the
posts of status, logs and activities by the end of December, 2014.

1.4.5 Sina Weibo

In China, Sina Weibo (Website: http://weibo.com) is one of the most popular social networking sites. Sina Weibo is similar to Twitter in the way that it operates and both are micro blog type SNS (Weibo is the Chinese word for “micro blog”). Weibo’s characteristics such as short but concise content, interactivity, and fast transmission, have helped it grow into one of the most popular and influential social media platforms in China. In addition, since people in China cannot log in Facebook and Twitter directly Weibo faces little foreign competition. Although there is local competition from other internet companies, Sina Weibo directly benefits from its domain name – weibo.com (news.xinhuanet.com, 2011). Sina Weibo was launched by Sina Corporation on August 14, 2009. On April 17, Sina Weibo listed on NASDAQ, America (www.cww.net.cn, 2014).

The number of Sina Weibo users has continued to grow in large scale. By the end of March 2013, Sina Weibo’s registered users rose to 536 million, 6.6% more than the end of 2012. About 100 million messages are posted each day on Sina Weibo (Chinalabs&CisChina, 2013). As of June 2017, the number of Sina Weibo’s MAU (Monthly Active User) reached 361 million, which was a 28 percent increase from the previous year. About 70% of users accessed Weibo via mobile devices at least once during the month (tech.qq.com, 2014). The following figure showed the development trend of MAUs of Sina Weibo from 2013 to the second quarter of 2017.

![Monthly Active Users(MAUs) of Sina Weibo(in millions)](image)

**Figure 4 MAUs of Sina Weibo from 2013 to 2017**
As Weibo’s registered users continue to increase, more and more celebrities and notable individuals are using Weibo as a platform of self-promotion. Even Britain's Prime Minister David Cameron, launched his Sina Weibo on November 29, 2013 (weibo.com). He has only posted 21 micro blogs on his Sina Weibo but has obtained more than 700,000 fans as of March, 23. Each of the 21 blogs he posted received thousands of praises, forwarding and comments. On December 17, 2013, a micro blog with a video about “British Prime Minister David Cameron replies Weibo users” was forwarded more than thirty thousand times during his China Tour helping to promote Sino-British relations.

Weibo also allows companies to promote their brand, products and services to users, by providing a variety of advertising and marketing plans. These businesses that promote via Weibo include large companies, small and medium-sized enterprises (SMEs) and individuals. As of December 31, Weibo had about 350 important advertisers and 12,800 SMEs advertisers and marketers (tech.qq.com, 2014). Many enterprises have found great success in product publicity and marketing via weibo including XiaoMi Mobile, Durex and Samsung.

For example, Xiaomi Mobile, now a famous mobile brand in China, sold 4,000,000 phones in the first three seasons in 2012. During the Christmas holiday in 2012, Xiaomi Company sold 250,000 mobile phones in 3 days through the company's official web site (Leijun, 2012). On December 19, 2012, XiaoMi’s official Weibo account posted a micro blog about the “first social shopping in Sina Weibo”. Weibo users could forward this micro blog to participate in the lucky draw to win a free phone. According to weiboreach (www.weiboreach.com), this micro blog was forwarded 2.6 million times by the end of December 31st, and nearly 1.5 million users participated in the forwarding activity. In addition, XiaoMi’s followers increased to 1.5 million from 0.7million during 2 days (Leijun, 2012).

Durex is also successful in micro-blog marketing although unlike XiaoMi, Durex rarely uses lucky draw or other activities. The main features of Durex marketing campaigns are originality and interactivity. Durex is good at capitalizing on trending topics and popular people’s help. The most popular case is “The elder brother of the shoe covers” (Durex, 2011). In June 2011, the heavy rains in Beijing were a trending topic on Weibo. On June 23rd, another heavy rain dropped from the sky. A Sina Weibo user named Di Kong Dao Dan posted a micro blog with words “Heavy rain in Beijing, thankfully I have these two Durex condoms in my bag” and a picture of a pair of shoes
with two shoe covers made by Durex condoms. This micro blog was forwarded more than 10,000 times in an hour. In fact, Di Kong Dao Dan is a member of Durex weibo operation team. Another case “Pregnancy event” shows that Durex is good at take advantage of trending people’s power (Durex, 2011). On April 12th, a famous grassroots micro blog named Homework posted a micro blog “People will get pregnant if they sleep before 1:00 tonight”. Durex immediately commented “All right! Leave it to me” and forwarded it. Homework also replied to Durex and forwarded Durex’s comments. On this night, these three micro blogs were forwarded more than 7,000 times and Durex obtained more than 3,000 fans.

Figure 5 Xiaomi Case: The First Social Shopping in Sina Weibo (Leijun, 2012)

Figure 6 Durex Case: The elder brother of the shoe covers (Durex, 2011)
1.4.6 WeChat

WeChat, similar to WhatsApp, is the most famous instant messaging software in China.

Data from WeChat, as of December 2014, shows that the global registered users have exceeded 1.12 billion, including monthly active users of up to 440 million; and business registration number has increased to more than 8 million. WeChat has become China's largest instant messaging software. A report posted by Statista shows that 27.7 percent of mobile data volume is spent on WeChat content consumption and 12.2 percent of WeChat users have more than 200 contacts and 62.7 percent of WeChat users have more than 50 contacts as of January, 2015 (www.statista.com, 2015). The following figure 7 shows MAUs of WeChat from 2012 to 2017.

**Monthly Active Users (MAUs) of WeChat**

![Monthly Active Users (MAUs) of WeChat](image)

**Figure 7 MAUs of WeChat from 2012 to 2017**

The biggest difference between WeChat and WhatsApp is that WeChat also devotes itself to WeChat marketing. Famous companies such as Vienna Hotel, Rainbow Department Store and HuaWei Honor draw support from WeChat and are successful in WeChat marketing. Vienna Hotel obtains more than 1000 daily room reservations by WeChat. Rainbow Department Store optimizes WeChat shopping and receives about 8,000 customers on WeChat. HuaWei uses WeChat to conduct a booking activity for their new phone Honor 3X and the total number of reservations for the 3X reached 300,000.
1.5 Aim and objectives

Sharing online content with others is a daily activity in modern life driven by the emergence of social networking sites. However, despite its popularity and normalcy, little is known about which kind of online content has the potential to become viral. The research question of this thesis is what makes online content viral in a micro blog?

As a result of Twitter and Facebook’s limited use in China, this study uses Sina Weibo as the research object to explore the influence factor from three aspects: the publisher of the micro blog, the content of the micro blog and the context of the micro blog. This study also will propose an appropriate marketing strategy in Sina Weibo based on its findings.

Aim

To explore the factors that cause general online contents to become viral in Sina Weibo and to investigate how key factors affect the virality of online contents.

Objectives

(1) To explore what characteristics of general online contents make micro blogs viral on Sina Weibo.
(2) To explore what context, in which micro blogs are posted, helps micro blogs to be viral on Sina Weibo.
(3) To explore what kind of publishers are associated with viral micro blogs on Sina Weibo.
(4) To investigate how the virality of online content is affected by key factors.
(5) To provide suggestions to companies how to conduct successful viral marketing on Sina Weibo.
To achieve these objectives, this research conducts 4 studies which will introduced from Chapter 5 to Chapter 8 as figure 8 shows.

1.6 Justification

This thesis provides justification from two aspects: academic and context.

1.6.1 Justification of academic aspects

Researchers have explored virality of online content in three general groups: the nature of the content itself, the nature of the publisher (or spreader) who spreads the content and the context/environment of the content. Previous researchers pointed out that “1) the valence (positive or negative) of the content (Anderson, 1998; Bowman and Narayandas, 2001; Chevalier and Mayzlin, 2006; Berger and Milkman, 2012; Chen, Wang and Xie, 2011; Mizerski, 1982); 2) arousal emotions(Dobele et al., 2007; Derbaix and Vanhamme, 2003; Lindgreen and Vanhamme, 2005; Hirsh, 2001; Masland, 2001; Huang et al., 2011; Kaplan and Haenlein, 2011), egoism (Dichter 1966; Gatignon and Robertson, 1986; Berger and Schwartz, 2011) and altruism (Sundaram, Mitra and Webster, 1998, Litvin et al., 2008; Dellarocas et al., 2004) the content presents; 3) the gender (Kempf and Palan 2006; Putrevu et al., 2001; Söderlund 2002; Su, Comer, and Lee 2008), popularity and the types of the publisher (Godes and Mayzlin, 2009; Iyengar et al., 2011; Goldenberg et al., 2009) all affect the virality of online content.
Different from previous research on content itself, this thesis explores and emphasizes the importance and effect of “ease of engagement for users” on virality. Dobele, Toleman and Beverland (2005) propose that viral content should encourage ease of use. “Engage” or “engagement” commonly appeared in the research of brand community or combined with “consumer” to compose as “consumer engagement”, which is regarded as a competitive advantage and a driver of business of performance. However, few studies concluded the importance of “ease of engagement”. This research further demonstrates the importance of ease of engagement in regards to virality and viral marketing. Today, Current events have obtained more and more attention among Chinese net citizens. In addition, Chinese people also attach great importance to special dates such as holidays and memorial dates. As a result of the cultural implications, this thesis takes current events and special dates into consideration.

1.6.2 Justification of context aspects

Previous researchers have studied Facebook and Twitter but very few conducted any research on social media through the context of Chinese social media platforms (Culnan, McHugh and Zubillaga, 2010; Jin and Phua, 2014). Among Chinese social media platforms, Sina Weibo is the most popular. Taking the convenience of data collection in Sina Weibo into consideration, Sina Weibo becomes the appropriate platform and environment to study virality and social media marketing.

Facebook, Twitter and other famous foreign social networking sites are limited to use in China. China has a broad base of Internet users and the 41th "Statistical Report on Internet Development in China", posted by China’s Internet Network Information Centers shows that as of June 2017, the scale of China's Internet users reached 751 million. The Internet penetration rate reached 54.3% and the scale of China’s Internet user ranks first for the ninth consecutive year in the world. According to the “Weibo User Development Report in 2015”, users show high dependence on Sina Weibo (Sina and Weibo Data Center, 2015). The number of Weibo posts begin to rise from 5 o’clock in the morning and arrive at two peak times 12:00 noon and 10:00 pm. Thus, Weibo plays an important role in the daily network life of the Internet users. In addition, this report points out that finance industry chain based on Sina Weibo has taken shape, which contains official accounts named by enterprises, products and staff. However, little research shows people how to conduct successful Weibo marketing. This thesis focuses on Sina Weibo to study what makes online content viral in Sina Weibo and how
to conduct marketing on the Sina Weibo platform.

1.7 Methodology

This thesis uses following research methods:
(1) Literature research method: this thesis studies and concludes related literature and previous research work and then identifies influence factors to develop the research framework.
(2) Empirical research method: this thesis uses an empirical research method to test the research framework. This research collects different sample sizes of Weibo posts and uses the three factors as independent variables (IVs), whether one piece of microblogs rank on the Weekly Top100 microblogs as dependent variable (DV) to investigate the cause-and-effect relationship between IVs and DV. In this thesis, a single logistic regression model and a multivariate logistic regression model have been selected.
(3) Lab experiments: this thesis uses lab experiments to verify the findings of empirical analysis and to investigate and maintain the robustness of this research. This thesis chooses two groups to do two lab experiments by asking them to fill out questionnaires which were designed based on previous findings.
(4) Action research method: meanwhile this thesis uses action research method to validate the robustness of this research. Based upon the findings of previous empirical analysis, this thesis conducts action research in Shanghai Flory Company’s official Sina Weibo account. By means of designing microblogs contained verified influence factors, this research posts these microblogs to observe the transmission trend and compare the forwarding times with before.

1.8 Overview of all chapters

This thesis includes 8 chapters and the overview of all chapters is showed as following.

1.8.1 Overview of Chapter 1

This thesis begins by providing the overview, the context, the aim and objectives of this research, justification for this research from academic and context aspects, the main methodology as well as the chapter structures.

1.8.2 Overview of Chapter 2

Chapter 2 introduces the context of this thesis, including the advent and development of social media; some famous social networking sites at home and abroad such as
Facebook, Twitter, RenRen, Kaixin and Sina Weibo and the differences among them.

1.8.3 Overview of Chapter 3

Chapter 3 focuses on the review of the related literature from following aspects: electronic commerce, word of mouth, electronic word of mouth, social media, virality, viral marketing and viral marketing strategy.

In regards to electronic commerce (EC), this thesis draws a blueprint from the advent of electronic commerce, the definition of EC, the motivation to use EC to the typical business model of EC and the development of EC business models. It is worth mentioning that Turban’s seven types’ EC models are most accepted and applied (Turban et al., 2007). Then the thesis introduces related literature about WOM and eWOM, including the definition, the differences between WOM and eWOM, the driver and two most frequently used WOM models: Buttle’s model (Buttle, 1998, p: 246) and Litvin’s model (Litvin, 2008, p: 460). The next step introduces social media from the rise, definition and types of social media; some typical social networking sites and their use for marketing and advertising; self-presentation on identity and image management on social networking sites.

Most importantly the following parts focus on the definition of virality, viral marketing and the influence factors of virality from three aspects; the characteristics of the content, the publisher and the context/environment.

1.8.4 Overview of Chapter 4

Chapter 4 provides the research methodology from research philosophy, research approach, types of data, research framework, research instrument, data collection, to sample size, technique and data analysis method of SPSS. And in the last section of Chapter 4, a pilot project is showed and introduced.

The research philosophy underlying this thesis is positivism and this study relies on the abductive research. According to the related literature, previous work and content analysis of Sina Weibo, this thesis proposes a relatively complete framework to study virality online. Using survey, empirical analysis, lab experiment and action research, this thesis has been completed with robust results.

1.8.5 Overview of Chapter 5

Chapter 5 introduces study1 from data collection, research instrument, data analysis, results and discussion.
In study 1, this thesis organizes 5 raters to score 3,066 micro blogs to test the research framework. Then this study uses multivariate logistic regression to analyze virality. The results are that 3 factors are significantly viral. (Sig. < 0.05): ease of engagement, visual effect, and knowledge. The other two factors, public welfare and self-promotion, are under 90% (sig. < 0.10). And finally, the discussion of the eleven factors that influence the virality of online content is presented.

1.8.6 Overview of Chapter 6

Chapter 6 introduces study2 from data collection, research instrument, data analysis, results and discussion.

In study 2, this thesis chooses 15 viral micro blogs from Sina Weibo, which contains the characteristics among ease of engagement, knowledge, visual effect, self-promotion and public welfare. Then this study rewrites them by eliminating corresponding characteristics one by one to mix these 30 micro blogs and divides them into two new sets randomly. This thesis completes two lab experiments, first in Shanghai Jiao tong University in an MBA class and second in my own company. The results are encouraging and interesting. All of 3 viral factors, including ease of engagement, knowledge and visual effect are confirmed with virality. Specifically, for ease of engagement, three kinds of engagement, such as lucky draw, forwarding lucky and topic discussion, all of them affect virality. As to the other two factors, public welfare is viral but people prefer to show off themselves rather than show their values to present self-promotion.

1.8.7 Overview of Chapter 7

Chapter 7 introduces study3 from data collection, research instrument, data analysis, results and discussion.

In study 3, this thesis uses 1,100 micro blogs collected from TOP 100 weekly rank to analyze virality of publishers’ gender, popularity and types. Results show that 68.73% of opinion leaders are entertainment stars, and 21% of opinion leaders are from common people. In addition, 83% of weighty publishers have more than 1 million fans, and some have about 10 million followers. Among these influential publishers, 71.6% are male, and 28.4% are female.

1.8.8 Overview of Chapter 8

Chapter 8 introduces study4 from data collection, research instrument, data analysis,
results and discussion.

In study 4, this thesis completes an action research study in Shanghai Flory Company’s official Sina Weibo. This research develops several pieces of micro blogs according to the findings of Study 1 and all of them are forwarded more than 10,000 times, compared with the average of 20 forwards previously.

1.8.9 Overview of Chapter 9

Finally, in Chapter 9, the thesis finishes by making a conclusion from the aim, the methodology, the framework, the process of data collection and analysis, and the findings of this thesis.
CHAPTER 2
CHINA CONTEXT

This following chapter introduced (1) the status quo of the Internet in China from the basic situation of the Internet in China and the situation of Chinese netzines; (2) social networking sites in China and (3) Sina Weibo.

2.1 The status quo of the Internet in China

2.1.1 The basic situation of the Internet in China

By the end of 2016, the number of IPv4 addresses in China was 338 million and the number of IPv6 addresses in China was 21188. The total number of Chinese domain names is 42.28 million. The total number of Chinese websites is 4.82 million within an increase of 14.1%. The International export broadband is 6640291 Mbps with an increase of 23.1% (CNNIC, 2017).

2.1.2 The situation of Chinese netizens

The number of Internet users in China in December 2016 has reached 731 million with a 53.2% rate and 4299 million new users in the year 2016. And among them, the number of mobile Internet users reached 695 million. The proportion of Internet users using mobile have increased from 90.1% in 2015 to 95.1% in 2016. The growth rate has surpassed 10% for 3 consecutive years. Desktop computers, tablet PCs and other devices online ratio were declining. Mobile phone squeezed the use of other personal Internet access equipment. The use of desktop computers and Tablet PC were 60.1% and 30.8% (CNNIC, 2017).
Figure 9: The number of Internet Users and the popularizing rate of Internet in China
(Source: CNNIC, CNNIC, 2017)

Figure 10: The Scale of Mobile phone users and Mobile Internet users’ proportion in China
(Source: CNNIC, CNNIC, 2017)

The proportion of rural users reached 27.4% within a 201-million’s user scale. The size of Chinese Internet users makes the population equivalent to the total population of Europe (CNNIC, 2017).
The age of Chinese netizens presents a young form. 10-39-year-old group occupies a major position, reaching 73.7%. 20-29 age group makes up the highest proportion of Internet users, reaching 30.3%. The generation after 90s is already the main force of Internet users. 30-39-year-old population accounts for 23.2% and 10-19 age group accounts for 20.2% (CNNIC, 2017).

![The Age Structure of Chinese Internet Users](image)

**Figure 11** the Age Structure of Chinese Internet Users  
(Source: CNNIC, CNNIC, 2017)

Considering about the SNS social users, the group who was made up of people under age 40 have accounted for 82.5%, which indicating that people who use SNS social applications and software are younger mostly (CNNIC, 2016).

By the end of 2016, the ratio of Chinese netizens in gender was male-52.4%: female-47.6% which was close to the proportion of men and women with the Chinese population (China's population by 2015 was male-51.2%: female-48.8%). Netizens gender difference is very small (CNNIC, 2017).
Figure 12: The Gender Structure of Chinese Internet Users
(Source: CNNIC, CNNIC, 2017)

Among the netizens using SNS social applications, the proportion of males was 55.2% and that of females was 44.8%. Male users prefer to use social applications (CNNIC, 2017).

In the academic structure of Internet users, junior high school education accounts for the largest proportion of Internet users, reaching 37.3%. Followed is high school education Internet users, reaching 26.2%. The third is the primary and secondary education of Internet users, accounting for 15.9%, 2.2% higher than last year. And the ratio of undergraduate and above is 11.5%, only 0.3% higher than last year. Chinese netizens keep spreading to low educated people (CNNIC, 2017).

Considering about the academic structure of SNS social applications software users, junior high school education accounts for 35.8%, high school, technical school education accounts for 31.3% (CNNIC, 2016). Those who accept secondary education are the dominant players. The level of education and acceptance of Internet users should be considered while the enterprise microblogging marketing staff write microblogging and operate marketing activities.

In Internet user's occupational structure, the student community's scale is biggest. Until for 2016 year's end, the student community occupies the ratio is 25.0%; Next for the individual operator and the professional person, occupies the ratio is 22.7%; Third is enterprise's jobholders, occupies the ratio is 14.7% (CNNIC, 2017).

Considering about the occupational structure of SNS social applications software
users, enterprise/the company staff accounts for 31%, the individual operator accounts for 15.7%, the professionals accounts for 13.7% (CNNIC, 2016). These person's income is high with consumption ability. The enterprise must pay attention to the demand and preferences of these crowds while making the micro-blogging marketing.

In the Chinese Internet user's income structure, the hold maximum proportion is the month income in 3001-5000 Yuan community, occupies the share is 23.2%. Followed is monthly income in 2001-3000 yuan, accounting for 17.7%. Monthly income of 5001-8000 yuan accounts for 9.7% (CNNIC, 2017).

Considering about the income structure of SNS social applications software users, income in the 3001-5000 yuan per month accounts for 31.3%, followed by 2001-3000 yuan and 5000-8000 yuan per month, each accounted for 17% (CNNIC, 2017). From this point of view, the SNS social application site crowd is relatively rich.

Among all kinds of Internet applications Chinese Internet users used in 2015 and 2016, the highest proportion is instant messaging, reaching 91.1%, followed by the search engine, reaching 82.4%. The use of microblogging achieves 37.1%, increased by 17.8% over the same period last year (CNNIC, 2017).

<table>
<thead>
<tr>
<th>Applications</th>
<th>2015</th>
<th></th>
<th>2016</th>
<th></th>
<th></th>
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<td>usage rate</td>
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<td>50137</td>
<td>72.8</td>
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<td>23045</td>
<td>33.5</td>
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</tbody>
</table>
(Source: CNNIC, CNNIC, 2017)

The most commonly used APP among Chinese Internet users in 2016 is WeChat which is followed by QQ, Taobao, mobile phone Baidu and Alipay. Microblogging requires suitable mobile phone application software to attract more Internet users (CNNIC, 2017).

China mobile payment users in the end of 2016 has reached 469 million with a 31.2% annual growth rate. The online payment ratio of Internet users choosing mobile phone has increased from 57.7% to 67.5%. Mobile payment has been infiltrated to offline shopping. 52.3% of Internet use mobile payment settlement in the offline store shopping (CNNIC, 2017).

The situation of Chinese enterprise network users

By the end of 2016, the proportion of Chinese enterprises using Internet office was as high as 95.6%. The proportion of enterprises using the Internet through fixed broadband access was 93.7%, compared with 32.3% for mobile broadband. Chinese enterprises which carry out online sales occupy ratio of 45.3%. And online procurement of enterprises accounts for 45.6% (CNNIC, 2017).

Chinese companies need to consider the 695 million mobile Internet users’ habits, considering how make the phone screen better display the corporate brand and product.

In the case of the rapid development of new media, Chinese enterprises which use the Internet for network marketing activities in the end of 2016 reached 38.7%, increased by about 5% compared to last year. Since 2013, the proportion of corporate Internet marketing continues to grow (CNNIC, 2017).
Chinese enterprises which use instant messaging service to promote marketing occupy the highest proportion, to 65.5%, followed by e-commerce platform to do marketing promotion, to 55.1%, the third is in the search engine to do marketing promotion, reaching 48.2% (CNNIC, 2017).

Enterprises mainly use the Internet to promote marketing. And at the same time, they also continue to do marketing in the traditional media channels. In 2016, the proportion of enterprises in outdoor advertising was 28.7%, newspaper marketing promotion occupied 23.5%, and 17.6% was on television advertising (CNNIC, 2017).

In the Internet marketing business, mobile Internet marketing activities accounts for 83.3%, increased nearly doubled compared to 2015 (CNNIC, 2017). As the popularity of smart phones in China, as well as the widespread use of mobile Internet, consumers transfer to the mobile Internet comprehensively. The company's mobile Internet marketing campaign will continue to grow. Enterprises should be highly concerned about and study how to promote marketing through microblogging, WeChat and other instant messaging platforms in the mobile Internet.

2.2 The introduction of social networking sites in China

CNNIC divides Chinese SNSs platforms into six categories according to the features and usage (CNNIC, 2016):
Table 2 Chinese SNSs Platforms Categories from CNNCI

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Instant Message Tool</td>
<td>QQ, WeChat</td>
</tr>
<tr>
<td>Comprehensive social applications</td>
<td>Sina Weibo, RenRen</td>
</tr>
<tr>
<td>Image/video social applications</td>
<td>MeiPai, MiaoPai</td>
</tr>
<tr>
<td>Community social applications</td>
<td>Baidu Tieba, DouBan</td>
</tr>
<tr>
<td>Dating social applications</td>
<td>58JiaoYou, GanJiHunLian</td>
</tr>
<tr>
<td>Workplace social applications</td>
<td>LingYing</td>
</tr>
</tbody>
</table>

QQ, WeChat as the representative of instant messaging tools, are popular among acquaintances, friends while keeping daily communication. Comprehensive social applications, such as Sina Weibo, QQ space are mostly used to capture hot news, chase stars, and share network information. Image and video social applications site are in the rapid development. In the community social applications, Baidu Post Bar obtains the highest rate of use (CNNIC, 2016).

Among them, the rate of instant messaging tools was the highest, reaching 90.7%; the utilization rate of comprehensive social applications was 69.7%; the utilization rate of image/video social applications was 45.4%; the utilization rate of community social applications was 32.2% (CNNIC, 2016).

![Social networking application usage in 2015](image)

Figure 14 Social Networking Application Usage in 2015
(Source: CNNIC, Social app user research 2015.11)
2.3 Sina Microblogging (Sina Weibo)

2.3.1 The overview of Sina Weibo

With the rapid development of information technology today, using the Internet to communicate and share information become fast, convenient and low-cost. Microblogging, that is, Weibo in Chinese, as a network of emerging communication sharing, quickly become popular in China in 2010. It has changed the way people exchange information. Friends and strangers, celebrities and grassroots, the government and the public, the media and consumers, all fall into using microblogging to post the things happened around, photos, videos instantly on Weibo. Fans are crazy over chasing stars, chasing hot news. Microblogging succeeds in linking the whole community together.

Sina microblogging, launched by Sina in August 2009, was a type of microblogging-type social networking sites. Users can post all that one saw and heard, text, pictures, video and others easily and quickly on Weibo and can share information and discuss hot topics with their friends and fans anytime and anywhere. Otherwise, they can follow the celebrity they do not know, but want to know (Such as the famous movie stars, entrepreneurs, sports stars, etc.).

Sina microblogging immediately attracted a lot of users after the operation in August 2009. By the end of 2011, the number of Sina microblogging users have surpassed 1 billion. In March 2014, Sina Weibo issued shares in the US Nasdaq, its market value even surpassed the United States Twitter company. As Sina microblogging has hundreds of millions of fans within a huge influence, many famous people, such as government heads, movie stars, entrepreneurs, lawyers and so on set up their own microblogging in Sina microblogging. Many well-known large enterprises also set up their business portal in Sina microblogging to promote their own brands, products and activities, such as Coca-Cola Company, Alibaba, XiaoMi mobile phone and so on.

2.3.2 The history of Sina Weibo

(1) July 2009, since China's Xinjiang Urumqi City was issued a terrorist attack riots, the Chinese government shut down the first microblogging platform in China – “rice no” in order to stabilize the situation. Many foreign social platforms, such as Twitter, Facebook, etc. have also been shielded. Sina CEO, Charles Cao, regarded this as a good
opportunity to quickly launch the Sina microblogging platform. August 14, 2009, Sina Company operated the internal testing of Sina Weibo. The basic functions of Sina Weibo include personal information (140 words), photo posting, forwarding and point of praise and so on.

(2) December 16, 2010, the official data showed that the number of microblogs posted on Sina Weibo surpassed 25 million daily, of which 38% from the mobile terminal. The total number of microblogs accumulated was more than 2 billion. Sina Weibo became Chinese most influential and the most watched microblogging operators. Other microblogging platforms contain Tencent microblogging, Sohu microblogging and so on.

(3) April 2011, Sina Weibo enabled independent microblogging phonetic domain - weibo.cn, which highlights the leader status of Sina Weibo in Chinese microblogging sites.

(4) February 20, 2013, Sina announced its annual earnings. The total revenue was about 66 million US dollars. As of the end of December 2012, registered users surpassed 500 million with an increase of 74% and day active users reached 46.2 million. Sina Weibo became Chinese largest social platform (SNS).

(5) April 29, 2013, Sina Weibo Company signed a strategic cooperation agreement with Alibaba China.


(7) March 17, 2014, Sina Weibo was listed on the US Nasdaq.

(8) January 20, 2015, Sina Weibo cancelled the limit of 140 words but increased it to 2000 words.

2.4 Conclusion

The various data above represent several important information: China has a huge network of users. More and more people cannot live and work without social platforms. People almost share and search for information on social platforms every day. In addition, companies are increasingly relying on social platforms. In addition to direct online product sales, brand building and brand promotion on social platforms are also increasingly important. The two most popular social platforms in China are WeChat and Sina Weibo. WeChat is a relatively private social platform. However, Sina Weibo
can have a wider audience. Western scholars have been studying social platforms in the west context and have not dabbled in research on Chinese social platforms. Even Chinese scholars have mostly cooperated with foreign scholars to study west social media such as facebook, twitter, Google + and so on. Research on sina weibo under the Chines context can make up for the lack of existing research and advance existing understanding on virality in the Chinese market and Chinese netizen behaviour.
CHAPTER 3
LITERATURE REVIEW

This following chapter introduces the foundation of this research such as theoretical basis and research progress from electronic commerce, social media, Word of Mouth, Electronic Word of Mouth, virality, viral marketing and viral marketing strategy.

Broadly speaking, two lines were implemented in this chapter, one is the development of social media and the other one is the development of electronic commerce. Since electronic commerce has become one of the most important business models (UNCTD, 2012), more and more market transactions occurred on these social media, giving rise to the transform form traditional WOM to eWOM. Besides direct sales and purchases online, marketing strategies like promotion online also turned to be popular (Kaplan and Haenlein, 2011). Since some companies obtain viral results and others failed, the research of virality on social media reflected the potential values.

3.1 Electronic Commerce

As more and more business transactions in the global economy are conducted over the web, it is clear to see that Electronic Commerce has not just changed the way business is conducted but has effectively changed the world. The advent and growth of EC was brought about by the development and application of the internet, lower costs and the resulting benefits of 24-7 online services (Holton, 2009). By the end of June 2013, there were 590 million online users and 270 million online consumers in China and the volume of the EC continued to increase (CNNIC, 2013). According to the statistics from UNCTAD (United Nations Conference on Trade and Development), the volume of the EC in the world was up to 40,600 billion US dollars in 2011 (UNCTD, 2012). Moreover, the volume of Chinese EC reached 1,290 billion US dollars by the end of 2012 (Commerce Ministry, 2013). These statistics clearly demonstrate the increasing popularity of EC.

3.1.1 The Development of Electronic Commerce (EC)

Broadly defined, all economic activity, conducted via electronic connections can be regarded as electronic commerce (EC) (Wigand, 1997). Therefore, the advent of EC can be dated back as far as when Samuel Morse invented the telegraph in 1837 (Wigand, 1997). People have since used telegraphs, telephones, and fax to conduct business. In the 1970's, large corporations began to use EFT (electronic fund transfer) and EDI
EC activities ongoing with EFT and EDI allowed organizations to transmit funds to each other electronically. In 1996, the use of Internet was explored by US government (Warf and Grimes, 1997). The development of EC had two turning points of business computing: personal computers, circa 1983, and local area networks and client/server computing, circa 1989 (Kalakota and Whinston, 1997). In the mid-1980s, a type of electronic commerce technology spread, which provided a new form of social interaction and knowledge sharing. In the late 1980s and early 1990s electronic messaging technologies became an integral part of workflow and collaborative computing systems like Lotus Notes. In the early 1990's, the development of EC reached a major milestone as the introduction of the World Wide Web and advancement of Internet technology allowed companies to present their products and services on web sites (Turban et al., 2009).

3.1.2 The Definition of EC

Turban et al (2009, p.4) defines EC as "the process of buying, selling, transferring, or exchanging products, services, and/or information via computer networks, including the internet". Many researchers, including Turban, propose that EC can also be defined from different perspectives. Kalakota and Whinston (1997, p.3) introduce four different definitions from four different perspectives as table 3 shows:

<table>
<thead>
<tr>
<th>Perspectives</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>The transmission of information, services, products, or payments through telephone lines, computer networks, or any other electronic ways;</td>
</tr>
<tr>
<td>Business Process</td>
<td>The application of technology toward the automation of business transactions and workflows;</td>
</tr>
<tr>
<td>Service</td>
<td>A tool that addresses the desire of firms, consumers, and management to cut service costs while improving the quality of goods and increasing the speed of service delivery;</td>
</tr>
<tr>
<td>Online</td>
<td>A channel that provided the capability of buying and selling products and information on the Internet and other</td>
</tr>
</tbody>
</table>
Based on Kalakota and Whinston's work, Turban et al (2009, p.4) concludes different definitions from five perspectives: business process, service, learning, collaborative and community as Table 4 shows:

**Table 4 Turban's Definitions of EC**

<table>
<thead>
<tr>
<th>Perspectives</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Process</td>
<td>&quot;Doing business electronically by completing business processes over electronic networks, thereby substituting information for physical business processes&quot;;</td>
</tr>
<tr>
<td>Service</td>
<td>&quot;A tool that addresses the desire of governments, firms, consumers, and management to cut service costs while improving the quality of customer service and increasing the speed of service delivery&quot;;</td>
</tr>
<tr>
<td>Learning</td>
<td>&quot;An enabler of online training and education in schools, universities, and other organizations, including businesses&quot;;</td>
</tr>
<tr>
<td>Collaborative</td>
<td>&quot;the framework for inter-organizational and intra-organizational collaboration&quot;;</td>
</tr>
<tr>
<td>Community</td>
<td>&quot;A gathering place for community members to learn, transact, and collaborate&quot;.</td>
</tr>
</tbody>
</table>

The definition of EC can be defined both in a broad sense and narrow sense. In the broad sense, EC includes all the economic activities, which are conducted via electronic connections and transactions (Wigand, 1997; Meng, 2010). In the narrow sense, EC includes the trading activities via the Internet and the WWW, such as online buying, online selling, online advertising and other activities (Grandona, 2004). EC refers to the business process starting from raw material purchasing to after-sales service completed through electronic methods and tools (Rehman, 2012). Drucker (2002) proposes that EC is the explosive emergence of the internet as a major and perhaps
eventually the major, worldwide distribution channel for goods, services, and even for managerial and professional jobs.

3.1.3 The Motivation to Use EC

So far, many researchers have explored the motivation of businesses and consumers to accept EC (Grandon and Pearson, 2004; Bhattacherjee, 2000; Zhou et al., 2007; Limayem et al., 2000; Chen and Dubinsky, 2003). It has been suggested that business' motivations to use EC are to: 1) access narrow markets segment easily 2) access global markets with larger amount products 3) reduce cost 4) improve product quality 5) innovate new business models (Grandon and Pearson, 2004). Moreover, the human's subjective norm, that is, perceptions about social forces influencing a behavior, is a significant predictor of EC acceptance (Bhattacherjee, 2000). Zhou (2007) compared the consumer-oriented view and the technology-oriented view. The consumer-oriented view emphasizes the consumers' salient beliefs such as perceptions of risks and benefits toward online shopping and shopping motivation (Zhou et al., 2007). According to the technology-oriented view (Zhou et al., 2007), it is user interface features, web site content, and system usability, which enforces consumer acceptance of EC. Whereas consumers' subjective norms, beliefs and attitude only affect their intentions to buy online (Limayem et al., 2000). Additionally, Chen and Dubinsky (2003) thought that the perceived price, risk, quality of products and the impression of the facility of online-shopping are key factors for consideration when a customer shops online. Due to social uncertainty in the virtual world – the Internet, trust is considered to be an important factor that influences customer purchase intentions (Gefena and Straub, 2004; Lee and Lin, 2005). According to Gefena and Straub (2004), vendor's integrity, benevolence, ability and predictability forms a four – dimensional trust scale. Srinivasan, Anderson and Ponnavolu (2002) proposes that people of high e-loyalty would be more likely to promote products or service by WOM, word of mouth, and pay more.

3.1.4 The Business Model of EC

The EC business model is an extension of the previously defined traditional model reshaped in the context of electronic and online commerce. Although the definition of a business model is not widely agreed upon, managers and researchers use business models as a descriptive and analytical tool. Kalakota and Whinston (1997) propose
three distinct classes of electronic commerce models: inter-organizational (business-to-business), intra-organizational (within business), and customer-to-business. Lambert and Davidson (2013) classifies definition of business model as Table 5 shows.

**Table 5 A Cross-section of Business Model Definition**

<table>
<thead>
<tr>
<th>Conceptual focus Scope</th>
<th>A activities</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&quot;A description of the roles and relationships among a Firm's consumers, customers, allies, and suppliers that&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;A business model is the set of which activities a firm performs, how it performs them, and when it performs them as it uses its resources to perform activities, given its industry, to&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;A business model describes the rationale of how an organization creates, delivers, and captures value&quot;.</td>
</tr>
</tbody>
</table>

Rayport (1999) proposes that EC is a kind of business model, which is dependent on the development level of management and technology. Mehadevan (2000) proposes that Internet based EC includes enterprises which have business contacts with partners and customers via internet and network economy by dividing the whole market into three structures: portal, market maker and product/service providers. Many researchers define EC business models as the means by which enterprise's use to win profit via the Internet (Chang, Changchien and Huang, 2006). Currently the basis of division of EC business models is the principal transactions of EC: business (B), customer (C) and government (G) (Weill and Vitale, 2001).

Turban et al. (2009) classifies EC into seven types according to the nature of transactions or the relationship among participants as following table 6 shows.
Table 6 Turban's Seven Types' EC Models

<table>
<thead>
<tr>
<th>EC types</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business-to-business</td>
<td>Business focus on selling to other businesses or organizations (the largest form of EC).</td>
</tr>
<tr>
<td>Business-to-consumer</td>
<td>Retail sales between business and individual consumers (the earliest form of EC).</td>
</tr>
<tr>
<td>Consumer-to-consumer</td>
<td>Consumers sell products and personal services to each other with the help of an online market maker to provide catalog, search engine, and transaction-clearing capabilities so that products can be easily displayed, discovered, and paid for.</td>
</tr>
<tr>
<td>Business-to-government</td>
<td>Transactions with the government that are used for procurement, filing taxes, licensing procedures, business registrations, and other government-related operations.</td>
</tr>
<tr>
<td>Consumer-to-business</td>
<td>Between private individuals who use the Internet to sell products or services to organizations and individuals who seek sellers to bid on products or services.</td>
</tr>
<tr>
<td>Mobile commerce (m-commerce)</td>
<td>The purchase of goods and services through wireless technology, such as cell phones, and handheld devices, such as Blackberries and iPhones.</td>
</tr>
<tr>
<td>Peer-to-peer</td>
<td>Internet users share files and computer resources directly without having to go through a central web server.</td>
</tr>
</tbody>
</table>

Based on Turban's work, my paper gives the classifications and examples of EC models as following table 7 shows:

Table 7 Examples of Business Models of EC

<table>
<thead>
<tr>
<th>Models' Name</th>
<th>Names' Explanation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acronym</td>
<td>Description</td>
<td>Websites</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>B2C</td>
<td>Business to Customer</td>
<td><a href="http://www.Amazon.com">www.Amazon.com</a></td>
</tr>
<tr>
<td>C2C</td>
<td>Customer to Customer</td>
<td><a href="http://www.ebay.com">www.ebay.com</a></td>
</tr>
<tr>
<td>C2B</td>
<td>Customer to Business</td>
<td><a href="http://www.zazzle.com">www.zazzle.com</a></td>
</tr>
<tr>
<td>B2G</td>
<td>Business to Government</td>
<td><a href="http://www.chinabiddingzx.com">www.chinabiddingzx.com</a>;</td>
</tr>
<tr>
<td>ABC</td>
<td>Agent, Business, Customer</td>
<td><a href="http://www.51taolie.com">www.51taolie.com</a>; <a href="http://www.taozfu.com">www.taozfu.com</a></td>
</tr>
<tr>
<td>O2O</td>
<td>Online to Offline</td>
<td><a href="http://www.ganji.com">www.ganji.com</a>; <a href="http://www.groupon.com">www.groupon.com</a></td>
</tr>
<tr>
<td>B2E</td>
<td>Business to Employee</td>
<td>Intranet model</td>
</tr>
</tbody>
</table>

### 3.1.5 The development of Electronic commerce (EC) business models

In this part, I try to discuss the development of EC business models in several aspects: social e-commerce, mobile e-commerce, Vertical e-commerce and platform e-commerce, O2O and e-commerce in the context of IOT. Among these, social e-commerce is the most interested.

1. **Social e-commerce**

   In the new world of social media, the traditional EC marketing depending on advertisement putting does not have customers convinced to buy products/services. Social media plus EC can produce higher purchase rate. According to Kumar et al. (2013) over 80% global consumers actively influence preferences and purchasing decisions through social media. Social commerce refers to the transaction process which apply social elements like attention, share, communication, discussion and interaction to electronic commerce (ire search, 2011).

   The websites of social e-commerce combine social function with shopping but have different types based on the subject of operation. There are three different kinds of social e-commerce.

   1. Social e-commerce based on e-commerce platform: the subject of operation of EC embeds social media element such as share, like and fans into their e-
commerce platform to increase the interaction of customers.

2. Social e-commerce based on social media platform: the subject of operation of social media embeds business elements into their social media to find the value of users to win profit.

3. Independent social e-commerce platform: this kind of social e-commerce does not have its own core business basis. Independent social e-commerce platforms play a role as shopping guides to attract users to business platforms.

(2) Mobile Electronic commerce (M-commerce)
The Chinese mobile phone users are enormous. Many enterprises combine mobile Internet with electronic commerce. M-commerce have great business value. With the development and application of mobile client software like Android and iOS and the continuous improvement of the mobile payment, many businesses have begun to find the value of the mobile market such as:

➢ Professional wireless e-commerce platform like Maiba (www. Sales8.com).
➢ Traditional third-party e-commerce platform like Taobao which has developed its own mobile client.
➢ Internet brands like VANCL (m.vancl.com). ITS mobile client users surpassed 4 million in 2011 (it.sohu.com, 2012) and daily trading volume was about 500,000 RMB (tech.sina.com.cn, 2011).
➢ Traditional enterprise like Lining. Lining opened handset commercial city.

M-commerce is in the fast-growing period. Businesses can combine online and offline, location information, mobile group purchase, mobile comparison shopping and so on. Mobile phones would be the center of the Internet in the future.

(3) Vertical e-commerce and platform e-commerce
Vertical e-commerce refers to a kind of e-commerce model operating in a certain industry or segment market like Red baby. Platform e-commerce gathers different industries and markets together like eBay. Platform e-commerce defeated vertical e-commerce, such as in the market of infant & mom (Jingdong, Dangdang and yihaodian announced that their sales surpassed Redbaby). However, some vertical e-commerce also obtain success like Letao which own brand’s product gross margin was more than 45%. Businesses should continue to think about how to transform.

(4) O2O (online to offline and offline to online)
O2O refers not only offline to online but online to offline as well. Some online businesses choose to establish offline experiences for service and products to implement localization. For example, Amazon cooperated with 7-eleven and eBay opened offline shop in Britain.

(5) Electronic commerce in the context of IOT (the Internet of Things)
IOT creates a ubiquitous network by compartmentalizing items into the network nodes. Ubiquitous network generally consists of three parts: terminal equipment, infrastructure networks and application program. Some countries try to push the application of IOT like U-Japan and U-Korea. The development of IOT brings opportunity to EC business models. Businesses can try automatic identification of goods, consumer personalized marketing and recommendations, intelligent bargaining negotiations, business based on the location and so on.
With the development of electronic commerce (EC), businesses should adjust business models according to the environment and own characteristics. Currently EC is not a kind of emerging business model but is popular among the market. The future EC business model would be an integration of several modes, other than limited in a single mode. In my opinion, future development would be SOLOMO (Social+Local+Mobile) based on a ubiquitous network.

3.2 Social Media
Since the rapid development of Internet and technology, social media platforms such as Twitter, Facebook, Sina Weibo, Youtube and Wikipedia have significantly changed our personal life and our world. Integrated marketing communication has gradually adopted social media as a new tool (Chu and Kim, 2009). Almost more than 1 billion people are active on Facebook with the ability to communicate with each other regardless of location and time. Lee (2012) reports that every day 350 billion tweets are posted on Twitter. Today even consumers offer free knowledge and service online such as by acting as authors on Wikipedia. They can also sell products and service online through retailers like Taobao or produce a video YouTube. Even more interesting, users in Sina Weibo act to oversee corrupt officials. Thus, it can be seen that consumers enjoy engaging in self- policing (Dusteret al., 2011). In addition, social media will provide plenty of opportunities for business to help business grow (Hennig-Thurau et al., 2010). The wide use of social media such as Twitter among the world’s cyber citizens demonstrates its
importance when international events occur. Several incidents have demonstrated that social media is sometimes better able to alert and update the general public than traditional news media (Grossman. 2009).

3.2.1 The Rise of Social Media

Social Media started in the late 1990’s when Bruce and Susan Abelson founded “Open Diary”, an early social networking site that brought together online diary writers into one community. At the same time, the term “weblog” was first introduced and then a year later one individual transformed the noun “weblog” into the sentence “we blog”, hence the origin of the term blog. By 1979, Tom Truscott and Jim Ellis from Duke University had created a worldwide discussion system named Usenet, which allowed users to post public messages. Since the rapid development of technology, the internet has become more available than before. Based on this, researchers, businesses and even ordinary people have begun to attach great importance to this technology. However, it wasn’t until social media sites such as Myspace and Facebook, established in 2003 and 2004 respectively, that the concept of social media was constructed.

3.2.2 The Definition of Social Media

There exists some confusion about the accurate definition of social media among academic researchers and managers. There are discrepancies about which characteristics should be included in “social media” and the difference between these characteristics and features related concepts such as Web 2.0, creative consumer and user generated content.

(1) Web 2.0

The term “Web 2.0” is derived from the O’Reilly Media Web 2.0 Conference in 2004. At that conference, O’Reilly proposed that the phenomenon Web 2.0 referred to the combination of business and Web technology (O’Reilly 2004). As software developers and end-users started to use the World Wide Web, it brought about the advent of Web 2.0. Web 2.0 allows individuals to not only create and publish content and applications on the platform, but also to be able to modify and share the content and applications. In the era of Web 1.0, users could own personal web pages, read materials and information online, and publish their own ideas and content. However, Web 2.0 constitutes a paradigm shift where now users not only can write blogs, but also communicate and collaborate with others. Web 2.0 is regarded as the platform for the evolution of social
(2) User Generated Content

While Web 2.0 stands for the ideological and technological foundation (Kaplan and Haenlein, 2010), User Generated Content (UGC) can be regarded as the various forms of publicly available information and content that end-users create. According to the Organization for Economic Cooperation and Development, UGC needs to fulfill three basic requirements: (1) it needs to be published either on a publicly accessible website or on a social networking site accessible to a select group of people (excluding content exchanged in e-mails or instant messages); (2) it needs to show a certain amount of creative effort (excluding mere replications of already existing content like posting a copy of an existing newspaper article on a personal blog without any modifications or commenting); (3) it needs to have been created outside of professional routines and practices (all content that has been created with a commercial market context in mind)(OECD, 2007). While UGC has already been available prior to Web 2.0, as discussed above, the development of Web 2.0 technology makes present UGC fundamentally different from what was observed in the early 1980’s. Today’s hardware capacity and broadband availability increase allows users to take advantage of many convenient tools to create UGC, particularly smart phones; and young people are passionate about writing and sharing content with others online.

(3) Creative Consumers

Creative consumers refer to “the people who create value-added content in social media and utilize their networks of friends and associates to constitute the social contact” (Berthon et al., 2012, p.263). Muniz and Schau (2011) point out that social media platforms are essential channels for consumers around the world to create and publish content such as words, pictures, texts or videos and from a marketer’s perspective the content can be managed to produce value. CGM varies across different levels of creativity. The first level begins with common discussions about products and services, like discussions on Facebook or Twitter. The second level refers to consumers creating structured evaluations and reviews using text or video. The third level is achieved when the consumers create advertising videos by themselves to involve in the promotion or other activities of brands (Berthon et al., 2012). The final level is reached when the consumers become involved in innovative activities such as modifying products and services (Berthon, Pitt and
Campbell, 2008; Berthon et al., 2007).

To identify the relationship among social media, web 2.0 and creative consumers, Berthon et al. (2012) designed the following figure 14:

![Figure 15](image)

**Figure 15  the Relationship among Social Media, Web 2.0 and Creative Consumers**

Berthon et al. (2012)

Kaplan and Haenlein (2010, p.61) define social media as “Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user generated content”. Another definition of social media is: ‘A set of online tools that supported social interaction between users’ (Ferneley, 2010, p.50). This definition indicates that Internet-based applications which are able to support social interaction between users can be called social media. Scott (2010, p.338) provides the following definition: “Social media provides the way people share ideas, content, thoughts, and relationships online. Social media differ from so-called ‘main stream media’ in that anyone can create, comment on, and add to social media content. Social media can take the form of text, audio, video, images, and communities”. It concludes that social media can support interaction between users by offering online platforms for users to generate contents and develop interactive dialogues.

### 3.3.3 The Types of Social Media

According to Fraser and Dutta (2008), they divided social media into five categories for the first time as following table showed:

**Table 8 Five Categories of Social Media from Fraser and Dutta**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical</td>
<td>Locus of activity shifts from the desktop to the Web</td>
</tr>
<tr>
<td>Social</td>
<td>Locus of power shifts from the firm to the collective</td>
</tr>
<tr>
<td>Content</td>
<td>Locus of value production shifts from the firm to the consumer</td>
</tr>
<tr>
<td>Creators</td>
<td></td>
</tr>
</tbody>
</table>

59
<table>
<thead>
<tr>
<th>Types</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egocentric sites</td>
<td>Allow users to build profiles of themselves, leading to a virtual identity construction and facilitating connections.</td>
<td>Facebook.com, Myspace.com</td>
</tr>
<tr>
<td>Community sites</td>
<td>Replicate in the virtual world those communities found in the physical world, allowing groups to form around like beliefs.</td>
<td>BigWaveDave.com, BlackPlanet.com, Dogster.com.</td>
</tr>
<tr>
<td>Opportunistic sites</td>
<td>Allow for different social organization of users and facilitate business connections</td>
<td>LinkedIn.com, Academia.edu</td>
</tr>
<tr>
<td>Passion-centric sites</td>
<td>Allow users to connect based on interest and hobbies, and aggregate fans</td>
<td>TheSamba.com, Chatterbirds.com</td>
</tr>
<tr>
<td>Media Sharing sites</td>
<td>allow users to share rich media content (image, audio, video) with each other</td>
<td>Flickr.com, YouTube.com, Slideshare.com</td>
</tr>
</tbody>
</table>

Fraser and Dutta (2008)

Mangold and Faulds (2009, p.358) claims that social media includes a wide range of online platforms such as blogs, chat rooms, forums and so on. They summarize the types of social media as following table 9 shows:

<table>
<thead>
<tr>
<th>Table 9 the Types of Social Media from Mangole and Fauld</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Social networking sites</td>
</tr>
<tr>
<td>Creativity works sharing sites</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Content sharing combined with assistance</td>
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<td>------------------------------------------</td>
</tr>
<tr>
<td>General intellectual property sharing sites</td>
</tr>
<tr>
<td>User-sponsored blogs</td>
</tr>
<tr>
<td>Company-sponsored websites/blogs</td>
</tr>
<tr>
<td>Company-sponsored cause/help sites</td>
</tr>
<tr>
<td>Invitation-only social networks</td>
</tr>
<tr>
<td>Business networking sites</td>
</tr>
<tr>
<td>Collaborative websites</td>
</tr>
<tr>
<td>Virtual worlds</td>
</tr>
<tr>
<td>Commerce communities</td>
</tr>
<tr>
<td>Podcasts</td>
</tr>
<tr>
<td>News delivery sites</td>
</tr>
<tr>
<td>Educational materials sharing</td>
</tr>
<tr>
<td>Open Source Software communities</td>
</tr>
<tr>
<td>Social bookmarking sites allowing users to recommend online news stories, music, videos, etc.</td>
</tr>
</tbody>
</table>

(Mangold and Faulds, 2009, p.358)

Kaplan and Haenlein (2010) classify social media into two subdivisions, which is regarded as the most used and popular classification. The first classification is based on
the richness of the medium and the degree of social presence that it allows. The second
classification is based on the degree of the self-disclosure that social media requires
and the type of self-presentation it permits. Social media encompasses collaborative
projects, blogs, content communities, social networking sites, virtual game worlds, and
virtual social worlds.

Table 10 Kaplan and Haenlein's Classification of Social Media

<table>
<thead>
<tr>
<th>Self-presentation Self-Disclosure</th>
<th>Social presence/Media richness</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>High</td>
<td>Blogs</td>
</tr>
<tr>
<td>Low</td>
<td>Collaborative projects (e.g., Wikipedia)</td>
</tr>
</tbody>
</table>

There are researchers that argue that some other important types of social
media are excluded from the current definition; such as online markets, mobile-
based services, synchronous conversations, and traditional websites (Kim and Ko,
2012). Social media refers to a set of online tools that facilitate interactions,
collaborations and sharing of content (Kim and Ko, 2012). The term is often used
to indicate a contrast with traditional media such as television and books, which
delivers content to mass populations but do not facilitate the creation or sharing of
content by users. The following table shows examples of different types of social
media.

Table 11 Examples of Different Types of Social Media

<table>
<thead>
<tr>
<th>Social Media Type</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asynchronous threaded conversation</td>
<td>BBS</td>
</tr>
<tr>
<td>Synchronous conversations</td>
<td>Skype, MSN</td>
</tr>
<tr>
<td><strong>Worldwide Web</strong></td>
<td>Ford.com, Data.gov</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Collaborative authoring</strong></td>
<td>Wikipedia</td>
</tr>
<tr>
<td><strong>Blogs and podcasts</strong></td>
<td>Micro blogs, Twitter</td>
</tr>
<tr>
<td><strong>Social sharing</strong></td>
<td>YouTube, Tudou</td>
</tr>
<tr>
<td><strong>Social networking service</strong></td>
<td>Facebook, Renren</td>
</tr>
<tr>
<td><strong>Online markets and products</strong></td>
<td>Taobao, Eceurope.com</td>
</tr>
<tr>
<td><strong>Idea generation</strong></td>
<td>Idea generation</td>
</tr>
<tr>
<td><strong>Virtual worlds</strong></td>
<td>Second Life</td>
</tr>
<tr>
<td><strong>Mobile-based services</strong></td>
<td>Location sharing</td>
</tr>
</tbody>
</table>

### 3.3.4 Social Networking Sites (SNSs)

Shu-Chuan and Yoojung (2011) propose that social networking sites are platforms for friends, family and other acquaintances to generate and disperse information. Kaplan and Haenlein (2010, p.63) define social networking sites as applications that enable users to connect with each other. Users can create personal pages including personal information profiles (photos, video, audio files and blogs) where their friends and colleagues can visit. Otherwise, users can send e-mails and instant messages with each other (Kaplan and Haenlein, 2010).

Social networking sites (SNSs) are some of the most popular applications of web 2.0. Among the variety of social networking sites, two types have become most prominent: the first is space-type networking sites in which people have their own space such as Facebook; the second one is micro blogs, websites that enforce character limitations on posts such as Twitter. Facebook and Twitter have ushered in an era of global social networks, and more and more micro blogs have become part of the common cyber citizen’s life and as a result is changing the way of marketing (Tang, 2012). Today, the two famous social networking sites- Facebook
and Twitter are both listed on NASDAQ. According to (Unruly Media 2012), Facebook users share 7 billion pieces of content each week. Content sharing becomes the fastest growing activity. In the first fiscal quarter of 2015, the number of Facebook’s MAU (Monthly Active User) and DAU (Daily Active User) reached 14.4 billion and 7.98 billion (tech.qq.com, 2015). Among them, the mobile MAU has passed 13.5 billion (tech.qq.com, 2015). Meanwhile in the first fiscal quarter of Twitter, the number of MAU has risen to 3.02 billion (tech.qq.com, 2015).

In China, Sina Weibo (Website: http://weibo.com) is the most popular social networking site. Similar to Twitter, Sina Weibo is also a micro blog type SNS. Weibo attracts mass amounts of users and profoundly influences the modern people's life, based on the platforms characteristics: short but concise content, interactivity, and fast transmission. With competitors Facebook and Twitter blocked in mainland China, Weibo has become a dominant player in terms of SNS. Sina Weibo benefits from its domain name – weibo.com. Weibo is the Chinese word for “micro blog”. Sina Weibo is a Chinese micro blogging website, which was launched by Sina Corporation on August 14, 2009. On April 17, Sina Weibo was listed on NASDAQ (www.cww.net.cn, 2014). Since Sina Weibo launched in 2009, the number of users has grown in large scale. As of March 2015, the number of Sina Weibo’s MAU (Monthly Active User) and DAU (Daily Active User) reached 0.198 billion and 89 million.

3.3.5 The use of Social Media for Marketing and Advertising

Chi (2011, p: 46) defines social media marketing as “a connection between brands and consumers, while offering a personal channel and currency for user centered networking and social interaction”. Mangold and Faulds (2009) propose that social media plays two interrelated promotional roles in the market place: the first role is consistent with the use of traditional integrated marketing communications tools, which represents a company’s ability to talk to their customers; the second role is that customers are able to talk to one another. Researchers and businesses agree that social media is not merely a marketing channel, but also a facilitator WOM. Social media can enhance marketing efforts and increase effectiveness. Fisher (2009) found that consumers mostly made purchase decisions after they visited a social media site to collect information and they enjoyed passing on the information to other consumers online. Miller and Lammas (2010) propose the use of social media in marketing
campaigns: (1) Marketers are incapable of controlling the trend of public response. A social media campaign might bring negative WOM. (2) Overly commercial messages in the social networking sites drive users out even though the information was both believable and useful. (3) A finite size of online community is much more effective. Some researchers claim that marketers should consider a wide range of consumers’ interests, which relate with their brand, when marketing their brand to consumers (Brown, Broderick and Lee, 2007; Carter, 2006). Ramaswamy (2008) constructed a model named DART: “dialogue”, “access”, “risk return relationship”, and “transparency”, which helps marketers to use social media when communicating with online consumers.

Some researchers study how to measure social marketing and believe qualitative metrics should be used to measure successful social marketing (Angel et al., 2009; Fisher, 2009). Fisher (2009) denotes some qualitative metrics such as unique visitors, conversation size, interaction rates, content freshness etc. Hoffman and Fodor (2010) argues that customer investments in marketers’ social media efforts should be used as social marketing metric and proposed the “4c’s”: the connections consumers make with each other, the user-generated content created, consumption of other users’ content, and control of their own online experiences, drives consumer use of social media. Michaelidou et al (2011) conducted a survey of about 1,000 UK B2B SME’s and used the number of users who joined their group, and the number of comments and friends’ requests to measure social media marketing effectiveness.

Many famous companies choose to use social networking sites to undertake brand communication such as Dell, Levi’s and Coca-Cola. Dell claims that Twitter has brought them 6.5 million dollars in sales since they opened their official Twitter account (@DellOutlet) which now has more than 1.5 million followers (tech.sina.com.cn, 2009). Levi’s embeds “Facebook function” in its corporate website, Levi.com, and all products carry the “Like” button offered by Facebook. Users can login to Facebook by pressing “Like” and update and share the information of the products they choose on their Facebook page (Tang, 2012). Coca-Cola Enterprises makes good use of social media such as Facebook, Twitter and Youtube. Coca-Cola has become one of the most high-profile brand symbols on Facebook and has obtained some 35 million fans. Coca-Cola Official Related Films have been clicked more than 33.5 million times on YouTube and Coca-Cola has more than 400,000 followers on Twitter (site.qudong.com, 2011). Sina Weibo also allows advertising and marketing customers to promote their
brand, products and services to users. These advertising and marketing customers include large companies, small and medium-sized enterprises (SMEs) and individuals. As of December 31, Weibo had about 350 important advertisers and 12,800 SMEs advertisers and marketers (tech.qq.com, 2014).

3.3 Word of Mouth (WOM)

3.3.1 The Definition of WOM

WOM occurs when a consumer shares his or her experience with a product or brand with others in a casual way in person (Kiss and Bichler, 2008). Modern research into WOM started in the 1960’s (Arndt, 1967), where WOM was defined as “consumers’ face-to-face communication about products or companies” (Arndt, 1967, p.293). Dicher (1966) defined WOM as person-to-person communication concerning a product, a brand, or a service in the marketplace. In the 1980’s, WOM was broadly defined as "all information communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services or their sellers" (Westbrook, 1987, p.261). More recently, Stern (1994) proposed that spoken discourse which dealt with consumption products and issues would be defined as WOM. Otherwise, Stern (1994) defined WOM by drawing upon its differences from advertising. She wrote that “WOM differs from text precisely in its lack of boundaries: it exists in the everyday real world: (1) the recipient and source interact with each other in real time and space; (2) the author of the utterance (the person who composes it) and the speaker of it (the person who delivers it) are identical; (3) the form of the interchanged utterance is informal prose dialogue; (4) WOM communication vanishes as soon as it is uttered, for it occurs in a spontaneous manner and then disappears”(Stern, 1994, p:7). Word of Mouth can also be defined as “communication about products/services between people, who are perceived to be independent of the company providing it” (Silverman, 2001, p.365). Henning-Thurau and Walsh (2003, p.51) defines WOM as “all informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services or their sellers”. Allegedly, WOM is described as “interpersonal information exchanges among adopters and potential adopters of a product” (Parry, Kawakami & Kishiya, 2012, p.952). It has been suggested that WOM considerably impacts customer loyalty, product evaluation, purchase decision, consumer empowerment and product acceptance (Litvin et al.,
Godes et al. (2005) proposed that WOM was a key source of information for consumers, and its importance was growing due to increases in product complexity and quantity of information, as well as increased avenues for interpersonal communications such as the internet.

### 3.3.2 Drivers of WOM

Dichter (1996) identified four major motivations for WOM which all center on the construct of involvement: product involvement, self-involvement (or self-enhancement), other involvement (or concern for others), and message involvement. Kozinets et al. (2010) describes an overview of the transformation of WOM theory: the organic inter-consumer influence model, the linear marketer influence model and the network coproduction model. The key idea of the first model is that WOM naturally occurs between one consumer and another without direct promotion, influence or measurement by marketers while exchanging product and brand-related marketing messages and meanings. The key idea of the second model is to propose the concept of opinion leaders, meaning some consumers are more influential than others and marketers should focus on informing and influencing opinion leaders who in turn influence consumers. The key idea of the third model suggests that messages and meanings were exchanged among members of the consumer network and marketers seeded networks by engaging targeted individuals.

Consumers’ motivations to WOM include desires for social interaction, for economic incentives, the potential to boost their own self-worth and concern for other consumers (Henning-Thurau et al., 2004). Phelps et al. (2004) found that customers’ forward emails to their friend when they found that email was exciting, in which information had humor, sorrow, terror or soul stirring content. There are two types of mediating variables, which influence originator or influence listener. Gremler et al. (2001) found that customers spread positive information about a company when they are familiar with the company’s employees. Ragowsky and Awad (2008) pointed out that female consumers were more inclined to trust WOM than males. Godes and Mayzlin (2004) studied new TV shows, and found that dispersion of conversations across communities influence rising TV shows rating. It is clear that WOM plays an important role in consumer purchasing decisions (Godes and Mayzlin, 2009; Godes and Mayzlin, 2004). For consumers 80% of all
brand decisions are affected by WOM received from family or friends (Keaveny, 1995). However, WOM is not necessarily positive, instead it has a valence, and it can be either positive or negative (Buttle, 1998). The positive WOM increases the purchasing action, whereas negative WOM has the opposite effect (Arndt, 1967). By studying customer-purchasing decisions, Chen et al. (2010) found that although positive WOM helps to increase sales, negative WOM is more effective than positive information. Negative WOM occurs, when consumers are dissatisfied by a product or service, and complain or suggest to others not to purchase this product or service (Chen et al., 2010).

3.3.3 Two Most Frequently Used Models

Currently there are two famous WOM models which are broadly used by researchers. Buttle (1998) suggests a model of WOM as shown in Fig 2-1, and Litvin et al. (2008) draws a conceptual model of word of mouth as shown in Fig 2-2.

Buttle’s model centers on intra-personal and extra-personal variables.

Intra-personal variables include delight, satisfaction and dissatisfaction. Satisfaction and delight motivate positive WOM, and dissatisfaction results in negative WOM. Westbrook (1987) reported that satisfaction levels are the key mediating factor for WOM. Swan and Oliver (1989) report that WOM is positively correlated with satisfaction, where an increased satisfaction results in an increase in positive WOM. Engel, Kegerreis and Blackwell (1969) contends that an emotional response to product/service performance evokes WOM directly. Hartline and Jones (1996) conclude that the higher a customer’s perception of value and quality the stronger the intention of uttering positive WOM. Singh and Pandya (1991) conclude that negative WOM is clearly linked to dissatisfaction.

Extra-personal variables include culture, social networks, incentives, and business climate. Some researchers investigate cultural differences in attitudes towards complaining (Buttle, 1998). Watkins and Liu (1996) discuss the cultural limitations of WOM research, which propose that culture is an extra-personal condition that impacts WOM behaviors. Output WOM was associated with extra-personal variables such as price and the business environment. Richins (1983, 1987) found that the higher the price the greater the likelihood of negative WOM being uttered if the product fails to satisfy. Bayus (1985) observes that frequent
repetitive advertising is able to increase WOM.

**Figure 16 Buttle’s WOM Model**

(Buttle, 1998, p.246)

**Figure 17 Litvin’s WOM model**

(Litvin, 2008, p.460)

Antecedents of WOM include motivation for contributions, sources of WOM and mediating variables (Litvin et al., 2008). In Litvin’s conceptual model of WOM, motivations of WOM include affect, altruism, self-interest, and
reciprocity (Litvin et al., 2008). The two sources of WOM include consumption experience, and mass media. Mediating variables include customer-employee relationship, customer involvement, and surprise. Consequently, WOM includes receivers of WOM, mediating variables and outcomes of WOM.

It has been claimed that WOM is more influential than advertisements (Buttle, 1998, Litvin et al., 2008) especially in regards to raising awareness of new products and making purchasing decisions. Buttle (1998) characterizes WOM by valence, focus, timing, intervention and solicitation. According to Buttle (1998), valence means that WOM has two sides, positive and negative, from the perspective of marketing, which can be influenced by management efforts. Focus refers to a new opinion that WOM not only operates in customer markets but also in the other five markets (suppliers/alliances, internal, influencer, recruitment and referral markets). Timing means that WOM could be uttered in two periods of time, before a purchase and after a purchase. The former is called input WOM and the latter is called output WOM. Intervention is an effort to manage WOM activity at an individual or organizational level. Solicitation means that WOM may not originate from customers, which can be offered without solicitation.

### 3.4 Electronic Word of Mouth (eWOM)

In recent years, with the development of Internet technology and applications, more and more consumers enjoy publishing and posting their own views and comments on the Internet. Therefore, WOM has evolved from the traditional form - oral communication to online communication and has become eWOM which is more influential. EWOM has overcome the limited social boundaries of traditional WOM and the constraints that disappearing rapidly with time and distance by using the low-cost and two-way communication advantages of Internet (Ellison and Fudenberg, 2010; Bhatnagar and Ghose, 2004). Otherwise, eWOM makes the scope and scale exponentially expand compared with traditional WOM under the help of the information on the Internet can be provided to multiplayer at the same time during any process (Hennig-Thurau et al., 2004; Vilpponen, Winter and Sundqvist, 2006).

#### 3.4.1 The Definition of eWOM

With the development of the Internet in the 1990s, electronic WOM is able to disseminate information faster and more broadly than traditional WOM. Internet
networks are the main platform for electronic word of mouth, and provide a means for consumers and companies to communicate about products or brands (Dellarocas, 2003). The Internet network has changed the way in which the traditional WOM spreads. People not only communicate products or services face-to-face, but also seek information and share experience of products or service through Internet (Ho and Dempsey, 2010). More attention has been given to the new form of WOM, electronic word of mouth (EWOM). Stauss (2000) defines EWOM as “Internet customer communication when customers report or interact about consumption-relevant circumstances on the Internet” (Stauss, 2000, p.243). EWOM is defined as ‘any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet’ (Henning-Thurau et al., 2004, p.39). Similar to Henning-Thurau’s definition, Kietzmann and Canhoto (2013, p.147) defines EWOM as “any statement based on positive, neutral, or negative experiences made by potential, actual, or former consumers about a product, services, brand, or company, which is made available to a multitude of people and institutions via the Internet (through web sites, social networks, instant messages, new feeds)”. Wang and Rodgers (2011) classify eWOM into two categories based on different platforms of consumer-generated-content (CGC). They write “the first type of eWOM is often generated in online feedback systems and consumer review websites and the second type of eWOM occurs on electronic discussion boards, online communities, and online social networking sites” (Wang and Rodgers, 2011, p: 215).

3.4.2 The Differences between eWOM and WOM

Traditional WOM is transmitted by mouth to mouth communication. EWOM is transmitted by a wide range of online channels: emails, blogs, forums, SNS, and consumer review sites (Chu and Kim, 2009). Bronner and Hoog (2011) note that one difference between traditional WOM and EWOM is that recommendations of EWOM are usually from unknown individuals. However, the most important difference between WOM and eWOM is bi-directionalitity (Dellarocas, 2003). Other differences between WOM and eWOM include:

(1) EWOM is easy for viral transmitting (Hinz et al., 2011);
(2) Electronic peer-to peer referrals network (Bruyn and Lilien, 2008);
(3) Consumers can seek eWOM by looking former buyer’s view of products or
service (Park and Lee, 2008; Park and Lee, 2009);
(4) EWOM is composed by characters, rather than by spoken language. Hennig-Thurau and Walsh (2003) delineate characteristics that are particular to EWOM: ability to reach a multitude of people can be seen by people for an unspecified length of time and anonymity. The reliability of a web site deeply impacts the quality of eWOM issued on that web site (Song and Sun, 2011).

3.4.3 The motivations of eWOM

Balasubramanian and Mahajan (2001) developed a novel conceptual framework about the economic leverage of virtual communities through a combination of economic and social activity. In this study, the authors introduced three types of utilities that motivate people to leave their opinions online: the focus-related utility (e.g., comes from adding value to the community), consumption utility (e.g., comes from individual’s consumption of contributions from others), and approval utility (e.g., comes from the approval from others) (Henning-Thurau et al., 2004). Henning Thurau et al. (2004) updated Balasubramanian and Mahajan’s theory, by adding two new utilities to the framework: the moderator-related utility (e.g., comes—when a third party makes the complaint act easier for the community member) and the homeostasis utility (e.g., comes when people pursue a balanced life). The authors categorized the motivations of eWOM communication providers into four segments: desire for social interaction, desire for economic incentives, their concern for other consumers, and the potential to enhance their own self-worth (Cheung and Lee, 2012). Sung Mi Han (2008) introduced four motivations for eWOM: social interaction benefits/self enhancement, helping the company (or brand), vengeance upon the company, concern for others, and economic incentive. Furthermore, the cultural differences between the United States and South Korea affected the motivation of eWOM, as South Korean consumers show greater concern for others and less desire to gain vengeance upon the company. Cheung and Lee (2012) enriched the research by introducing the concept of the public good (i.e., collectivism, egoism, altruism, and principalism) and knowledge self-efficacy. These authors administered a questionnaire to users of one of the most popular customer review sites in Hong Kong. The results of the survey indicated that consumers were motivated to spend time on this eWOM platform for three reasons: reputation-orientation, sense of belonging, and the enjoyment of helping (Cheung
Shen et al. (2014, p: 148) propose six motivations of eWOM: self-expression, vengeance, concerns for others, overall trust, venting negative feeling and distrust:

1. Self-expression: a means that enables a speaker to express his or her certain emotional needs;
2. Vengeance upon the company: a desire to retaliate against a company that provided the consumer with a negative experience;
3. Concern for others: the desire to perform the altruistic act of helping another consumer make an informed purchase decision, which can cause both positive and negative WOM;
4. Venting negative feelings: a way to ease frustration;
5. Overall trust and (6) distrust: related eWOM motivations, in that they are both built on the relationship between an information provider and an information seeker.

### 3.4.4 The Spread of eWOM influence

Recent eWOM research indicates that eWOM presents extreme influence in consumer decision making. EWOM plays a vital influential role in the attitudes and behavior of consumers (Brown and Reingen, 1987), which can further influence consumers to select products or services (Kiel and Layton, 1981; Ennew, Banerjee and Li, 2000; Keaveney, 1995). In certain areas, eWOM has even more effect than television, radio and other advertising and promotional artificial means (Engel, Blackwell and Kegerreis, 1969). Jupiter Communications (1999) show that 57% people first search the Internet reviews as a reference while making their own decisions, for example, choosing which film to watch and which stock to invest on. Nearly 50% of young Internet users rely on word of mouth network recommendation to buy CDs, movies, DVDs, games and other products (Forrester Research, 2000). Schimmel and Nicholls (2005) conducted a phone survey in seven cities within 308 respondents and results indicate that: (1) word of mouth affects consumer shopping behavior online to a high degree; (2) generating positive word of mouth is a critical influential factor to media marketing success. Consumers’ purchase decisions are mainly influenced by both WOM and observational learning (Chen, Wang and Xie, 2011). For example, a consumer selects one restaurant by recommendation of his friend or by observation of a number of consumer’s reviews
of different restaurants featured on popular online consumer review sites. Using these sites consumers can easily evaluate a restaurant from online opinions of products and services (Park and Lee, 2008). A group of scholars conducted in-depth analysis about the process that eWOM generates an impact and factors by collecting eWOM data in order to summarize the law of value generation from eWOM. Liu (2006) studied the impact of Yahoo's movie reviews online on movie box office performance of the next week and indicated that the number of reviews, other than the evaluation of reviews, has a positive impact on the movie box office performance. Similar conclusions have been presented by Godes and Mayzlin (2004) and Duan, Gu and Whinston (2008), and they indicate that the daily number of online reviews has a positive correlation with the TV programs ranking and movie box office performance, since the volume of reviews show the number of discussions about products that consumers participate in and the more discussion, greater opportunity generating to cause other consumers to follow the product. In addition to the volume of the online reviews, Dellarocas, Awad and Zhang (2007) find that the valence of movie online reviews also has a positive impact on movie box office performance, the higher of the valence, the easier to accept customers feel. Clemons, Gao and Hitt (2006) indicate that online customer ratings about beer positively impact the sales of beer, the higher the rating score and the more obvious the product tends to be a repeat purchase by analyzing the online reviews to beer producers from 2001 to 2003. Dellarocas (2003) points out that the number of positive and negative reviews has significant influence on consumer behavior, especially the near-term negative reviews. The effect on product sales’ reduction that negative reviews bring is more significant than the effect on product sales’ increment that positive reviews bring. Chen, Wang and Xie (2011) found that 1) Negative eWOM is more influential than positive eWOM; 2) Positive observational learning comments significantly increases sales of products but negative observations learning comments have no effect. 3) Observational learning comments increase sales of products while also increasing eWOM. Observations’ learning is easier in online purchasing as consumers can find thousands of online opinions for products or services issued by former users before they make purchasing decisions (Godes, 2004).

To identify the spread of eWOM influence in networks it is important to understand the impact of eWOM on consumers’ purchase decisions. After studying
samples of 1.3 million Facebook users, Aral and Walker (2012) found that 1) younger users are more easily influenced than older users; 2) Male users are more influential than female users; 3) female users influence male users more than they influence other women. 4) Married users are least susceptible to influence to buy the products offered. 5) Influential users with influential friends may be instrumental in the spread of a product in the network.

The question remains, how does eWOM influence consumers’ purchasing behaviors? Trust plays a key factor in intention to shop online (Ragowsky and Awad, 2008). Navigation, the presentation of information, and order fulfillment are the key factors in building Electronic commerce trust (Park and Kim, 2003). Developing trust in an online retailer is different across genders, where men and women’s online shopping behavior are affected differently by online trust. Ragowsky and Awad (2008) found that: 1) Trust plays a more important role for women than for men in intention to shop online. 2) The quality of eWOM is an important antecedent of online trust. 3) Men emphasize their ability to post information, but women neglect the value of post information. Bruyn and Lilien (2008) developed a model to identify the role of eWOM in a recipients’ decision-making process. 1) Social ties influence recipient’s behaviors. The stronger the social tie is, the more aware the recipient is of the information. 2) Perceptual affinity causes recipient’s interest. 3) Demographic similarity negatively impacts the influence on each process. Opinion leadership affects the adoption of a new product as well as social contagion within social networks (Lyengar, Bulte and Valente, 2011). Both the recipients’ perception of the opinion leadership and the sources’ amount of product usage moderate the amount of spread (Lyengar, Bulte and Valente, 2011). People with higher expertise can have below average influence, and people with non-expertise can have a higher influence by collecting information from various sources (Phan and Godes, 2012). Social influence, structural equivalence, entity similarity, and confounding factors are the key factors that affect purchasing decisions (Fang et al., 2013). Firm-created eWOM acts as an important role in promoting sales (Godes and Mayzlin, 2009). Less loyal customers create the most effective eWOM to drive the sales of products with a low initial awareness level.

Bond and Kirshenbaum (1998) propose that the speed of the word of mouth is closely related to the emotional involvement brought by products and the price of
the product and they indicate that the deeper the emotional involvement degree presenting, the higher the price, the faster the word of mouth spread.

3.5 Virality

3.5.1 The Definition of Virality

The term “virality” is derived from medical science, which refers to “the ability of viruses to spread among organisms” (Hoang et al., 2011). How does the “virus” come from? Welker (2002, p.3) point out that “A virus lives in secrecy. At the outset it attacks further objects, lives and works invisibly and hidden, until it is grown numerous and creates a critical mass in order to throw the system concerned out of its equilibrium” and a virus grows exponentially with a right environment. Then Welker combines the virus with communication and propose the concept “viral communication”- the common motivation for consumers to share or pass along viral information. Then Gladwell (2002, p.92) expands the concept “viral” in his book by using “the stickiness factor”: “In epidemics, the messenger matters: messengers are what make something spread. But the content of the message matters too. And the specific quality that a piece of message needs to be successful is the quality of ‘stickiness.’ Is the message—or the food, or the movie, or the product—memorable? Is it so memorable, in fact, that it can create change, that it can spur someone to action?”

Jurvetson (2000, p111) propose that “viral behavior of an object is one that indicate how good it is at ‘network-enhanced word of mouth’”. Then the marketing research area introduces the concept “virality” later to create viral marketing strategies and the purpose is to design messages for companies or organizations that increase attention of target customers on their products, service or advertisements (Wilson, 2005).

Without one standard definition of virality there have developed several different opinions.

(1) The first definition of virality focuses on the amount or probability that access to, spread, and propagation of online content in a short period of time (Hoang et al., 2011; Sommons, 2006; Guerini et al., 2011; Nahon et al., 2011; Hansen et al., 2011; Bonchi et al., 2013; Heimbach et al., 2015). In the microblogging context (such as Twitter and Weibo), retweet or forwarding is similar to replication and a retweet is regarded to have the ability to be replicated by as many people as possible.

Hoang et al. (2011) thought it is natural that virality of a piece of tweet is measured by the frequency of being retweeted. Welker (2002) proposed a three-dimension
method to measure “virality”: 1) velocity referred to the speed of transmission; 2) persistence referred to the duration of transmission; 3) transmission convenience such as simplicity referred to low costs and few handlings. Sommons (2006) describes the term viral as “how the content be it a joke, picture, game or video- gets around” (Simmons, 2006, p.1). Guerini et al., (2011, p.507) argue that virality is strongly related "to the content being spread, rather than to the influencers who spread it” and they regard virality as “the tendency of a content to spread quickly in a community by word of mouth and the number of people who accessed a given content in a given time interval. This is the most generic definition of virality”. Nahon et al., (2011, p.1) define virality as “the process which gives any information item (picture, video, text, or any other audio–visual–textual artifact) the maximum exposure, relative to the potential audience, over a short duration, distributed by many nodes”. Hansen et al., (2011) propose that virality means the probability that a piece of message would be passed along. Heimbach et al. (2015, p.39) define virality “as some feature of the content that enhances its likelihood to be shared in different communication channels, distinct from content popularity which is commonly measured by the total number of accesses to the content”. Bonchi et al. (2013, p.2) propose a new concept - the global “virality”, which means that “not only focus on the immediate user’s satisfaction, favoring the contents which are more likely to interest her and also consider the likelihood of followers of being in turn interested and possibly reposting a given content, thus recursively propagating it”.

(2) The second definition of virality focuses on regarding virality as a specific kind of word of mouth which focuses on the behavior - content sharing (Dobele, Toleman, and Beverland, 2005; Porter and Golan, 2006; Van der Lans et al., 2010). Hemsley and Mason (2012, p.3923) define virality as “a WOM diffusion process where in a message is actively forwarded from person to person, within and between multiple weakly linked personal networks, and marked by a period of geometric growth in the number of people who are exposed to the message”.

(3) The third definition of virality takes customers’ other behavioral responses into consideration more than content sharing such as user accessing, liking or disliking, user commenting and so on (Guerini et al., 2011; Alhabash and McAlister, 2015). Guerini (2011, p.509) proposes that “virality is a complex phenomenon which can be decomposed into several components: appreciation, spreading, buzz, white and black buzz, raising discussion and controversiality”. In this paper, appreciation means “how
much people like a given content, for example by clicking an I_like button”; spreading means “how much people tend to share this content by forwarding it to other people”; simple buzz means “how much people tend to comment a given content”; white buzz means “how much people tend to comment in a positive mood” while black buzz means “how much people tend to comment in a negative mood”; raising discussion means “the ability to induce discussion among users”; controversy means “the ability to split the audience in different parties” (Guerini et al., 2011, p.507). Alhabash and McAlister (2015) use a three-component-structure to define virality: viral reach, affective evaluation, and message deliberation. They write “Viral reach refers to ‘the volume of message sharing and forwarding by Internet users. It indicates the number of users that have proactively shared and forwarded a message with their online and/or offline social networks’. Affective evaluation reflects both an explicit emotional response and an attitudinal evaluation of messages, and thus should be regarded as a component of virality. Message deliberation deals with Internet users’ active and public deliberation of online messages (Alhabash and McAlister, 2015, p.1319).

(4) Otherwise, the word “viral” appears most frequently together with “marketing” and there does exist a definition for viral marketing (discussed in the subsequent chapters).

(5) Besides, there is little research that focuses on quantifying virality. Momentus Media, which is a private organization, presents their thoughts about measuring virality in social network: virality equals to the click rate multiplied by the share rate, that is, virality = Click Rate * Share Rate (Chris, 2011).

Due to the problematic nature of defining the term virality as it stands the term has no one definition (Burgess and Green, 2009; Ancu, 2010) or a not sufficiently rigorous definition (Wallsten, 2009). In this research, virality or viral is defined as “whether this piece of micro blogs in Sina Weibo ranked among weekly Top 100 or not, that is, if this piece of micro blogs succeeded in being among weekly Top100, then it can be regarded as having virality. On the contrary, it is not viral”. This definition comes from quantitative aspect and qualitative aspect:

1) Quantitative aspect: this research works with the definition that virality refers to “the amount of people who accessed the given content in a given time piece (Guerini et al., 2011, p.507). Considering that micro blogs in Sina Weibo quickly lose popularity and are only viral for short period of times, this
research set the “given time piece” to “a week”.

2) Qualitative aspect: well-known scholar Jonah Berger regarded “news ranking top list in New York Times” as viral news. This offers reference for my own research to use Sina Weibo’s official ranking lists.

Weekly top 100 Sina Weibo results from a comprehensive calculation of forwarding, reading volume and thumb up amount during the week. However, the weight of forwarding volume, reading volume and thumb up amount and the computational formula are not accessible to obtain for the public.

### 3.5.2 Virality of online content

Thus far, researchers have explored virality of online content in three general groups: the nature of the content itself (Dobele, Toleman and Beverland, 2005), the nature of the publisher (or spreader) who spread the content (Dobele et al., 2007; Walker, 2012) and the context/environment of the content.

<table>
<thead>
<tr>
<th>Table 12 Prior Research about What Makes Online Content Viral</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Researcher</strong></td>
</tr>
<tr>
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</tr>
<tr>
<td>Godes (2004); Jonah and Katherine (2012); Chen and Wang (2010)</td>
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<td>Chip and Dan (2007)</td>
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<td>Dobele et al. (2007); Derbaix and Vanhamme (2003); Phelps et al. (2004); Huang and Cai, (2011); Phelps et al., (2004)</td>
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<tr>
<td>Dichter (1966); Gatignon and Robertson (1986); Jonah and Katherine (2011); Litvina et al. (2008); Dellarocas et al. (2004); Litvina et al. (2011).</td>
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<td>Gladwell (2000)</td>
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<td>Goldsmith and Flynn, (1933); Liu (2011); Florian, Laura and Regina (2013); Meeyoung et al. (2010); Walker (2012)</td>
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<tr>
<td>Angela (2007); Dobele (2007); Walker (2012)</td>
</tr>
<tr>
<td>Gladwell (2000)</td>
</tr>
</tbody>
</table>

1. The nature of the content itself

Researchers propose that viral content should encourage ease of use (Dobele, Toleman and Beverland, 2005). Research on the influence of brand community commonly uses terms such as “engage” or “engagement” (Algesheimer et al., 2005; Schau et al., 2009).

Chen and Lee (2014, p.292) figure out two important factors which significantly affect virality of online content: enjoyment and transportation, that is, “the extent of a message being absorbed into the narrative flow of a story”.

Previous studies involved with “engagement” have straddles several areas, such as science and technology, medicine and medical engineering, psychology, pedagogy, marketing and advertising. According to different kinds of research subjects, there exists personal engagement, consumer engagement, employee engagement, student
engagement, civic engagement, stakeholder engagement, brand engagement, community engagement and so on. Kahn (1990) proposed “personal engagement” and “personal disengagement”. In his opinion, personal engagement referred to “the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances”. Employee engagement is a property of the relationship between an organization and its employees. An "engaged employee" is defined as one who is fully absorbed by and enthusiastic about their work and so takes positive action to further the organization's reputation and interests. Employee engagement is a property of the relationship between an organization and its employees. An "engaged employee" is defined as one who is fully absorbed by and enthusiastic about their work and so takes positive action to further the organization's reputation and interests. Consumer engagement measures the extent to which a consumer has a meaningful brand experience when exposed to commercial advertising, sponsorship, television contact, or other experience. In March 2006, the Advertising Research Foundation defined Engagement as "turning on a prospect to a brand idea enhanced by the surrounding context". Recent research has paid more attention to consumer engagement as it is now regarded as a competitive advantage and a driver of business performance (Neff, 2007; Sedley, 2008). Chu and Kim (2011) attempt to identify social factors that influenced consumers’ engagement in eWOM in the online hangout place. Drawing from the measures of online WOM used in previous studies (Flynn et al. 1996; Sun et al. 2006), SNS users’ engagement in e-WOM was operationalized with three specific behaviors: opinion seeking, opinion giving and opinion passing. Opinion-passing behavior was measured by adopting Sun et al.’s (2006) online forwarding scale. Gummerus et al. (2012) divide consumer engagement into “Community Engagement Behaviors” (CEB) and “Transactional Engagement Behaviors” (TEB). In addition, three relationship benefits were identified: social benefits, entertainment benefits and economic benefits. The engagement behaviors largely influenced the benefits received and the mediation analysis results show that the influence of CEB on satisfaction is partially mediated by social benefits and entertainment benefits, while the effect of TEB on satisfaction is fully mediated through the same benefits. The effect of CEB on loyalty is mediated through entertainment benefits. Olson (2012) noted that the term social engagement is commonly used to refer to one's participation in the activities of a social group. Avison,
McLeod and Pescosolido (2007) defined social engagement as "the extent to which an individual participates in a broad range of social roles and relationships." Zhang, Jiang, and Carroll defined social engagement as "the commitment of a member to stay in the group and interact with other members". Hernandez et al (2014) proposed that analyzing the engagement level of people has been the focus of interest in a wide variety of situations and the definition of engagement is very context-specific. And there are three well differentiated approaches to measuring it: self-reports, external ratings, and physiological information. They defined engagement as the amount of effort required to engage the child.

In fact, engagement (sense of participation) plays an important role in Weibo marketing. Wanqiang, Li, the vice-president of Xiaomi mobile, shares the secrets of Weibo marketing: (1) engagement, (2) engagement and (3) also engagement. However, few studies conclude the importance of “ease of engagement”. I will research further the importance of ease of engagement in regard to virality and viral marketing. In my study, the research subject of “engagement” is Sina Weibo users. We try to define “engagement” in our research as “the amount of effort required for the readers to engage in” or “the amount of effort required to engage the readers of Weibo posts”. “Ease of engagement” referred to a little effort required for the weibo readers to engage in.

Some researchers have explored the relationship between storytelling and virality (Chip and Dan, 2007; Yuki, 2015; Berger, 2016) which I have introduced in detail before. Chip and Dan (2007) point out that the key characteristic of making content be storytelling and virality is to engage people to act and at the same time they propose two important elements content should provide- simulation and inspiration. Berger (2016) also defines storytelling as content presenting engaging. What is more, Yuki (2015) demonstrates that storytelling is the most important driver leading virality.

Otherwise, from the perspective of “social engagement”, “engagement” is expected to play an important role on social networking sites like Sina Weibo (Prohaska, Anderson and Binstock, 2012; McLeod and Pescosolido, 2007; Yoojung Kim, 2011).

Based on above discussion, I introduce “ease of engagement” to further presenting “storytelling” and “ease” explains the extent of the content being absorbed by people (Chen and Lee, 2014) and the low level of threshold to engage people in (Hernandez et al., 2014).

To my knowledge, less research has been conducted on “ease of engagement”,
especially in Chinese social networking sites and which kind of storytelling will be more viral in Sina Weibo is worth studying.

I hypothesize the following hypothesis through these arguments:

H1: Content characterized with ease of engagement is likely to go viral on Sina Weibo

Lovett, Peres and Shachar (2013) collect posts of more than 600 most popular U.S. brands within empirical analysis method to identify what and how the social drivers, emotional drivers and functional drivers positively affect the virality of content. In their study, social drivers refer to “expressing uniqueness, self-enhancement, and a desire to socialize”, emotional drivers are related to “emotion sharing” and functional drivers are “related to the need to obtain information and the tendency to provide information” (Lovett, Peres and Shachar, 2013, p.428). Main findings are showed as following: 1) the order of importance of the three drivers towards social transmission online is social drivers, functional drivers, and emotional drivers; 2) the higher the content presents its excitement attribute, the more likely people are to engage in spreading it (Lovett, Peres and Shachar, 2013). Berger (2016) introduces six drivers of viral content:

1) Social currency. Resembling as something like “self-enhancement”, social currency demonstrates people’s desire to signal identities and show professional expertise or intelligent to share or pass along information. Berger (2016) describes two ways to generate social currency: “making people feel like insiders” and “finding inner-remarkability (e.g. surprise, novel or interesting)”.

2) Triggers, that is, something within full usage and memorable mind.

3) Emotion.

4) Public, that is, something used to show.

5) Practical value, that is, mostly refers to useful information.

6) Stories. Stories refer to something presenting engaging, that is, capturing people’s attention and interest to talk about and share.

Yuki (2015) collect 2000 posts, which stay most viral on Facebook in a year and conduct a survey towards 10,000 users to explore these four drivers which make them share the content: social currency, emotions, usefulness and storytelling. With regard to “social currency”, Yuki analyzes four types of self-enhancement: “look good”, “look intelligent”, “look funny” and “look like a trendsetter” and results indicate the top two factors: “look good” and “look intelligent”. Concerning about “emotions”, Yuki takes anger, excitement, happiness and sadness into consideration and find only
two significant factors: happiness and excitement. Otherwise, Yuki affirms the positive role of “usefulness” and classifies useful content into incentive-driven content and informational content. Above all, Yuki identifies “storytelling” as the most significant driver towards virality and story contents are all illustrated with photos or videos (no text-only posts).

As to the content characteristics, I will continue to investigate altruism and egoism further based off previous research.

Above mentioned research findings present a series of textual features’ influence on the virality of online content. So there exists a new research topic about virality – visual-effect content virality, such as image virality. In the common sense, visual content is more likely to catch people’s attention and arouse their interest more quickly and effectively. The white paper “Optimizing Facebook Engagement” shows that posts containing an image are more likely to go viral than posts within simple plain-text (Facebook, 2012).

Some researchers propose that different image characteristics can bring about different viral phenomena (Guerini, Staiano and Albanese, 2013). But to my knowledge, not too much attempt has been made to investigate the relationship between visual-effect content and virality. Guerini, Staiano and Albanese (2013) collect public posts from the 979 top followed users in Google+, divide the dataset into three subsets: posts containing a static image, posts containing an animated image and posts containing text only while eliminating other posts like posts containing videos and links to external sources and study how characteristics of an image affect the virality considering kinds of images (e.g. cartoons, panorama or self-portraits) and related features (e.g. orientation, animations). They suggest that (1) posts containing an image are much more viral than posts containing text only; (2) posts containing funny and informative images are more inclined to be shared but are associated with different features (animation and high-brightness respectively); (3) posts containing colored images or posts containing faces are more likely to be appreciated and commented (Guerini, Staiano and Albanese, 2013).

On the other hand, some researchers from computer vision and social network analysis research also show interest in image virality (Deza and Parikh, 2015; Dubey and Agarwal, 2016). Deza and Parikh (2015) study image virality for the perspective of computer technology and use Reddit metadata to define and value the virality of three image datasets from Reddit and bring out with an accuracy of 68.10%. Dubey and
Agarwal (2016) introduce a novel algorithm to model image virality on online networks using deep convolutional neural network architectures.

Previous research has not highlighted the role of visual effect (photo, video, etc.) illustrated within online content. Yuki (2015) proposes that the most viral posts presenting engaging on Facebook he has collected are all illustrated with photos or videos, which echoes the report of White Paper in 2012 from Facebook. Otherwise, different characteristics of visual effect produce different effects of virality (Guerini, Staiano and Albanese, 2013). In conclusion, my study will take visual effect and its characteristics into consideration.

This suggests H2:

\textit{H2: Content that demonstrates arousing characteristics of visual effect is likely to go viral.}

Some researchers studied the characteristics regardless of the valence. Gladwell (2002) proposes the Stickiness Factor, which mainly discusses the messages’ own attributes to make it viral. Heath and Heath (2007) conclude six important factors about the stickiness factor: simplicity, unexpectedness, concreteness, credibility, emotions and stories.

- Simplicity: the content needs to be core and compact.
- Unexpectedness: the content should break a pattern to get people’s attention.
- Concreteness: the content must be tangible and show up in the actions of human beings.
- Credibility: the content should be validated
- Emotions: the content needs to evoke emotion by, showing ideas or information which are associated with things people really care about.
- Stories: in order to be an effective story, the content should make people act, thus provide simulation (knowledge about how to act) and inspiration (motivation to act).

Many researchers have done similar work with these six factors. Most of them agree on the positive correlation between emotions and virality, such as surprise (Dobele et al., 2007; Derbaix and Vanhamme, 2003; Lindgreen and Vanhamme, 2005), excitement (Phelps et al., 2004), interest (Hirsh, 2001; Masland, 2001; Huang and Cai, 2011; Kaplan and Haenlein, 2011), and humorous (Phelps et al., 2004, Porter and
Golan, 2006). Derbaix and Vanhamme (2003) find that the intensity of surprise induces WOM activities significantly. According to Dobele (2005), a piece of viral content includes the following characteristics: (1) involves imagination, fun and intrigue; (2) encourages ease of use and visibility; (3) targets credible sources; (4) leverages combinations of technology. Dobele then takes the 6 kinds of emotion into consideration; surprise, joy, sadness, anger, fear and disgust. Dobele et al. (2007) select nine viral marketing campaigns and examine six primary emotions (surprise, joy, sadness, anger, fear and disgust) on people’s responses to these nine viral marketing campaigns including emotional presentation and subsequent forwarding behavior. They prove that (1) surprise is the necessary emotion to make content viral and surprise needs to be combined with other emotions; (2) the message should capture the imagination of the consumers and target clearly, the same as their research findings in 2005. According to Dobele et al. (2007, p.300), surprise can be explained in detail as following:

**Table 13 the Explanation of Surprise from Dobele**

<table>
<thead>
<tr>
<th>Emotion</th>
<th>Explanation</th>
<th>Behavior</th>
<th>Physiological response</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surprise</td>
<td>Generated when something (product, service, or attribute) is unexpected or misexpected.</td>
<td>Facial expressions like opened eyes and mouth, and raised eyebrows. Cessation of on-going activities. Sudden and involuntary focusing on the surprising product, service, or attribute. Heightened consciousness of the surprising product, service, or attribute. Subsequent curiosity/exploratory behavior. Increase in the ability to retain in memory the surprising product, service, or attribute.</td>
<td>Changes in heart and respiration rates. Increase in skin conductivity and neural activation. Different cortical response wave patterns.</td>
<td>Subjective feeling of surprise. Spontaneous vocalizations (“Why,” “Oh,” etc.).</td>
</tr>
</tbody>
</table>

Researchers define surprise as a specific pattern of reactions at subjective, physiological and behavioral levels (Reisenzein et al., 1996; Reisenzein, 2000). Some researchers suggest using eye widening, eyebrows raising, facial expression and interruption of ongoing activities to measure surprise (Goleman, 1997; Reiaenzein et al., 1996; Izard, 1991).
Based on these results, Huang et al. (2011) want to investigate what and how online content characteristics affect people’s resending intention online. They define resending intention as “the extent to which resenders would like to resend the information they have received to another audience, including people in both online and offline”, which resembles as the concept “virality” and “social transmission” in my study (Huang et al., 2011, p.1282). In order to research their research goal, they collect posts form online forums to conduct a survey within Structural Equation Modelling analysis method and they indicate that posts which show and present quality, authority, authenticity and interestingness are more inclined to be accepted and forwarded to others (Huang et al., 2011).

Phelps et al. (2004) find that consumers re-mail to their friend when they find that email is exciting, in which information has humor, sorrow, terror or soul stirring content. Making the content attractive and memorable can facilitate virality (Phelps et al. 2004). An analysis of 501 advertisements from Porter and Golan tells us humor is the most universal feature and principle to make content go viral online (Porter and Golan, 2006). Taearungroj and Nueangjamnong (2015) collect 1,500 Thai and English Facebook pages within quantitative method and content analysis to explore the relationship between humor and virality and they indicate that contents within a “self-defeating” style of humor can be more viral from the English page while contents within a “self-enhancing” style of humor are more likely to be shared from the Thai page.

Frenzen and Nakamoto (1993) found that the stronger or more hazard controversial content, the stronger the ties must be to foster information propagation.

Some researchers propose that whether positive or negative, viral social transmission is in part driven by arousal (i.e., an established construct of emotion (Baumeister and Bushman, 2010)). Berger and Milkman (2012) study social transmission in two ways - the first study investigates how the emotionality and specific emotions (emotionality, positivity, awe, anger, anxiety and sadness) affect the virality of online content by using a data set including nearly 7000 articles from the New York Times and the second study include a series of lab experiments to test the effect of high-arousal information by manipulating specific emotions. They find that (1) more awe-inspiring, more anxiety and anger-inducing content is more viral whereas sadness-inducing content is less viral, that is, content that evokes high-arousal positive (awe) or negative (anger or anxiety) emotions is more viral than low-
arousal emotions (sadness); (2) more anger content and more amusement content are more likely to be transmitted (Berger and Milkman, 2012). There exist several important potential improvements that (1) Berger and Milkman just use four emotions: anxiety, anger, awe and sadness whereas other emotions that might be related as well; (2) Berger and Milkman do not take the level of arousal that online content is elicited into consideration; (3) using whether the article ranks in the most-emailed list or not to measure virality (Nelson-Field, Riebe and Newstead, 2013). Nelson-Field, Riebe and Newstead (2013) collect two large data sets of videos- one commercial (n=400) and one non-commercial (n=400), use actual sharing data as measurements of virality and they find that high arousal emotion-evoked content gain more shares than low arousal emotion-evoked content and will have a far better chance to go viral. Based on Berger and Milkman’s research, Heimbach et al. (2015) investigate what and how content characteristics (positivity, emotionality, anger, anxiety, awe, sadness, surprise) impact the virality of content (that is, the likelihood of online content to be shared with each other) by collecting news articles from three most popular social networking sites in Germany - Twitter, Facebook, and Google+ with the help of human classifiers categorization and text mining tools. They find that (1) emotionality negatively affect virality in social networking sites; (2) more interesting and more anger-evoking content are more likely to be transmitted in all the three online social networking sites; (3) sadness-evoking content is negatively related to virality in Twitter and Google+while more awe-evoking content trend to be more viral in Facebook.

Previous research has proposed and identified the strong relationship between emotions and virality (Chip and Dan, 2007; Dobele et al., 2007; Baumeister and Bushman, 2010; Berger and Milkman, 2012; Nelson-Field, Riebe and Newstead, 2013; Lovett, Peres and Shachar, 2013; Yuki, 2015; Berger, 2016). What is worth mentioning is that surprise is regarded as the most necessary and important emotion (Dobele et al., 2007; Derbaix and Vanhamme, 2003). Meanwhile, some researchers argue that humor is likely to be the most universal feature to make content go viral online (Phelps et al., 2004, Porter and Golan, 2006; Taecharungroj and Nueangjamnong, 2014). From the above, I want to explore these two emotions’ influence on virality on Sina Weibo.

Based on these arguments, I derive hypotheses as following:
H3: Content that demonstrates arousing characteristics of humor is likely to go viral.
H4: Content that demonstrates arousing characteristics of surprise is likely to go viral.

From the general nature of content, different kinds of online content in different online social networking sites gain different attention and transmission. Heimbach et al. (2015) investigated three famous online social networking sites- Twitter, Facebook, and Google+ and they find users in Twitter and Google+ prefer to share articles about politics, business, science and technology. Users in Google+ are more inclined to share articles having something to do with lifestyle and career with other users. Whereas, articles related with sports are less likely to be transmitted and shared in all the three online social networking sites. Finally, they find that users in all the three online social networking sites are more inclined to share original articles other than articles based on news agencies’ reports (Heimbach et al., 2015). Welker (2002, p.6-7) analyzes numerous success stories (e.g. Amazon, Dove Express, eDove Corp) and identifies some key principles of successful viral communication: 1) giving away valuable products or services; 2) providing effortless transmission to others; 3) exploiting common motivations and behaviors; 4) utilizing existing communication networks; 5) capitalizing on other’s resources and infrastructure. Porter and Golan (2006) analyze a total of 501 advertisements and find that while the content shows and presents an attribute named “provocative”, it is more inclined to be more viral, that is, they think sex, nudity, and violence, provocative content specifically, are drivers to make consumers transmit content online.

On one hand, it shows and offers necessity to study which kinds of online content in Sina Weibo gain attention and transmission since different social networking sites own different properties and Chinese use more Sina Weibo. On the other hand, review of existing works on virality of other social networking sites could be used for a reference to Sina Weibo simultaneously.

Some researchers hold the opinion that the valence (positive or negative) of the content directly affects the virality (Anderson, 1998; Bowman and Narayandas, 2001; Chevalier and Mayzlin, 2006; Berger and Milkman, 2012; Chen, Wang and Xie, 2011; Mizerski, 1982). However, the findings on the valence’s impact are ambiguous. Mazzarol, Sweeney and Soutar (2007) divide the valence of content into three kinds: positive, neutral and negative and they report that extremely positive or negative WOM have their own value which means “talking about positive or negative things about
dealing with different people or things (p.1481)”. Anderson (1998) develops a utility-based model to study the relationship between WOM and customer satisfaction and indicates that dissatisfied customers tend to engage in WOM even more than satisfied customers. Bowman and Narayandas (2001) propose that customers tend to share the products with others when they were dissatisfied, but not as likely to talk to others when they were satisfied. Chen, Wang and Xie (2011) developed three natural field experiments at Amazon.com, they collected three periods of sales data and WOM data of digital cameras at Amazon.com and found that 1) Negative eWOM is more influential than positive eWOM; 2) Positive observations learning comments significantly increase sales of products but negative observations learning comments have no effect; 3) observations learning comments increase sales of products with increasing eWOM together. Deitz and Cakim (2005) propose that negative messages tended to spread more quickly within a social network than positive messages. They find that “tech-fluentials” pass along positive messages to an average of 13 people, but they share negative messages with an average of 17 people (Deitz and Cakim, 2005). A WW (WirthlinWorldwide) study published in 2004 shows that email users are most likely to forward negative news, which has high personal relevance such as financial fraud, health, or safety (www.wirthlinworldwide.com). Berger and Milkman (2012) argue that positive content is more viral than negative content. They collected a unique data set of nearly 7,000 New York Times articles, and used automated sentiment analysis to quantify the positivity in order to demonstrate that, the more positive the article was, the more it would make the e-mailed list. East, Hammond and Lomax (2008) find that the impact of positive WOM on consumer purchase probability was generally greater than negative WOM. Heimbach and Hinz (2016) demonstrate that the relationship between positivity and virality follows a non-linear relationship presenting an inverted U-shape pattern.

Hansen et al. (2011) thinks studying the relationship between valence and virality should consider the type of content. They prove that negative news content enhances virality but not the non-news content (Hansen et al., 2011). Rosen and Tesser (1972) conduct an experiment and find that good news trend to be transmitted more spontaneously than bad news because of inward fears towards showing negative evaluation. Eckler and Bolls (2011) design an experiment to explore how the valence of emotion (positive or negative) affect people’s forwarding intentions and they find that positive emotion reveal a significant influence on people’s forwarding intention
but none of negative emotion. Doh and Hwang (2009) conduct research on the online shopping mall and find that a few negative messages are helpful in promoting a positive attitude toward a web site and at the same time increase the credibility of eWOM messages. As mentioned above, some researchers suggest that consumers present more likely to generate and transmit positive WOM, whereas other researchers suggest that consumers are more likely to generate and transmit negative WOM. Angelis et al. (2012) try to make efforts to solve this problem by conducting a series of experiments to compare the process of the generation of WOM and the transmission of WOM from a theoretical perspective and they find that people are more inclined to generate positive WOM about their own experiences but people are more likely to transmit negative WOM about others’ experiences they heard about.

The valence has been regarded as the most common feature by researchers about the content characteristics leading virality (Anderson, 1998; Bowman and Narayandas, 2001; Chevalier and Mayzlin, 2006; Berger and Milkman, 2012; Chen and Wang, 2010; Mizerski, 1982; Mazzarol, Sweeney and Soutar, 2007). Most important of all tends to be that their findings are different according different content dissemination channels and content types (Hansen et al., 2011; Heimbach et al., 2015). Whether positive or negative content is more likely to go viral in Sina Weibo remains unknown and this arouses my interest. Given the mixed findings in the extant literature, a pair of competing hypotheses are proposed surrounding the positively and negative arousing contents’ impact on virality.

Based on these arguments, I hypothesize the following:

**H₅:** **Positively arousing content is likely to go viral.**

**H₆:** **Negatively arousing content is likely to go viral.**

Several researchers believe that people will share useful information or content for altruistic reasons (Litvin et al, 2008). Reigh (2002, p.1283) also claims that information quality lies first in people’s information searching behavior and browsing behavior online and he defines information quality as “the extent to which users think that the information is useful, good, current, and accurate.” Otherwise, he indicates that topics within interestingness are more likely to catch people’s attention online, specifically “useful” and “good” information (Rieh, 2002). Gershoff et al. (2003) also indicate that information quality strongly affects people’s acceptance towards online information. Some researchers introduce an important motivation for people to
transmit information or pass along content online – “value” (Henning-Thurau et al., 2004; Balasubramanian and Mahajan, 2001). Chiu et al. (2007) also recognize the focus-related utility’s effect on social transmission, that is, the utility “a person obtains when he or she adds value to the community through his or her contributions” (Chiu et al., 2007, p.526). Following previous study about classification method of value (Stoel, Wickliffe, and Lee, 2004), Chiu et al. (2007) also identify how these two values – utilitarian (e.g. savings, convenience, and product quality) and hedonic (e.g. entertainment, exploration, and self-expression) affect the behavior for people to forward content to others. They conduct a quasi-experiment of email on 240 undergraduate students within regression analysis and they find that people are more willing to transmit message or information to others when the content presents higher utilitarian and hedonic values (Chiu et al., 2007). Hart et al. (2009) confirm that contents within higher informational utility hold advantage of being shared and transmitted. Kim (2015) collects 760 health news articles published online from New York Times and uses statistical modeling method to analyze the relationship between content features and virality. The same as Hart et al. (2009)’s findings, Kim indicates that informational utility is a key factor to lead virality, that is, the more useful the content be thought, the more viral the content will go (Kim, 2015).

From the perspective of value, practical value has been proved playing an important role in content virality online (Balasubramanian and Mahajan, 2001; Henning-Thurau et al., 2004; Berger, 2016). Further, some researchers regard practical value as knowledge, such as “useful information” (Berger, 2016), “usefulness” (Yuki, 2015), “informational utility” (Hart et al., 2009; Kim, 2015). Otherwise, “information quality” has been mentioned by some researchers to explore the relationship between content features and its virality and information quality specifically refers to useful and good information (Araujo, 2002; Reih, 2002; Gershoff et al., 2003).

Knowledge in my study is referred to “rich and useful information” through above arguments and which kind of knowledge brings about more transmission will be further explored.

Another altruistic reason- public welfare also attracts my attention after several months’ observation of micro blogs on Sina Weibo.

Based on this, I propose H7 and H8:
**H7:** Content that is related to publisher’s altruistic characteristics of knowledge is likely to go viral.

**H8:** Content that is related to publisher’s altruistic characteristics of public welfare is likely to go viral.

In addition, researchers took the motivations to transmit information into consideration. These motivations were classified into two types: egoism (Dichter 1966; Gatignon and Robertson, 1986; Berger and Milkman, 2011) and altruism (Sundaram, Mitra and Webster, 1998, Litvin et al., 2008; Dellarocas et al., 2004). Litvin et al. (2008) constructed a conceptual model of WOM and they proposed that the motivations of WOM were affects, altruism, self-interest and reciprocation. Some researchers suggest that self-enhancement was also an important reason to transmit information (Dichter 1966; Gatignon and Robertson, 1986; Sundaram, Mitra and Webster, 1998). Sundaram, Mitra and Webster (1998) defined self-enhancement as the need to enhance a person’s image among others by promoting their intelligence by sharing their positive consumption experiences. Kamins et al (1997) poses that positive rumors that reflect well on the person telling others had a particularly high chance of being transmitted. Berger and Milkman (2012) agreed with this opinion and they propose that people tend to share information that reflected positively or information that would show and promote themselves (self-promotion). Lovett, Peres and Shachar (2013) indicate two important manifestations of self-enhancement: show or enhance their expertise and demonstrate or signal their higher status.

From above review of previous research, self-promotion has been proved to be the key driver to lead virality (Sundaram, Mitra and Webster, 1998; Berger, 2016; Yuki, 2015). Self-promotion is defined as “the desire to signal one’s status or identity and the desire to enhance or demonstrate one’s expertise or intelligence” (Lovett, Peres and Shachar, 2013; Berger, 2016; Yuki, 2015). For example, researchers use “reflecting well”, “looking good” and “looking intelligent” to reflect self-promotion (Berger and Milkman, 2011; Lovett, Peres and Shachar, 2013; Yuki, 2015). Otherwise, from the perspective “egoism”- the motivator of social transmission, the significant influence of “self-promotion” also has been proposed and proved (Dichter 1966; Gatignon and Robertson, 1986; Berger and Milkman, 2011).

Above discussion has affirmed the significance of self-promotion. As far as I can see, less research about self-promotion has been made on Sina Weibo, and whether
signaling identity or showing expertise will be more viral on Sina Weibo is interesting to explore.

Based on these arguments, I derive hypotheses as following:

**H1:** Content that is related to publisher’s egotistic characteristics of self-promotion is likely to go viral.

2. The nature of the publisher

The second group of studies shows that the publisher (or spreader) who creates the online content plays an important role in social transmission (Gladwell, 2002; Widemann, 2008; Florian, Laura and Regina, 2013). Previous studies show that the types, the influence and the gender of the publisher are relevant with the virality of the online content.

Katz (1957) proposes three factors which are strongly related to the ability to influence: the personification of certain values, the competence and the strategic social locations. In common with his works, Gladwell (2002) proposes the law of the few that shows three types of publishers. He divides the few into three kinds of people: connectors, mavens and sales. Connectors refer to the people in a community who knew a large amount of people and loved to make introductions. Gladwell (2002, p: 3) characterizes connectors as “people with a special gift for bringing the world together”. Gladwell characterizes connectors as having social networks of over one hundred people. Van den Bulte and Wuyets (2007) indicate that connectors can play a great extent on cohesion to influence others. Mavens refer to the people who accumulated knowledge, especially about the marketplace and knew how to share it with others. They use their knowledge, social skills and ability to communicate to start WOM epidemics. However, some researchers propose that market mavens are more likely to be more viral since they are enthusiastic about magazines and reports (Feick and Price, 1987, Higie et al., 1987). Sales are the people who had powerful negotiation skills and tend to make others want to agree with them. Eccleston and Griseri (2013) also consider that sales have abilities to convince other people easily and successfully. In the 1980’s, the concept of the ‘market maven’, a person who enjoys advising friends of new products/services and places to shop, was developed (Feick and Price, 1987; Higie et al., 1987). Market mavens are largely women but indistinguishable in other regards (Bayus et al., 1985; Higie et al., 1987).
Gelb and Johnson (1995, p.56) note that ‘not only does the market maven prompt word of mouth, but those with links to such individuals were disproportionately likely to act on what they were told’. Based on Gladwell’s (2002) work, Kaplan and Haenlein (2011) propose the messengers: market mavens, social hubs and sales people and illustrated the relationship among these three kinds of messengers. He thought that market mavens were the first to receive the message and transmit it to their immediate social network; salespeople amplified the message and transmitted it to social hubs; social hubs distributed the message to an exceptionally large number. Katz and Lazarsfeld (1955), for example, profile different attributes for food opinion leaders, fashion opinion leaders, public affairs opinion leaders and film-going opinion leaders. Rogers (1962), however, they claim to have identified three traits, which broadly typify all opinion leaders: social participation, social status and cosmopolitanism. Robertson (1971), in turn, claims that in terms of cosmopolitanism, leaders were barely distinguishable from followers, but that they were more gregarious, more knowledgeable (in their area of expertise) and more innovative. Knowledge was commonly assumed to be a determinant of personal influence (Solomon et al., 1992). Engel et al. (1993) prefers to call these individuals influentials rather than opinion leaders. They note that influentials’ demographic characteristics vary between products, but that they were generally more gregarious, fashion conscious, independent, innovative and active in information search.

Many researchers have proved that some people are exactly more influential than other people (Godes and Mayzlin, 2009; Iyengar et al., 2011; Goldenberg et al., 2009). Katz and Lazarsfeld (1995, p.3) define influential people as “individuals who were likely to influence other persons in their immediate environment”. Watts and Dodds (2007, p.441) regard influentials as “a minority of individuals who influence an exceptional number of their peers”, which seems resemble and not changed as previous definition. Eirinaki et al. (2012, p.136) define influential users as people “having the largest possible reach within an online community. “Otherwise, Watts and Dodds (2007, p.442) emphasize that “it is important to note that opinion leaders are not leader in the usual sense—they do not head formal organizations nor are they public figures such as newspaper columnists, critics, or media personalities, whose influence is exerted indirectly via organized media or authority structures”.

Many researchers suppose that influential users would lead viral topics or marketing (Florian, Laura and Regina, 2013; Cha et al., 2010; Aral and Walker, 2012).
User influence in Twitter was measured from three aspects: in degree, retweets and mentions (Cha et al., 2010). Cha et al. (2010, p.3) proposes that “in degree which was the number of followers of a user, represented a user’s popularity in Twitter, retweets represent the content value of one’s tweets and mentions represent the name value of a user”. They collect a large number of data from Twitter to compare influence of indegree, retweets and mentions and they find that (1) users within high degree are uncertain to produce and bring a mass of retweets and mentions; (2) most of influential users behave well in showing significant influence over a variety of topics; (3) influential users spend a lot efforts in accumulating influence, other than gain by accident, for example, they make a threshold or limitation on number of tweets towards a single topic. However online popularity has multiple meanings. Bukowski and Hoza (1989) describe online popularity as “wide acceptance by peer group members”. Parkhurst and Hopmeyer (1998) regard online popularity as “social dominance”. However, many researchers treat the number of friends’ profile owners had on their SNS as the most frequently used metric to measure online popularity and subsequent social influence in the SNS environments (Utz, 2010; Zywica and Danowski 2008). Jin and Phua (2014) conducted two experiments to examine the impact of Twitter followers, EWOM valence and celebrity type on consumer behavior in Twitter-based marketing communication. They found that: (1) a celebrity with a higher number of followers has higher source credibility and strongly influences a consumer’s intention to build an online friendship with the celebrity than a celebrity with a lower number of followers. (2) When the number of a celebrity’s followers was low, negative brand tweets resulted in greater intention to spread EWOM than positive brand tweets (Jin and Phua, 2014).

Eirinaki et al. (2012) introduce two metrics: popularity of each user and activity characteristics of each user to measure their influence. Popularity parameters include number of friends, communities / group outreach, comments on posts, views of posts, testimonials (something resemble as the “Like” feature and the “favorite feature”), number of messages per friend, number of profile views over a period of time, number of active contacts/friends, number of application requests received and user ratings. Activity parameters include number of posts, number of questions posted, number of status updates, number of applications installed, number of application requests sent by the user, number of profile updates and last login time (Eirinaki et al., 2012, p.143-146). Lv et al. (2011) suggest that users in social networking sites cannot be ranked
only by simple criteria, for example, the number of fans and they indicate that leadership is much more informative. They derive an algorithm named Leader Rank to quantify user influence and they think that it is helpful to develop social networking sites when leaders are aware of their influence (Lv et al., 2011).

Unlike these researchers, Walsh, Gwinner and Swanson (2004) explore the motivation to drive a certain kind of people to be market mavens or opinion leaders. They conduct a survey of 326 consumers and indicate that market mavens, differentiates themselves from others, are motivated by 1) a sense of obligation to share information, 2) a desire to help others and 3) feelings of pleasure associated with informing others (Walsh, Gwinner and Swanson, 2004, p.112-113).

Existing marketing research indicates that gender plays an important role in information processing and people’s search behaviors (Kempf and Palan 2006; Putrevu et al., 2001; Söderlund 2002; Su, Comer, and Lee, 2008). Meyers-Levy’s (1989) Selectivity Hypothesis states that “women tend to process information in a more comprehensive, effortful manner than men” (Kempf and Palan, 2006, p.4). Researchers conclude that females are more inclined to focus on all available information and make comparison, leading to a comprehensive way to process information while males only concern information they think useful (Putrevu, 2001).

Otherwise, researchers propose that females are more tending to use the Internet to communicate and maintain relationships with each other (Brannon, 1999).

Kim, Mattila and Baloglu (2011) collected a sample of 781 travelers in Las Vegas to explore effects of gender on people’s motivation to read online reviews and they find that females are more inclined to read online reviews for convenience and risk reduction than males.

Moreover, researchers suggest that the gender of the user also affects the viral effect of the content. Many of them hold the opinion that effectiveness of the viral message was more likely to be forwarded by male recipients than female recipients (Dobele, 2007; Aral and Walker, 2012). After estimating samples of 1.3 million Facebook users, Aral and Walker (2012) finds that male users are more influential than female users. Some researchers chose gender as a moderator variable when studying virality (Dobele et al., 2007). Dobele (2007) shows that males tend to pass viral message especially the messages that involve humor whereas females felt fear in response to a viral marketing campaign. Kempf and Palan (2006) propose that females were more receptive to WOM than male.
As to the content publishers, I will continue to study gender and popularity, but will change the types of publisher according to Sina Weibo.

3. The context/environment of the content

The third group of research focuses on the context/environment of the content. Gladwell (2000) proposes the power of context in such that the environment (the circumstance and conditions of the places and times in which it occur) strongly influences human behaviour. Each person has 150 contacts which is the maximum number people can maintain stable social relationships. This number of relationships is referred to as Dunbar’s number (Hill and Dunbar, 2003).

Some researchers see the context as the structure of the network and community (Bampo et al., 2008). Bampo et al. (2008) confirm that the social structure of digital networks plays a critical role in the spread of a viral message. Susarla et al. (2012) study the diffusion of user-generated content in a complete network in YouTube, and find that social interactions have a significant influence on the magnitude as well as the success of contagion. Other researchers propose that seeding an infectious message to disconnected subcultures such as virtual social worlds are much more important than the quantity of seeds (Kaplan and Haenlein, 2009a; Kaplan and Haenlein, 2009b).

In regard to the context, although it has been rarely studied, it is very important in social networks. I will remedy the lack of research. Since Chinese cyber citizens love to make comments and discuss current events and hot topics, I will study the importance and relevance of current events in Sina Weibo. Yang et al (2012) defines current events as events, topics and information that are broadly concerned and discussed. In addition, events marketing has become more and more popular in China, which refers to enterprises that use news-value events to attract media, social communities and consumers’ attention to promote their brand image and sales via the internet (Liu, 2010).

Chinese people also attach great importance to special dates such as holidays and memorial dates. In my research, I will take all of the aforementioned into consideration.

$H_{10}$: Content that is related to special dates is likely to go viral.

$H_{11}$: Content relevant with current events tends to be more viral.
H1: Content characterized with ease of engagement is likely to go viral on Sina Weibo.

H2: Content that demonstrates arousing characteristics of visual effect is likely to go viral.

H3: Content that demonstrates arousing characteristics of humor is likely to go viral.

H4: Content that demonstrates arousing characteristics of surprise is likely to go viral.

H5: Positively arousing content is likely to go viral.

H6: Negatively arousing content is likely to go viral.

H7: Content that is related to publisher’s altruistic characteristics of knowledge is likely to go viral.

H8: Content that is related to publisher’s altruistic characteristics of public welfare is likely to go viral.

H9: Content that is related to publisher’s egotistic characteristics of self-promotion is likely to go viral.

H10: Content that is related to special dates is likely to go viral.

H11: Content relevant with current events tends to be more viral.
3.5.3 Predicting the virality of online content

Apart from the focus research on influence factors generating the virality of content, some researchers show much interest in predicting the virality of online content, that is, predicting why and how certain content becomes viral. The existing research findings present that this research topic remains to be a challenging task.

Some researchers find the strong correlation between (1) user’s social interactions in the early phases of content popularity growth, (2) the properties of online content and the final popularity of online content within the prediction of it (Szabo and Huberman, 2008; Wu et al., 2010). Szabo and Huberman (2008) introduce a method to predict long-term popularity of online content based on early user access and they choose two content sharing web portals – YouTube and Digg to verify and compare the effectiveness of this method. An important finding of their work shows that the outdated speed of online content plays an important role in the prediction accuracy, to be specific, the first two hours’ user access of Digg (stories in Digg become outdated quickly) makes it to predict popularity 30 days but YouTube (videos in YouTube keep long) needs 10 days to achieve the same effect. Wu et al. (2010) use a technique named “reservoir computing (RC)” to predict the virality based on historical access data. They use case study method to keep track of popular videos in YouTube for five consecutive months and present that a given 10-day access data set can be used to predict the next day’s virality within a very small margin of error (Wu et al., 2010).

On the other hand, some researchers take a variety of features into consideration more than just historical behavior such as length, sentiment, tags, publishers, the number of followers and so on (Artzi, Pantel and Gamon, 2012; Jenders, Kasneci and Naumann, 2013; Asur et al., 2011). Artzi, Pantel and Gamon (2012) summarize six feature families to predict microblog posts: historical features (ratio being replied, ratio being retweeted and ratio being both replied and retweeted), social features (the number of followers, the number follows and the ratio between the two), aggregate lexical features (bigrams and hashtags), local content features (the number of stop words, the percentage of English words, the number of hash tags and user references), posting features (posting time) and sentiment features (the number of positive sentiment words and the number of negative sentiment words) and come to a rank list of influence features: historical features, social features and aggregate lexical features. Jenders, Kasneci and Naumann (2013) draw a conclusion that the number of followers presents
the highest impact on predicting virality, followed by mentions and hashtags, URLs, the length of content and sentiment expressed through the generalized linear model. However, Asur et al. (2011) conduct a study on Twitter to explore factors that affect the trend of topics and discover that the attributes of publisher such as the number of followers and the ratio publisher posting tweet do not present much effect but the retweets and the content.

Above mentioned research focus on the prediction of virality of online content, “virality timing”, that is, considering the time at which the piece of online content becomes viral, is also an important research topic. A general technique is time series analysis which explore the temporal patterns arising in the virality of online content (Yang and Leskovec, 2011). Yang and Leskovec (2011) formulate and motive a time series and succeed in finding six different shapes which shows the virality of online content. In addition to general techniques, Cheung et al. (2016) firstly propose to use social cascades (“a process of information diffusion in a social network”, p.4) dynamics in social media to predict virality timing of online content and verify the algorithm in Twitter and Digg.

3.6 Viral Marketing

Viral marketing appeared in late 20th century. In 1994, Douglas R. said: “Suppose that an advertisement succeeds accessing the susceptible user, this user would be infected and goes on to infect other susceptible users. In theory, as long as every infected user sends an email to more than one friend, this kind of transmission mechanism continues to infect others until all the susceptible users receive this piece of message.” His description was regarded as the origin of viral marketing. The typical and classical example of viral marketing is Hotmail. During 1996 and 1997, Hotmail attached a simple tag at the end of every free email: “Get your private, free email at http://www.hotmail.com” and attracted 12 million new users in one and half year with very few marketing costs (Wilson, 2000).

3.6.1 Definition of viral marketing

The explosive development of Hotmail attracted a multitude of researchers including Steve Jurvetson (1997) who first proposed the concept of viral marketing (www.fastcompany.com) and succeeded in using the term “viral marketing” to explain the development of Hotmail. He defines viral marketing as “network-enhanced word
of mouth” (Jurvetson, 2000). Contemporary Krishnamurthy (2001) suggests that viral marketing has three “flavors”: incidental contagion, contagion due to transaction consummation and consumers as professional recruiters. Incidental contagion refers to the station where consumers were not aware of their role in message diffusion. Contagion due to transaction consummation refers to the station where companies entice users with free applications that exploit network effects which creates an incentive for users to sign up their friends. Consumers as professional recruiters refer to the station where companies may use incentives, such as money or free products, to entice users to recruit other users (Krishnamurthy, 2001). Phelps (2004, p.334) states: “Viral marketing is the process of encouraging honest communication among consumer networks”. Kaikati and Kaikati (2004, p.9) confirm viral marketing as “simply WOM via a digital platform. It involves spreading the message via “word of mouse” and ensuring that the receivers have the interest to pass along the message to their acquaintances”. Dobele, Toleman and Beverland (2005, p.144) mention viral marketing from a marketing perspective and they say "it is the process of encouraging individuals to pass along favorable or compelling marketing information they receive in a hypermedia environment: information that is favorable or compelling either by design or by accident”.Bampo et al.(2008, p.273) refer viral marketing as ‘”a form of peer-to-peer communication in which individuals are encouraged to pass on promotional messages within their social networks”’. Grewal and Levy (2010) regard viral marketing as a process that encourages pass along among consumers. Armstrong et al. (2011) define viral marketing as “…the internet version of word of mouth marketing – Web sites, videos, email messages, or other marketing events that are so infectious that customers will want to pass them along to friends”. Boone and Kurtz (2013) describes the viral marketing as “…efforts that allow satisfied customers to spread the word about products to other customers”. Sohn, Gardner and Weaver (2013, p.22) define viral marketing as “a marketer-initiated consumer activity that spreads a marketing message unaltered across a market or segment in a limited time period mimicking an epidemic. Important implications of this definition are centered on the question of what makes an epidemic. An infectious disease epidemic is caused by a virulent pathogen that is self-replicating (the next generation is the same as the prior), has a strong transmission rate, does not cause an immediate die-off of the infected individuals and, finally, includes infection in a significant proportion of a population.” Kaplan and Haenlein (2011) propose two defining elements of viral marketing: the first
one was a greater reproduction rate and the second one was use of social media applications.

3.6.2 Contrast of several concepts with viral marketing

Since the term “viral marketing” was proposed, concepts such as WOM, buzz, buzz marketing and viral advertising have been variously related and compared with viral marketing.

Disagreement remains regarding the definition and the relationship between viral marketing and WOM. Wilson (2000) defines viral marketing as “any strategy that encourages individuals to pass on a marketing message to others, creating the potential growth in the message’s exposure and influence” (p.1). Some researchers’ view viral marketing as WOM advertising, but others attempt to distinguish between the two. Pastore (2000) argues that viral marketing is a type of advertising in which some consumers tell others about the service or product like WOM advertising. Datta, Chowdhury and Chakraborty (2005) suggests that viral marketing is a new form of WOM through the internet and Shirky (2000) states that viral marketing will be the same as WOM to most people soon. Kaplan and Haenlein (2011) combines social media to define viral marketing as electronic word of mouth whereby a marketing message related to a company, brand or product was transmitted through the use of social media applications. Phelps et al. (2004) defines viral marketing as “the process of encouraging honest communication among consumer networks” (P.334), which resembles the common definition of WOM (Arndt, 1967). Shukla (2010) proposes that viral marketing refers to the extension of word-of-mouth advertising (WOM) which represents the latest online customer-centric marketing to increase promotions on products and/or services. However, Modzelewski (2000) proposes that true viral marketing differs from WOM. He argues that the difference between the two that the originator of the virus has a unique interest to recruit people. In his book, he compares buzz, WOM and viral marketing. He believes WOM is often called buzz, and that viral marketing is actually synonymous with the term buzz, or “the power of consumer-to-consumer contacts”. Dobele et al. (2005), concurred with Bampo et al. (2008), refer “buzz” as an output or consequence of viral marketing. However, viral marketing is also a way to think about the rapid spread of a product in the context of a community (Modzelewski, 2000). Ferguson (2008) suggests that the difference is that viral marketing is the cause and WOM is the effect. He regards WOM as the results of viral
marketing (Ferguson, 2008). According to Montgomery (2001) viral marketing is “a type of marketing that infects its customers with an advertising message, which passes from one customer to the next kike a rampant flu virus” (Montgomery, 2001, p.93). He does not differentiate between WOM and viral marketing. Vilpponen, Winter and Sundqvist (2006) define viral marketing as “word of mouth communication in situations where positive network effects prevail and where the role of the influencer is active due to positive network effects” (p.66). Welker (2002) describes an analogy between a living biological virus and viral marketing, which shows the contagious power of a virus.

For the purposes of this research viral marketing is considered to be a new form of WOM.

3.7 Viral Marketing Strategy

Some researchers propose that viral marketing strategy need to be associated with a value for the senders and a value for the receivers and this type of marketing campaigns have some typical features: (1) free; (2) reproducible; (3) exclusively spread and propagated via the internet (Reece et al., 2010). Researchers think the difference between viral marketing and advertising is the former promotes products and services via an indirect way (Waldow and Falls, 2012). Viral marketing campaigns can help the senders to attract customers and increase the level of customer loyalty and brand awareness (Zarella, 2010).

(1) Among existing research about viral marketing strategy, carriers who transmit the viral marketing message tend to be crucial. Middleton (2012) regards carriers of viral marketing message as satisfied customers, that is, individuals who are long for being experts, customers and journalists in the field. He introduces two ways for these carriers to transmit the viral marketing message: active ways and passive ways. The former refers to spreading message actively like making recommendations via internet directly and the latter refers to making others know a product or a brand indirectly like letting other people know their purchasing behavior of the product or brand (Middleton, 2012).

(2) Different from simply regarding viral marketing campaigns as free marketing (Reece, 2010), Anjum (2011) divides the costs of viral marketing campaigns into three categories: free, indirect, and direct. He proposes that product which presents innovative features and offers competitive benefits facilitates free of charge
automatically and the innovative features and competitive benefits become the core viral message of viral marketing campaigns to be spread by users online with no costs (Anjum, 2011). Researchers have done a case study about the promotion of iPhone in online channels for free viral marketing (Wirtz, 2012). Indirect costs refer to payment for company marketing staff who develop the marketing messages intended to be spread via Internet by online users. Direct costs refer to incentives for online users to spread the viral messages while implementing viral marketing strategy (Anjum, 2011).

(3) Researchers have studied different kinds of instruments used in viral marketing campaigns (Beneke, 2010; Schneider and Valacich, 2011). They introduced several kinds such as: customer recommendations, affiliation programs, online chats and sweepstakes, newsletters, search engines, online communities maintaining and so on (Beneke, 2010; Schneider and Valacich, 2011).

(4) Some researchers focus on the product element of viral marketing strategy and they propose that the development of the Internet has given rise to a wide range of new products online (Anjum, 2011; Wirtz, 2012). Anjum (2011) finds that the rages of products available online a few years ago are some products such as books, gadgets and other small size tangible products but presently most of the products available offline occur online as well especially perishable products like fresh food and flowers. Consistent with these results, Wirtz (2012) propose new style of products which are available only online such as data bases, applications on portable electronic devices, search engines and anti-virus programs.

(5) Some researchers focus on the price element of viral marketing strategy and they find that some products like e-books or downloadable software products might be provided free of charge in order to motivate these online individuals to spread the viral marketing messages (Anjum, 2011).

(6) Some researchers focus on the place element of viral marketing strategy and they think the difference between traditional marketing and viral marketing concerning the place element is the change from trading places to a universal virtual market place which presents features like: anyone with the access to the internet has access to the virtual marketplace; this universal virtual market place is offered in 24/7 basis and minimum or even none transaction costs is required (Lilien and Grewall, 2012)

In conclusion, viral marketing strategy can prove to be more highly effective in circumstances as following shows (Middleton, 2012):

1) Viral marketing strategy works better for new types of products or services that
are innovative. Specifically, the innovative features of the new products or services can be served as the key powerful marketing message within the potential to go more viral.

2) Secondly, the potential benefits of viral marketing are further increased when the benefits associated with the use of products or services are real. Similarly to the point above, Middleton (2012) argues, specific benefits associated with the use of product or service has the potential of being an effective viral marketing message.

3) Viral marketing strategy can also prove to be highly effective in situations where product or service being promoted caters for the needs of specific group of people. In other words, members of such groups can facilitate the spread of marketing message within the group.

3.7.1 Successful elements of viral marketing strategy

Since Steve Jurestson proposed viral marketing in 1997, researchers at home and abroad have conducted large amounts of research about viral marketing and obtained any achievements. Heyman (1999) proposes that the premise of viral marketing is transmissible and useful for customers. Wilson (2000) developed the six basic elements of a viral strategy: giving away products or services, providing for effortless transfer to others, scaling easily from small to large, exploiting common motivations and behaviors, utilizing existing communication networks, and taking advantage of others' resources.

- Give away valuable products or services: in the market, “free” is almost the most powerful word. Give away something to attract attention and then begin to sell something to gain profit.
- Provides for effortless transfer to others: Internet makes instant communication become easy and inexpensive. Simple and short message are better.
- Scales easily from small to very large: firms should build scalability in to their viral strategy so that the transmission method is rapidly scalable from small to very large.
- Exploits common motivations and behaviors: viral marketing strategy should take advantage of common human motivations and behaviors for the transmission.
- Utilizes existing communication networks: people develop networks of relationship in real life and on the Internet. Firms should learn to place the marketing message into existing communications.
- Takes advantage of others’ resources: Uses others’ resources to spread the message
should be the most creative viral marketing strategy.

Wilson (2000) proposes that a successful viral marketing strategy should contain as many of possible of these elements. Kaplan and Haenlein (2011) considers three conditions necessary to create a viral marketing epidemic:

- Finding the right people to spread the message: market mavens, social hubs and salespeople. Feick and Price (1987) define market mavens as people who are capable of gaining a mass market message and engaging in discussions with others. Goldenberg (2009) defines social hubs as people who have a large number of social connections. Kaplan and Haenlein (2011) propose that market mavens are the first to receive the information and salespeople transmit the information to social hubs from market mavens by making the information more persuasive.

- Making the message memorable and sufficiently interesting: memorable and interesting message are more infectious. Kaplan and Haenlein (2011) propose two options: relying on true stories about real people and using rumors especially positive ones.

- Two environmental conditions that influence the process of the transmission: Dunbar’s Number and ordinary good luck. Dunbar’s number means that the maximum number of people’s stable relationships network is 150. Kaplan and Haenlein (2011) think companies should not spread the message too broadly. They also propose that launching a viral marketing strategy needs plain old good luck, that is, the right time or place (Kaplan and Haenlein, 2011).

Dobele, Toleman and Beverland (2005) propose that a successful viral marketing strategy includes an engaging message that involves intrigue, fun and imagination, encourages ease of use and visibility, leverages combinations of technology and targets credible sources. Helm (2000) classifies viral marketing strategies into low integration strategies and high integration strategies according to the degree of requiring the customer’s activity in forwarding the viral marketing message. Subramani and Rajagopalan (2003) highlight two key factors, which determine the degree of influence in viral marketing. The first factor is the role of the influencer, which means passive or persuasive attempts to influence and the second factor is the level of network externalities, which means the additional benefits accruing from broader usage of the product or service being recommended within a user community. Based on their work, Pousttchi and Wiedemann (2007) listed eight success factors in mobile viral marketing
campaign: perceived usefulness by recipient, reward for communicator, perceived ease of use, free mobile viral content, initial contacts; first mover’s advantage, critical mass and scalability. Hausmann (2012) analyzes and discusses the challenge and limit of viral marketing in Web 2.0 and social media. Hoedemaekers (2011) discusses the role of humor in advertising through video-websites such as YouTube. Leskovec, Adamic, and Huberman (2007) present an analysis of a person-to-person recommendation network consisting of 4 million people and propose a simple viral marketing explanation model. Hinz et al. (2011) compares four different seeding strategies and verifies that seeding to well-connected individuals is very important. Michalski, Jankowski, and Kazienko (2012) show that the social position and engagement of a user in the community and less important than the relationship between the sender and receiver and they propose that users tend to forward messages because of emotions, altruism and other sociological factors when receiving non-incentivized content.

Woerndl et al. (2008) conclude five key factors of successful viral marketing strategy: the overall structure of the campaign (encourages viral activity and ethical & legal issues), the characteristics of the product or service (suitability), the content of the message (fun & intrigue, ease of use and engaging), the characteristics of the diffusion (exponential; speed and audience reach) and, the peer-to-peer information conduit (technology available, used; combinations of technologies leveraged and source credibility).

Pousttchi and Wiedemann (2007) indicate eight factors of successful viral marketing strategy: (1) perceived usefulness by recipient; (2) reward for communicator; (3) perceived ease of use; (4) free mobile viral content; (5) initial contacts; (6) first mover’s advantage; (7) critical mass; and (8) scalability.

3.7.2 Measurements of the viral marketing strategy

Some researchers began to study how to measure the success of a viral strategy. Bazadonna (2006) used the number of “hits” and “impressions” to define the level of activity of a viral marketing campaign instead of the economic and financial value gained by the firm. Cruz and Fill (2008) presented a viral marketing evaluation framework that identifies three key objectives and their particular evaluation criteria. Porter and Golan (2006) suggest viral marketing campaign measurements should be based on cognitive and behavioral changes. Helm (2000) proposes the target to maximize reach was vital through a viral marketing strategy. Juvertston (2000)
proposes the key success of a viral marketing strategy is to convert and retain a mass of recipients and he suggests loyalty, frequency and penetration as criteria. Welker (2002) measured viral efforts by three dimensions: the speed of transmission, how long the content stays around and convenience to transmit.

With the rapid growth of cell phone ownership, researchers have begun to focus on a new type of WOM communication, that is, mobile viral marketing. Pousttchi and Wiedemann (2007, p.1) defines mobile viral marketing as “a concept for distribution or communication that relies on customers to transmit content via mobile communication techniques and mobile devices to other potential customers in their social sphere and to animate these contacts to also transmit the content”. They also introduced four mobile viral marketing standard types: (1) motivated evangelism; (2) signaling use, group membership; (3) targeted recommendation; and (4) awareness creation, benefits signaling (Pousttchi and Wiedemann, 2007). They also propose eight success factors of mobile viral marketing: (1) perceived usefulness by recipient; (2) reward for communicator; (3) perceived ease of use; (4) free mobile viral content; (5) initial contacts; (6) first mover’s advantage; (7) critical mass; and (8) scalability (Pousttchi and Wiedemann, 2007).

3.7.3 Branding, viral advertising and viral marketing strategy

Aaker (1991, p.7) defines a brand as "a distinguished name or symbol that intended to identify the goods or services and to differentiate those goods or services from those of competitors". Sterne (1999, p.65) defines a brand as "a promise made by a company to its customers and supported by that company". Online branding has become increasingly important within the electronic shopping environment (Rowely, 2004).

Much of the existing research focuses on understanding the impact of social media usage on brands and learning to benefit from it (Abedniya and Mahmouei, 2010; Dellarocas, 2003; Kozinets et al., 2010; Moran, 2010; T. Smith et al., 2007; Trusov, Bucklin, and Pauwels, 2009). Online social media helps brands identify consumers’ preferences, opinions and perceptions of the brand (Abedniya and Mahmouei, 2010). Dellarocas (2003) indicates that online feedback mechanized important implications for management activities such as brand building. Jasen et al. (2009) proposes that consumers evaluated products through social media, then produces WOM and impacts brand image and brand awareness. Other researchers express interest in the motives consumers engaging with brand-related messages on social networks in the first place.
Harrison-Walker (2001) indicates that customers who have brand commitment are more likely to generate WOM communication than those who only show satisfaction with a product or a brand. Henning-Thurau et al. (2004) finds some other factors that motivated consumers to engage in writing online reviews: advice seeking, desire for economic incentives and need for social interaction. Casalo et al. (2008) views customer satisfaction as the prime motivator to share brand-related information. Bazaarvoice (2012) analyzed 26 million tweets on Twitter and found that people tend to mention brand much more frequently than before. Otherwise, found that the number of fans of people who mentioned brand was more than people who did not (Bazaarvoice, 2012). Wolny and Mueller (2013) propose that high brand commitment, fashion involvement, product involvement and the high need for social interaction are key motivators to engage in brand-related EWOM.

Some researchers combine brand with viral advertising. Bampo et al. (2008) propose that viral advertising offers communication which is more accessible to a brand’s potential customer. Chu (2011, p.31) defined viral advertising as “unpaid peer to peer communication of provocative content originating from an identified sponsor using the Internet to persuade or influence an audience to pass along the content to others”. Golan and Zaidner (2008) analyzed 360 pieces of viral ads and found two main factors which impact viral advertising: humor and sexuality. Their study shed light on the property of viral advertising- a tool to construct branding campaigns. Ferguson (2008) proposes that sometimes viral advertising is ignored by users along with non-effective marketing campaigns. Kelly et al. (2010) conclude three influential factors about non-effective viral advertising: interruption of own task, perceived clutter on the Internet sites, and negative past experiences with Internet advertising.

On the other hand, some researchers point out that viral advertising and viral marketing are different concepts. For example, Porter and Golan (2006) consider viral marketing contains a comprehensive marketing strategy within several marketing elements while viral advertising is equivalent to a specific online advertising technique.

Some researchers argue that brand strategy is closely linked with viral marketing strategy. Moore (2003) regards a brand as the product itself, which is brought into existence both in the act of consumption and circulation, considering the context of viral marketing. Dobele et al. (2005) proposes that viral marketing offers a firm an important advantage: little cost of passing on and forwarding the brand message. They believe fun, wonder, visibility, the right time and credible sources help a firm succeed
in viral marketing campaigns and brand promotions (Dobele et al., 2005). Rosen (2000) proposes WOM is one of the most effective branding and marketing strategies. Hong-Youl Ha (2004) shows that positive WOM helps web consumers cultivate solid brand trust. Kempf and Palan (2006) propose that positive WOM is most influential on brand evaluations when the communicator’s gender and the WOM recipient’s gender were opposite. Stein (2013) shows that the sharing of brand content online more likely lead to purchasing behavior than an advertisement a consumer watching by themselves and he finds that the number of those shared ads has grown by 129 percent from 2011 to 2012.

In my research, I use "brand promotion" to measure the success of viral marketing strategy. I use the number of times that the brand of a firm was mentioned and the number that a firm's micro blogs was forwarded to measure "brand promotion". Overall, I conclude that viral marketing strategy also includes three aspects: the publisher or spreader (seeding strategy), the content itself and the context.

In the next stage of my research, I investigate viral marketing strategy based on my pilot test research of virality. The basic research provides a framework to better understand what makes online content viral in Sina Weibo and in turn it is the foundation for viral marketing. I choose several companies to follow and collect their micro blogs from Sina Weibo.

Social transmission is important and frequent in most people's daily life, and many people enjoy sharing online content with others. However, different content will gain different levels of attention. Where some content is reprinted, and shared exponentially, others are shared very few times. Some consumer experiences receive a warm response while others obtain sparse followers. Some blogs, micro blogs or posts top the hot ranking list while others languish. Today many corporations create online advertisements in the hopes that it will lead to more consumer-generated content and consumers would share this content with others. However, this strategy is not always successful (Cashmore, 2009; Phelps, 2004). Less is known about why some pieces of content become more viral than others. My research thoroughly investigates which elements affect virality.

3.8 Contribution of the proposed study

Academic contribution

Previous research on what drives viral online content has focused on the opinion leader,
the motivation to share content, and the psychological aspects such as emotions. My research contains three parts according to these three groups of research: the nature of the publisher (spreader), the nature of the content, and the context. I have altered factors better fit within the context of Sina Weibo. As there is not a research framework on virality, my research combines previous research and my own ideas to propose an integrated framework on virality.

The framework is shown as figure 19 and the relationship between each of the sections and upcoming chapters is shown as figure 20:
Figure 19 the Framework of My Research
Some researchers limit their research scope to online shopping malls, whereas future research needs to explore different contexts and environments such as social networking sites (Doh and Hwang, 2009). Many researchers have studied Facebook and Twitter but very few conducted social media through the context of Chinese social media platforms (Culnan, McHugh and Zubillaga, 2010; Jin and Phua, 2014). Thus far, researchers have studied how emotions impact virality such as humor, but they have not studied different types of humor (Dobele, 2007; Hoedemaekers, 2011). Previous research also uses questionnaires but there existed common method variance, and as a result, it was very difficult for respondents to understand the questions (Abrantes et al., 2012). Research about opinion leaders has not divided these individuals into different types or groups (Iyengar et al., 2011; Jin and Phua, 2014).

**Business Contribution**

My findings provide insights into how to design a successful viral marketing strategy in Sina Weibo. Previous research focused on viral marketing strategies in various social networks where my research is applied specifically to Sina Weibo. All companies that create viral content in hopes that large numbers of people will share micro blogs or micro blogs related to their company. In 2013, my own company held an activity "Say a word to your mother" on Mother's Day in Sina Weibo. During Mother's Day, the official Weibo of my company gained 170,000 new followers and this piece of micro blog was forwarded more than 180,000 times. To be concise, my research topic is
valuable not only for people but especially for companies.
I initiate my research by investigating all of the factors in the aforementioned framework. I focus primarily on one or two main factors and regard the other factors as control variable. All research conducted on the virality of online content are used as a foundation to further explore and investigate viral marketing within Sina Weibo.
CHAPTER 4

METHODOLOGY

4.1 Introduction

This following chapter introduces research methodology techniques including research philosophies, research approach, data sources, research design, data collection approaches and so on. At the same time this chapter reviews research methodology techniques that this research adopted. The sections regarding research design and research methodologies was to sum up how the research was carried out and outline the research methodologies this research chose to use.

4.2 Research philosophy

Researchers regarded research philosophies as one of the most important sections of research especially in the area of both management research and marketing research (Bryman, 2015; Easterby-Smith et al., 2008; Malhotra et al., 2007; Easterby-Smith et al., 2012). Malhotra et al., (2007) proposed values of research philosophies in the area of marketing research are in validating resultant theories. Easterby-Smith et al., (2008) concluded three reasons to understand research philosophies: to clarify research designs; to recognize which designs will work and which will not; to identify and create designs that may be outside researchers’ past experiences. Bryman (2015) thought philosophies were necessary for indicating assumptions made about the nature of ontology and epistemology, which were regarded as the central philosophical debates amongst philosophers (Easterby-Smith et al., 2012).

4.2.1 Positivism and Interpretivism

There were two main research philosophies: positivism and interpretivism (Macionis and Gerber, 2011).

Positivism

The philosophy of social science literature generally holds that 'positivism' places an emphasis on experience, observation, and testing. Positivism is a traditional paradigm in epistemological philosophy, and is tends to be the dominant position adopted by scientists (Gartrell and Gartrell, 2002). The idea of positivism is that the world exists externally and its properties are measured using objective methods than oppose to
subjective methods such as sensations, reflection or intuition (Easterby-Smith et al., 2008). Easterby-Smith,Thorpe and Lowe (2002) argued that the key idea of positivism was that the world existed externally, and that its properties should be measured through objective methods. Some researchers proposed that the relationship between positivism and quantitative approaches could be considered a “law” (Yates, 2003; Veal, 2005). Macionis and Gerber (2011) suggested that positivism is the philosophy of science and that information derives from logical and mathematical treatments and reports of sensory experience was the exclusive source of all authoritative knowledge. In research practice, a positivist approach is therefore scientific, objective and grounded on measuring facts through statistics or scientific laws (Gartrell and Gartrell, 2002). Consequently, quantitative methodologies are employed where the aim of the research is to discover based on a series of hypotheses, and the outcome of the research inquires a cause and-effect relationship (Malhotra et al., 2012).

Interpretivism

Interpretivism appeals to 'subjective meaning', verstehen and concepts such as empathy and interpretation by contrast (Clarke, 2009). Interpretivism is described to be based on the view that the world has a precarious ontological status where anything passed as a reality does not actually exist in concrete sense, rather it is the product of subjective and inter-subjective experiences of individuals (Morgan, 1980).

Unlike positivism, the enquiry of knowledge in interpretivism is not grounded on facts and scientific laws, but derived from the researchers' interpersonal experiences and subjective views (Gill and Johnson, 2010). In research practice, an interpretivist approach is therefore subjective about reality and utilizes qualitative techniques to make sense of meanings and to explain underlying reasons that quantitative studies fail to clarify (Malhotra et al., 2012). Others suggested that interpretivism and qualitative approaches were sometimes used interchangeably (Denzin and Lincoln 1995, Williams, 2000).

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### Table 14 Comparison of Positivist and Interpretivist Research Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Positivism</th>
<th>Interpretivism</th>
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</thead>
<tbody>
<tr>
<td><strong>Aim</strong></td>
<td>Discovery</td>
<td>Invention</td>
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<tr>
<td><strong>Starting Point</strong></td>
<td>Hypotheses</td>
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<td><strong>Reality</strong></td>
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<tr>
<td><strong>Development of Theory</strong></td>
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<td><strong>Researcher and Participant</strong></td>
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</tr>
<tr>
<td><strong>Research language</strong></td>
<td>Formal and impersonal</td>
<td>Informal and personal</td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td>Value free (unbiased)</td>
<td>Value-laden (bias)</td>
</tr>
<tr>
<td><strong>Analysis/Interpretation</strong></td>
<td>Verification/Falsification</td>
<td>Descriptive and subjective meanings, understanding and insight, sense-making</td>
</tr>
<tr>
<td><strong>Data Collection Approaches</strong></td>
<td>Quantitative</td>
<td>Qualitative</td>
</tr>
<tr>
<td><strong>Research Design</strong></td>
<td>Static: Experiment, Controlled variables, Prediction, hypothesis testing</td>
<td>Dynamic: Case study Observation of settings and natural context and behaviors</td>
</tr>
<tr>
<td><strong>Structure</strong></td>
<td>Highly structured for replicability</td>
<td>Low structure</td>
</tr>
<tr>
<td><strong>Techniques</strong></td>
<td>Laboratory, experiment, representative surveys</td>
<td>Natural environment, Ethnography, Mixed methods i.e. focus groups, in-depth interviews</td>
</tr>
</tbody>
</table>

Source: Easterby-Smith et al. (2012), Gill and Johnson (2010), Malhotra et al. (2012)

#### 4.2.2 Research philosophy adopted

For the purposes of my study, it was assumed that reality could be measured and generalized, and to do this quantitative data was used. Thus, the research philosophy underlying my study is positivism.

#### 4.3 Research approach

The approach to theory development in research is determined by deductive reasoning, inductive reasoning or abductive reasoning (Maholtra et al., 2007). The following
section reviews the three type of reasoning for this study and outlines the approach adopted.

4.3.1 Deductive reasoning

Bryman and Bell (2011) suggested that deductive reasoning referred to the theory that constructs hypotheses which could be verified further.

Deduction can be defined as “a form of reasoning in which a conclusion is validly inferred from some premises, and must be true if those premises are true” (Malhotra et al., 2012, p.197). In other words, conclusions to phenomena, events, and realities are gained through testing hypotheses and measuring facts (Gill and Johnson, 2010). These are accepted as true if it can be measured by the majority (Malhotra et al., 2012). Deductive research is thereby based on theoretical frameworks, in which observations and findings are deduced from theory (Bryman and Bell, 2015). Deductive reasoning is favored by positivists, where guided by theory, research is based on evaluating results with existing and reliable facts for validity (Malhotra et al., 2012). Deductive reasoning can be explained as “reasoning from the general to the particular (Pelissier, R., 2008, p: 3).

In studies with deductive approach, the researcher formulates a set of hypotheses at the start of the research. Then, relevant research methods are chosen and applied to test the hypotheses to prove them right or wrong. Shah and Corey (2006) proposed that prior concepts were the basis of the development of current hypotheses within a deductive approach.

4.3.2 Inductive reasoning

Inductive reasoning, on the other hand, was knowledge obtained by assembling facts that formed the basis for law (Byrman and Bell, 2011).

Induction is defined as “a form of reasoning that usually involves the inference that an instance or repeated combination of events may be universally generalized” (Malhotra et al., 2012, p.197). In inductive research, theory is the outcome of research, involving the process of drawing generalizable inferences out of observation (Bryman and Bell, 2015). Theory development in inductive research is from a repetition of events observed about the phenomena or reality (Bryman and Bell, 2015; Malhotra et al., 2012; Gill and Johnson, 2010). Theory is generalized through grounded theory to analyze data and generate new theories (Malhotra et al., 2012). The process involves going back and
forth, weaving between data and theory to determine validity rather than following general principles or sequences (Bryman and Bell, 2015).

Inductive approach, also known in inductive reasoning, starts with the observations and theories are proposed towards the end of the research process as a result of observations (Goddard, W. & Melville, S., 2004). Inductive research “involves the search for pattern from observation and the development of explanations – theories – for those patterns through series of hypotheses” (Bernard, H.R., 2011). No theories or hypotheses would apply in inductive studies at the beginning of the research and the researcher is free in terms of altering the direction for the study after the research process had commenced.

4.3.3 Abductive reasoning

Abductive reasoning, regarded as a form of logical inference, was a research process to find the simplest and most likely explanation starting with an observation (Sober, 2013). Peirce was the first one to propose “abduction” (Pierce, 1931) but he have not given a unified definition of this concept. Some researchers regarded abduction as to the intuition or creativity to develop new knowledge in research (Kirkeby, 1990; Andriewsky and Bourcier, 2000; Taylor et al., 2002). Alvesson and Skoldberg (1994) proposed that abductive reasoning began with a real life observation. Researchers pointed out that case studies and action research commonly chose abductive reasoning (Dubois and Gadde, 2002; Wigblad, 2003)

Kovács and Spens, (2005) introduced the abductive research process as following steps: (0) prior theoretical knowledge; (1) deviating real-life observations; (2) theory matching; (3) theory suggestion; and (4) application of conclusions. That is, while observation in the empirical research (1) does not match prior theoretical knowledge (0), a new matching framework is needed to develop with hypotheses and finally apply these hypotheses in an empirical setting (4).

4.3.4 Research approach adopted

My study uses abductive approach. On one hand, the framework of my study was based on previous research results which formed the basis of my hypothesis. On the other hand, I also added new variables into the model and customized factors consistent with the hot micro blogs in SinaWeibo (Chinese context). While constructing this research framework, I have studied plentiful micro blogs which were all forwarded many times
in Sina Weibo. In order to explain why these micro blogs showed virality but others not, I developed this research model. And I then tested the model based on previous research and my foundation by statistical analysis using tools such as SPSS. Since the premises do not guarantee the conclusion, my study primarily relies on the abductive approach.

4.4 Data sources and Data collection approaches

4.4.1 Data sources

Two forms of data sources are used in research methods, and these are primary data and secondary data. Both forms are important in research practice as it provides researchers with different insight, knowledge and information to achieve the research aim and objectives (Saunders et al., 2015). The choice of data can also help strengthen findings, and increase the validity and reliability of the results (Malhotra et al., 2012). The following sections review the use of primary and secondary data in research.

Primary data

Primary data is original data collected by the researcher for a specific problem (Malhotra et al., 2012), and may not have been previously collected before (Bryman and Bell, 2015). Primary data are relatively specific to the purpose of the study in mind (Saunders et al., 2015; Bryman and Bell, 2015), and can be either qualitative or quantitative in nature (Saunders et al., 2015), for example, the importance of primary data in research is that there may not be any existing data available specific to the research problem in hand.

Secondary data

Secondary data, also known as desk data, is data which have been collected by other researchers for a purpose and made readily available to others (Malhotra et al., 2012). The data can be qualitative or quantitative, for example, Saunders et al. (2015) presents a classification of secondary data types which include written documents e.g., journals, newspapers, interview transcripts, and any organizational publications; media content; and government reports, censuses, surveys, and statistics. Secondary data can be either raw data where little processing has been made to the original data collected, or processed data which has received some form of selection or summarizing (Saunders et al., 2015; Bradley, 2013).

Some of the advantages of using secondary data in research include ease of access for the researcher i.e., readily available for quick access, and inexpensiveness to obtain,
meaning it can save the researcher time and money (Malhotra et al., 2012; Saunders et al., 2015). However, there are also numerous disadvantages in secondary data sources, which can fundamentally affect the reliability and accuracy of the research (Malhotra et al., 2012). A number of these disadvantages in research include issues concerning relevancy as the data was collected for a different research purpose (Malhotra et al., 2012). The difference in purpose therefore means the data might only address part or not all the aims and objectives of the research question in hand (Saunders et al., 2015). Lastly, the data collection procedures and the variables measured, may not be applicable or relevant to other research studies (Malhotra et al., 2012; Saunders et al., 2015).

Data sources used by this

Both sets of data sources (primary and secondary) have their benefits and drawbacks, however, they are both important in research practice for researchers to achieve the purpose and objectives of the research, and to strengthen findings, and increase validity and reliability of results (Saunders et al., 2015; Malhotra et al., 2012). This study therefore uses both primary and secondary data sources.

The type of secondary data sources used in this study includes websites and annual reports, will help set the research context from the industrial perspective; and academic journals and literature will provide theoretical insight and findings to help design the research, as well as validate and justify the outcomes. Primary data will predominantly be the qualitative and quantitative data collected for the purpose of this study, as well as any information or images obtained from Sinaweibo in order to design the research.

4.4.2 Data collection approaches

There are two basic types of data: qualitative data and quantitative data (Neuman, 2004). Lobe (2008) believed that exploratory qualitative data should be regarded as the stage to generate theories and hypotheses and after which, these theories and hypothesis could be tested in a quantitative manner. Patton suggested “qualitative data can put flesh on the bones of quantitative results, bringing results to life through in-depth case elaboration” (Patton, 1990: p132).

Qualitative and quantitative approaches are the two main forms of data collection approaches. Depending on the nature of the research question, researchers will take on either qualitative or quantitative research method approaches (Malhotra et al., 2012). However, there are also research designs which utilizes both qualitative and quantitative approaches, and this is referred to as a mixed methods approach (Saunders...
et al., 2015). The decision to adopt either qualitative, quantitative or mixed methods approaches can also be guided by the ontological and epistemological positions made by the researcher (Easterby-Smith et al., 2012). The following sections reviews the three approaches and outlines the approach adopted in this study.

**Qualitative research approaches**

Qualitative research approaches utilizes data collection techniques and analysis which generates non-numerical data (Saunders et al., 2015). In other words, data containing words, as well as multi-media content such as pictures, drawings and video clips, for example. Qualitative research approaches attempt to understand a phenomenon through observing behaviour, reflections and expression of views which cannot be meaningfully quantified (Saunders et al., 2015). For example, to understand thoughts, processes and motivations (Malhotra et al., 2012). Qualitative research approaches fit research designs with relativist and interpretivist research philosophies, as the nature of qualitative research is subjective. For example, Kothari (2009) outline that in qualitative research, researchers make subjective assessment of attitudes, opinions and behaviour, derived from the researchers' insights and impressions. Qualitative research is therefore about seeking to understand and interpret meanings about reality or phenomena (Easterby-Smith et al., 2012).

**Qualitative research approaches**

Quantitative research uses data collection techniques and analysis which generates numerical data to quantify research findings (Saunders et al., 2015). It is thereby about showing hard evidence to compare variables and make statistical relations between them (Easterby-Smith et al., 2012). Malhotra et al. (2012) outline qualitative approaches can be used for exploratory, descriptive and experimental research designs. Bryman and Bell (2015) outline that quantitative research approach reflect positivist epistemologies by taking deductive approaches in theoretical reasoning and theory development, so findings can be tested and retested for validity and reliability.

**Types of data this study adopted**

This research focused on the study of characteristics that would induce micro blog virality. The types of data I collected are both qualitative and quantitative data and I in turn, built my own model that incorporated both kinds of data. I interchange qualitative data to quantitative data by using quantitative analysis methods. For example, gender was qualitative, but in order to test the influence of gender on virality, I assigned a value to gender such as male=1 and female=0. Although this study incorporated both types
of data, it was primarily quantitative in nature due to the use of statistical models for analysis.

4.5 Research Framework

In chapter two the following research framework was developed and proposed. Here the framework is explained further.

![Research Framework Diagram]

**Figure 21 Research Framework in this Thesis**

The first column of the model is the influential factors that I thought affected the virality of online content in SinaWeibo.

(1) Gender

Previous research showed that male tended to post and forward viral information. Aral and Walker (2012) conducted a randomized experiment to estimate a representative sample of 1.3 million Facebook users and found that men were more influential than women. And a research report “Chinese Sina microblogging
opinion leader in 2011” showed that 91 percent of the top 100 opinion leaders in SinaWeibo were males, and the top 20 were also males.

(2) Popularity: refers to the publisher's influence and authority.
User influence in Twitter was measured from three aspects: indegree, retweets and mentions (Me young, 2010). Our research environment is SinaWeibo, which is different from Twitter. I use the number of followers to measure the publisher's popularity.

(3) Type:
Definition: refer to the types of hot users (like the few). Media, scholars or writers, business people, entertainment stars and common people
Gladwell (2000) divided the few into three kinds of people: connectors, mavens and sales. And a research report “Chinese Sina microblogging opinion leader in 2011” showed opinion leaders in Top 100 were mostly media (33%), scholar (26%), writers (20%) and business people (17%). Media acts the role- firsthand information publisher in the process of public events and spread. Scholars tend to willing to share public knowledge and they are able to translate and make comments from the professional perspective. Writers always propose receptive opinions and interact with fans. Business people are good at social marketing in network environment. Considering that entertainment stars have much more fans, I define the few as media, scholar or writers, business people and entertainment stars. All in all, in my paper, publisher contains five types: media, scholars or writers, business people, entertainment stars and common people.

(4) Ease of engagement
Definition: “ease of engagement” means that the threshold to engage with the topic a micro blog refers to is low. Ease of engagement contains two meanings: firstly, whether this micro blog asks the reader to do something such as forward, share, upload or discuss; second is whether this task is easy to do.
Dobele, Toleman and Beverland (2005) proposed that viral content should encourage ease of use. Every Weibo user should be able to participate in the event easily without limitations. For example, a typical topic which one piece of micro blogs from weekly Top 100 hot micro blogs in SinaWeibo refers to is using a phrase to describe the person you love.
Example of “ease of engagement”: Samsung posted a micro blog with the words “Upload your family photos and @ Samsung to win a free phone”. Every user has the
same opportunity to win the prize and the only thing users must do is post a micro blog with their family photo. This micro blog was forwarded more than 100,000 times.

(5) Altruism
Definition: Altruism means doing something that is helpful for others (knowledge, public welfare, and search notices). Knowledge can be defined as rich and useful information; public welfare refers to doing beneficial things for the public; search notices mean searching for somebody or something.

Previous research showed that altruism was one of the main motivations to transmit information. Several researchers contended that people tended to share useful information or content for altruistic reasons (Litvin et al, 2011). In my study, I define useful information as knowledge. Considering the characteristics of SinaWeibo, a public social network, it is easy for content with public welfare to become viral. As SinaWeibo has many users, search notices are always quick to be forwarded. Therefore, if a micro blog belongs to the above three kinds, I will define it as altruistic.

Example of “Knowledge”: A fingerprint lock is much safer than coded lock and sliding screen lock. Please learn how to set the fingerprint lock from Samsung.
Example of “Public Welfare”: Some enterprises on SinaWeibo love to post micro blogs using the following strategy “The number that this micro blog is forwarded, we will give the same amount of money to charity”.
Example of “Search Notices”: Posts such as “My son is lost in East Street at 17:00 March 14th, wearing red clothes” with the son's photo.

(6) Arousing
Definition: Arousing refers to calling forth emotions, feelings and responses (humor, visual effect, surprise and positive). Humor refers to that the micro blog makes you laugh immediately or after a serious thought. Visual effect means attractive pictures or videos. Surprise refers to that the micro blog describes something which goes against your expectations.

Previous research showed that viral social transmission was in part driven by arousal (Jonah, 2011; Jonah, 2012). Jonah (2012) proved that content that evoked high-arousal positive (awe) or negative (anger or anxiety) emotions were more viral. Prior research also suggested that content was more arousing with surprise, humor and other emotions and directly affected the virality of online content (Karen, 2013). I have studied a large amount of popular Weibo posts and found that humor and surprise are the main arousing emotions. My research differentiates itself from prior research as I take visual effects,
pictures and videos, into consideration. Visual effects are used to capture people's attention, but prior research hasn't investigated its importance in SNS. Positive means that the entire emotional tone of this micro blog is positive such as happy and satisfying. Example of “Humor”: the content of micro blogs like “a note from my dad: 'my dear son, I am very happy that tonight you will take your girlfriend back home. I know that something might happen but do not forget to be a responsible man. Safety first.’” with some Durex condoms attached to the note. Example of “Surprise”: “Changing your laptop to a tablet computer, Lenovo helps your dream come true. Yoga can rotate 360 degrees”. Example of “Positive”: Phrases such as “Write down your dream, and please remember to smile every day, Samsung will help one user's dreams come true”.

(7) Egoism
Definition: Egoism refers to an action that is helpful for oneself (self-promotion). Self-promotion means doing something which can help build a user's own image such as expressing positive values, presenting merits, and promoting themselves or showing off.

Prior research suggested that self-enhancement was an important reason to transmit information and positive information is more viral than negative information (Dichter 1966; Gatignon and Robertson, 1986; Jonah and Katherine, 2012). Jonah and Katherine (2011) also proposed that people may share information that reflected positively on the sender and preferred to share information that showed and promoted themselves (self-promotion). In addition, many business users in SinaWeibo choose to use monetary benefits to catch people's attention. One example, observed from SinaWeibo, is the forwarding of a lucky draw is very popular. As I discussed in the Introduction, Xiaomi mobile loves to use this method and through it achieves high levels of success. I studied three aspects concerning egoism: self-promotion, monetary benefits and positivity. Example of “Self-Promotion”: information that reflects positively on the sender and the preference to share information that will show and promote themselves. Phrases such as “Earth one hour”, “Environment protection”, “Save wild animals” are good examples of self-promotion.

(8) Current Events
Definition: “Current Events” refers to recent events regarding politics and economics at home or abroad.
Example of “Current Events”: In March 2014, the disappearance of MH Flight made news across the globe. Micro blogs with relevant information about this event obtained much more attention. Monthly Top 100 micro blogs (hot.weibo.com) in SinaWeibo show that news about the missing MH flight was forwarded more than 100,000 times. In local headlines, micro blogs containing information and updates on the “terrorist attack in Kunming station” received a lot of attention.

(9) **Special dates**: holidays and festivals; memorial days.

Example of “Special Dates”: People enjoy celebrating New Year's Eve and at this time, if someone posts a piece of micro blog at 00:00am on time, he or she will get much more attention than usual.

### 4.6 Pilot Project

I did a pilot project between December, 2013 and February, 2014, and collected data in Sina weibo in order to verify the research framework using a small sample.

#### 4.6.1 Data Collection

I collected two sets of data. One was weekly Top 50 micro blogs in Sina Weibo between January 17, and January 22, 2014. The top 50 micro blogs were shown in the website hot.weibo.com. They were ranked by Sina Weibo and the only thing I needed to do was record them according to the ranking. The other one was 50 micro blogs in Sina Weibo (weibo.com) from the same 50 publishers of Top 50 between January 17, and January 22. I recorded the publishers of the Top 50 micro blogs and visited their Sina Weibo. Then I chose a piece of micro blog randomly from his or her page between January 17, and January 22. Finally, I collected 100 micro blogs in total.

Considering that 100 micro blogs involved little work, I captured data manually. I captured the micro blog content, the time published, the time recorded, the number of times praised, the number of times resent and the number of comments. I also captured the content publisher’s information such as gender, verified or not, number of fans and publisher types. In order to record data better, I made screen shots of the content and saved the pictures the micro blog used.

#### 4.6.2 Data Processing

**Time selection.** Since the data, I collected is between January 17 and January 22, there was no special context (current events, special dates). In this pilot project, I did not test the influence of the content context/environment. I studied this factor in my DBA paper.
Content Selection. Since the publisher of micro blogs which I collected did not include all the five kinds. I cut the factors of content publisher type, monetary benefits and search notes of altruism. The variables I studied are shown as table 14.

<table>
<thead>
<tr>
<th>Table 15 Variables Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>Content publishers</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Ease of Engagement (for users)</td>
</tr>
<tr>
<td>Public welfare</td>
</tr>
<tr>
<td>knowledge</td>
</tr>
<tr>
<td>surprise</td>
</tr>
<tr>
<td>humor</td>
</tr>
<tr>
<td>Visual effect</td>
</tr>
<tr>
<td>Self-promotion</td>
</tr>
<tr>
<td>Positive</td>
</tr>
</tbody>
</table>

There are two kinds of data.
1- With data of variables directly like gender, I assigned a value 1 to male and 0 to female.
2- I used human coders to assign values to these variables like Ease of Engagement, altruism and so on. I formed a group with three people and gave the micro blog to them.
They were independent raters. They needed to rate the micro blog on a five-point Likert scale which represented the extent to what the content showed the aforementioned characteristics. (1=not at all, 5= extremely). Before formal rating, raters were given a set of test micro blogs to understand the rating content and standard. After testing, raters began to rate these 100 micro blogs in a random order. The interrater reliability was very high ($\alpha>0.7$) which represented that the content of the micro blog evoked same feeling and judgment across people.

Then I did a summary of statistics as table 15 shows.

**Table 16 Predictor Variable Summary Statistics**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Gender</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content publishers</td>
<td></td>
<td>0.61</td>
<td>0.490</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>0.61</td>
<td>0.490</td>
</tr>
<tr>
<td></td>
<td>Ease of Engagement (for users)</td>
<td>2.97</td>
<td>1.697</td>
</tr>
<tr>
<td></td>
<td>Public welfare</td>
<td>1.49</td>
<td>1.133</td>
</tr>
<tr>
<td></td>
<td>humor</td>
<td>1.96</td>
<td>1.34</td>
</tr>
<tr>
<td></td>
<td>Visual effect</td>
<td>4.17</td>
<td>1.436</td>
</tr>
<tr>
<td></td>
<td>knowledge</td>
<td>1.56</td>
<td>1.163</td>
</tr>
<tr>
<td></td>
<td>Self-promotion</td>
<td>2.15</td>
<td>1.513</td>
</tr>
<tr>
<td></td>
<td>Surprise</td>
<td>1.94</td>
<td>1.476</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>2.97</td>
<td>1.267</td>
</tr>
</tbody>
</table>

After data processing, all predictor variables have been quantified. And I could continue next step - data analysis.

**4.6.3 Data Analysis**

In order to research the relationship between the predictor variables and dependent
variables – viral, I relied on following logistic regression specification as (2) which was used in viral analysis by Berger and Milkman (2011)

\[
\text{viral} = \frac{1}{1 + \exp \left( - \left( \alpha + \beta_1 \text{Gender} + \beta_2 \text{Ease of Engagement} + \beta_3 \text{Public Welfare} + \beta_4 \text{Humor} + \beta_5 \text{Visual effect} + \beta_6 \text{Knowledge} + \beta_7 \text{Self-promotion} + \beta_8 \text{Surprise} + \beta_9 \text{Positive} \right) \right)},
\]

Viral is the dependent variable that took value 1 if the micro blog was viral and 0 otherwise. According to the number of times resent and the number of comments, I assigned value 0 or 1 to these 100 micro blogs. If the micro blog’s number of times resent and the number of comments was both higher than 5,000 times, I assigned it value 1. Otherwise, I assigned it value 0.

**Single-factor logistic regression**

In order to select major variables, I first did single-factor regression. I put all the 11 independent variables separately into the regression specification. The results are shown in table 16.

### Table 17 Single-factor Logistic Regression Analysis Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>S.E.</th>
<th>Wals</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>2.391</td>
<td>0.503</td>
<td>22.59</td>
<td>7</td>
<td>0.000</td>
</tr>
<tr>
<td>Ease of Engagement</td>
<td>3.098</td>
<td>0.775</td>
<td>15.97</td>
<td>1</td>
<td>0.000</td>
</tr>
<tr>
<td>Public Welfare</td>
<td>0.606</td>
<td>0.561</td>
<td>1.169</td>
<td>1</td>
<td>0.280</td>
</tr>
<tr>
<td>humor</td>
<td>2.438</td>
<td>0.551</td>
<td>19.59</td>
<td>8</td>
<td>0.000</td>
</tr>
<tr>
<td>Visual effect</td>
<td>1.792</td>
<td>0.456</td>
<td>15.41</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>knowledge</td>
<td>0.550</td>
<td>0.532</td>
<td>1.069</td>
<td>1</td>
<td>0.301</td>
</tr>
</tbody>
</table>
Table 18 Multivariate Logistic Regression Analysis Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>S.E.</th>
<th>Wals</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>2.311</td>
<td>0.868</td>
<td>7.902</td>
<td>1</td>
<td>0.00</td>
</tr>
<tr>
<td>Ease of Engagement</td>
<td>3.071</td>
<td>1.147</td>
<td>7.173</td>
<td>1</td>
<td>0.00</td>
</tr>
<tr>
<td>Humor</td>
<td>2.606</td>
<td>0.957</td>
<td>7.410</td>
<td>1</td>
<td>0.00</td>
</tr>
<tr>
<td>Visual effect</td>
<td>2.060</td>
<td>0.919</td>
<td>5.205</td>
<td>1</td>
<td>0.02</td>
</tr>
<tr>
<td>Self-promotion</td>
<td>0.576</td>
<td>0.839</td>
<td>0.472</td>
<td>1</td>
<td>0.49</td>
</tr>
<tr>
<td>Positive</td>
<td>3.754</td>
<td>0.968</td>
<td>15.40</td>
<td>1</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Sig. < 0.1, significant at the 10% level
Sig. < 0.05, significant at the 5% level

**Multivariate logistic regression**

According to table 3.8.3, I selected variables whose Sig. < 0.05 to do multivariate regression. Variables were gender, ease of engagement, humor, visual effect, self-promotion and positive. The results are shown in table 17.
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-</td>
<td>1.332</td>
<td>17.42</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>5.560</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Sig. < 0.1, significant at the 10% level
Sig. < 0.05, significant at the 5% level

### 4.6.4 Results

According to the logistic regression results, I reached some conclusions relevant with my research.

I found that gender significantly influenced the viability of micro blogs. When the Weibo content publisher is a male, the content will be more viral than if the publisher is female. This is because as we can see in table 5 the significance is 0.008 which is less than 0.05.

H1a is accepted.

I found that Ease of Engagement was a very important factor. When the topic of Weibo content is Ease of Engagement for users, the content will be more viral. This is because as we can see in table 5 the significance is 0.007 which is less than 0.05.

H2a is accepted.

I found that while the Weibo content is more humorous or contains visual effect, the content will be more viral. This is because as we can see in table 5 the significance of humor is 0.006 which is less than 0.05 and the significance of visual effect is 0.025 which is less than 0.05. However, self-promotion did not influence the viability of micro blog. This is because as we can see in table 5 the significance of self-promotion is 0.492 which is greater than 0.05.

Part of H2c (humor and visual effect) are accepted and part of H2c (self-promotion) is rejected.

I found that positive content will be more viral in Sina Weibo. This is because in table 5 the significance is 0.000 which is less than 0.05.

Part of H2d (positive) is accepted.

### 4.6.7 Conclusions and Discussions

**The publisher who create the online content**

H1a: While the Weibo content publisher is a male, the content will be more viral than a female.

H1b: While the Weibo content publisher belongs to one of these four kinds of people...
(media, scholar or writers, business people and entertainment stars), the content will be more viral than the publisher who is a common person.

H1a is tested and accepted. Research results illustrate that gender of content publisher is significantly relevant with virulence of the micro blog.

H1b is not tested. Before data analysis, I eliminated publisher type (H1b). Different types of publisher prefer different topics, and they have different kinds of followers and fans. So this factor also needs further research.

I haven’t researched the popularity of the publisher in my pilot project. In my opinion, popularity is an important factor. Popular people have more fans and they are more influential. I easily grasp their information and trend to share their blogs. In the future research, I plan to collect all-around data to test this factor again. I mean to use follower count to measure popularity. But I find that there are many zombie fans in Sina Weibo. In my DBA paper, I will find a good way to solve this problem.

**The characteristics of the online content**

H2a: While the topic of Weibo content is Ease of Engagement for users, the content will be more viral.

H2b: While the Weibo content is altruism (public welfare, search notices and knowledge), the content will more vial.

H2c: While the Weibo content is more arousing (humor, visual effect, surprise), the content will be more viral.

H2d: While the Weibo content is egoism (self-promotion, monetary benefits and positive), the content will more vial.

H2a, part of H2c (humor and visual effect), H2d are tested. H2a, part of H2c (humor and visual effect) and part of H2d (positive) are accepted, part of H2d (self-promotion) is rejected. Research results illustrate that content characteristics (Ease of Engagement, humor, visual effect and positive) are significantly relevant with virulence of the micro blog. To my surprise, self-promotion (part of H2d) is not significant. What I need to do in the future is complete a literature analysis and research group discussion with regard to the definition and rating standard of self-promotion.

H2b, part of H2c (surprise), and part of H2d are not tested (monetary benefits). As I mentioned before, some factors I cut before the stage of multivariate logistic regression. In the stage of single-factor logistic regression, I eliminate altruism and surprise. In the future research, I plan to collect all-around data to test altruism. Surprise is very relevant with humor. The mistake I made may be conceptual confusion. I need
to distinguish them well in the future.

**The context of the online content**

I think the most important factor is the content context/environment. However, on account of the inappropriate time selection, I did not include it. Further research will focus on this aspect.
CHAPTER 5

Study1

Study1 was conducted to explore the influence factors of general online content from the content characteristics aspect and the context aspect that makes micro blogs viral on Sina Weibo.

5.1 Data Collection

SinaWeibo reports the top 100 micro blogs ranking list for each week (hot.weibo.com) and I examined influencing factors which affect whether or not a micro blog will rank among the top 100 micro blogs in Study 1.

(1) Web crawler software based on the API of SinaWeibo

Since existing software for collecting data from Twitter is not available in SinaWeibo (the problem of authorization and privacy protection), the first step was to develop appropriate web crawler software to obtain micro blogs automatically from SinaWeibo based on current software and web crawler technology.

SinaWeibo, as an open social networking site, offers reliable API and related documents to users. First, I applied for an account to use API (open.weibo.com), and then I called a certain interface when required by the integration of SDK and API offered by SinaWeibo official. The interface accomplished the process of data acquisition and operation and returned the corresponding JSON file. For instance, an interface named “statuses/timeline_batch” batches acquired lists of micro blogs of specified users.

(2) Micro blogs collection process

The top 100 micro blogs ranking for the past week is updated at 0:00 every day. In order to ensure the non-repeatability of data, I collected the top 100 micro blogs every Friday from November 14th, 2014 to January 8th, 2016(hot. weibo .com), 61 weeks in total.

The data flowchart of Weibo collection is showed as follows:
Steps were followed as shown below:

Step 1: Use the software to collect a list of users whose micro blog is in the weekly Top 100 (hot.weibo.com) every Friday and create two text files. File_1_n: Included information such as publisher name, gender, verified or not, number of fans and status (e.g. famous presenter or actor). File_2_n: Included information such as the micro blog content (words and other parts like pictures and videos), the time of publishing, the recorded time, the number of times praised, the number of times resent and the number of comments (n referred to the n\textsuperscript{th} week).

Step 2: Since the illustrating pictures of the micro blogs the software collected automatically were too small and ambiguous to view for observers, I decided to use
partial weeks' data instead of the whole 61 weeks. Use an online random number generator to generate 11 numbers. These random numbers are used in my study to randomly choose eleven weeks' micro blogs during this time period, 1,100 hot micro blogs in total.

Step 3: According to File_1_k, using the software to collect each week's corresponding micro blogs, which did not exist on the Top 100 ranking list (k referred to the k\textsuperscript{th} week). File_1_k included the publishers' name that ranked the Top 100 list in week k. The software collected two pieces of micro blogs of the publishers from the File_1_k in the same week k one by one. Information includes gender, verified or not, number of fans, status, micro blog content (words and other parts like picture and video), the time of publishing, the recorded time, the number of times praised, the number of times resent and the number of comments.

All in all, there were a total of 2,200 corresponding common micro blogs (not ranked in the weekly top 100 micro blogs list) in SinaWeibo (weibo.com) from the same publishers from the aggregated 1,100 hot micro blogs' publishers list (two pieces of common micro blogs from each publisher) and from the same week, that is, 3,066 micro blogs in total since some publishers had not posted three micro blogs in the same week. Finally, I corrected and fixed the illustrating pictures of these 3066 pieces of micro blogs manually.

(3) Data description
I collected data through web crawler software based on the API of SinaWeibo. I captured the micro blog content, the time of publishing, the recorded time, the number of times resent, and the number of comments. I also captured the content publisher's information such as gender, verified or not, number of fans and publisher tags. In order to record data better, I made screen-shots of the content and saved the pictures and the micro blog used. The above factors are shown as table 21.

<table>
<thead>
<tr>
<th>Factor Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>The micro blog content</td>
<td>The content of the micro blog has two parts: words and pictures (videos). Such as “This is my family photo and we are very happy” with a photo.</td>
</tr>
<tr>
<td>Time Published</td>
<td>The date the micro blog is posted.</td>
</tr>
<tr>
<td>Time Recorded</td>
<td>The date the micro blog is recorded.</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Number of Times Resent</td>
<td>The number the micro blog is forwarded.</td>
</tr>
<tr>
<td>Number of Comments</td>
<td>The number of comments the micro blog obtains.</td>
</tr>
<tr>
<td>Publisher's gender</td>
<td>The gender of the publisher: male or female.</td>
</tr>
<tr>
<td>Verification</td>
<td>Whether the publisher has been verified by SinaWeibo: Yes or no.</td>
</tr>
<tr>
<td>Number of Fans</td>
<td>The number of fans of the publisher.</td>
</tr>
<tr>
<td>Publisher tags</td>
<td>The tags publisher filled in to describe themselves</td>
</tr>
</tbody>
</table>

**Sample size and technique of Study1:**

Study 1 used convenience sampling within 3066 pieces of micro blogs. This study collected a list of user ID's whose micro blog have been in the weekly hot Weibo from November 14th, 2014 to January 8th, 2016(hot. weibo .com), and then collected their blogs posted within the same week. I chose micro blogs randomly one by one according to the user list. If the user had one blog in Top 100, I chose another two of his weekly micro blogs and if the user had two blogs in Top 100, I chose another four randomly, 3,066 micro blogs in total. The data set my study used was the weekly Top 100 hot micro blogs in SinaWeibo, which meant my study used convenience sampling. However, when I chose corresponding micro blogs of the hot micro blogs' publishers, I selected randomly so long as they were not repeated.

**Data description**

To prepare the data, first I coded variables by assigning them their own nature: quantitative (discrete, continuous) and qualitative (nominal, ordinal). For instance, the number of fans was quantitative, the Likert item questions were considered as ordinal data, gender and type were nominal in nature.

(1)Direct Data:

Gender: I assigned 1 to male and 0 to female.

Popularity: number of fans.

Types: my study classified the publisher into 5 kinds according to the publisher
tags and used the numbers 1 to 5 to represent them.

Special dates: I assigned 1 to “special date” and 0 to “not special date” according to the content of Weibo.

Search notices: I assigned 1 to “search notices” and 0 to “not search notices” according to the content of Weibo.

(2) Indirect data: Likert item questions value from 1 to 5 according to Chapter 3.5.

Variable description in my study was shown as follows in table 22:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Resources of variables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content publishers</strong></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>1- Male</td>
</tr>
<tr>
<td></td>
<td>0- Female</td>
</tr>
<tr>
<td>Popularity</td>
<td>Fans amount</td>
</tr>
<tr>
<td>Type</td>
<td>1- Media</td>
</tr>
<tr>
<td></td>
<td>2- Scholars or writers</td>
</tr>
<tr>
<td></td>
<td>3- Business people</td>
</tr>
<tr>
<td></td>
<td>4- Entertainment stars</td>
</tr>
<tr>
<td></td>
<td>5- Common people</td>
</tr>
<tr>
<td><strong>Content Characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Ease of Engagement</td>
<td>Artificial scoring (1point-5point)</td>
</tr>
<tr>
<td>(for users)</td>
<td></td>
</tr>
<tr>
<td>Public Welfare</td>
<td>Artificial scoring (1point-5point)</td>
</tr>
<tr>
<td>Search Notices</td>
<td>1- search notices</td>
</tr>
<tr>
<td></td>
<td>0- not search notices</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Artificial scoring (1point-5point)</td>
</tr>
<tr>
<td>Surprise</td>
<td>Artificial scoring (1point-5point)</td>
</tr>
<tr>
<td>Humor</td>
<td>Artificial scoring (1point-5point)</td>
</tr>
<tr>
<td>Content</td>
<td>Visual Effect</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Self-Promotion</td>
<td>Artificial scoring (1point-5point)</td>
</tr>
<tr>
<td>Monetary Benefits</td>
<td>Artificial scoring (1point-5point)</td>
</tr>
<tr>
<td>Positive/Negative</td>
<td>Artificial scoring(1point-5point)</td>
</tr>
<tr>
<td>Content</td>
<td>Current Events</td>
</tr>
<tr>
<td>Context/Environment</td>
<td>Special dates</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.2 Research Instrument- A structured questionnaire based on a five-point Likert scale

Since in Chinese context, existing technologies have failed in acquiring the value of variables like ease of engagement, humor and so on according to content itself, I must use a research instrument. As a research instrument, I used a structured questionnaire based on a five-point Likert scale. Likert (1932) stated that a Likert scale was comprised of response categories, which indicated the degree of agreement or disagreement of statements or questions regarding research variables. A five-point Likert scale presents the value of degree from 1 (strongly disagree) to 5 (strongly agree) (Welman and Kruger, 2001).

Questionnaire based on a five-point Likert scale Research Model (10 questions) was shown as follows (For instance, the question “Do you think that this micro blog is humorous, “1 “means strongly disagree and “5” means strongly agree”):

<table>
<thead>
<tr>
<th>Micro blogs Content</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>……</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload your family photos and @ Samsung to win a free phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>my dear son, I am very happy that tonight you will take your girlfriend back home.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I know that something might happen but do not forget to be a responsible man.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety first.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changing your laptop to a tablet computer, Lenovo helps your dream come true.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yoga can rotate 360 degrees.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write down your dream, and please remember to smile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
every day, Samsung will help one user's dreams come true.

......

Question1: “Do you think the micro blog asks readers to do something which is ease of engagement?”

Question2-3: “Do you think that the micro blog is spreading and transferring knowledge?” “Do you think that the micro blog shows public welfare?”

Question 4-6: “Do you think that the micro blog is humorous?” “Do you think that the micro blog contains visual effects?” “Do you think that the micro blog is surprising?”

Question 7-9: “Do you think that the purpose of showing this micro blog on one's Weibo is for self-promotion?” “Do you think that the purpose of showing this micro blog on one's Weibo is for monetary benefits?” “Do you think that the micro blog is positive?”

Question 10: “Do you think that the micro blog is describing or discussing current events?”

Variables coding
In the paper of “The Value of Social Dynamics in Online Product” (Moe and Trusov, 2011), the authors collected a sample of 500 products rated by 3,801 comments. In the paper “What Makes Online Content Viral” (Berger and Milkman, 2011), they collected 6,956 articles and used 3 raters to rate these articles. According to the book “Applied Multivariate Statistical Analysis” (W. Hardle, 2011) and the book “Introduction to System Engineering” (Chou and Fang, 2011), researchers usually choose 2, 3 or 5 raters to score variables. According to the 2015 Report of CNNIC (China Internet Network Information Center), the male netizen to female netizen ratio is 55: 45. The proportion of ages of netizens is as follows: Age 10 - 19 is 23%, Age 20-29 is 32%, Age 30-39 is 23%, and Age 40-49 is 13%.

So I selected 5 individuals to help me rate my micro blogs. Age 10-19: 1 person, Age 20-29: 2 people, Age 30-49: 2 people. 3 participants are male, and 2 participants are female asked to fill in the five-point Likert scale tables in chapter 3.5.2.

Interrater reliability analysis
My study required five raters in the questionnaire stage; so I analyzed interrater reliability among raters to ensure the content of the micro blog evokes same feeling and
judgment across them.

If there were two raters, researchers could use Spearman correlation coefficient, Kappa coefficient, Contingency coefficient, and Person product moment correlation. Since I used more than two raters, I used serial correlation method to analyze interrater reliability with the software SPSS.

Step 1: Calculate the correlation matrix of scores from all raters (SPSS—open data file—Analyze—Correlation—Bivariate)

Step 2: Turn the correlation coefficients in the correlation matrix to corresponding Z values and average them to get Averaged_Z.

Step 3: Use Spearman-Brown correction formula to calculate r.

\[ r = \frac{n \times R - \sum_{i=1}^{n} r_i}{n - 1} \]

(n= amount of raters)

Step 4: Return r to correlation coefficient R by table lookup.

If R values are from 0.6 to 0.9, the result is acceptable. But R>0.8 is desired.

Coding process:

I chose 5 raters to code 3,066 pieces of micro blogs. They were blind to my hypotheses. They received a five-point Likert scale excel file which contained the content and the time of publishing for these micro blogs, items they needed for coding and a folder which contained corresponding pictures or videos these micro blogs illustrated.

Before formal rating, I gave these 5 raters a test set of micro blogs and kept giving them feedback on their coding until it was clear that they understood the relevant construct. That is, the interrater reliability between these five raters should be high on all dimensions (all \( \alpha \)’s>0.7), indicating that content tends to evoke similar emotions across people. Step2: I used serial correlation method to analyze interrater reliability between these five raters through SPSS. Results showed that the interrater reliability was very high (\( \alpha \>0.7 \)) which represented that the content of the micro blog evoked same feeling and judgment across ten raters. Then they coded the 3,066 pieces of micro blogs. Sample micro blogs that are rated highly on the different dimensions were showed as following table (selected from 3066 pieces of micro blogs):

Table 22 Micro blogs that are rated highly on the different dimensions
Ease of engagement

- “Samsung posted a micro blog with words “Upload your family photos and @ Samsung to win a free phone”. Every user has the same opportunity to win the prize and the only thing users must do is post a micro blog with their family photo. This micro blog was forwarded more than 100,000 times.”

Knowledge

- “A fingerprint lock is much safer than coded lock and sliding screen lock. Please learn how to set the fingerprint lock from Samsung.”

Altruism

- “The number that this micro blog is forwarded, we will give the same amount of money to charity”

Humor

- “a note from my dad: 'my dear son, I am very happy that tonight you will take your girlfriend back home. I know that something might happen but do not forget to be a responsible man. Safety first.’” with some Durex condoms attached to the note.

Surprise

- “Changing your laptop to a tablet computer, Lenovo helps your dream come true. Yoga can rotate 360 degrees”

Egoism

- “A group of Chinese people had a trip in UK, they singed a song to praise our motherland- China together in front of the building of UK government”

Positive

- “Write down your dream, and please remember to smile every day, Samsung will help one user’s dreams come true”

5.3 Analysis

My first study investigates what types of micro blogs are highly forwarded and shared. Since SinaWeibo has a massive user base and is comprised of many different types of users (e.g., stars, writers, ordinary people) and a wide range of topics (e.g., amusement, gossip, politics, economics), it is an ideal platform for studying content virality. SinaWeibo reports the top 100 micro blogs ranking list from the previous week (hot.weibo.com) and I examined influencing factors which affect whether this micro blog will rank among the top 100 micro blogs list. I captured data through web crawler software based on the API of SinaWeibo (illustrated in Chapter 3).

First my study coded variables by assigning them own nature: quantitative
(discrete, continuous) and qualitative (nominal, ordinal). For instance, the number of fans is quantitative, the Likert item questions are considered as ordinal data, gender and type are nominal in nature. Likert item questions value from 1 to 5 and I assigned 1 to male and 0 to female. Then I chose 5 raters who were blind to my hypotheses to code 3,066 pieces of micro blogs as chapter 3.7.2 described.

In Study 1, I do not take “content publisher” into consideration because the process of data collection excludes the influence of content publisher. Each publisher has 3 pieces of micro blogs: one on the top 100 list and two that didn’t make the top 100 list.

Variables coding in my study is shown in Table 23:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Resources of variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Characteristics</td>
<td>ease of engagement (for users)</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Artificial scoring(1point-5point)</td>
</tr>
<tr>
<td>Public Welfare</td>
<td>Artificial scoring(1point-5point)</td>
</tr>
<tr>
<td>Humor</td>
<td>Artificial scoring(1point-5point)</td>
</tr>
<tr>
<td>Visual Effect</td>
<td>Artificial scoring(1point-5point)</td>
</tr>
<tr>
<td>Surprise</td>
<td>Artificial scoring(1point-5point)</td>
</tr>
<tr>
<td>Self-Promotion</td>
<td>Artificial scoring(1point-5point)</td>
</tr>
<tr>
<td>Positive/Negative</td>
<td>Artificial scoring(1point-5point)</td>
</tr>
<tr>
<td>Content Context/Environment</td>
<td>Current Events</td>
</tr>
<tr>
<td>Special Dates</td>
<td>1-special date 0-not special date</td>
</tr>
</tbody>
</table>

Data analysis method of SPSS
In order to research the relationship between the predictor variables and dependent variables “viral”, I relied on following logistic regression specification as (1) showed which was based on viral analysis by Berger and Milkman (2011).
Correlation analysis: the correlation coefficient measures both the strength and the direction of the relationship between two variables. Researchers can use the Pearson correlation analysis and Spearman correlation analysis to conduct a correlation analysis. If the two variables are both continuous variables, researchers need to use Pearson correlation analysis. Whereas if one of the two variables or both is categorical variables, researchers need to use the Spearman correlation analysis. (Analyze—Correlate—Bivariate)

Pearson correlation analysis

Pearson devised a very common way of measuring correlation, called the Pearson Product-Moment Correlation. It is used when both variables are at least at interval level and data is parametric.

It is calculated by dividing the co-variance of the two variables by the product of their standard deviations.

\[ r = \frac{\text{SUM} ((x_i - \text{xbar}) (y - \text{ybar}))}{((n - 1) * s_x * s_y)} \]

Where x and y are the variables, \( x_i \) is a single value of x, \( \text{xbar} \) is the mean of all x's, n is the number of variables, and \( s_x \) is the standard deviation of all x's.

r may also be considered as being:

\[ r^2 = \text{explained variation} / \text{total variation} \]

(Where variation is calculated as the Sum of the Squares, SS)

In other words, it is the proportion of variation that can be explained. A high explained proportion is good, and a value of one is perfect correlation. For example, an \( r \) of 0.8 explains 64% of the variance. When calculated from a population; Pearson's coefficient
is denoted with the Greek letter 'rho' (\(\rho\)). When calculated from a sample, it is denoted with 'r'. The Coefficient of Determination is calculated as \(r^2\).

**Spearman correlation analysis**

The Spearman Rank Correlation Coefficient is a form of the Pearson coefficient with the data converted to rankings (ie. when variables are ordinal). It can be used when there is non-parametric data and hence Pearson cannot be used. The raw scores are converted to ranks and the differences \((d_i)\) between the ranks of each observation on the two variables are calculated. The Spearman coefficient is denoted with the Greek letter rho (\(\rho\)).

\[
\rho = 1 - \frac{6 \times \text{SUM}(d_i^2)}{n \times (n^2 - 1)}
\]

Partial correlation analysis: This measure the degree of association between two random variables, with the effect of a set of controlling random variables removed. Most partial correlation analyses choose the Two-tailed test to test both positive and negative correlation. (Analyze—Correlate—Partial)

**Logistic regression**

Logistic Regression is a type of predictive model that can be used when the target variable is a categorical variable with two categories –for example live/die, has disease/does not have disease, purchases product/does not purchase, wins race/does not win, etc. A logistic regression model does not involve decision trees and is more akin to nonlinear regression such as fitting a polynomial to a set of data values. Logistic regression can be used only with two types of target variables:

- A categorical target variable that has exactly two categories (i.e., a binary or dichotomous variable).
- A continuous target variable that has values in the range 0.0 to 1.0 representing
probability values or proportions.

➢ Single-factor logistic regression: put all independent variables separately into the regression specification.

➢ Multivariate logistic regression: put all variables together into the regression specification. (Analyze—Regression—Binary Logistic)

➢ Wald test: The Wald test is a parametric statistical test named after the Transylvanian statistician Abraham Wald with a great variety of uses. Whenever a relationship within or between data items can be expressed as a statistical model with parameters to be estimated from a sample, the Wald test can be used to test the true value of the parameter based on the sample estimate. SPSS will give results as following structure:

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>S.E,</th>
<th>Wals</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
</table>

The useful data is Wals and Sig. Wals is the statistical magnitude of Wald test and Sig represents its significance level. The bigger the value Wals is, the smaller the value Sig will be.

According to the coding results from questionnaire, I used serial correlation method to analyze interrater reliability between these five raters through SPSS. Results showed that the interrater reliability was very high ($\alpha > 0.7$) which represented that the content of the micro blog evoked same feeling and judgment across ten raters. In order to research the relationship between the predictor variables and dependent variables – viral, I relied on the following logistic regression specification as (3) which was used
in viral analysis by Berger and Milkman (2011).

(3)

\[
viral = \frac{1}{1 + \exp \left[ -\left( \alpha + \beta_1 \text{Ease of engagement} + \beta_2 \text{Knowledge} + \beta_3 \text{Public Welfare} + \beta_4 \text{Humor} + \beta_5 \text{Visual Effect} + \beta_6 \text{Surprise} + \beta_7 \text{Self-promotion} + \beta_8 \text{Positive} + \beta_9 \text{Negative} + \beta_{10} \text{Current Events} + \beta_{11} \text{Special Dates} \right) \right]}
\]

Viral was the dependent variable that took value 1 if the micro blog was viral and 0 otherwise. If the micro blog was on Top 100 hot micro blogs ranking list, I assigned it value 1. Otherwise, I assigned it value 0.

➢ Then use SPSS to do multivariate logistic regression analysis, results are shown in table 24:

**Table 24 Multivariate Logistic Regression Analysis Results in this Thesis**

<table>
<thead>
<tr>
<th>Multivariate logistic regression analysis results</th>
<th>B</th>
<th>S.E,</th>
<th>Wals</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>.192</td>
<td>.096</td>
<td>3.983</td>
<td>1</td>
<td>.046</td>
<td>1.211</td>
</tr>
<tr>
<td>Knowledge</td>
<td>.471</td>
<td>.218</td>
<td>4.660</td>
<td>1</td>
<td>.031</td>
<td>1.601</td>
</tr>
<tr>
<td>Public Welfare</td>
<td>.451</td>
<td>.275</td>
<td>2.695</td>
<td>1</td>
<td>.10</td>
<td>1.569</td>
</tr>
<tr>
<td>Humor</td>
<td>-.067</td>
<td>.115</td>
<td>.337</td>
<td>1</td>
<td>.562</td>
<td>.935</td>
</tr>
<tr>
<td>Visual Effect</td>
<td>.229</td>
<td>.097</td>
<td>5.524</td>
<td>1</td>
<td>.019</td>
<td>1.258</td>
</tr>
<tr>
<td>Surprise</td>
<td>.152</td>
<td>.107</td>
<td>2.004</td>
<td>1</td>
<td>.157</td>
<td>1.164</td>
</tr>
<tr>
<td>Self-Promotion</td>
<td>.164</td>
<td>.095</td>
<td>3.008</td>
<td>1</td>
<td>.083</td>
<td>1.178</td>
</tr>
<tr>
<td>Positive</td>
<td>.046</td>
<td>.098</td>
<td>.224</td>
<td>1</td>
<td>.636</td>
<td>1.048</td>
</tr>
<tr>
<td>Negative</td>
<td>.166</td>
<td>.112</td>
<td>2.227</td>
<td>1</td>
<td>.136</td>
<td>1.181</td>
</tr>
<tr>
<td>Current Events</td>
<td>0.000</td>
<td>.224</td>
<td>0.000</td>
<td>1</td>
<td>.999</td>
<td>1.000</td>
</tr>
<tr>
<td>Special Dates</td>
<td>.040</td>
<td>.258</td>
<td>.025</td>
<td>1</td>
<td>.875</td>
<td>.960</td>
</tr>
<tr>
<td>Constant</td>
<td>-.979</td>
<td>.105</td>
<td>86.85</td>
<td>2</td>
<td>.000</td>
<td>.376</td>
</tr>
</tbody>
</table>
Multivariate logistic regression analysis results

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wals</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>.192</td>
<td>.096</td>
<td>3.983</td>
<td>1</td>
<td>.046</td>
<td>1.211</td>
</tr>
<tr>
<td>Knowledge</td>
<td>.471</td>
<td>.218</td>
<td>4.660</td>
<td>1</td>
<td>.031</td>
<td>1.601</td>
</tr>
<tr>
<td>Public Welfare</td>
<td>.451</td>
<td>.275</td>
<td>2.695</td>
<td>1</td>
<td>.10</td>
<td>1.569</td>
</tr>
</tbody>
</table>

Sig. < 0.1, significant at the 10% level
Sig. < 0.05, significant at the 5% level

5.4 Findings

I used regression to test a number of hypotheses which are presented below.

\[
\begin{align*}
H_1: & \text{ Content characterized with ease of engagement is likely to go viral on Sina Weibo} \\
H_2: & \text{ Content that demonstrates arousing characteristics of visual effect is likely to go viral.} \\
H_3: & \text{ Content that demonstrates arousing characteristics of humor is likely to go viral.} \\
H_4: & \text{ Content that demonstrates arousing characteristics of surprise is likely to go viral.}
\end{align*}
\]
Results showed that $H_1$ (Ease of Engagement), $H_2$ (Visual Effect) and $H_7$ (Knowledge) were supported at the 5% level.

1- I found that ease of engagement is a very important factor. When the topic of Weibo content utilizes ease of engagement for users, the content will be more viral. ($H_1$ is supported.)

2- I found that visual effects play an important role in viral content. When the Weibo content shows visual effect, the content will be more viral. ($H_2$ is supported.)

3- I found that knowledge is also a very important factor. When the topic of Weibo content contains knowledge, the content will be more viral. ($H_7$ is supported.)

Results showed that $H_8$ (Public Welfare) and $H_9$ (Self-Promotion) were all supported at the 10% level.

1- I found that public welfare (altruistic attribute) play a role in viral content. Content that is related to publisher’s public welfare is likely to go viral. ($H_8$ is supported.)

2- I found that self-promotion (egotistic attribute) also play a role in viral content. Content that is related to publisher’s self-promotion is likely to go viral. ($H_9$ is supported.)

Results showed that $H_3$ (Humor), $H_4$ (Surprise), $H_5$ (Positive), $H_6$ (Negative), $H_{10}$ (Special Dates) and $H_{11}$ (Current Events) were all rejected.

$H_{2a}$ (Gender), $H_{2b}$ (Popularity) and $H_{2c}$ (Type) were not tested in Study 1 since my data set was made up of one piece of micro blogs from weekly Top 100 rank list and another two common pieces of micro blogs from the same publisher, resulting in
making effect of publisher disappear. **They will be tested in Chapter 8-Study3.**

![Diagram](image)

**Figure 23 Results of Hypotheses in this thesis**

### 5.5 Discussion

The main focus of the study was constructing a relative complete research framework on the factors that made a piece of micro blog rank in the list of weekly top 100 micro blogs in SinaWeibo from three aspects: the publisher of the micro blog, the content of the micro blog and the context of the micro blog. This research was conducted by using a structured questionnaire based on a five-point Likert scale as an instrument for this study and using five independent raters to code 3,066 pieces of micro blogs collected from SinaWeibo on the questionnaire. Then this research used logistic regression model to test and analyze the characteristics of viral micro blogs. The results of SPSS showed that knowledge, ease of engagement and visual effect were significant at the 5% level and altruism and egoism were significant at the 10% level. According to primary data collected, part of the research framework in this research corresponded to the studied results of predecessors, such as knowledge and self-promotion. But most importantly, the factor-ease of engagement this research proposed specially was verified. Besides, some factors which were expected to positively influence the virality of online content did not work. This also provides a direction for future research to test these factors
intensely using other data sets or research methods.

Figure 24 New Research Framework in this Thesis

The discussion of the eleven factors that influence the virality of online content is presented in this section. It is important to note that ease of engagement, knowledge, visual effect, altruism and egoism were found to have significant effects on the virality of online content in the context of SinaWeibo. The rest of the factors which were not supported by the findings of this study actually could be explained for some reason which was going to be showed as following sections. Therefore, a new research framework depicting the significant relationships between variables is proposed in Figure34. Moreover, it was found that several popular kinds of engagement from SinaWeibo: moral encouragement (e.g. good luck from micro-blogs forwarding), material reward (e.g. lucky draw) and topic discussion (e.g. product design; seeking for resonance; emotional appeal) especially stood out.

5.5.1 Ease of Engagement

In the literature, previous studies involved with “engagement” have straddled a number of areas, such as science and technology, medicine and medical engineering, psychology, pedagogy, marketing and advertising. According to different kinds of research subjects, there exists personal engagement, consumer engagement, employee engagement, student engagement, civic engagement, stakeholder engagement, brand engagement, community engagement and so on. William A. Kahn (1990) proposed “personal engagement” and “personal disengagement”. In his opinion, personal engagement referred to “the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively,
and emotionally during role performances”. Employee engagement is a property of the relationship between an organization and its employees. An "engaged employee" was defined as one who is fully absorbed by and enthusiastic about their work and so took positive action to further the organization's reputation and interests. Consumer engagement measured the extent to which a consumer had a meaningful brand experience when exposed to commercial advertising, sponsorship, television contact, or other experience. The Advertising Research Foundation (2006) defined “Engagement” as "turning on a prospect to a brand idea enhanced by the surrounding context”(ARF, 2006). Chu and Kim (2011) attempted to identify social factors that influenced consumers’ engagement in eWOM in the online hangout place. Drawing from the measures of online WOM used in previous studies (Flynn et al. 1996; Sun et al. 2006), SNS users’ engagement in e-WOM was operationalized with three specific behaviors: opinion seeking, opinion giving and opinion passing. Gummerus et al. (2012) divided consumer engagement into “Community Engagement Behaviors” (CEB) and “Transactional Engagement Behaviors” (TEB). Prohaska, Anderson and Binstock (2012) noted that the term social engagement was commonly used to refer to one's participation in the activities of a social group. Avison, McLeod and Pescosolido (2007) defined social engagement as "the extent to which an individual participates in a broad range of social roles and relationships." Zhang, Jiang, and Carroll (2010) defined social engagement as "the commitment of a member to stay in the group and interact with other members”. Hernandez et al (2014) proposed that analyzing the engagement level of people has been the focus of interest in a wide variety of situations and the definition of engagement is very context-specific. And they defined engagement as the amount of effort required to engage the child.

In this study, the research subject of “engagement” is SinaWeibo users. The context of previous research in regard to engagement is not social media with the main characteristic - Web 2.0. The technology Web 2.0 make messages and information in SinaWeibo spread quickly and interact strongly. Therefore, engagement presents new characteristics. Publishers of Weibo and their followers in SinaWeibo communicate and interact quickly with each other, which interprets a new story and thereby attracts more and more fans to participate in. This study defines “engagement” as “the amount of effort required for the readers to engage in” on the basis of previous works. “Ease of engagement” referred to a little effort required for the Weibo readers to engage in. That is, “ease of engagement” means that the threshold to engage with the topic a micro blog
refers to is low. Ease of engagement contains two meanings: first whether this micro blog asks the reader to do something such as forward, share, upload or discuss; second is whether this task is easy to do.

From the perspective of daily life, people prefer to participate in discussing topics in SinaWeibo which are ease of engagement, rather than those special professional and complex topics. On one hand, it is hard to explain and express one complex thing in SinaWeibo under the limit of 140 words and people tend to communicate and discuss with each other on corresponding professional forums about professional problems. On the other hand, micro blogs within topics which are ease of engagement can obtain a wider audience, bringing about much more virality. For example, a topic centered on “One of the most moving moments you have” can cause a lot of retweets and replies rather than such a topic like “The first single chip microcomputer you accessed to”.

5.5.2 Knowledge

The results of this study indicated that knowledge was found to be a significant factor that impacted the transmission and virality of online content in SinaWeibo. This finding is in keeping with Berger and Milkman (2012) and Litvin et al. (2008). In the literature, Berger and Milkman (2012) proved that useful articles were more likely to be viral, which was consistent with social exchange theory, that is, useful information had social exchange value (Homans, 958) and the notion that people may share word-of-mouth to self-enhance (Wojnicki and Godes, 2008). In this study, “knowledge” was used to instead of “useful information”.

From the perspective of daily life, one intuitive reason why content within knowledge may become viral is human nature like curiosity and thirst for knowledge. When social media is not popular, people usually acquire information through books, newspapers, television and so on. Nowadays people can quickly acquaint with new knowledge through SinaWeibo, such as the existence of gravitational wave and the success of the long March 5’s first flight. People of different ages pay attention to different kinds of knowledge. For example, middle-aged and elderly parents tend to concern and share the health care knowledge to their friends and children; young digital enthusiasts enjoy following information and knowledge about electronic products; young girls are on fire for fashionable trends like clothing and slimming. It is worth mentioning that the results of the lab experiments conducted in this study showed that scientific knowledge obtain more retweets than living knowledge, which might be
resulting from the participants’ age are between 30 to 45. Otherwise, now people prefer to search on social networking sites to ask for help instead of people in real life when they need new knowledge. SinaWeibo further divides its hot microblog lists into multiple kinds, such as exercise and fitness, cate, beauty makeup, health maintenance and so on.

From the perspective of microblog marketing, knowledge marketing plays an important role and among them 36 Krypton stands out. 36 Krypton was the first IT media by the spread of Weibo. And after then Lei Feng network, Social Beta, Pingwest Chinese network and the other similar sites appeared. 36 Krypton and its similar sites succeeded in finding their own living space, which fully illustrated the differentiation of user demand, and microblogging seemed to become the best channel to seize the crowd segment. 36 Krypton initially occupied a new market in SinaWeibo by translating technology consulting articles on TechCrunch. 36 Krypton successfully shortened this translation time from at least 3 days on other domestic IT media to one day in its official SinaWeibo account, so that users can get good information and knowledge at the first time. 36 Krypton successfully became an upstart IT technology brand soon afterwards. Besides, Xiaomi Company’s consumer community started out as a group of mobile phone enthusiasts where they communicated with each other and shared information, ideas and knowledge about mobile phone, such as CPU and RAM. They wanted to be involved in the design of mobile phones and made Xiaomi better. Durex also thinks highly of the knowledge contained in each piece of microblog and they frequently posted micro blogs within some interesting amphoteric knowledge.

5.5.3 Visual Effect

In the literature, researchers from variety areas have studied the role played by pictures especially from education and teaching area. On one hand, Samuels (1967) studied the effect of pictures on the acquisition of reading responses and proposed that pictures were likely to miscue and divert attention from printed words though pictures could be used as prompts when reading words was hard for readers. On the other hand, Houts et al., (2006) reviewed studies in health education, psychology, education and marketing and then their results showed pictures liked to text increased attention and improved comprehension compared to text alone. Few studies have been done to explore the role of pictures in social transmission. This research succeeded in affirming that pictures, one kind of visual effect, can acquire more attention in consistent with Houes et al.,
It was supported by this study that visual effect (pictures and videos) significantly influenced the virality of online content in SinaWeibo. Actually, one intuitive reason why content within visual effect may become viral is because it seems more attractive than simply words in consistent with the literature. It is worth mentioning that a potential problem may exist. The dataset this research used was Top 100 micro blogs and their corresponding micro blogs from the same publishers, which cannot represent all users in SinaWeibo. In fact, micro blogs ranked in Top 100 or not both obtained lots of forwarding, but the microblog ranked in Top 100 was identified as the viral one. It can be supposed that visual effect might play a moderate role in common social transmission. That is, visual effect does not necessarily lead the micro blogs from ordinary people to be viral, but may make it acquire more transmission than micro blogs without visual effect. It exactly provides another direction for future detailed research about the effect of visual effect on the virality of online content through a rigorous data set.

5.5.4 Altruism (public welfare) and egoism (Self-promotion)

In the literature, researchers took the motivations to transmit information into consideration while studying the virality of online content. These motivations were classified into two types: egoism (Dichter 1966; Gatignon and Robertson, 1986; Berger and Milkman, 2011) and altruism (Sundaram, Mitra and Webster, 1998, Litvin et al., 2008; Dellarocas et al., 2004; Litvin et al., 2011). Litvin et al. (2008) constructed a conceptual model of WOM and they proposed that the motivations of WOM were affects, altruism, self-interest and reciprocation. Some researchers suggested that self-enhancement was also an important reason to transmit information (Dichter 1966; Gatignon and Robertson, 1986; Sundaram, Mitra and Webster, 1998). Kamins et al (1997) indicated that positive rumors that reflected well on the person telling others had a particularly high chance of being transmitted. Berger and Milkman (2011) agreed with this opinion and they proposed that people tended to share information that reflected positively or information that would show and promote themselves (self-promotion).

This study took altruism and egoism into consideration.

It was supported by this study that altruism and egoism positively affect the virality of online content in SinaWeibo. From the perspective of daily life, general posts in SinaWeibo are about personal feelings and emotions, trivial matters and various of
retweets. Actually, spreading messages and contents about altruism and egoism, especially public welfare and self-promotion was deeply welcomed by Weibo users. For example, such a piece of microblog “Today I participated in a famous economic forum, but what is more exciting is that I was invited for a photo session with Bill Gates!” within a photo could obtain a lot of retweets. What is much more interesting in the lab experiments was that people preferred to show off themselves rather than showed their values to present self-promotion. That is, the more directly this piece of microblog expresses self-promotion, the more viral the microblog presents. It might provide a new direction for future research on self-promotion on social networking sites.

5.5.5 Surprise

In the literature, Derbaix and Vanhamme (2003) found that the intensity of surprise induces WOM activities significantly. Dobele (2007) proved that surprise was the necessary emotion to make content viral and surprise needed to be combined with other emotions, which was consistent with Derbaix and Vanhamme (2003)’s findings.

It was not supported for this study because the influence of surprise has not been investigated in this study. Although Dobele (2007) stressed out the key role and necessity of surprise to make messages viral among all the six primary emotions (surprise, joy, sadness, anger, fear, and disgust), they proposed surprise was not enough to guarantee message success and must be combined with other emotions. This corroborated Charlesworth (1969)’s finding that surprise was often accompanied by other primary emotions. On the other hand, Dobele (2007)’s research was conducted in the certain context of nine viral marketing campaigns, which was different from this study. Actually, deeply research need to be conducted about surprise like explaining new explanation, behavior, physiological response and other aspects of surprise in the current context of this study, that is, SinaWeibo as Dobele had done.

5.5.6 Valence (positive or negative)

In the literature, the valence (positive or negative) was found to be the factor that influenced the transmission and virality of online content. Deiz and Cakim (2005) found that negative messages spread more quickly than positive messages within a social network. Berger and Milkman (2012) collected nearly 7,000 New York Times articles and demonstrated that the more positive the article was, the more viral it would
be. On the other hand, Hansen et al. (2011) took the type of content into consideration and proved that negative news content enhanced virality but not the non-news content, which was contrary to Berger and Milkman (2005)’s findings to some degree. Unfortunately, whether positive or negative had not been tested significantly affect the virality of online content in SinaWeibo, that is, it was not supported by this study.

Although Anderson (1998), Bowman and Narayandas (2001) and Chen, Wang and Xie (2011) indicated that negative content was more likely to be transmitted than positive content, the context of their study was on dissatisfied customer shopping experience which could lead WOM but not satisfied experience, which was different from the context focused on in the current study. Furthermore, in the study of Berger and Milkman (2012) and the study of Hansen et al. (2011), their main focus was on the certain type of content- news, in spite of different research platform. However, in SinaWeibo, various types of content were posted and shared far more than news and actually not only positive news tended to be viral, such as the unexpected death report of Chinese famous star - RenliangQiao, the divorce case of Chinese famous star - Baoqiang Wang and the ladybro intervention case of South Korea's President.

5.5.7 Current events

One intuitive reason why content within current events become viral is because current events can easily gain comprehensive attention and get more and more attention in a certain period of time. However, the role that current events played in virality had not been verified in this study. Considering that once a popular current event occurs, relevant micro blogs from different Weibo users emerge in large numbers quickly and even the same user posts several pieces of micro blogs, the situation that only parts of micro blogs within this event ranked the top 100 list makes sense. Due to this study’s data set contained a large number of horizontal data, that is, a piece of microblog within a certain event ranked in the top 100 list and another piece of microblog within the same event did not rank in the top 100 list, the impact of current event cannot be vitrified in this study. A longitudinal comparison research is needed, such as a new data set contained micro blogs within no-repeat events from the same publisher and a new measurement of virality instead of the weekly top 100 lists.

From the perspective of microblog marketing, Weibo marketing with the help of current event, that is, events marketing obviously stands out. Durex is one of the most successful enterprises and the most popular case- “The elder brother of the shoe covers”
was widely circulated as I mentioned previously. In this section, I introduce and analyze a new famous case— “We”. On 29th May, 2015, Chinese famous male star Chen Li and female star Bingbing Fan both posted a piece of microblog to announce their romance to the public on their Sinaweibo with words” We” and a group photo. Chen Li’s microblog obtained more than 800,000 forwarding times and Bingbing Fan’s microblog obtained more than 400,000 forwarding times. The quantity of microblogs achieved more than 520,000 by 12:00 noon the same day. In short order, a large number of enterprises’ official Sinaweibo managed the event marketing such as Durex, Jissbon, Stride, Xiaomi, Coca Cola, Kotex and so on. Kotex’s (a famous brand of sanitary towel) marketing copy was voted as the best one with a piece of microblog “Bingbing is under Chen, is it the right time to retreat for us?”

Different marketing copies gain different results and effects even though they are in the context of same event. It provides a new direction for future research on event marketing in SinaWeibo.

However, some companies also showed their stupid in microblog marketing with the help of current event, for example, American Apparel’s Hurricane marketing. Hurricane "Sandy" swept the US East Coast and many department stores have closed one after another. Then American Apparel posted a promotional tweet on Twitter: "In order to keep you from boredom during the hurricane period, the online store offers 20% discount for all goods in the next 36 hours." Consumers quickly satirized and attacked the ad in Twitter and other social networking sites. Do not use disasters to do promotions! It might provide a new thought for future research on how to choose appropriate events.
5.5.8 Special Dates

It is a fact that Chinese people attach importance to festivals and special dates, but this factor failed in being verified in this study. In daily life, people most likely to post microblogs on special dates and at one special moment such as birthday blessings and festival greetings at 00:00 am, especially at the beginning of a new year. Besides, many enterprises carry out various of activities in SinaWeibo on special dates. In my opinion, special dates do not play a role in the virality of online content separately but combine action with other factors, which needs further research.
CHAPTER 6

Study2

Study2 was conducted to investigate how key influence factors from Study1 (ease of engagement, knowledge, visual effect, self-promotion and public welfare) impact the virality of online content.

6.1 Data Collection

On May 3rd, 2016, I did the experiments in Shanghai Jiao Tong University the first time. I gave Version 1 of micro blogs to the MBA class. While presenting each piece of micro blogs by PPT, the class filled out the paper questionnaire. This process took 30 minutes. On May 6th, 2016, I did the experiments in my own company the second time. I gave Version 2 of micro blogs to my staff. While presenting each piece of micro blogs by PPT, they filled out the paper questionnaire. This process cost 35 minutes.

6.2 Research Instrument- Lab Experiments within a survey

Findings of Study 1 have important marketing implications. Online content in SinaWeibo which contains characteristics such as knowledge, visual effects and ease of engagement will be much more viral. Except for these three factors: ease of engagement, knowledge and visual effect, self-promotion and public welfare were significant at the 10% level. Thus, I added them to my lab experiments to do further research.

(1) Experiment description

*Experiment 1: ease of engagement*

Participants (N=80) were randomly divided into two groups: Group1 and Group 2. I designed two sets of micro blogs: Set 1 and Set 2. The two sets of micro blogs have same characteristics except that Set 1 includes the feature: ease of engagement and Set 2 does not. I gave Set 1 micro blogs to Group 1 and Set 2 to Group 2. After reading about the micro blogs, participants were asked how likely they would be to share it with others (1=”not all likely,” and 5=”extremely likely”).

Example of two sets of micro blogs:

Set 1: Content of micro blogs like “Here are top ten ranking movies of 2015”.

Set 2: Content of micro blogs like “Here are top ten ranking movies of 2015, did you have watched some of them and which one did you like best?”.
Experiment 2: Knowledge

Participants (N=80) were randomly divided into two groups: Group 1 and Group 2. I designed two versions of micro blogs: Version 1 and Version 2. I pretested the two versions of micro blogs to ensure only Version 1 of them presented knowledge (rich and useful information). I gave Version 1 micro blogs to Group 1 and Version 2 to Group 2. After reading about the micro blogs, participants were asked how likely they would be to share it with others (1=“not all likely,” and 5=“extremely likely”).

Example of two versions of micro blogs:
Version 1: Content of micro blogs like “iPhone 7 will come to the market next month”.
Version 2: Content of micro blogs like “iPhone 7 will come to the market next month, and the difference between iPhone 7 and iPhone 6s are …”.

Experiment 3: Visual Effect

Participants (N=80) were randomly divided into two groups: Group 1 and Group 2. I designed several pairs of sets of micro blogs.

(1) Set 1 and Set 2: The two sets of micro blogs have same characteristics except that Set 1 is illustrated with pictures or videos and Set 2 is not illustrated with any pictures or videos.

(2) Set 3 and Set 4: The two sets of micro blogs have same content and they both have visual effect. The difference between them is one is illustrated with pictures and another one is illustrated with video.

After reading about the micro blogs, participants were asked how likely they would be to share it with others (1=“not all likely,” and 5=“extremely likely”).

Experiment 4: Self-promotion

Participants (N=80) were randomly divided into two groups: Group 1 and Group 2. I designed two sets of micro blogs.

Set 1 and Set 2: The two sets of micro blogs have same characteristics except that Set 1 presented that the purpose of publishers to transmit these micro blogs was self-promotion and Set 2 was not self-promotion.

After reading about the micro blogs, participants were asked how likely they would be to share it with others (1=“not all likely,” and 5=“extremely likely”).

Experiment 5: Public welfare

Participants (N=80) were randomly divided into two groups: Group 1 and Group 2. I designed two sets of micro blogs.

Set 1 and Set 2: The two sets of micro blogs have same characteristics except that Set 1...
presented public welfare and Set 2 did not.

After reading about the micro blogs, participants were asked how likely they would be to share it with others (1=”not all likely,” and 5=”extremely likely”).

(2) The Survey of Lab Experiments

I chose 15 pieces of micro blogs from SinaWeibo that all had been forwarded tens of thousands of times as my original set. Then I rewrote them by eliminating the characteristics (ease of engagement, knowledge and visual effect) which I tended to test in contrast with the original micro blogs as my modified set. I mixed these 30 pieces of micro blogs and divided them into two new sets randomly: Set 1 and Set 2. Set 1 and Set2 both had micro blogs from the original set and the modified set. That is, these two sets both had several micro blogs that illustrated with these five influential factors: knowledge, ease of engagement for users, visual effect, self-promotion and public welfare.

Finally, I made Set 1 and Set 2 of micro blogs and a questionnaire. Two sets of Micro blogs were presented by PPT and participants received a paper questionnaire which contained the brief content of micro blogs and rating items as table 20 shows.

**Table 25 A Sketch of Two Sets of Micro Blog Questionnaires**

<table>
<thead>
<tr>
<th>Questionnaire 1</th>
<th>Questionnaire 2</th>
<th>Rating Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: Gravitation waves</td>
<td>The existence of gravitational waves has been scientifically verified (no video)</td>
<td>The existence of gravitational waves has been scientifically verified (with a video to introduce gravitational waves)</td>
</tr>
<tr>
<td>Q2: Eat fruits</td>
<td>Fruit should be eaten according to the season.</td>
<td>Kiwi fruit is eaten exclusively in January;</td>
</tr>
</tbody>
</table>
Sample size and technique of Study2:

Study 2 used convenience sampling and random sampling within 15 pieces of micro blogs and 80 participants. The 15 pieces of micro blogs from SinaWeibo I used in this survey were random chosen in SinaWeibo, which referred to the use of random sampling in this study. Meanwhile, 80 participants in this survey came from my own company and a MBA class, which meant convenience sampling.

6.3 Analysis and Findings

Findings of Study 1 have important marketing implications. Online content in SinaWeibo which contains characteristics such as knowledge, visual effects and ease of engagement will be much more viral. Considering these specific characteristics can help enterprises increase their profit if they use SNSs for marketing. It is also useful for enterprises to design their micro blogs content if they want to receive attention and attract customers in SNSs. Findings of Study 1 can also help enterprises to develop their marketing strategy through creating a new topic in SinaWeibo to attract users. As my findings show, topics which incorporate ease for engagement are much more viral. So companies should focus on reducing the difficulty to engage with the topic discussion.

On May 3rd, 2016, I did the experiments in Shanghai Jiao Tong University the first time and the experiments in my own company the second time. Results were showed as table 25.
<table>
<thead>
<tr>
<th>Version 1 of Questionnaire</th>
<th>Version 2 of Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 3.54 Knowledge-scientific knowledge</td>
<td>Q1 1.92 no</td>
</tr>
<tr>
<td>Q2 2.28 no</td>
<td>Q2 2.11 Knowledge-life knowledge</td>
</tr>
<tr>
<td>Q3 3.15 Knowledge-life knowledge</td>
<td>Q3 2.08 no</td>
</tr>
<tr>
<td>Q4 2.33 no</td>
<td>Q4 3.55 Engagement-topic discussion</td>
</tr>
<tr>
<td>Q5 3.64 Engagement-topic discussion</td>
<td>Q5 2.55</td>
</tr>
<tr>
<td>Q6 2.26 no</td>
<td>Q6 1.92 Engagement-topic discussion</td>
</tr>
<tr>
<td>Q7 3.82 Engagement-lucky draw</td>
<td>Q7 1.47 no</td>
</tr>
<tr>
<td>Q8 2.31 Pictures, no video</td>
<td>Q8 3.66 Visual effect- Video</td>
</tr>
<tr>
<td>Q9 3.72 Visual effect- pictures</td>
<td>Q9 2.24 no</td>
</tr>
<tr>
<td>Q10 2.15 no</td>
<td>Q10 3.58 Public welfare</td>
</tr>
<tr>
<td>Q11 2.90 Self-promotion-values</td>
<td>Q11 2.26 no</td>
</tr>
<tr>
<td>Q12 4.00 Self-promotion-show off</td>
<td>Q12 2.18 no</td>
</tr>
<tr>
<td>Q13 1.51 Self-promotion-values</td>
<td>Q13 2.37 no</td>
</tr>
<tr>
<td>Q14 1.49 Self-promotion-comparable micro blogs</td>
<td>Q14 1.32 no</td>
</tr>
<tr>
<td>Q15 3.77 Engagement-forwarding luck</td>
<td>Q15 2.29 no</td>
</tr>
</tbody>
</table>

The results of lab experiments were showed as following:

Firstly, the results verified and reinforced the findings of Study 1: these five factors: ease of engagement, visual effect, knowledge, altruism (public welfare) and egoism (self-promotion) actually positively affected the forwarding behavior towards SinaWeibo.
Secondly, with regard to “ease of engagement”, both “lucky draw for a free product” and “forwarding for lucky wishes” were viral whose. But “topic discussion” was depend on whether the topic was interesting or not.

Thirdly, with regard to “knowledge”, “scientific knowledge” was viral but “life common sense” was not viral.

Fourthly, with regard to “public welfare”, it was viral.

Finally, with regard to “self-promotion”, people prefer showing off themselves to showing their values to present self-promotion.

6.4 Discussion

The second focus of the study was on how these five factors the main study obtained affect transmission: ease of engagement, knowledge, visual effect, altruism and egoism. This research was conducted by doing several lab experiments in Shanghai Jiao Tong University and Shanghai Flory Company as an instrument for this research and 80 participants were called on to take part in these experiments. On one hand, results of the experiments reinforced the findings from the main focus of the study and supported the hypothesized process. On the other hand, different kinds of ease of engagement, knowledge, visual effect, self-promotion and public welfare achieved different levels of attention and lead to varying degrees of transmission. This also provides another direction for future research to do detailed research on each factor.

The experiment results reinforce the findings from my archival field study (Study 1) and support my hypothesized process. First, consistent with my analysis of 3,000 pieces of micro blogs in SinaWeibo, micro blogs which included ease of engagement evoked more transmission (Experiment 1). People would be more likely to share and forward a piece of micro blog when it contained knowledge (Experiment 2) and even more so when it included a picture and a video (Experiment 3). Specifically, people tend to transmit micro blogs illustrated with videos more than pictures. As for ease of engagement, lucky draw, forwarding lucky and topic discussion all bring virality. What is much more interesting in experiment 4(self-promotion), is that people prefer to show off themselves rather than show their values to present self-promotion.

For “ease of engagement”, the findings of lab experiments in this study presented several popular kinds of engagement from SinaWeibo: moral encouragement (e.g. good luck from micro-blogs forwarding), material reward (e.g. lucky draw) and topic discussion (e.g. product design; seeking for resonance; emotional appeal). From the
perspective of microblog marketing, the most welcomed type of content marketing in SinaWeibo is topic discussion. Especially the grassroots bloggers obtained concerns and fans with the help of developing interesting topics and maintaining regular and timely communication with their followers. People choose moral encourage and material reward to manage Weibo marketing as well. For example, XiaoMi’s official SinaWeibo account posted a piece of microblog about the “first social shopping in SinaWeibo”. Weibo users could forward this piece of microblog to participate in the lucky draw to win a free phone. According to weiboreach (www.weiboreach.com), this piece of microblog was forwarded 2.6 million times by the end of December 31st, and nearly 1.5 million users participated in the forwarding activity. However, some companies also failed in microblog marketing. McDonald's organized the activity-McStories to call customers to share their stories with McDonald’s in Twitter. They meant to collect stories to reflect their popularity but got completely different results. They seemed to fail to consider the fact that there existed customers who disliked MacDonald’s. These people posted negative stories. Besides, McDonald’s management and operation at that time was poorly done, for example, not bright or clean stores and not friendly service, which gave the customers a really bad impression. This situation made this marketing activity failed. Although there were a lot of people to participate in this activity, in other words, this activity within ease of engagement presented virality to some extent, the result was not expected. So, it provides a good direction for detailed research on how to raise an appropriate topic corresponding to its own brand, in other words, how to create positive virality other than negative virality.

For “visual effect”, this study further divided visual effect into three kinds: pictures irrelevant with the words of micro blogs, pictures relevant with the words of micro blogs and video. The results of lab experiment in this study showed that (1) a piece of microblog illustrated with pictures was more viral than the same piece of microblog without pictures and (2) a piece of microblog illustrated with videos was more viral than the same piece of microblog illustrated with pictures. It might be because videos present livelier and more real than pictures. But unfortunately, the contrast study between a piece of microblog illustrated with relevant pictures and the same piece of microblog illustrated with irrelevant pictures did not work in the lab experiments. It might be presumed that other factors cause the virality of the certain piece of microblog rather than visual effect. For example, a piece of microblog like “Words you want to say to your mom in Mother’s Day” illustrated with pictures relevant with Mother’s Day
or not almost makes no difference. However, this piece of microblog illustrated with pictures or not may have some effects. It exactly provides a direction for future detailed research about the effect of visual effect on the virality of online content.

For knowledge, it is worth mentioning that the results of the lab experiments conducted in this study showed that scientific knowledge obtain more retweets than living knowledge, which might be resulting from the participants’ age are between 30 to 45.
CHAPTER 7

Study3

Study3 was conducted to explore the influence factors of general online content from the publisher aspect that makes micro blogs viral on Sina Weibo.

7.1 Data Collection

This study used the eleven weeks' worth of Top 100 hot micro blogs from Study 1, which consists of 1,100 pieces of micro blogs as my data set, to study the influence of the publisher from November, 2014 to January, 2016.

7.2 Data Analysis

In Study3, I did not recur to a certain instrument but a simple statistical analysis of data I collected in study 1. Considering about the influence of publisher in this study, I drew several pie charts to describe the distribution of gender, type and fans amount vividly. These pie charts intuitively showed what kinds of publishers succeeded in publishing micro blogs ranking in weekly Top 100 SinaWeibo.

7.3 Results

Gender:
Among the hot micro blogs data set, 788 pieces of micro blogs, or 71.6%, were posted by males. I suggested that male publishers tend to create and transform much more viral information than female publishers.

Figure 25 Results about Gender in this Thesis
I concluded while the content publisher is a male, the content will be more viral than if the publisher is a female.

**Popularity:**
Among the data set, the number of publishers who had less than 10,000 fans were 22, which accounts for 2%; the number of publishers who had between 10,000 and 1 million fans was 160, or 14.5%; the number of publishers who had between 1 million and 10 million fans was 444, accounting for 40.4%; the number of publishers who had more than 10 million fans was 474, totaling 43.1%.

*I found while the popularity of the publisher is higher, the content will be more viral.*

**Publisher type:**
Among the data set, the number of publishers who were common people (including famous grassroots micro bloggers) was 232, which accounts for 21.09%; the number of publishers who were business people was 16, which accounts for 1.45%; the number of publishers who were scholars or writers was 10, which accounts for 0.91%; the number of publishers who were media was 86, which accounts for 7.82%; the number of publishers who were entertainment stars was 756, which accounts for 68.73%.

![Figure 26 Results about Publisher Types in this Thesis](image)

*I suggested that Content whose publisher belongs to the few (media, scholar or writers, business people and entertainment stars) is likely to go much more viral than content whose publisher is just a common person.*
7.4 Discussion

It is a pity that this research had not studied the influence of publisher on virality rather than a simple data statistics and analysis of 1,100 pieces of Top 100 micro blogs from three aspects: gender, the quantity of followers and publisher types. In the literature, previous studies showed that the types, the influence and the gender of the publisher were relevant with the virality of the online content. Researchers supposed that influential users would lead viral topics or marketing (Florian, Laura and Regina, 2013; Cha et al., 2010; Walker, 2012). Dobele (2007) and Walker (2012) kept the consistent with the finding that males tended to pass viral message. However, Kempf and Palan (2006) proposed that females were more receptive to WOM than male. In my opinion, it depends on the types of content in SinaWeibo, which needs further research. Data statistics of 1,100 pieces of Top 100 micro blogs this research collected showed that (1) 71.6% of the micro blogs were posted by males; (2) the number of publishers who had more than 1 million fans accounted for 83.5%; (3) the number of publishers who were entertainment stars accounted for 68.73%.

From the perspective of microblog marketing, Weibo marketing with the help of hot person manifests an obvious effect in SinaWeibo, such as Durex’s “Pregnancy case”. On April 12th, 2012, a famous grassroots micro blog named Homework posted a micro blog “People will get pregnant if they sleep before 1:00 tonight”. Durex immediately commented “All right! Leave it to me” and forwarded it. Homework also replied to Durex and forwarded Durex’s comments. On this night, these three micro blogs were forwarded more than 7,000 times and Durex obtained more than 3,000 fans. Meanwhile, action research in this study also verified this point, which used a famous grassroots blogger- “Yi Qi ShenHui Fu” to warm up the activity “understand P”. Besides, the case - Roseonly, which was mentioned before also verified the importance of publisher since its original spreading derived from the famous Chinese actress Xiaolu Li.
CHAPTER 8

Study4

Study4 was conducted to provide suggestions to companies for conducting successful viral marketing on Sina Weibo by using my own company as an example.

8.1 Data Collection

In June, 2015, I posted two micro blogs in my company official Weibo about the topic-“understand P”. I designed these micro blogs to advertise our brand and products-“intelligent toilet seats”. The content included visual effects and knowledge.

The main features of these micro blogs:

Ease of engagement for users: to show and share your buttocks and do exercises;
Visual effects: to show sexual pictures;
Knowledge: rich and useful information about how to do a health body exercise.

On Mother’s Day of 2015, I posted a piece of micro blogs in my company official Weibo about the topic – “Mother’s Day”.

The main features of these micro blogs:

Ease of engagement for users: to say greeting to your mother and forward this micro blog;
Visual effects: pictures within thanks to mother.

These viral features came from the findings of Study 1.

8.2 Research Instrument

Action research

Action research is either research initiated to solve an immediate problem or a reflective process of progressive problem solving led by individuals working with others in teams or as part of a "community of practice" to improve the way they address issues and solve problems. There are two types of action research: participatory and practical. Denscombe (2010, p. 6) writes that “an action research strategy's purpose is to solve a particular problem and to produce guidelines for best practice. Action research involves actively participating in a change situation, often via an existing organization, whilst simultaneously conducting research”. Action research can also be undertaken by larger organizations or institutions, assisted or guided by professional researchers, with the aim of improving their strategies, practices and knowledge of the environments within which they practice. As designers and stakeholders, researchers work with others to
propose a new course of action to help their community improve its work practices.

Kurt Lewin, then a professor at MIT, first coined the term "action research" in 1944. In his 1946 paper "Action Research and Minority Problems" he described action research as "a comparative research on the conditions and effects of various forms of social action and research leading to social action" that uses "a spiral of steps, each of which is composed of a circle of planning, action and fact-finding about the result of the action".

Action research this study adopted
In Study 4, I conducted a marketing program in my own company-Shanghai Flory Company’s official SinaWeibo. To test three viral factors: Ease of engagement Visual effects and Knowledge, I designed several micro blogs including these three factors. Then I posted these micro blogs on Shanghai Flory Company’s official Weibo.

As a group company, Shanghai Flory specialized in the sanitary ware, health electronic appliances, and furniture industries. Flory Company aims to provide consumers with beautiful, stylish, comfortable, environmentally friendly and wonderful user experience products and personalized service. The products of Flory have been exported to over 70 countries and Flory has been recognized as a reliable brand. Flory Company has own official SinaWeibo site. The marketing department of Shanghai Flory Company post micro blogs on SinaWeibo to promote Flory brands and products.)

The topic of the marketing program was “Understanding P”: The Chinese meanings of “P” have two parts: one stands for “nothing” and the other one stands for “ass”. Example: “你懂个P” translated to “You understand a P” means you understand nothing. The “intelligent toilet seat” - the main product of my company, Shanghai Flory Group, is closely linked with another “P”- ass. Ass referred to “屁股 (Pi Gu)”, which was best summed up in the Chinese phrase “P”.

Also, on Mother’s Day of 2015, I designed a micro blog. The content was “say greeting to your mother, and forward this micro blog, then you will have a luck draw of a free electronic toilet seat.”

In Study 4, I did an action research to provide guidelines for best practice.

8.3 Analysis and Results
In June, 2015, my company posted several micro blogs in my official company Weibo about the topic- “understand P”. Each post was forwarded thousands of times even
though my company only has 90,000 fans.

Example 1 of Weibo: Content “Show and share your butt! Do eight minutes exercises every day with me to beautify your butt.” with several pictures depicting exercises to improve one’s butt.

![Image](image_url)

**Figure 27 Example 1 of Weibo Post in Action Research**

#showing how you understand P# Do you want to be a sexy and irresistible heartthrob?
Come on, guys! Let’s get started with little Flory! Spending 8 minutes a day gives you healthy and easy life. Do not sit down! Why not show us your beautiful buttocks?

Publisher: Flory forwarding times: 2516
This micro blog was forwarded by 2516 times, compared with the average 20 forwarding times, this post was very successful. It was confirmed that knowledge and visual effect are viral.

Example 2 of Weibo: the content of this piece of micro blogs was “Here is little ‘Flory’ who understands P#, I am coming!” with four interesting pictures.
Figure 28 Example 2 of Weibo Post in Action Research

Publisher: “Flory” forwarding times: 11,801.

This micro blog was forwarded by 11801 times. It was very viral online comparing with the average 20 forwarding times in Flory official SinaWeibo. It was confirmed that visual effect and knowledge are viral.

Example 3 of Weibo: the content of this piece of micro blogs was “In Mother’s Day, say greetings to your mother, and forward this micro blog. You will have chance to get a free intelligent toilet seat.”
Due to the luck draw of free intelligent toilet seat, followers are interested in taking part in this action. This micro blog was forwarded by 10634 times. It was confirmed that ease of engagement is viral online.

While designing micro blogs in SinaWeibo, people can take these three viral factors into consideration: ease of engagement, visual effect and knowledge.
CHAPTER 9
CONCLUSION

9.1 Introduction

The study commenced by proposing a number of objectives and aims. Although there existed research about the virality of online content in social networking sites, they mostly discussed from a particular point of view such as emotions (Dobele et al., 2007; Derbaix and Vanhamme, 2003; Lindgreen and Vanhamme, 2005; Phelps et al., 2004). A relative complete research framework about virality was seldom mentioned within academia and the research of some influence factors especially ease of engagement was lacking. On one hand, this research took some important factors mentioned and proposed by predecessors into consideration such as altruism (Litvina et al., 2008; Dellarocas et al., 2004; Litvina et al., 2011), egoism (Dichter 1966; Gatignon and Robertson, 1986; Jonah and Katherine, 2011) and gender (Dobele, 2007; Walker, 2012) and verified them in Chinese context especially in SinaWeibo. On the other hand, this research proposed and explored other new factors like ease of engagement and visual effect. And then this study carried out an action research to confirm the value of the findings for viral marketing on Weibo. Such research is essential to the knowledge of practitioners whose role it is to design Weibo marketing programs, and without such knowledge they are not entirely equipped to design a space perfectly suited to the target audience. Yet, the research is also of great relevance to academia and creates a groundwork from which academics can build their future research studies. The contributions to knowledge will be discussed throughout this section.

The discussion chapter (Chapter 7) thoroughly addresses the findings of the study, split into two sections relating to whether the results are in line with or contradict the literature. All of the results and key themes are noted in the discussion chapter with detailed results viewable in Chapter 6.

In line with the findings of the study, a number of noteworthy conclusions are hereby drawn which help to reveal how the research aim and objectives of the study highlighted earlier are achieved. The contributions of the study for understanding the virality of online content are also highlighted. Otherwise, the reference value of the findings for marketing in SinaWeibo is presented. Finally, the chapter identifies existing limitations and directions of the future research.
9.2 Conclusion of research aim and objectives

The research aim was short and concise. The key purpose of the thesis was to discover the factors that cause online content to become viral in SinaWeibo and to investigate how key factors impact the virality of online content. Such an aim has been completed at the conclusion of this thesis in two phases. The elements that affect the virality of online content were discovered and thoroughly analyzed within Chapter 3 and Chapter 6. The study then investigated how each of these verified factors (ease of engagement, knowledge, visual effect, altruism and egoism) from the results of the first phase affected the virality of online content. From the results, a practitioner (individual or company) is able to choose the appropriate elements to design micro blogs in SinaWeibo and make them go viral.

The introduction set out two objectives and led to eight outcomes. In a bulleted list below for simplicity, the completion and outcome of each objective will be stated.

1. To introduce and compare the development of typical social networking sites at home and abroad.

Chapter 2 (Context) provided an introduction and comparison within Facebook vs. RenRen; Twitter vs. SinaWeibo and WhatsApp vs. Wechat from there aspects: history, development and social media marketing. Such a chapter made SinaWeibo be chosen as the research context.

2. To review literature concerning electronic commerce, social media, WOM and eWOM.

3. To review literature concerning virality, viral marketing and viral marketing strategy.

Chapter 3 (Literature Review) enabled a thorough understanding of the research task. The researcher was able to expand their knowledge of electronic commerce, social media and the shift to WOM and eWOM (Chapter 2.1, Chapter 2.2, Chapter 2.3 and Chapter 2.4), understand the variety of factors that can make online content go viral and then form an appreciation of previous studies and the applicability of some to the research task (Chapter 2.5), and then extend the knowledge to viral marketing and viral marketing strategy (Chapter 2.6 and Chapter 2.7).

4. To discover factors except from the existing literature.

5. To identify an appropriate method of data collection for the research aim.

Chapter 4 (Pilot Project) analyzed different data sets from SinaWeibo in order to
determine an appropriate method of data collection and factor measurements. This research employed the approach informed by Berger and Milkman (Berger and Milkman, 2012).

6. To identify the factors which make content go viral in SinaWeibo.
   Within the first stage of data collection (Chapter 5), five factors were verified by a logistic regression model: ease of engagement, knowledge, visual effect, altruism and egoism (Chapter 6.1). Otherwise, the influence of content publisher (gender, type and popularity) was investigated in Chapter 6.3.

7. To investigate how these five key factors, impact the virality of online content.
   Within the second stage of data collection (Chapter 5), two groups of participants were asked to join in lab experiments. Results of the experiments reinforced the findings from the first stage of the study and supported the hypothesized process. Furthermore, different kinds of ease of engagement, knowledge, visual effect, altruism and egoism achieved different levels of attention and lead to varying degrees of transmission (Chapter 6.2).

8. To provide suggestions to companies for conducting successful viral marketing on Weibo.
   After the above two stages of study, this research conducted a series of action research in SinaWeibo (Chapter 5) and results showed that findings of this research were verified useful on brand marketing online, which also can offer guidance and provide direction in regard to brand promotion for companies (Chapter 6.4).
9.3 Contributions of the research to the knowledge

Figure 30 Initial Research Framework in this Thesis

Figure 31 New Research Framework in this Thesis
Previous research on what drives viral online content has focused on the opinion leader, the motivation to share content, and the psychological aspects such as emotions. This research contains three parts according to these three groups of research: the nature of the publisher (spreader), the nature of the content and the context. This research altered factors better fit within the context of SinaWeibo. As there is not a research framework on virality, this research combines previous research and own ideas to propose an integrated framework on virality. Some researchers limit their research scope to online shopping malls whereas future research needs to explore different contexts and environments such as social networking sites (Doh and Hwang, 2009). Many researchers have studied Facebook and Twitter but very few conducted social media through the context of Chinese social media platforms (Culnan, McHugh and Zubillaga, 2010; Jin and Phua, 2014).

Researchers have explored virality of online content and indicated that the valence (positive or negative) and arousal emotions affected the virality of online content. Some researchers held the opinion that the valence (positive or negative) of the content directly affected the virality (Anderson, 1998; Chevalier and Mayzlin, 2006; Berger and Milkman, 2012; Chen, Wang and Xie, 2010; Mizerski, 1982; Deitz and Cakim, 2005). Some researchers proposed that whether positive or negative, viral social transmission was in part driven by arousal emotions, such as surprise (Dobele et al., 2007; Derbaix and Vanhamme, 2003; Lindgreen and Vanhamme, 2005), excitement (Phelps et al., 2004), interest (Hirsh, 2001; Musland, 2001; Huang et al., 2011; Kaplan and Haenlein, 2011), and humor (Phelps et al., 2004). There existed few researches on the relationship between valence and virality directing at Chinese social media, especially social networking sites like SinaWeibo. This research took positive, surprise and humor into consideration but has not indicated the relationship between these factors and virality, which was much more different from previous review of correlation research. Different opinions and views this research showed can help further study and research on relationship between the valence (or emotions) and virality in Chinese context.

Different from previous research on content itself, this research laid more stress on “ease of engagement for users”. Researchers proposed that viral content should encourage ease of use (Dobele, Toleman and Beverland, 2005). Research on the influence of brand community commonly used terms such as “engage” or “engagement” (Algesheimer et al., 2005; Schau et al., 2009). Recent research has paid
more attention to consumer engagement as it is now regarded as a competitive advantage and a driver of business performance (Neff, 2007; Sedley, 2008). In fact, engagement (sense of participation) played an important role in Weibo marketing and this research the first proposed and further demonstrated the importance of ease of engagement (little effort required for the Weibo readers to engage in topics micro blogs has covered) in regards to virality and viral marketing. Otherwise, this study presented several popular kinds of engagement from SinaWeibo: moral encouragement (e.g. good luck from micro-blogs forwarding), material reward (e.g. lucky draw) and topic discussion (e.g. product design; seeking for resonance; emotional appeal).

This study also synthetically considered about the importance and influence of visual effect, knowledge, egoism (self-promotion) and altruism (public welfare) in social networking sites like SinaWeibo except “ease of engagement for users”. Some researchers suggested that self-enhancement was also an important reason to transmit information (Dichter 1966; Gatignon and Robertson, 1986; Sundaram, Mitra and Webster, 1998). Kamins et al (1997) indicated that positive rumors that reflected well on the person telling others had a particularly high chance of being transmitted. Berger and Milkman (2011) agreed with this opinion and they proposed that people tended to share information that reflected positively or information that would show and promote themselves (self-promotion). This study used the construct “self-promotion” to take the place of previous research. Several researchers believed that people shared useful information or content for altruistic reasons (Litvin et al, 2011), which was defined as” knowledge” in this research. It was supported by this study that visual effect (pictures and videos) and knowledge significantly influenced the virality of online content in SinaWeibo and egoism and altruism also positively affected the virality of Weibo.

In general, firstly this study showed different opinions on the relationship between the valence or two typical and key emotions previous research has concluded (humor and surprise) and virality. Secondly, this study affirmed the positive influence of altruism and egoism on virality by studying these two factors - self-promotion and public welfare. Most important of all, this study indicated the critical roles of ease of engagement, knowledge and visual effect have played in leading Weibo posts go viral in SinaWeibo.

According to the findings of study 1 to study4 (Chapter 6,7,8,9), this thesis reshaped the initial research framework (Figure17) to the new research framework (Figure34). This new research framework showed five important factors that greatly
affected the virality of online content in SinaWeibo: ease of engagement, knowledge, visual effect, egoism and altruism from the aspect-Weibo content characteristics.

In conclusion, this thesis has some theoretical contribution. This research fills the gap in a stream of literature that studies content characteristics that drive virality and fills the gap of the research on a stream of literature that studies SinaWeibo. Firstly, most of the studies in this stream of research use data from social media in the West (for example, Twitter and Facebook). However, what content characteristics are key driving factors in Chinese social media remains unknown. This research uses data from a Chinese social media platform—SinaWeibo. It turns out that the content characteristics that drive the virality in Chinese social media platform are different from those in social media platforms in the West. For example, most of the studies based on Western social media find that emotion like humor and surprise, valence are key drivers of virality. However, this research has not found their effect. Secondly, this research has proposed a new set of influence factors in the stream of content characteristics and proven that three key factors were under 95% confident level: ease of engagement, knowledge and visual effect in the empirical research (Study1) and two factors were under 90% confident level: altruism and egoism (Study1). Then in lab experiments (Study2) and action research (Study4), findings was once again verified. Thirdly, this research explored and emphasized the importance and effect of “ease of engagement” for users on virality. This research firstly proposes the concept of “ease of engagement” in academic field which was defined as the threshold to engage with the topic or action a micro blog refers to is low. And then this research proved that “ease of engagement” was the key viral factor. Fourthly, prior studies only examine social network analytics of SinaWeibo, social media marketing strategies, user profile analysis of SinaWeibo, or impact of publisher or context on the virality or SinaWeibo. Few study examines how the content characteristics influence the virality of SinaWeibo posts. This research fills this gap of SinaWeibo research. Finally, this research has constructed a relative integrated framework to study virality on social media (Figure 17).

9.4 Managerial implications

These findings have important marketing implications. Online content in SinaWeibo which contains characteristics: knowledge, visual effect and ease of engagement will be much more viral. Whether individuals or companies who want to be famous or well-known in SinaWeibo, they both think highly of the Weibo data included number of
visits, retweets and comments except for the number of fans.

For individuals, there exists a lot of grassroots bloggers in SinaWeibo who can get a lot of attention from fans even though they are not celebrities. Findings of this research might offer suggestions and guidance for these people who want to be the next grassroots blogger or to be famous. According to the observation and analysis of the grassroots bloggers whose micro blogs always rank in the weekly Top 100 list and who are rated as annual Top 10 grassroots bloggers by Sina, some typical features stand out: engagement or interactivity, rich and useful information, attractive pictures. This is also in line with findings of this research. For example, a famous grassroots blogger named “Yi Qi ShenHui Fu (一起神回复)” owns nearly 10 million fans. Some pieces of his micro blogs achieve hundreds of thousands of retweets. Almost all of his micro blogs have illustrated with attractive pictures or interesting videos and more than half of his micro blogs focus on topic discussion. He holds online midnight-meetings at regular intervals to communicate with the followers. It is worth mentioning that different topics obtain different degrees of attention. However, there also exists micro blogs within less than one thousand even one hundred retweets.

For companies, considering the specific characteristics can help companies increase their profit if they use SNSs to do advertising like Xiaomi. It is also useful for companies to design their micro blogs content if they want to get attention and attract customers in SNSs like Durex. My findings also can help companies to develop their marketing strategy like creating a new topic in SinaWeibo to attract users like Samsung. Companies can post a topic relevant with their products and services. As the findings show, topic which is ease for engagement is much more viral. So, companies should reduce the difficulty to engage the topic discussion.

“Ease of engagement” is the most important attribute that affects the virality of online content in SinaWeibo. Companies must ensure that the content of their micro blogs presents ease of engagement. This could be done by gaining and understanding of what kinds of micro blogs make Weibo users feel ease of engagement. From research findings, this research concluded several popular kinds of engagement from SinaWeibo: moral encouragement (e.g. good luck from micro-blogs forwarding), material reward (e.g. lucky draw) and topic discussion (e.g. product design; seeking for resonance; emotional appeal). Furthermore, enterprises should choose suitable kind to manage online content and it is suggested to study and analyze which kind of
engagement presents more effectively at what time and under what circumstances.

Additionally, knowledge and visual effect also play important function in Weibo marketing. Companies are supposed to choose appropriate pictures or videos to polish their micro blogs, guaranteeing the virality of the online content to a higher degree. Besides, regular knowledge introduction and interaction with followers are really necessary for brand promotion. It is worth mentioning that the effect of altruism and egoism are also investigated in this study. Companies also can take these two attributes into consideration.

This research can provide businesses on SinaWeibo a virality tool box as following:  

<table>
<thead>
<tr>
<th>Instructions</th>
<th>How to build the content of a piece of micro blogs on SinaWeibo?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Companies must ensure that the content of their micro blogs presents ease of engagement.</strong> Try to search and find what kinds of micro blogs make users feel willing and easy to participate in forwarding or commenting for interaction.</td>
<td></td>
</tr>
<tr>
<td>2. <strong>Companies should choose suitable kind of engagement to manage online content</strong> and it is suggested to study and analyze which kind of engagement presents more effectively at what time and under what circumstances. Several popular kinds of engagement from SinaWeibo: moral encouragement (e.g. good luck from microblogs forwarding), material reward (e.g. lucky draw) and topic discussion (e.g. product design; seeking for resonance; emotional appeal).</td>
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<tr>
<td>3. <strong>Companies are supposed to choose appropriate pictures or videos to polish their micro blogs, guaranteeing the virality of the online content to a higher degree.</strong></td>
<td></td>
</tr>
<tr>
<td>4. <strong>Regular knowledge introduction and interaction with followers are really necessary for brand promotion.</strong></td>
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</tbody>
</table>
9.5 Limitations and directions of the future research

The dataset this study collected brought biased elements. The data was collected from a specific group and over a specific period - publisher of weekly Top 100 micro blogs and the sample could be bigger other than just 3,000 pieces of micro blogs. Especially the main study did not take “content publisher” into consideration because the process of data collection excluded the influence of content publisher since each publisher has 3 pieces of micro blogs: one on the top 100 list and two that didn’t make the top 100 list. Following research in this study only ended with a simple statistic of Top 100 micro blogs, carrying not enough conviction among readers. Besides, considering about the measurement of popularity of the Weibo user, this study had not found a good way. Originally this study chose fans amount but zombie fans (Malicious registered users or bought by money) are widespread in SinaWeibo. In the future, number of fans who have V (verification) offered by Sina could be used to measure popularity.

The present study was conducted by using a quantitative method, that is, questionnaires to measure qualitative variables from 1 to 5. This makes it difficult to access in-depth information regarding the reasons behind the raters and experiments’ evaluations of the factors tested in this study. Therefore, further research could use a qualitative study, like text analysis to gather in-depth information. For instance, a text analysis method to distinguish whether the micro blog is positive could be used.

The detailed research on important attributes like ease of engagement, knowledge and visual effect was far more than enough rather than several lab experiments in this study. For example, detailed research on how to raise an appropriate topic corresponding to its own brand when considering the factor - ease of engagement.

Several factors in the original research framework this study constructed in Chapter 3 failed in being verified in this study. And in the end this research reshaped it to a new research framework. For example, current event is one of the most important factors, which deserved detailed study extremely in the future.

Additionally, this research has conducted the research on SinaWeibo. On one hand, it is a public social media platform. China has the other influential social media platform – WeChat. It is a relatively private social media platform. Whether these research results still hold in WeChat remains unknown. Future research may examine it. On the other hand, although this research finds the content characteristics that drive the virality of SinaWeibo posts, it is still not clear why these characteristics are key
drivers. Are SinaWeibo users typically influenced by these characteristics, or
general Chinese are typically influenced by these characteristics? Deeper research is
needed to understand how different users are affected by different content
characteristics. This is a good research chance in the future.
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