Negative Word-of-Mouths in Online Community : Contents and Life Cycles

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Abstract

Word-of-mouths (WOMs) are now an important information source for purchase decision. Due to the advance in internet technology, people now can share online their consumption experience, both positive and negative, to others. The WOMs may diffuse to not only their friends but also enormous online users. When consumers dissatisfy the product or service, they may share the dissatisfactory experience to others as WOM, which may bring out discussions for the product or service. The discussions on the negative WOM may help to communicate the negative information to enormous others, which may damage the sale of the product or service. The diffusion and life cycle of negative WOM is an important issue for managers. However, few studies focus on it. Thus, the current study focuses on the discussion pattern and life cycle of negative WOMs by observing the 782 discussion articles in a large online community.

Keywords : Service Failure, Word-of-mouths, WOM, Content Analysis, Word of Mouth Diffusion

1. Introduction

WOM communications are defined as "informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services and/or their sellers [Westbrook, 1987]." Literature has revealed that word-of-mouths (WOMs) are regarded as more credible than advertising and have more powerful influence on consumers' purchase decision than information provided by advertising [Herr et al., 1991].

WOM is an influential communication media in delivering product or service information provided by consumers [Arndt, 1967], which has now been considered as an important information source in consumer decisions process [Godes and Mayzlin, 2004; Senecal and Nantel, 2004]. Unlike traditional WOM which only influence a few people, online WOM can spread quickly to enormous users. Online WOMs are booming recently due to the high penetration rate of Internet and mobile device. Consumers are now inclined to share their consumption experience, advice and opinions about goods and services to others, and using online WOMs shared by others as important information sources [Li and Zhan, 2011].

WOM is a low cost way of delivering information about products and services and plays an important role in information diffusion and shaping consumers' attitudes [Brown and Reingen, 1987; Mizerski, 1982; Mourali et al., 2005]. Previous research on e-WOM has studied how online reviews have influenced consumers' purchase decision. However, less research focus on the diffusion pattern and life cycle of negative WOM.

Both positive and negative WOMs will influence consumers' evaluation to product and service [Charlett and Garland, 1995]. However, negative e-WOMs are more powerful than positive ones, and may reduce consumers' purchase intention [Wang and Wang, 2010], which damaging marketing effort of firms [Charlett and Garland, 1995]. Therefore, the study focuses on users' participation in the negative WOM discussion. The purpose of this study is to understand the pattern of negative WOM diffusion and life cycle of negative WOM. The study aims to answer as the following questions :

(1) What kinds of service failure and customers' emotion are mentioned in negative WOMs.
(2) The pattern and life cycle of negative WOMs diffusion.

The study extends our knowledge on negative WOM communication in two approaches. First, most negative WOMs are generated due to service failure. However, few studies focused on which kinds of service failure will induce negative WOM. The current study adapts content analysis to investigate the proportion of service failure mentioned in negative WOM. The results of the current study may help managers to realize the cause of the generation of negative WOMs.

Second, whereas previous studies have posited the influence of negative WOMs on purchase decision, our study focuses on the dif-

fusion of negative WOMs. Negative WOMs are not just standalone messages. In most cases, negative WOMs would induce discussion on the same product or service in online community. The discussions for the negative WOMs communicate the negative information again, which will extend the reach and influence of the negative WOMS. More and more users will be reached when a negative WOM is continually discussed. The current study focuses on the discussed pattern and life cycle of the negative WOMs in online community. By realizing the life cycle of negative WOMs, we will extend our understanding on the impact and diffusion of the negative WOMs. To our knowledge, this study is the first to focus on the life cycle of negative WOMs discussion.

2. Literature Review

2.1 WOM

WOM is an important information source for consumers on the evaluation process for product or service [Herr et al., 1991]. Some research even reported WOM affect as greater than print ads, personal selling, and radio advertising [Engel et al., 1969; Feldman and Spencer, 1965; Katz and Lazarsfeld, 1955]. Thus, WOMs have received extensive attention from academics for decades. Since the early 1950s, researchers have demonstrated the influence of WOMs on consumers' purchase decisions [Arndt, 1967; Whyte Jr, 1954], expectations [Anderson, 2003], pre-usage attitudes [Herr et al., 1991], and post-usage perceptions of a product or service [Bone,

1995; Burzynski and Bayer, 1977].

WOMs may be either positive or negative. Both positive and negative WOMs will influence consumers' purchase decision [Charlett and Garland, 1995]. Positive WOM is able to help generate purchase intention [Doh and Hwang, 2009; East et al., 2008], and accelerate purchase [East et al., 2008].

Not all WOMs are positive ones. Consumers distribute negative WOM to communicate a dissatisfying consumption experience [Anderson, 1998]. Consumers may through a negative WOM to narrated the cause of their dissatisfaction in order to get a solution [Thøgersen et al., 2009] or as a mechanism to vent negative feelings to reduce anxiety [Nyer, 1997; Richins, 1984].

It is generally considered that negative WOM is more influential than positive WOM, which refers to as a 'negativity effect', negative information exerts more impact on peoples' judgment and perceptions than positive information [Fiske, 1980; Herr et al., 1991; Mittal et al., 1998]. Consumers tend to more attention to negative WOM than positive WOM [Yang and Mai, 2010], and trust negative messages more than positive messages. Literature revealed that negative WOMs have stronger influence on purchase decision than positive one [Mizerski, 1982] since they tend to weight negative WOMs more than positive ones during purchase decision process [Sen and Lerman, 2007].

2.2 Service failure

The most frequently reported action by dissatisfied consumers was telling friends about

the negative consumption experience [Lau and Ng, 2001; Leonard-Barton, 1985]. Thus, service failure is highly connected with negative WOMs.

Service failure is the customer service encounter scenario that caused by the dissatisfaction [Hays and Hill, 2001]. According to Hess Jr, Ganesan, and Klein [2007], service failure can be defined as service performance that below customers' expectations, where customers find the service to be flawed and irresponsible [Palmer et al., 2000]. Such failures can lead to lost customers [Bitner et al., 2000]. Previous studies [Bejou and Palmer, 1998] indicate the negative link between service failure severity and customer relationships.

Service failure were divided into four classifications : employee response to service delivery system failures, employee response to implicit or explicit customer requests, unprompted and unsolicited employee actions, and problematic customer behaviour [Bitner et al., 1994].

3. Methodology

The study primary focuses on the contents and life cycle of the negative WOMs with service failure. We divided the negative WOM articles into original and ramification ones. The original WOM were posted by customers for their consumption experience. The ramification WOMs were posted by other users who have the similar or against experiences for the original WOM. We also discussed the users' responses to WOMs to analyze the life cycle of negative WOMs.

3.1 Data collection

In this research, we use the web crawler software Easy Web Extract 2.7 to collect WOMs. The study scrapes WOM title, date, sender, the amount of response, and users who involve in WOM discussion.

3.2 Sample

The study collected data from a large online community PTT (http://ptt.cc), which was established in 1995 with a population of 1.5 million users in 2013. PTT is a text-based bulletin board system composes of hundreds of boards of various topics in which users can share their opinions with others. The study focuses on the discussion board of "hotel" in PTT.

In the PTT, users can post articles in the discussion board. All users can view the articles posted by others in the discussion board. Users can simply click the tag of like/neutral/dislike to present their opinions (response) to the posted articles. The original negative WOMs are usually articles posted by dissatisfactory customers. After viewing the WOMs, users may present their opinion of like/neutral/dislike to the WOMs with several words or a short sentence as comments. Unlike Facebook which provide only "like" option, the PTT bulletin board system provides three opinion tags of like/neutral/unlike.

Besides, other users may also reply by articles to reveal their opinions to the original negative WOMs and share their previous consumption experience to the same product or service providers. In PTT, this kind of reply will be regarded as a new article with the same title plus a word "RE:" in the article title to show the re-

lation with original article. In the study, the reply articles are regards as ramification WOMs to the original negative WOM.

All articles in the PTT bulletin broad system are ranked by time. So, articles posted several days ago may not attract users' attention anymore since they are sunk in the middle of enormous articles.

The study used the web crawler software Easy Web Extract 2.7 to extract the articles from the hotel discussion board. The study collected data during the period between March 2008 and February 2013. In total, this study collected 11640 articles. Among them, 788 were negative WOMs. After eliminated incomplete articles, that obtained 782 negative WOMs. The study focuses only on negative WOMs. Among the 782 negative WOMs, 683 (87.34%) ones were original WOMs, while the other 99 (12.26%) were ramification WOMs. Among the 683 original negative WOMs, 517 (66.11%) ones were with others responses of like/neutral/dislike, while the other 166 (21.23%) were without any response. Among the 99 ramification WOMs, 65 (8.31%) ones were with like/neutral/dislike responses, while the other 34 (4.35%) were without any response. The WOM articles distribution is shown in <Figure 1>.

3.3 Content Analysis

The study used content analysis and assigned two coders to independently evaluate consumers' experience, emotion status and severity of service failure mentioned in the negative WOMs. The two coders judged if the service failure was mention in the negative WOM. When the service fail-

ure existed, coders evaluated the degree of severity of the service failure by a five point scale from 1 to 5 (5 for serious service failure, 1 for minor service failure) and divided the service failure into one of the eighteen service failure types, which was summed by Tsai and Su [2009] based on previous studies [Bitner et al., 1994; Hoffman et al., 1995]. These eighteen service failure types were grouped into four group of employee provide for service, employee response to customer needs and requests, unprompted and unsolicited employee actions, and customer behavior.

The two coders also evaluated consumption experience and emotion mentioned in the negative WOMs by a eleven point scale from -5 to 5 (5 for very positive experience or emotion, 0 for neutral, -5 for very serious negative experience or emotion). The scores of service failure severity, consumption experience, and emotion rated by the two codes were averaged. The two coders met together and evaluated the negative WOM again when they divided the negative WOM into different service failure types or the difference of their rating scores was equal or greater than three for service failure severity, consumption experience, and emotion.
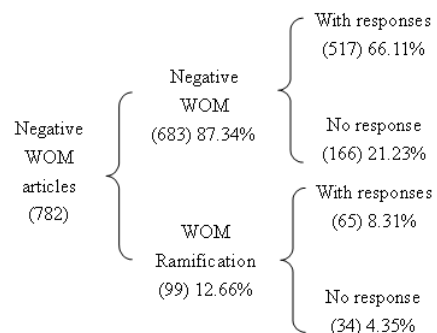
<Figure 1> The WOM Articles Distribution

〈Table 1〉 Definitions of WOM Discussion

Term	Definition
Original WOM	Articles posted by customers to share their consumption experience to product or service.
Ramification WOM	Other users reply the original WOM to share their previous consumption experience to the same product or service providers.
Short response	After viewing the WOMs, users present their opinion of like/neutral/dislike with several words or a short sentence as comments

4. Data Analysis

4.1 Negative WOMs life cycle

WOMs may bring out discussions, including ramification WOMs and short response, among users in the online community. Usually, ramification WOMs and short responses appeared within a period of no more than several days after the original WOM. However, in some rare cases, ramification WOMs and short responses appeared after several months or even years. Before analyzing the life cycle of negative WOMs,

the study regarded these ramification WOMs or short responses appeared after one month of posted date of the original WOMs as outliners and did not take them into our analysis.

We define the life cycle of original WOMs as the duration between the post dates of the original WOMs and the last ramification WOMs or short responses, except the outliners. As table 2 reveals, the average life cycle for all WOMs was 22 hours 38 minutes (s.d = 29 hours 55 minutes). 683 (87.34%) of the 782 negative WOMs were original WOMs with ramification WOMs. The average of life cycle was 23 hours 33 minutes for the WOMs with ramification WOMs (s.d = 30 hours 37 minutes). The remaining 99 (12.66%) original WOMs were without ramification WOMs. The average of life cycle was 16 hours 17 minutes (s.d = 23 hours 46 minutes) for original WOMs without ramification WOMs.

4.2 Service Failure Categories

The study used content analysis to explore

〈Table 2〉 Distribution and Life Cycle of Negative WOM

	N	%	Mean	S.D
WOM	782			
Original WOM	683	87.34		
WOM Ramification	99	12.66		
WOM	782			
With other's responses	582	74.42		
Without	200	25.58		
Life cycle(all)	782		22hours 38mins	29hours 55mins
Life cycle(with Original WOM)	683	87.34	23hours 33mins	30hours 37mins
Life cycle(with WOM Ramification)	99	12.66	16hours 17mins	23hours 46mins

the service failure mentioned in the 782 negative WOMs. The study use the service failure classification proposed by literature [Bitner et al., 1994; Hoffman et al., 1995] to divide service failure mentioned in WOMs into four groups : employee provide for service, employee response to customer needs and requests, unprompted and unsolicited employee actions and customer behavior, as listed in <Table 3>.

Service failure resulting from "employee provide for service" belonged to first category of service failure. 404 (51.66%) WOMs mentioned this kind of service failure. This kind of service failure includes several sub-categories, includes slow/unavailable service, facility problems, unclear policy, and out of stock. Facility problem is the most important service failure sub-category, which accounts for 148 (18.93%) of all 782 WOMs. The average of failure rating was 3.43 (s.d = 1.04), which is most serious among the four sub-categories. Consumption experience mentioned in this sub-categories was also the most serious among the four sub- categories, the average of degree was −3.40 (s.d = 1.26). Besides, the most serious negative emotion appeared with the out of stock service failure, which accounts for 3.71% of WOM and the average score of negative emotion was −3.33 (s.d = 1.21), as listed in <Table 3>.

The second category of service failure was "employee response to customer needs and requests", which comprised 118 (15.09%) of all 782 original WOMs. Among this service failure category, WOMs with unsatisfied customer preferences service failure were rated as the most serious service failure, the worse consumption experience, and the most negative emotion. It accounts for 73 (9.34%) of all 782 WOMs. The average rating was 2.99 (s.d = 1.11), −3.29 (s.d = 1.35), and −3.23 (s.d = 1.18) for service failure, consumption experience, and emotion, respectively, as listed in <Table 3>.

The third service failure category was "unprompted and unsolicited employee actions", which comprised 227 (29.03%) of all 782 original WOMs. Among this service failure category, impolite of employee behavior was rating as most serious service failure, which accounts for 90 (11.64%) of all 782 original WOMs with the average rating of 3.45 (s.d = 1.18). Wrong booking or lost booking played the second position. WOMs with service failure of verbal and physical abuse were with worse consumption experience and most service negative emotion among the service failure sub-categories. However, only a few WOMs mentioned this service failure sub-category. It accounts for only 0.38%. The average scores were −4.33 (s.d = 0.58) and −4.33 (s.d = 0.58) for consumption experience and emotion, respectively.

Only 7 (0.90%) original WOMs mentioned service failure of "customer behavior", which was the less important service failure category mentioned in negative WOMs. In addition, there were 26 negative WOM articles contained no service failure. It comprised 3.32% of all negative WOMs.

〈Table 3〉 Negative WOM Articles Service Failure

Failure category	Number	%	Failure rating*	Consumption experience†	Emotion‡
GROUP1 : Employee Provide for Service					
Slow/unavailable service	30	3.84	3.10(1.17)	−3.15(1.08)	−2.90(1.27)
Facility problems	148	18.93	3.43(1.04)	−3.40(1.26)	−3.22(1.18)
Unclear policy	68	8.70	3.26(1.11)	−2.90(1.57)	−3.01(1.51)
Out of stock	29	3.71	2.52(1.26)	−3.07(1.09)	−3.33(1.21)
Others	129	16.50	3.34(1.22)	−3.31(1.58)	−3.01(1.46)
Subtotal	404	51.66	3.13	−3.17	−3.09
GROUP2 : Employee Response to Customer Needs and Requests					
Unsatisfied "special needs"	14	1.79	2.25(1.00)	−2.54(1.77)	−2.86(1.31)
Unsatisfied customer preferences	73	9.34	2.99(1.11)	−3.29(1.35)	−3.23(1.18)
Others	31	3.96	2.76(1.18)	−3.10(1.13)	−2.68(1.19)
Subtotal	118	15.09	2.67	−2.98	−2.92
GROUP3 : Unprompted and Unsolicited Employee Actions					
Impolite	91	11.64	3.45(1.18)	−3.57(1.07)	3.49(1.07)
Wrong booking or Lost booking	70	8.95	3.36(1.13)	−3.50(1.05)	3.42(1.21)
Mischarged	15	1.92	3.10(1.35)	−3.30(1.26)	3.50(1.02)
Gestalt evaluation	4	0.51	3.00(1.41)	−2.88(1.93)	4.13(0.85)
Verbal and Physical Abuse	3	0.38	3.33(2.08)	−4.33(0.58)	4.33(0.58)
Others	44	5.63	3.30(1.16)	−3.05(1.47)	3.02(1.47)
Subtotal	227	29.03	3.26	−3.44	3.65
GROUP : Customer Behavior					
(Drunkenness, Verbal and Physical Abuse)	2	0.26	2.50(0.71)	−4.00(0.00)	−3.00(1.41)
Breaking company policies or laws	1	0.13	1.00(0.00)	3.00(0.00)	−1.00(0.00)
Uncooperative customer	0	0.00	0.00(0.00)	0.00(0.00)	0.00(0.00)
Others	4	0.51	1.63(0.75)	−3.25(1.19)	−3.38(1.11)
Subtotal	7	0.90	1.28	−2.56	−1.85
No failure	26	3.32	0.00(0.00)	0.65(1.41)	0.65(1.41)
Column total	782	100	2.07	2.30	−2.17

* Failures were rated on a scale of 0 (no failure) to 5 (major mistake).
† Consumption experience was rated on a scale of −5 (very poor) to 5 (very good).
‡ Emotion was rated on a scale of −5 (very poor) to 5 (very good).

4.3 WOM Discussion and Diffusion

To realize the WOM discussion and diffusion, the study selects two negative WOMs as cases to introduce how the negative WOM diffuse in the online community.

Case 1 : In this Case, 5 ramification WOMs are derive from original negative WOM of the

same title. There are 25 active users participate to this discussion, 1 original WOM by 1 user (user A), 5 ramification WOMs by 5 users (user A, B, C, D, E). In total, there are 26 responses by 21 users (user A, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y), as shown in <Figure 2>. As <Figure 2> mention, the original WOM posted in the mid night (day 1) and attracted 5 responses in the first 24 hours. Then, two users posted their own consumption experience as ramification WOMs. These two ramification WOMs attracted another responses. In the second day, another three users posted their own consumption as ramification WOMs. These WOMs attract another wave of discussion. In total, 25 active users joined the discussion of the WOM. The duration of discussion of this WOM is about six days.

Case 2 : In this Case, 3 ramification WOMs are derive from original negative WOM of the same title. There are 26 active users participate to this discussion, 1 original WOM by 1 user (user A), 3 ramification WOMs by 3 users (user B, C, D). In total, there are 34 responses by 23 users (user A, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z), as shown in <Figure 3>. As <Figure 3> mention, the original WOM posted in the mid night (day 1) and attracted 22 responses in the first two day. The discussion continued until the fifth day. Two ramification WOM was posted in the third day and one in the sixth day. Another six responses focused on the ramification WOMs. In total, 26 active users joined the discussion of the WOM. The dura-
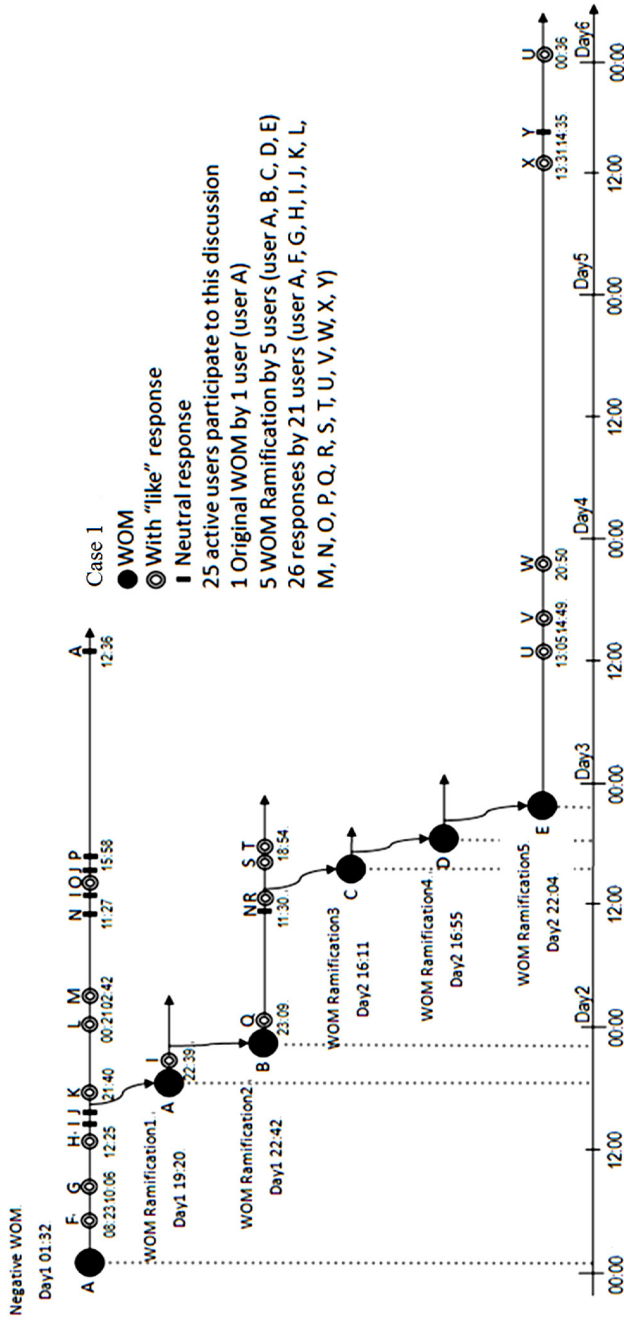
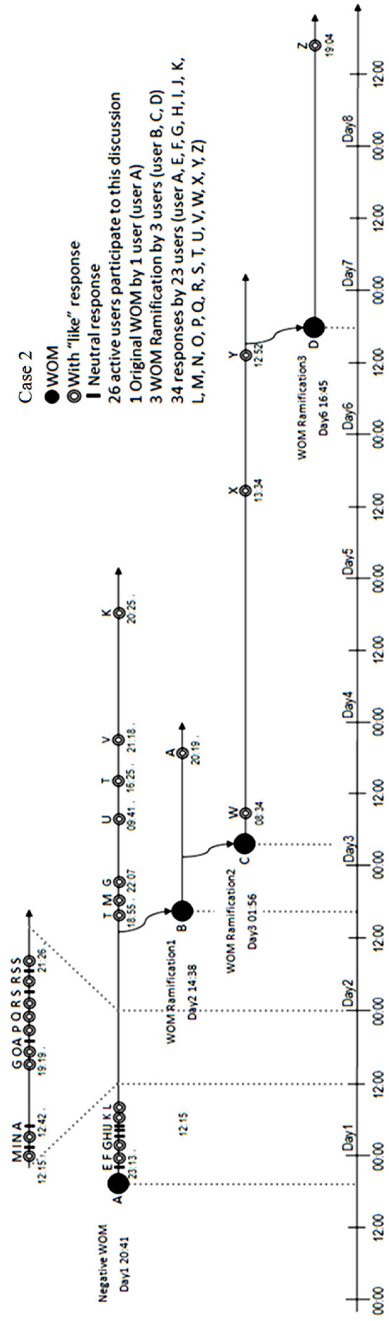tion of discussion of this WOM is about eight days.

5. Summary

The current study explored service failure mentioned in the negative WOMs. Base on the 782 original negative WOMs collected in the study, we found that most service failure mentioned in negative WOMs could be attributed to "employee provide for service". The results of content analysis will be useful for managers to realize which kinds of service failure will bring out negative WOMs.

In addition, the study explored the life cycle and diffusion pattern of negative WOM in the online community. Base on this study, we found that the average life cycle for all WOMs was less than one day (22 hours 38 minutes). If no other users provide similar or dissimilar consumption experience as ramification WOMs, the average of life cycle was only 16 hours 17 minutes (s.d = 23 hours 46 minutes). If the other users provide their own similar or dissimilar consumption to the original WOMs as ramification WOMS, the average of life cycle extended to 23 hours 33 minutes (s.d = 30 hours 37 minutes). The results revealed that most WOMs keep only a few days. After that, the negative WOMs had sunk in the middle of articles.

This study also selects two negative WOMs as cases to introduce how the negative WOM diffuse in the online community. The results of content analysis will be useful for managers to realize the pattern of WOM discussion and diffusion.

Case 1
● WOM
◎ With "like" response
▮ Neutral response
25 active users participate to this discussion
1 Original WOM by 1 user (user A)
5 WOM Ramification by 5 users (user A, B, C, D, E)
26 responses by 21 users (user A, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y)

〈Figure 2〉 Diffusion diagram for Case 1

Case 2
● WOM
◎ With "like" response
▮ Neutral response
26 active users participate to this discussion
1 Original WOM by 1 user (user A)
3 WOM Ramification by 3 users (user B, C, D)
34 responses by 23 users (user A, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z)

〈Figure 3〉 Diffusion diagram for Case 2

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