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MANAGING THE

UNCONTROLLABLE

Empirical Studies of User-Generated Content Online

HSIN-HSIUAN LEE

I

MANAGING THE UNCONTROLLABLE
Empirical Studies of User-Generated Content Online

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor
aan de Universiteit van Amsterdam
op gezag van de Rector Magnificus
prof. dr. D.C. van den Boom
ten overstaan van een door het college voor promoties
ingestelde commissie,
in het openbaar te verdedigen in de Agnietenkapel
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Preface

I tend to believe that I can do just about anything, until I have tried and failed multiple times. This belief summarizes the journey of completing this thesis.

It was in 2007, right after completing a Master's degree in Marketing, that I started thinking about doing a PhD in Marketing. Given that I had enjoyed my time working on the Master dissertation, I was convinced that I had found something more suitable for my capabilities than all the other stuff that I had done before. However, at that point, I had probably already held more professional degrees than what was necessary for job markets. Many told me to get a real job for a couple of years before (continuing) lingering in universities. Others told me that with my somewhat obscure scientific background, without a decent training in business studies, it would be very difficult, if not impossible, to pursue an academic career in marketing. The word "difficult" to me is just as honey to the bees. Determined, I started looking for opportunities that combine my interests in marketing and social issues, particularly about animal welfare.

After much consideration, in 2008, accepting the offer of the PhD position in Amsterdam Business School, I relocated to the Netherlands from Scotland. Very soon, however, after failing to deliver what was expected from me for many times, after a rather tough start with much struggle, I reached my first epiphany in life: just because you like something, doesn't mean you should be doing it. Obviously, just because I love the subject so much, it doesn't mean I should be doing research about it.

Somehow, after five years, this ride has now come to a periodic end with this thesis. The project starts with a focus on corporate social responsibility and ethical consumption. The final thesis, however, is somewhat distant from that starting point and has nothing to do with animal welfare. This is one of the many unexpected adventures that I gradually learned to enjoy in doing research; you don't always get to research what you love or what you set to investigate, but you learn to love the subject that you're working on. The adjusted research focus may be just as much fun, if not better. The thesis focuses on user-generated content online, about which I am sincerely passionate. I started surfing, writing blogs, participating in discussions, and reviewing products (bad-mouthing mostly) online since I was still a kid. Much has changed over the years. Observing internet users is a little bit like observing myself through a scientific lens. Not everyone gets to do that with their research topics, for which I consider myself very lucky.

Someone once told me that doing a PhD is like banging your head on a great wall and trying to break a hole in it. I hope, with this thesis, I have left a scratch on the wall, at the very least.

Hsin-Hsuan Lee, November 2013, Amsterdam

MANAGING THE UNCONTROLLABLE

Empirical Studies of User-Generated Content Online

HSIN-HSUAN LEE

CHAPTER 1

INTRODUCTION

1.1 USER-GENERATED CONTENT ON THE INTERNET

On 13th April 2009, a prank video featuring an employee from one of the Domino's Pizza franchises besmirching the products went viral online, generating over a million views on YouTube before it was removed from the site. Sensing a public relation crisis, the company responded to the video within two days. A clip featuring Patrick Doyle, then U.S. president of the chain, denouncing and apologizing for the acts, was published on the same platform.¹ However, the damage had already been done; the franchise was eventually shut down five months later. The incident has since become case study material for reputation management in the internet era (Gaines-Ross, 2010). Fast-forward to 2012: on 13th August, Domino's embraced internet users by launching a co-creation project with Local Motors, a virtual community for car design and engineering enthusiasts. The crowdsourcing project, titled "Ultimate Delivery Vehicle Challenge," asked community members to design a vehicle tailored specifically for pizza delivery.² The project aimed to improve Domino's delivering process and offered cash prizes for the winning design. Taking ideas from the 152 contributed members, Domino's is now working together with the virtual community members to build the final prototype of their new delivery vehicle.³

Domino's ambivalent relationship with the internet is not uncommon. Ever since the rapid growth of the internet in the late 1990s and the emergence of social media in the past decade, user-generated content has become a prominent part of the interactions between companies and consumers. Platforms such as YouTube, Twitter,

¹ http://www.nytimes.com/2009/04/16/business/media/16dominos.html?_r=2&th&emc=th&, last accessed 21 August 2013.

² <https://forge.localmotors.com/pages/competition.php?co=70&tab=design-brief>, last accessed 20 August 2013.

³ <http://localmotors.com/blog/post/the-ultimate-delivery-vehicle-project-update-rendermania/>, last accessed 20 August 2013.

Facebook, blogs and forums have granted internet users easy access to ways of sharing their ideas and opinions with others. This frequent and abundant user-generated content online also helps companies to understand modern consumers. The growing number of outlets provides companies with channels to directly observe consumers and gain insights into them.

Online opinions that are directly related to products, services, brands and companies are often regarded as electronic word-of-mouth (Hennig-Thurau et al., 2004) or online buzz (Thomas, 2004). These online consumer voices have been studied extensively and are believed to influence consumer behavior (e.g., Gruen, Osmonbekov and Czaplewski, 2005) and firm performance, considering, for example, stock price (e.g., McAlister, Sonnier and Shively, 2012), or product sales (e.g., Chevalier and Mayzlin, 2006). They have also been noted to have implications for new product introduction and diffusion (e.g., Clemons, Gao and Hitt, 2006), and reputation and brand image (Jones, Temperley and Lima, 2009). For example, internet has provided consumers with the opportunities to connect with others and to form alternative or counter-brand communities that could compete with or threaten companies' offerings (Cova and White, 2010). Although not all companies and product categories are found to be influenced by user-generated content online (e.g., Ho-Dac, Carson and Moore, 2013), studies have highlighted the critical role it plays in consumer decision-making. In general, it is believed that positive content is beneficial for companies while negative content should be avoided (e.g., Chevalier and Mayzlin, 2006).

One of the reasons that the internet has become so powerful is the transparency that it creates. The increasing interconnection and constant visibility of information has empowered consumers (Shankar and Malthouse, 2007). Companies' behavior, online and offline, is now under close scrutiny by internet users. How companies are perceived by the public is no longer controlled by their own communication efforts, but is often shaped by responses and conversations of consumers online. Both favorable and unfavorable discussions can spread fast across the networks. This "uncontrollability" (Dobele, Toleman and Beverland, 2005) has been one of the main challenges for marketing scholars and practitioners.

The degree of uncontrollability may be influenced by two factors: the types of the platforms and the form of the online discussions. With respect to the type of platform,

user-generated content may occur anywhere online. One of the key characteristics is that consumers may proactively initiate online communication, such as establishing communities (e.g., Muniz and O'Guinn, 2001), and publishing opinions on blogs (e.g., Kozinets, 2002). These user-initiated activities are distinct from company-initiated platforms which companies build to establish a relationship or induce productive feedback on particular brands or products. Though internet users may engage in creating user-generated content regardless of who has the control over the content on the platforms, platforms that are created and maintained by companies tend to provide greater managerial control (Porter, 2004). Adapted from the definitions in the prior literature on virtual communities (Porter, 2004; Jang et al., 2008), online outlets for commercially-relevant user-generated content can be distinguished by considering the actors that administer and command the content.

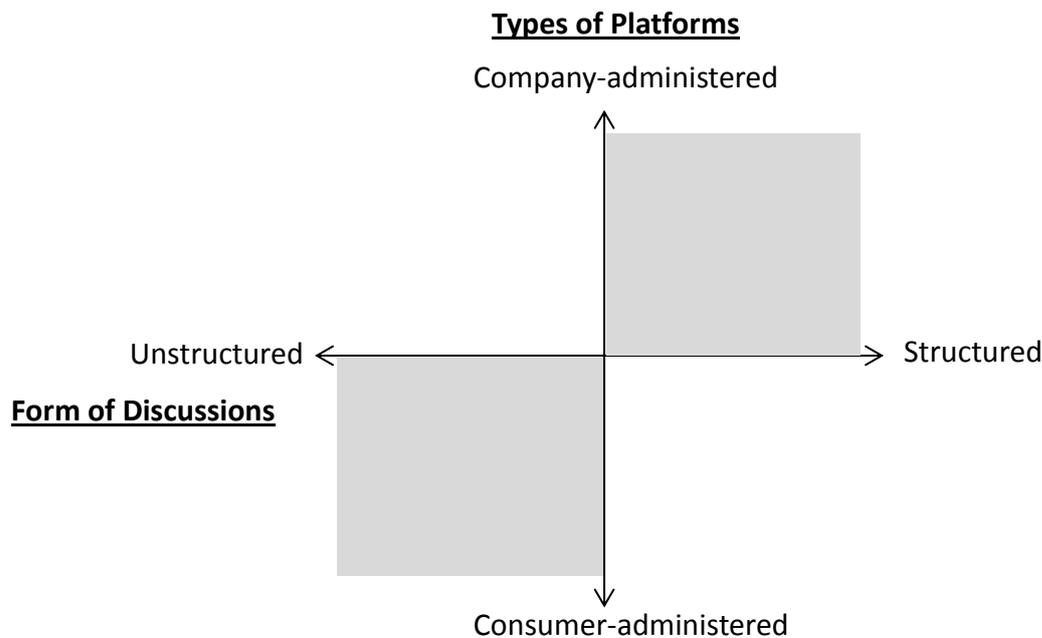
At the two extreme ends of this command spectrum, consumer-administered and company-administered platforms can be found. User-generated content on consumer-administered platforms is administered and maintained voluntarily by consumers. Users tend to have full control over what is published, i.e. they either set the rules themselves (collectively) or there are no specified rules. On the other hand, there are company-administered platforms, where companies are in charge. While user-generated content on company-administered platforms can be created by users, they are managed by companies that which determine the platform rules. Both types of platforms can result in economic benefits for companies and have been previously studied (e.g., Cova and Pace, 2006; Hatch and Schultz, 2010). In between these two extremes, but closer to consumer-administered than to company-administered, are platforms such as YouTube, Facebook and Twitter, which are run by companies, but internet users may establish their own channels and pages to discuss other companies. Users on these platforms have control over the content, unless they are breaking the rules (e.g., intellectual property rights and laws). Personal channels as such would yield more consumer control than company control. Similarly, the same platforms also allow companies to establish their own (brand) pages and welcome general discussions and reviews. Such channels give companies more control, though not as much as company-owned ones, such as Dell IdeaStorm.

With respect to the form of discussions, network ties and sizes have been found to influence the diffusion (Liu-Thompkins and Rogerson, 2012), the creation (Shriver, Nair and Hofstetter, 2013) and the value (Ransbotham, Kane and Lurie, 2012) of user-generated content. Content that is connected to specific social networks, such as discussions on virtual communities and forums, is shared among a particular group of registered users. The information is linked and transmitted through network ties. This provides relatively larger opportunities for companies to follow the content generated by users, compared to content that is scattered on various platforms. User-generated content published on loosely or non-connected platforms, such as individual blogs, Twitter, and personal websites, are much more difficult to locate and follow. Prior research has found that discussions on various platforms could reveal different patterns of sentiments (Smith, Fischer and Yongjian, 2012), which highlights the importance and the challenge of tracking down scattered buzz on the internet. Content on these platforms is broadcasted to the web to unpredictable, anonymous and often random readers, which increases the uncontrollability of the communications. Considering the form of user-generated content, online discussions can be distinguished into structured and unstructured buzz. Structured buzz is user-generated content that occurs on one single platform and is organized and connected via threaded or structured discussions. On the other hand, unstructured buzz means related user-generated content that is scattered across the web and not necessarily connected.

Figure 1.1 depicts the typology of online buzz, resulting from the combination of the two dimensions. Companies have the highest control in terms of content management in a company-controlled platform with structured discussions. In contrast, user-generated content that occurs on the consumer-administered platforms with unstructured discussions would be the most difficult to influence and control. To help companies develop strategies for managing user-generated content, there is a growing stream of research investigating motives of users to generate content online (e.g., Daugherty, Eastin and Bright, 2008; Füller, 2010; Ho and Dempsey, 2010). Despite individual heterogeneities, online users can be grouped by the structure and the purpose of participating on different platforms (Ransbotham, Kane and Lurie, 2012; Sohn, 2009). However, prior research has not investigated explicitly the correspondence between platform characteristics and strategies to manage user-generated content on these

platforms. To date, few studies have addressed or discussed the potential interplay between user-generated content and its “uncontrollability,” based on the context of the platforms.

Figure 1.1 Typology of User-Generated Content



This thesis focuses on the two contrasting typologies, marked in grey in Figure 1.1, i.e., structured discussions on company-administered platforms and unstructured discussions on consumer-administered platforms. These two typologies represent the scenarios where companies have the most and the least control over the user-generated content. Considering the influence of platforms and discussion characteristics, the studies investigate the factors that influence the content of online discussions, more specifically, the valence and opinions expressed in user-generated content. Furthermore, and specific to the two contrasting typologies, it examines 1) how these factors can be influenced and managed in “uncontrollable” situations, namely, unstructured discussions on consumer-administered platforms, and 2) how they can influence the output of discussions in “controlled” situations, namely, structured discussions on company-administered platforms. To address these research questions, this thesis explores user-generated content online in two different and specific empirical settings,

namely, product-related corporate social responsibility concerns and brand/product-related co-creation ideas. These two contexts are chosen for their relevance to modern business practices.

In recent years, there has been an increasing demand on companies to proactively communicate their corporate social responsibility online. However, these communications often face skeptical consumers and are threatened by potential negative word-of-mouth (e.g., Du, Bhattacharya and Sen, 2010) or even boycotts that are initiated by individuals through the internet (e.g., Koku, 2012). While many researchers advised companies to proactively engage with online users via structured communities (e.g., Korschun and Du, 2013), their communications may unintentionally go viral. It is thus important to explore user-generated content in response to company communications and to investigate the potential factors that can influence the formation of online buzz. This will help managers understand how companies can maintain control when dealing with unstructured consumer-initiated communications.

Besides preventing negative consequences of user-generated content, companies can proactively utilize the “crowd wisdom” through the same outlets (Kozinets, Hemestberger and Schau, 2008). The process of gathering ideas from internet users to help companies develop new products and/or enhance their current offerings is often referred to as crowdsourcing or co-creation (Füller, 2010), as illustrated by the example of Domino’s. Co-creation often occurs in structured communities and consists of the collective efforts of online crowds, which often can directly benefit company performance and value creation (e.g., Grönroos, 2011). In recent years, many companies have established similar campaigns to explore the possibility of collective innovation and creativity among internet users, yet only a few have succeeded in seizing the opportunities (Kohler et al., 2011). This implies that there are still challenges in setting up co-creation communities for users. For example, it remains unclear why some discussions are more popular than others and why some communities generate more creative output than others. This thesis intends to understand under what conditions, considering the influence of external environment, companies may profit from user-generated content on co-creation platforms and how this can best be managed. The next two sections briefly discuss the two chosen contexts, followed by an introduction to the chapters.

1.2 CORPORATE SOCIAL RESPONSIBILITY COMMUNICATIONS AND USER-GENERATED CONTENT

With increasing public engagement on the internet, one of the challenges that companies are dealing with is that new ways of spreading information about responsible business are opening up. Activists, general consumers and other stakeholders may start the debate online about a particular social issue that a company is facing (Taylor, Kent and White, 2001). The online debate can be triggered by many factors: people may learn about the social issue and companies' initiatives from news reports, respond to new product introductions, react to online discussions or simply notice press releases issued by companies. The heightening transparency resulting from the growing accessibility of information on the internet has increased companies' pressure to voluntarily disclose and communicate relevant information online. Traditionally, this information was regarded as part of public relations management where journalists were the main audiences concerned. However, corporate communications nowadays are often directed to, or picked up and discussed by, internet users other than professional journalists (Wright and Hinson, 2008). In other words, even when companies do not intend to proactively communicate with consumers, the information can still be circulated, judged and commented on widely by internet users.

Thus, one of the first issues that companies are confronted with when developing their corporate social responsibility communication strategies is to decide whether to passively listen and observe the discussions online or to initiate and join the discussions with internet users. Given that consumer awareness of company initiatives addressing corporate social responsibility is generally low (Sen, Bhattacharya and Korschun, 2006), many companies choose to communicate proactively with stakeholders about particular social issues (Fieseler, Fleck and Meckel, 2010). It is suggested that this proactiveness could transform company-initiated communications from a one-way to a two-way interactive process (Jones, Temperley and Lima, 2009), which potentially gives companies more control as they can (partly) guide the direction of the debate. However, not only do companies' communications trigger discussions among internet users, they may also lead to unfavorable reactions. Although socially responsible practices are proven to generate positive business benefits (Luo and Bhattacharya, 2006),

communicating about them may not guarantee positive responses due to consumers' cynicism and low trust (Sen and Bhattacharya, 2001). Contrary to companies' hopes of generating positive responses online, user-generated content often negatively influences company performance and reputation in a significant way (e.g. McAlister, Sonnier and Shively, 2012).

Limited efforts have been made to understand internet users' responses to companies' corporate social responsibility communications. Most of the prior studies have focused on boycotts that resulted from irresponsible company behavior (e.g., Kerr et al., 2012; Koku, 2012). Online opinion platforms, such as blogs, have been identified as key channels for consumers to initiate anti-consumption activities (Kerr et al., 2011) and to mediate brand reputation (Siano et al., 2011). However, unlike the traditional activist groups or anti-brand communities, one of the key perils of the era of social media is that anyone and everyone can produce content online. These discussions may happen simultaneously across all online channels that are not necessarily connected with each other. The unstructured discussions scattered around the internet may make it seem impossible for companies to tackle them. Yet, the impact of these seemingly uncontrollable opinions has been found significant in previous studies (e.g., Meraz, 2011). These findings indicate the intensified pressure on companies to value and become acquainted with what has been communicated online by internet users related to their efforts in addressing social issues.

Understanding uncontrollable user-generated content is especially important for companies in industries that are suffering from a high degree of scrutiny from the public (Palazzo and Richter, 2005), such as the oil industry for environmental concerns, the tobacco industry for health issues, and the food industry for the obesity epidemic. These companies, and their legitimacy, are often the subject of societal debates and consumer skepticism (Du and Vieira Jr., 2012). While well-connected internet channels and the era of information overflow may have helped overcome the concerns over low awareness among consumers about companies' social activities, consumer skepticism may have stayed at the same level, if not increased. As a result, for companies that are on riskier ground with their reputation, it is thus critical to investigate how internet users pick up and interpret corporate communications and to understand the potential informational cues that could trigger negative responses.

Chapters two and three contribute to the debate on how companies that are confronted with societal debate may (proactively) communicate their policies in dealing with user-generated content. Focusing on the direct communications issued by companies, i.e., press releases, and the unstructured online buzz they have accumulated in consumer-hosted platforms, i.e., the blogosphere, specific attention is paid to analyzing the influence of the “controllable elements”. In particular, the studies investigate three potentially manageable factors from companies and their influence on user-generated content, namely, the content of their communications, the fit level between companies and their initiatives, and companies’ associations with the social issue. While the topic of corporate communications is often the key for consumers to evaluate perceived information, it has been found that the level of fit between the corporate social responsibility activities and the company may also explain consumer reactions (e.g., Becker-Olsen and Hill, 2006; Vock, van Dolen and Kolk, 2013). Moreover, brand association can be an important element influencing consumer judgments as well. In addition, the degree of association between a brand and a specific social issue (called *issue association*) (Aaker, 1996; Dean, 2004), may also influence the formation of user-generated content. Compared with the content of corporate communications and the fit level, however, issue associations may largely depend on consumer perceptions and could be more difficult to manage. A better understanding of how these factors can potentially influence online discussions following company communications can help reduce the uncontrollability of user-generated content in the context of unstructured consumer-initiated communications. Section 1.4 gives more details about/on these two chapters.

1.3 CO-CREATION AND USER-GENERATED CONTENT

The second context of this thesis concerns co-creation brand communities that have structured discussions on company-sponsored platforms. Long before the popularity of the internet, brand communities existed already. Defined as “a specialized, non-geographically bound community, based on a structured set of social relations among admirers of a brand” (Muniz and O’Guinn, 2001: 412), brand communities support

interactions among users and create value for both brands and consumers during the process (Schau, Muniz and Arnould, 2009). Company-sponsored brand communities thus tend to have a structured network with specific goals. One type of community that particularly utilizes collective wisdom in producing tangible ideas and products is referred to as a “co-creation” community. Similar to the structure of any other online community, the vitality of such a collective process relies on users contributing ideas and commenting on each other (Füller, Jawecki and Mühlbacher, 2007). These company-initiated creative communities tend to have higher levels of concentrated innovations and focus on generating creative ideas, rather than maintaining social relationships (Kozinets, Hemetsberger and Schau, 2008). User-generated content, in this case, often directly contributes to companies by offering them new marketing ideas or suggestions to improve their current business processes. This shift of paradigm from consumers to “(co-)producers” has attracted research attention.

Prior research has mainly focused on understanding the motivations behind the contributions of users. In relation to user motivation, many studies investigate the design of the platforms to explore how users can be triggered and collective creativity can be enhanced through improving the quality of the platforms (e.g., Kohler et al., 2011). Less research has focused on the content itself and on how user-generated content is formed, controlled and managed in these online communities. In structured communities, the communal outcomes, such as collective creativity, length of discussion threads, and directions of online buzz, are actually the aggregated outcome of individually contributed content. To manage the community, companies must first understand how to control individual content. Most of the prior studies on online communities, however, have considered online user discussions as a single entity. It is only recently that the sequential or temporal dynamics have been considered in user-generated content formation (e.g., Li and Hitt, 2008). The dynamic view suggests that (initial) user-generated content may influence subsequent user-generated content and eventually influence the longitudinal development of the communities. This kind of influence may be explained by social influence theories on the underlying mechanisms of how information diffuses within structured networks (Iyengar, van den Bulte and Valente, 2011). Particularly on structured platforms, such as online communities, users have a higher connectivity with one another, which may result in a stronger influence on other

members. In other words, though companies face a more controlled group of target audiences in company-sponsored communities, there may still be some uncontrollable elements, such as influence from other users and previously published user-generated content that requires monitoring.

Furthermore, with regard to the outcomes of co-creation communities, it has been found that higher entertainment value and a more diverse knowledge level on the platform would lead to a more productive community output (Füller, Jawecki and Mühlbacher, 2007). Yet, what kind of user-generated content would result in more creative productions and discussions is still uncertain. For example, while emotional expression is the essence of online communication and the co-creation process often involves emotional engagement with the brand (Payne et al., 2009), the influence of collective emotions embedded in user-generated content on collective outputs has not yet been studied. In fact, despite sharing the same text-based format as other online activities, the common practices of sentiment analysis that have been used in mining the social web in other contexts have rarely been applied in analyzing co-creation communities. The systematic approach to investigating which attributes of user-generated content, such as valence, volume or variance, would influence the outcome of the community, has not yet been established. It thus remains unclear why certain discussions on communities are more popular than others and why some communities are more successful than others.

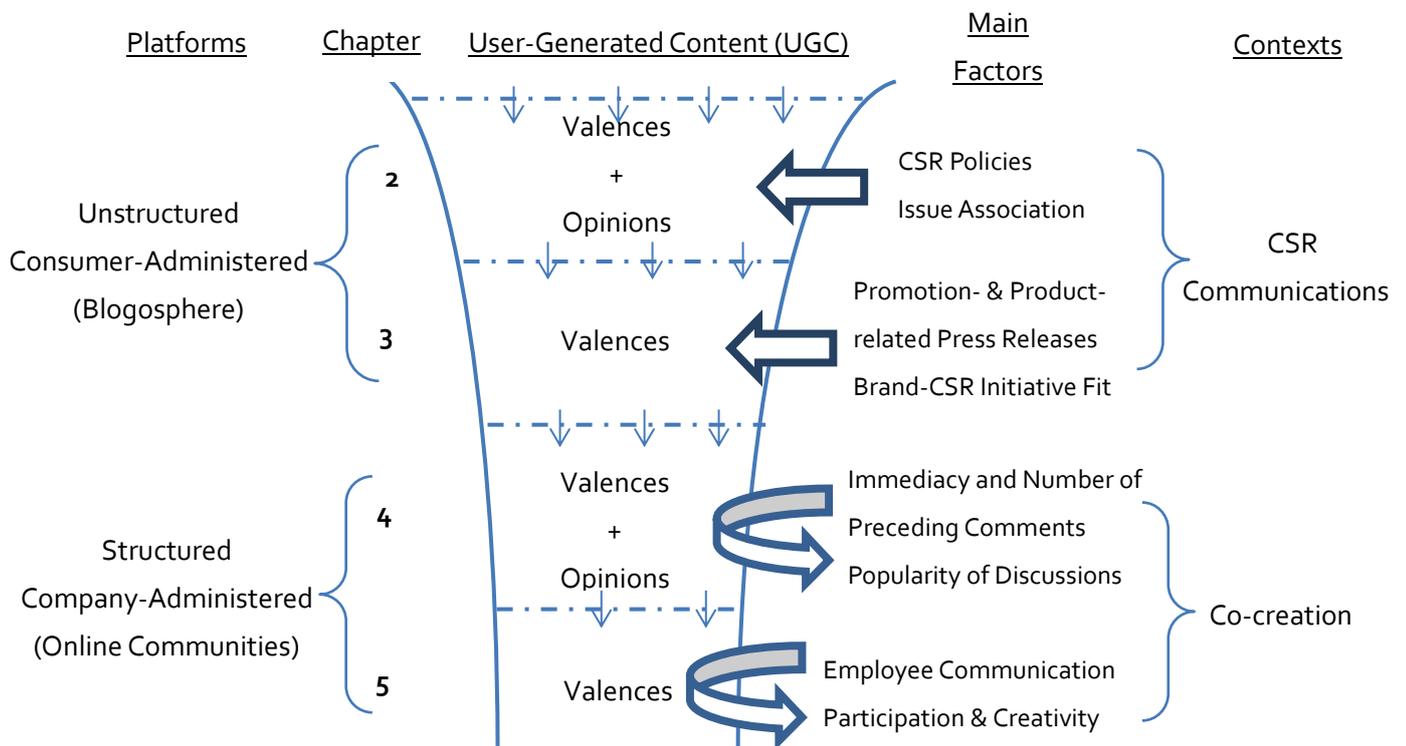
Chapters four and five aim to contribute to more insight into the issues listed above. In particular, building on the theoretical development of social influence, the studies investigate the impact of user-generated content on the formation of the subsequent content, the development of discussions, and the development of communities. To scrutinize user-generated content in the context of structured online forums, sentiments are distinguished between valence and agreement/disagreement of the user-generated content. These sentiments were found to influence users' interpretation of the piece of information and their subsequent responses in forming user-generated content (Chiou and Cheng, 2003; Kim and Gupta, 2012). Furthermore, to examine the emotional content of online communities, a subsequent distinction is made between the individual and collective level to understand how the influence of emotions on communities is formed. Based on a first-hosted online co-creation community, these

two studies intend to investigate the uncontrollability of user-generated content of structured buzz on company-sponsored communities and to explore to what extent the user-generated content can be managed by companies.

1.4 INTRODUCTION OF THE CHAPTERS

This thesis comprises four chapters based on four empirical papers conducted in collaboration with (co-)authors.⁴ Due to the collaborative nature of the papers, “we” has been used instead of “I” in chapters two to five to represent co-authorship. These four chapters illustrate the two general contexts that are based on the two particular structural platforms as outlined above, with the second and third chapters having the obesity issue in the food industry as its empirical setting, followed by the fourth and the fifth chapter discussing online co-creation communities with the example of Dell IdeaStorm. Figure 1.2 depicts the thesis structure and the central focus of each chapter. The four chapters belong to two projects and thus overlap in theories and research settings. However, each of them stands as a separate study which can be read independently. The rest of the thesis is structured as follows:

⁴ I have been the leading author for the papers included in Chapters 3, 4 and 5. And while chapter 2 was a joint project – as expressed in the alphabetical author order – I bear full responsibility for the empirical analysis.

Figure 1.2 Graphical Depiction of the Thesis

The first study, chapter two, aims to explore what information has been picked up and discussed by internet users in the context of obesity and the food industry. Press releases from 10 major food brands and the discussions in the blogosphere following company communications are examined. To advance the understanding of user-generated content in the particular context of corporate social responsibility communication, this study develops the coding scheme for the press releases based on previous suggested policies combating obesity in the food industry. To understand the potential reasons that have caused diverse responses among bloggers toward different company announcements, the associations that each brand has with the obesity issue is investigated. Taste-related press releases are found to not only generate more reactions but also more positive ones than knowledge-related communications. Issue associations have a large influence on the sentiments of buzz that a press release is likely to trigger: those with the highest obesity issue associations generate more negative buzz; however, low obesity associations lead to limited reactions in the blogosphere. The findings suggest that though the discussions online can indeed pose some threats to companies, the valence and the volume of the seemingly unpredictable user-generated content can

be predicted, to a certain extent, by the policy contents and companies' level of association with the social issues.

Following the findings of the previous chapter, and in order to apply the results to companies in a similar situation as those in the food industry, chapter three brings the coding of press releases to a more general level. Specifically, the influence of two factors on the sentiments of their corresponding discussions online is investigated: the content of the press releases, whether they are product- or promotion-related, and the level of fit between the corporate social responsibility initiatives and the company. The results from sentiment analysis conducted on the blog posts indicate that product-related press releases lead to more positive buzz, whereas promotion-related ones result in more negative responses. While a high fit between the initiatives and core business practices of companies leads to positive responses in general, modifications of current products, which are high-fit activities, lead to negative responses. This study reveals that internet users indeed respond to corporate communications that are not directed to them. Companies may try to "control" the direction of user-generated content by managing their communication content and the fit level of their initiatives. However, companies should be careful of a potential "controversial fit", which results from initiatives that highlight the unhealthy nature of original products.

Chapter four moves into the second context of the thesis; that is, co-creation. This study focuses on the influence of user-generated content with structured discussions on company-sponsored platforms. While conducting the previous project, it was observed that internet users may hold favorable emotions toward the company but unfavorable opinions toward their initiatives. Thus, the sentiments in this study are separated into valence, i.e., positive/negative emotions, and opinions, i.e., agreement/disagreement. Moreover, as mentioned in the preceding section, we studied how individual user-generated content can be influenced by preceding content. Based on social impact theory and attribution theory, the aim of the chapter is to examine the sequential bias that may occur during the discussion process and its influence on popularity. The findings suggest that individual users do not formulate content in isolation. Their emotions and opinions tend to be influenced by both the immediately preceding content and the content of the majority of others; the aggregated user-generated content then shapes the popularity of the discussions. We confirmed

these effects on co-creation communities. Discussions that are not highly emotional or in agreement, and have high variance in emotions and opinions, are more likely to be popular. The findings suggest that in evaluating user-generated content in a structured context, such as online communities, companies should consider the impact of the first piece of user-generated content.

The unexpected negative impact of positive emotions discovered in the previous chapter led to emotional content being the sole focus of the analysis in the final study, chapter five. The study introduces the concept of collective emotions that are aggregated emotions at the community level, alongside emotions that are embedded in individual content. Focusing on the longitudinal impact of collective emotions, this research intends to link the content of online buzz to user behavior and community performance. Creativity and participation, the two output measures of co-creation communities, are the main dependent variables that are examined. The findings yield paradoxical effects for collective emotions, suggesting that negative collective emotion reduces subsequent creativity, but encourages future participation. Furthermore, drawing on the theory of emotional contagion, the study investigates employee communications that can assist emotion management in communities. The results suggest that companies may manage emotions in online communities through direct interactions between employees and consumers. Employees' positive emotions can increase users' positive emotions and reduce negative ones. Furthermore, a task-oriented communication approach seems to increase the overall emotional responses from users, while a proactive communication approach appears to decrease the emotional level. Although co-creation generally presents opportunities for companies, the study highlights the importance of identifying and understanding the development of emotions in online communities in pursuit of favorable outcomes. Striking a balance of emotions embedded in the user-generated content seems key in the development of online communities.

The final chapter of the thesis, chapter six, concludes and compares the major findings of the four studies. General discussions reflecting the central research question and the two main themes are presented. The chapter summarizes the theoretical and managerial implications of the thesis, and discusses limitations and future research areas.

CHAPTER 2

A FAT DEBATE ON BIG FOOD? UNRAVELING BLOGOSPHERE REACTIONS¹

ABSTRACT

Confronted with public concerns about health and obesity, food companies are taking several measures. However, it is unclear to what extent they should communicate these policies. This article explores reactions in the blogosphere to health-related announcements by large food companies. Results show that taste-related announcements generate not only more reactions, but also more positive buzz than knowledge-related announcements. Valence is influenced by issue association per company type: those with highest obesity associations generate more negative blog posts. In case of low issue association, there are only limited blogosphere reactions; only one company with dedicated online 'fans' was an exception. Implications for practice and research are discussed.

¹ This chapter was published as A. Kolk, H.H. Lee, & W. van Dolen (2012). A fat debate on Big Food? Unraveling blogosphere reactions. *California Management Review*, 55(1), 47-73.

2.1 INTRODUCTION

In recent years, health has become a major public policy concern that also figures high on the agenda of the food industry. According to Wansink and Huckabee (2005), companies are taking a range of measures to promote healthy products and to 'de-market' obesity, as part of a win-win approach that serves both companies' profitability and consumers' health. Steps to reverse the drivers of overconsumption include convenience (changing size of packages and portions); cost (changing products but not prices); taste (changing recipes but still conforming to consumer preferences); and knowledge (providing information that is understandable and realistic). What is unclear, however, is whether companies should go public with these policies or not, i.e., is it best to make the changes "quietly or with fanfare" (Wansink and Huckabee, 2005, p.13)? This is a topic left largely unexplored, but a crucial one, particularly in the internet era in which online discussions can easily create a buzz with large potential consequences for companies' reputation and bottom line.

Examples abound for the food industry; we will just mention a few of them related to both healthier product announcements and regular marketing activities, to illustrate a diversity of reactions. A recent case is Diet Pepsi. In February 2011, PepsiCo's announcement of a new 'skinny can' led to quite some controversy. This was particularly because the company launched it for presentation at the Fashion Week as a "taller, sassier" Diet version "in celebration of beautiful, confident women".² The many online reactions included disapproving statements that there was "nothing to celebrate" and that the company's move had been "thoughtless and irresponsible" (Skidmore, 2011). Its "Get the Skinny" slogan was seen to have further reinforced existing stereotypes that link skinniness to female beauty. Half a year after the controversy, PepsiCo launched a re-designed "fatter skinny" can as a "perfect complement to today's most stylish looks".³

A different example than PepsiCo's attempt to tap into 'skinniness' was Starbucks' announcement of a new, large (31-ounce) cup for its iced tea and coffee drinks in January 2011.⁴ Although the company stated to do this at customers' requests, the move led to mixed reactions on the internet. While some people showed appreciation, others responded cynically, deriding the company for "finally getting serious about their commitment to America's obesity epidemic", with its new cup size being characterized as "a breakthrough in human obesity".⁵ A graphic showing that the new cup was bigger

² <http://www.pepsico.com/PressRelease/Diet-Pepsi-Debuts-its-Sleek-New-Look-at-Mercedes-Benz-Fashion-Week02082011.html>, last accessed 1 May 2011.

³ <http://www.independent.co.uk/life-style/food-and-drink/pepsi-launches-new-fatter-skinny-cans-in-aftermath-of-controversy-2354967.html>, last accessed 8 December 2011.

⁴ <http://www.starbucks.com/blog/-trenta-means-more-refreshment/653>, last accessed 8 December 2011.

⁵ <http://www.healthhabits.ca/2011/01/18/starbucks-trenta-breakthrough-human-obesity/>, last accessed 8 December 2011.

than the “capacity of the average human stomach” went viral (Barr, 2011). Still, Starbucks made its supersize cup subsequently available in the whole country, thus broadening its initial introduction that took place in only a few states. Interestingly, the company did not visibly react to the online debate that had emerged.

While these examples illustrate the dynamics of online reactions to corporate announcements and subsequent responses, debates on the internet also seem rather difficult to predict in scale and occurrence. Moreover, this can be different for one and the same company as well. For example, when Nestlé introduced a fair-trade version of Kit Kat in the UK in December 2009, only traditional media responded, and there was hardly attention on the internet. A few months later, however, the company came very much in the (electronic) public eye when Greenpeace put a spoof version of Kit Kat’s “Have a Break” on YouTube. The clip showed a transformation of the chocolate bar during consumption into an ape’s finger with blood flowing out, to draw attention to the company’s use of palm oil from Indonesian rainforests. Claiming breach of copyright, Nestlé demanded that the video would be removed immediately, which caused a large ‘social media battle’. Twitter, the blogosphere, Nestlé’s Facebook fan page and a counter ‘boycott Nestlé group’ were flooded with reactions, all in just a few days.⁶ The company reacted to the buzz on the internet by reiterating its existing policies on deforestation and on sourcing of sustainable palm oil.⁷

Online reactions (or the lack thereof) to food companies’ marketing activities are driven by a range of factors that are issue-specific, firm-specific, and sometimes also country-specific, which hampers generalization. Still, it is essential to obtain more insight into what might lead to which types of responses. This is obviously important for food companies in the case of health-related products as they may want to adjust policies, gear marketing activities to specific target groups and/or adapt type and extent of communication – perhaps even refrain from communicating altogether. Online discussions might influence sales and revenues, as suggested by research in other contexts, often involving reviews of movies (see the overview in Table 2.1). Particularly the volume and valence of online buzz appear to play a considerable role, so these two dimensions deserve attention. In view of the behavioral change needed to increase health and fight obesity, knowing what generates which form of attention might also be worthwhile for policy-makers and nongovernmental organizations. This is relevant beyond the context of the food industry as many companies are confronted with online reactions that may potentially influence corporate and public agendas, and thus face similar dilemmas with possible implications for their reputation and performance.

⁶<http://www.forbes.com/2010/03/18/kitkat-greenpeace-palm-oil-technology-ecotech-nestle.html>, last accessed 17 May 2011.

⁷ <http://www.nestle.com/Media/Statements/Pages/Update-on-deforestation-and-palm-oil.aspx>, last accessed 29 December 2011.

Table 2.1 An Overview of Research Findings on the Impact of Online Discussions

Authors	Topic	Main findings
Godes and Mayzlin (2004)	Online discussions on TV shows	Dispersion of online discussions across various communities positively influences TV ratings.
Liu (2006)	Online reviews of movies	Volume of online discussions significantly contributes to revenue, while the valence of such discussions does not matter.
Chevalier and Mayzlin (2006)	Online reviews of books	Valence of online reviews has significant effects on product sales.
Dellarocas, Zhang and Awad (2007)	Online reviews of movies	Volume of online discussions indicated early box office revenue.
Duan, Gu and Whinston (2008)	Online discussions on movies	Volume of online buzz positively influences box office revenue, while a movie's box office revenue and word-of-mouth valence significantly influence word-of-mouth volume.
Zhu and Zhang (2010)	Online reviews of computer games	Online reviews are more influential for less popular games and games whose players have greater Internet experience.
Stephen and Galak (2012)	Blogs and online discussion forums on a micro-financing website	Volume of online discussions generated in social media, such as blogs and online discussion forums, can effectively drive sales.
Chintagunta, Gopinath and Venkataraman (2010)	Online reviews of movies	Valence of online buzz contributes to local box office revenue, while volume of buzz contributes to national box office revenue.
Sonnier, McAlister and Rutz (2011)	Online comments about a firm and its product	Positive and neutral discussions result in increase in cumulative revenues over time, while negative discussions lead to decrease in cumulative revenues.

To help shed light on this issue, this article presents the results of a study on reactions in the blogosphere to corporate announcements about healthier products. Amongst social media platforms, blogs are seen as providing rich and insightful conversations, as well as interactivity through readers' ability to comment on posts, and thus ideal for individuals to exchange ideas (Hookway, 2008; Hsu and Lin, 2008; Lee, Im and Taylor, 2008). The blogosphere, the totality of all blogs, has been characterized as an arena where executives can learn what has been said about their companies (Wyld, 2007). We therefore collected and analyzed blog posts and subsequent comments to press releases of ten large food companies active on the US market, considering cost, convenience, taste and knowledge in the context of healthier products. In this way, the article gives insight into the reactions that companies generate, the type of discussions in the blogosphere, and which announcements appear to give rise to most buzz, positive and negative, or provoke no debate at all. In addition to analyzing topics and sentiments of blogosphere reactions, we also explore the factors that may influence these reactions, and offer recommendations as to whether companies should make changes "quietly or with fanfare", discussing implications for practice and research.

2.2 CORPORATE APPROACHES TO ADDRESS AND COMMUNICATE HEALTH CONCERNS

Different approaches have been identified in marketers' attempts to address health issues and reduce overconsumption. Studies have pointed at various factors that relate companies to obesity and overweight, including product formulation, package size, advertising, online food marketing, promotion practices and product distribution (Bates et al., 2011; Cutler, Glaeser and Shapiro, 2003; Desrochers and Holt, 2007; Dority, McGarvey and Kennedy, 2010; Moore and Rideout, 2007; Richards, Patterson and Hamilton, 2007). They suggest that companies should reduce advertising or invest in nutrition research. What has remained underexposed, however, is how companies can apply regular marketing and communication approaches to the issue. Wansink and Huckabee suggest that the way forward is to use market-based approaches that benefit both companies and consumers, as indicated in the introduction (Wansink and Huckabee, 2005). For our research, we took their 'win-win' solutions related to the four drivers of consumption (convenience, cost, taste and knowledge) as starting point. We further elaborated their scheme by including subcategories that have been identified as activities that companies may initiate to increase health and reduce obesity (see Table 2.2). This scheme was used as an analytical tool to classify the press releases and the blogosphere reactions as the categories also point at possible practical implications.

The *convenience* solution, the first included in Table 2.2, aims at reducing portions and changing packages (for example, into sub-packages) to make it easier for consumers to adjust their consumption habits. Somewhat related, a focus on *cost* means that prices remain the same but that the amount of the product is reduced (sometimes in the form of premium-priced packages) and so is the size of a serving. A third approach, in addition to convenience and cost, is to keep the perceived *taste* constant while adjusting recipes and/or actual ingredients. This can include steps such as a decrease in energy intensity and thus calorie intake, and the removal or addition of ingredients to serve health purposes. While the introduction of new 'healthy' products was not recommended as part of a taste solution by Wansink and Huckabee (2005), as they expressed a preference for small and gradual changes, it was added here because we found a considerable number of announcements in this category in our primary analysis. Apparently this is something that companies are actively pursuing.

Table 2.2 An Overview of the Proposed Company Activities Related to Health and Anti-Obesity

Press release categories	Subcategories	Definition	Examples
Convenience ^a		Alter package design and reduce portions to make it easier for consumers to adjust overconsumption habits	Multi-packs with smaller individual servings to make a natural stopping point for overconsumption. Smaller packages including fewer servings, therefore less calories.
Cost ^a		To alter the proportion of money against value so that the price remains the same while altering the size of package	Prices remain the same, but package or servicing are reduced. Make the product with premium-priced packages.
Taste ^{ab}	Decreasing energy density ^a	Lower calorie intake of current products by changing the ingredients, while maintaining taste	Change fried chips to baked chips with lower oil content. Reduced sugar
	Removing 'harmful' ingredients ^d	Remove health-damaging ingredients without compromising taste	Remove trans fat Remove artificial flavors
	Adding nutritious ingredients ^a	Increase the nutrition value	Add vitamins Add salad to the menu
	New 'healthy' products ^b	Keep the original product and add new products as healthy alternatives	New diet smoothies New light breakfast set
Knowledge	Enclosing calorie information ^{abc}	Disclose transparent and practical calorie information of the product	Move label from the side to the front Put calorie information on the menu
	Promoting healthy options ^{bc}	Promote and educate healthy alternatives	Websites to promote exercising Offering tips for balanced diets
	Co-promoting healthy options ^{abc}	Collaborate with other parties to educate consumers about healthy alternatives, such as exercising, and obesity-related health issues	Collaborate with other parties to provide information about heart diseases and/or to promote exercising via TV programs.
	Research results ^b	Educate consumers about the concept of healthy living by doing research on food consumption.	Research on perceptions of junk food Research on dieting habits

^a Adapted from Wansink and Huckabee (2005); ^b Adapted from Schrempf (2012); ^c Adapted from Seiders and Petty (2004); ^d Added based on primary analysis of the press releases.

Knowledge is another way in which companies can help stimulate healthier consumption, by providing information about nutrition, calories and healthy options (Seiders and Petty, 2004; Wansink and Huckabee, 2005). In the context of growing attention to food choices and 'de-marketing' approaches, interest in corporate communication of health-related initiatives is increasing; it is also the most visible marketing activity (Chandon and Wansink, 2010; Wansink and Huckabee, 2005). However, with high levels of consumer skepticism about corporate communication,

securing positive reactions among information receivers is a real challenge for companies. Chandon and Wansink (2010) suggest that “persuasive mechanisms that operate through deliberate decision-making processes”, typically found in the knowledge category, may be less effective than those that “operate ‘below the radar’ and often through self-regulation failures.” With the latter, they refer to characteristics of products and packages, such as taste, size, shape and convenience, as well as brand association. If we follow this argumentation, an assumption that one could make is that consumers may be less inclined to respond to knowledge-related topics, with valence likely to differ as well.

Furthermore, while signaling theory suggests that the topic of a message is one of the key diagnostic cues for consumers to evaluate perceived information, it has also found – in line with Chandon and Wansink (2005) – that brand association is an important element influencing consumer judgments, especially in the case of experience products (Erdem and Swait, 1998; Kirmani, 1997). If we extend the association with a brand to a specific social issue (called *issue association*) (Aaker, 1996; Dean, 2004), then it might be suggested that higher issue association with obesity – generally seen as something rather negative – would lead to more negative valence overall. These are aspects that we will therefore also explore in our analysis of reactions in the blogosphere to corporate announcements about healthier products, as reported in the next sections.

2.3 EMPIRICAL STUDY

Companies in the food sector are often related to responsibility for health issues such as the growing obesity problem (Chou, Rashad and Grossman, 2008). In addition to having direct control over portions and the ingredients of the products they offer, promotional activities in general and advertising in particular are blamed for contributing to over-consumption of unhealthy products (Desrochers and Holt, 2007; Dobson and Gerstner, 2010; Moore and Rideout, 2007). Therefore, the food industry as context for our study seems relevant and appropriate. In the academic debate on the role of the food industry in causing obesity, particularly confectionery, fast food and beverages were mentioned, and we thus targeted our sample on these three subcategories (Marshall, O’Donohoe and Kline, 2007). Moreover, companies with high brand values are more likely to attract attention, resulting in negative and positive responses among consumers, and this dimension was therefore considered as well in selecting our sample (Krishnamurthy and Kucuk, 2009; Kucuk, 2008).

We thus selected ten large companies that had been in the public eye: those that were either (sub)industry leaders or Number two in English-spoken countries, or were listed in the 100 global brands of 2007-2009 (Millward Brown Optimor, 2009; Rogers,

2009). The companies are Coca-Cola and PepsiCo (beverage companies); McDonald's, Subway, KFC, Starbucks, Pizza Hut and Burger King (quick-service restaurants – QSRs⁸); and Mars and Nestlé (food & confectionery companies). The list includes more companies from the QSR category (compared to the other two categories) as more companies of this type are mentioned in the top 100 list. Moreover, from the three company types, QSRs are most discussed and blamed for causing obesity in the literature. Finally, there are more market leaders in QSRs (compared to beverages for example, where Coca-Cola and PepsiCo are leading). Therefore, we decided that it was appropriate to include more QSR companies.

To assess issue association on the internet we calculated the percentage of the co-occurrence of company type and/or company name with the word 'obesity' in the Google search engine, following a procedure suggested by Aggarwal, Vaidyanathan and Venkatesh (2009). Of the three company types, beverage companies had the strongest association with obesity (67.5%), followed by QSRs (25.1%) and food & confectionery companies (15.3%). When ranking the companies individually on their issue association, McDonald's turned out to score highest (33.6%), followed by Mars (26.7%), Coca-Cola (20.6%), PepsiCo (18.6%), Burger King (13.0%), KFC (10.2%), Subway (9.1%), Pizza Hut (8.2%), Starbucks (7.0%) and Nestlé (4.5%).

Press releases were taken from corporate websites in the period between 1 January 2007 and 31 July 2009. Blog posts and comments were obtained via Google Blog Search in the time slot of fourteen days following the announcement, a period deemed appropriate in earlier research (Vasterman, 2005; Wallsten, 2007). In total, we collected 143 relevant press releases, of which 60 (42%) generated responses from bloggers. The press releases were coded and analyzed based on the categories as identified earlier (see Table 2.2). The number of blog posts in response to each press release was counted; and the contents of blog posts were analyzed and coded based on their sentiments, initially by one of the authors of this article. A second coder, who had not participated in the development of our classification system (and also not a co-author of the article), was given the categories. He independently coded the valence of the blogs as well as the categories for the press releases.

Based on the encoded blogs and press releases by the researcher and the coder, interrater reliability was tested. Agreement between the coders on the valence of the blogs was 93% and for the categories of the press releases 89%. In case of disagreement, the blogs and the press releases were discussed and resolved between the two coders (Kaltcheva, Patino and Chebat, 2011; Raju, Unnava and Montgomery, 2009). The significance of the interrater reliability was tested by Cohen's Kappa and was .89 for the

⁸ As regularly included in the QSR50 list, see <http://www.qsrmagazine.com/reports/2010-qsr-50>, last accessed 29 December 2011.

valence of the blogs and .94 for the categories of the press releases. Compared to the results of an analogous coding study of Desai, we consider this result as sufficient (Desai, 2011; Kolbe and Burnett, 1991). The comments of the blog posts were counted as a supplementary reference to indicate the impact of the companies' press releases and their subsequent blog posts. Besides the detailed content analysis, where applicable, we conducted chi-square analysis and Fisher's exact test to quantitatively assess the significance of our findings.

Our analysis shows that almost none of the food companies' health-related press releases over a period of two and a half years fell in the cost and convenience categories. There were only three convenience announcements. They involved policies that aimed to stimulate smaller consumption a time and keep consumers on track with their calorie intake. Just one of the three (by Burger King that introduced smaller-size burgers) attracted two blog posts. While these bloggers were positive about the move (stating e.g., "*small is fun*")⁹, most of the 23 comments criticized the taste and flavor, not so much the size and/or convenience aspects. The companies mainly issued press releases about taste (n=95; 66.4% of total) and knowledge (n=45; 31.5%). Knowledge-related topics also received considerably less blog posts and comments, with a response rate of 29%, compared to 48% for taste ($p=.015$).¹⁰ In terms of blog post sentiments, taste-related topics generated proportionally more positive responses (47%) than knowledge-related ones (38%; $X^2=8.655$, $df=5$, $p<.01$). These results seem to confirm our assumption made in the preceding section that press releases concerning knowledge-related topics would lead lower to volumes and be appreciated differently than other topics such as taste that are 'below the radar'.

Further details as to the contents of the announcements and the reactions in the blogosphere for both taste and knowledge will be given in the next section, using the basic information on numbers of press releases, blog posts and comments summarized in Table 2.3.

2.4 TASTE

As shown in Table 2.3, the majority of the press releases covered taste, a category which, as we will explain in more detail below, contains four different types. Bloggers responded to half of the press releases on taste, generating in total 676 blog posts and 5,641 subsequent comments. It should be noted, however, that two blog posts and 762 comments related to two press releases that included an online marketing campaign

⁹ Quotations from blog posts are put in italics in the whole paper.

¹⁰ Fisher's exact test was used here; in other instances in the paper, chi-square analysis was possible.

offering free samples and encouraging bloggers to express their opinions.¹¹ Particularly those from Pizza Hut generated many comments (662), as part of the removal of 'harmful' ingredients; this applied to Burger King (new product) to a lesser extent (100 comments). They exemplify a specific high-profile online approach in addition to the more traditional corporate announcement, leading to a relatively high number of reactions.

The diminution of the energy density of products led to most debate in the blogosphere overall, although only one third of the press releases on this topic caught the attention of bloggers. This percentage was higher for announcements related to the removal of harmful ingredients and the introduction of new healthier products; the addition of nutritious ingredients was least discussed. As indicated in the previous section already, the introduction of new products accounted for more than half of the announcements related to taste. Many bloggers indicated that this showed companies' motivation to expand into the health market rather than improve the actual nutritious quality of the products.

Below we will discuss the four subcategories of taste distinguished consecutively. This is coupled with specific examples from companies, which all, except for McDonalds and Subway, published press releases related to taste (see Table 2.4 for an overview).

2.4.1 Decreasing Energy Density

Coca-Cola, PepsiCo, KFC, Nestlé, Mars, and Starbucks have, although to a limited extent, taken initiatives to decrease the energy density of their existing products to thus help lower consumers' calorie intake. Mars changed the recipe of its three ice cream products to provide the same flavor with fewer calories; Coca-Cola UK cut sugar contains in Fanta Orange; and Nestlé reduced calories of its cookie products. However, all these minor changes in a limited number of products did not generate any responses in the blogosphere. On the other hand, Starbucks' announcement that only reduced-fat milk would be offered with its coffee drinks and KFC's announcement to offer grilled chicken generated 42 and 62 blog posts respectively; these two press releases accounted for all responses in this subcategory as Table 2.3 shows.

¹¹ McDonalds did the same in the knowledge category; this led to much less comments (56), however.

Table 2.3 An Overview of Press Releases and Related Blog Responses for Each Category

Press release category		Number of press releases	Press releases with blogger responses (No. and %)	Number of responses from bloggers	Average number of blog posts per press release with response	Number of comments on blog posts	Average number of comments per press release with blogger response
Taste	Decreasing energy density	11	4(36%)	104	26.0	1174	293.5
	Removing 'harmful' ingredients	21	15(71%)	221	14.7	1869 ^a	124.6 ^a
	Adding nutritious ingredients	17	5(29%)	39	7.8	377	75.4
	New 'healthy' products	46	22(48%)	312	14.2	2221 ^b	101.0 ^b
	Subtotal	95	46(48%)	676	14.7	5641 ^c	122.6 ^c
Know-ledge	Enclosing calorie information	8	5(63%)	37	7.4	193	38.6
	Promoting healthy options	14	1(7%)	14	14.0	113	113.0
	Co-promoting healthy options	19	6(32%)	34	5.7	96 ^d	16.0 ^d
	Research results	4	1(25%)	15	15.0	15	15.0
	Subtotal	45	13(29%)	100	7.7	417 ^e	32.1 ^e
Convenience		3	1(33%)	2	2.0	23	23.0
Total		143	60(42%)	778	13.0	6080 ^f	101.3 ^f

^a including 662 comments on 1 marketing post; if excluded, number in last column would have been 80.5; ^b including 100 comments on 1 marketing post; if excluded, number in last column would have been 96.4; ^c including 762 comments on 2 marketing posts; if excluded, number in last column would have been 106.1; ^d including 56 comments on 1 blog marketing post; if excluded, number in last column would have been 6.7; ^e including 56 comments on 1 blog marketing post; if excluded, number in last column would have been 27.8; ^f including 818 comments reacting to blog marketing posts; if excluded, number in last column would have been 87.7.

Table 2.4 An Overview of Press Releases A=and Related Blog Responses Per Company for Taste

Company name	Number of press releases	Press releases with blogger responses (No. and %)*	Number of responses from bloggers	Average number of blog posts per press release with response	Number of comments on blog posts	Average number of comments per press release with blogger response
Burger King	5	3 (60%)	15	5.0	190 ^a	63.3 ^a
McDonald's	0	0	0	.0	0	.0
KFC	5	3 (60%)	90	30.0	244	81.3
Pizza Hut	3	3 (100%)	47	15.7	959 ^b	319.7 ^b
Subway	0	0	0	.0	0	.0
Starbucks	11	9 (82%)	248	27.6	2616	290.7
Coca-Cola	17	9 (53%)	120	13.3	559	62.1
PepsiCo	38	16 (42%)	141	8.8	996	62.3
Mars	1	0 (0%)	0	.0	0	.0
Nestlé	15	3 (20%)	15	5.0	77	25.7
Total	95	46 (48%)	676	14.7	5641 ^c	122.6 ^c

^a including 100 comments on 1 marketing post; if excluded, number in last column would have been 30.0;

^b including 662 comments on 1 marketing post; if excluded, number in last column would have been 99.0;

^c including 762 comments on 2 blog marketing post; if excluded, number in last column would have been 106.1

In two 2007 press releases, Starbucks announced the switch of its default milk to reduced fat. Denny Marie Post, senior vice president of Global Food and Beverage of Starbucks, was quoted as saying that "Choice has always been at the heart of what we offer... The move to reduced fat milk as our core dairy offering comes directly from our customers' requests, and while they will still have the option to customize their drinks, our standard beverages will now come with fewer calories and less fat". Most bloggers agreed with the approach. There were posts such as: "*This is the type of change that makes it easier for people to reduce their caloric intake because it establishes a healthy 'default'. What a great step in the right direction!*"; and "*The fat trimming decision warrants applause*". However, there were also bloggers who expressed some doubts. A critic who stated, for example, "*That's good news! In the future, people who drink a lot of Starbucks will only get chubby instead of obese*", generated quite some discussion among internet users.

When KFC announced a variant of its traditional fried chickens, i.e., grilled ones, this led to much more mixed reactions. There were customers clearly welcoming the idea and eager to try. At the same time, other bloggers reacted to KFC's statement, included in the press release, that this was a "*transformational decision*" for the brand. Critical remarks included, for example: "*Transformational? No. It's complete and utter nonsense, totally ignoring what KFC's founder would have wanted*"; "*I don't know if this Kentucky*

Grilled Chicken idea appeals to me. I mean, if I want healthy chicken it is real easy to just roast a chicken myself. Every few years I'm in the mood for Kentucky Fried Chicken, original recipe, and that's what I get"; and "Kentucky Grilled Chicken? It'll never fly".

Most negative opinions in this category were based on the view that if people are on diet, they should not go to fast-food restaurants in the first place. On the other hand, if people choose to eat in a fast-food restaurant, they should be entitled to whatever greasy food they prefer, rather than being confronted with 'healthy' options. These statements show the danger of losing current customers by introducing a policy that changes a traditional, 'core' product into a lower-calorie direction. This may also be a reason why most press releases announced companies' move to introduce a whole new brand or product to enter a new, 'separate' market alongside their existing products (see below).

2.4.2 Removing 'Harmful' Ingredients

Another approach is to remove 'harmful' ingredients, particularly trans fat oil and artificial ingredients, and replace them by 'healthier' substitutes. Most companies have adopted this approach at some point during the time frame, except for McDonald's, Subway and Mars. There were 15 press releases to which bloggers responded and they involved products often labeled as "real," "natural" and with "no artificial flavors". It should be noted, however, that the response rate related to this subcategory (71%) is not significantly different from the rest of the subcategories ($X^2=7.264$, $df=7$, $p=.402$).

One clear theme under this heading is the removal of trans fat oil, with which KFC started, followed by Starbucks, Nestlé and Burger King. After its initial announcement in October 2006, KFC completed the rollout in the United States by April 2007, and in the UK and Ireland by the end of 2007. Burger King only made it public when the rollout was completed in 2008. The blog posts for Burger King's action were mostly positive, praising the company's determination and the fact that it had finally made the move. Despite the early response from KFC, bloggers still criticized the company for not switching to trans fat free oil fast enough. Interestingly, when Starbucks made a similar change in 2007, it generated mostly positive blog posts and comments that praised the company's proactivity. Rather differently, Nestlé's activities remained unnoticed in the blogosphere; there was no discussion about the press release.

Another theme in the press releases is the replacement of artificial ingredients by 'natural' substitutes. Announcements to this end were made by PepsiCo, Nestlé, Pizza Hut and Starbucks. PepsiCo's Pepsi Raw, Pizza Hut's All-Natural Pizzas, and Starbucks' move to wholesome ingredients in particular generated discussions (with respectively 31, 71 (for three related press releases) and 35 blog posts). Like in other cases, some of the bloggers who responded were willing to try and were genuinely pleased with the move.

However, as typical press releases in this category emphasized the quality of the 'new' ingredients, some bloggers targeted companies for the marketing phrases that they used for their products. For example, referring to Pepsi Raw, one blogger stated that "I love how they call Pepsi a 'premium product'. They should call it a poison product". And, in relation to Pizza Hut's all-natural pizzas: "*On the rare occasion that I choose Pizza Hut to fill my cravings, it is because I am seeking a particular brand of grease only found on their crust. Not because I wish to be greenwashed into buying a multigrain crust*". An overemphasis of the natural side of the ingredients may lead to a backlash against the company's intention of going 'healthy'. Interestingly, Starbucks again attracted almost only positive opinions, with the few negative remarks just urging for more and faster steps. The specific position might be due to the strong fan base of the brand both online and offline; this will be further discussed below.

2.4.3 Adding Nutritious Ingredients

The third approach is to add more nutritious ingredients, which most often involved vitamin (12 out of 17 press releases) or fiber (4); there was also one addition of caffeine. Most press releases originated from PepsiCo (12), 4 from Coca-Cola and only 1 from Nestlé (concerning its juice product). Companies often emphasized the extra benefits of the products for customers. For example, on 22 February 2007, PepsiCo announced to launch Diet Pepsi Max, with "extra caffeine and a touch of ginseng". The company claimed that this product was designed to help adults get through the day; this triggered quite some online debate. There were 19 blog posts (3 positive, 6 negative and 10 neutral) which led to 156 comments in total. One blogger commented, for example, "*Please tell me we are not celebrating the feeding of our children as well as adults, more caffeine along with Ginseng and artificial sweeteners?*". Interestingly, PepsiCo subsequently changed the name of the product from Diet Pepsi Max to Pepsi Max, in early 2009. While a direct link between removing the 'diet' word and the heated online debates could not be established with our empirical data, the CMO of PepsiCo was quoted as saying that "There's definitely some baggage in the word 'diet'. It focuses on what's not in the product vs. what's in the product". This observation did reflect the core of the online discussions (Zmuda, 2010).

Mixed opinions also characterized Coca-Cola's announcement, one month later, of a Diet Coke Plus with added vitamins, which the company phrased as "Great Taste Has Its Benefits". The press releases of Coca-Cola generated 10 blog posts (4 positive, 5 negative, 1 neutral), leading to 96 comments. Critical remarks for Diet Coke Plus were "*Hasn't anyone heard of getting your vitamins and minerals from eating a wide variety of foods, including fruits and vegetables? Drinking diet sodas is one thing. Touting them as a "healthy" choice is quite another*"; and "*Don't let the marketing tricks of huge companies*

pull you in to their lies and drag you down the wrong health path". Coca-Cola's press releases appeared to receive relatively more negative criticisms. Numbers are small so it seems difficult to draw meaningful conclusions as to differences between the two companies here; we will offer some further reflections in a subsequent section. While there may be various company-specific factors at play, it is also possible that adding vitamin to make soda drinks 'healthy' is more difficult to accept, or even annoying, for consumers than adding caffeine to turn soda into an energy drink.

2.4.4 New 'Healthy' Products

The most commonly used 'taste' solutions in press releases relate to new products, sometimes through acquisitions, and novel menus. PepsiCo, Coca-Cola, Nestlé and Starbucks were the ones that frequently used this approach when launching new products. Burger King, the only other company that issued this type of press releases, focused on renovating its kids menu. Most press releases generated only a small number of responses from bloggers. It is common, though, that at least some food critics write reviews about the introductions. Starbucks and Coca-Cola received most attention in the blogosphere. Starbucks announced new gluten-free and smoothies products. As mentioned earlier, its products are usually discussed relatively actively, with many bloggers making comments. This case was no exception, as there were altogether 134 blog posts addressing the new blends, mostly reviews of the products and expressions of gratitude to the company.

The situation was rather different for Coca-Cola, which acquired Honest Tea and Innocent Drinks to expand into the tea and smoothies market and launched a calorie burning new tea drink. Bloggers that reacted to the acquisition were marketing specialists, loyal customers, and those involved in organic food. Blog posts from a marketing perspective agreed that it was simply a common strategy as large corporations are aware of the growing 'health' market. However, the news was not so easy to accept for loyal customers of the acquired brands. Even though the CEOs of both companies, Honest Tea and Innocent Drinks, had given their views on their own blogs, addressing customers' concerns, there were angry and disappointed voices throughout the blogosphere. For example, *"If organic production on a mass scale contributes to environmental depredation¹² and overconsumption, how 'good' is it? If it's run by a company that has had questionable ethics (apartheid anyone?),¹³ then the 'honest' in Honest Tea could get a little murky"*. Many others even suggested to abandon the brand, by saying "I

¹² Typo as included in the original blog post.

¹³ This whole text was taken directly from the blog post; apparently the blogger wanted to draw a parallel between the company's approach and the Apartheid policy of racial segregation that was previously enforced in South Africa, indicating ethical wrongdoing.

always felt good when [I] drank Honest Tea, and now I don't think that will be the case".

A similar pattern could be found when Coca-Cola acquired Innocent Drinks, an organic smoothies company based in the UK. Many criticized the decision, as came to the fore in blog posts such as *"too much like dancing with the devil"*, *"boycott the guilty innocent: a smoothie coke operator"*, and *"innocent no longer so innocent."* Although most of the blog posts expressed disappointment about the supposedly ethical companies, it is important to note that bloggers often referred to Coca-Cola as the "devil" in the game. The idea of an ethical company working with a seemingly unethical corporation upset many bloggers. Several bloggers even made comparisons to the cases of Ben & Jerry (being taken over by Unilever) and Body Shop (L'Oreal) (read more discussions about the debate in Austin and Leonard, 2008; Mirvis, 2008; Waddock, 2008), which bloggers used as 'evidence', rightly or wrongly, to 'prove' their point that the partnership would not work. Nevertheless, if it is companies' goal to generate online buzz online, then introducing a new product via acquisitions is very likely to have an effect. However, companies should be prepared for damage to their own image when standing next to a particular 'healthy' brand.

2.5 KNOWLEDGE

Press releases with a knowledge focus accounted for one third of the total number and less than half of those in the taste category (see Table 2.3). They generated much less responses from bloggers than press releases on taste, and the debate in the blogosphere was considerably less intense. Information provision appears to take place in various ways: enclosing calorie information on products; promoting healthy options in a more generic sense, either by a company itself or in collaboration with others, most often governments or non-governmental organizations (NGOs); or disseminating (company-sponsored) research results. The majority of press releases focused on the (co)promotion of healthy options; the few containing research results generated limited reactions. Below we will discuss the various knowledge subcategories, again providing specific examples from the various food companies that published press releases (see Table 2.5).

2.5.1 Enclosing Calorie Information

Some companies announced to enclose (more) calorie information on their products in the period that we studied. In a 2007 press release entitled "Making An Informed Choice", Coca-Cola UK announced a new labeling system to help consumers understand the information better. A year later, Coca-Cola North America made the same changes in the US. In addition to a new label, it was also moved from the back of the package to the front, referring to a 2003 recommendation of the Food and Drug Administration's

Obesity Working Group that calorie information should be given a more prominent place on food labels. Celeste Bottorff, the Vice President of Coca-Cola's Living Well, stated to "... view our label as a powerful tool for education, an opportunity to communicate with consumers every time they choose one of our products... [We] encourage everyone to make informed decisions about what they drink, choices that reflect a sense of balance and moderation". The move did not attract meaningful discussions online, however, and lack of buzz in the blogosphere also characterized other press releases on calorie information. An example include PepsiCo's announcement that one of its brands, Frito-Lay, would enclose calorie information to help consumers search for healthy options in the supermarket. The absence of a real online debate may be because the changes were not innovative, large-scale or controversial enough to gather attention from bloggers.

Table 2.5 An Overview of Press Releases and Related Blog Responses Per Company for Knowledge

Company name	Number of press releases	Press releases with blogger responses (No. and %)	Number of responses from bloggers	Average number of blog posts per press release with response	Number of comments on blog posts	Average number of comments per press release with blogger response
Burger King	1	0 (0%)	0	.0	0	.0
McDonald's	6	4 (67%)	32	8.0	178 ^a	44.5 ^a
KFC	3 ^b	2 (67%)	30	15.0	71	35.5
Pizza Hut	1 ^b	1 (100%)	23	23.0	65	65.0
Subway	4	1 (25%)	6	6.0	12	12.0
Starbucks	1	1 (100%)	6	6.0	64	64.0
Coca-Cola	12	4 (33%)	11	2.8	77	19.3
PepsiCo	11	0 (0%)	0	.0	0	.0
Mars	6	1 (17%)	15	15.0	15	1.0
Nestlé	1	0 (0%)	0	.0	0	.0
Total	45 ^b	13(28%)	100	7.7	417 ^c	32.1 ^c

^a including 56 comments on 1 marketing post; if excluded, number in last column would have been 30.5; ^b the 'knowledge' press release issued by Pizza Hut is identical to one of KFC. Therefore, the total number of press releases is counted as 45; ^c including 56 comments on 1 blog marketing post; if excluded, number in last column would have been 27.8.

2.5.2 Promoting Healthy Options

This category is related to the previous one, but is more generic in the sense that companies provide information beyond the package, i.e., via websites and/or menu boards; it can also include suggestions about fitness, diet or health. Most of the press

releases did not generate blogger reactions; this applied, for example, to Mars' announcement to provide nutrition and calorie information on its website. However, this was rather different when YUM! Brands (the corporation that owns both KFC and Pizza Hut) announced in 2008 that its US divisions would, by 1 January 2011, put calorie information on restaurants' menu boards. The company stressed that the decision was in line with its long-term policy, i.e., to offer "Better For You" options, educate consumers about the food they eat, and promote exercising. The press releases also cited the positive comment from The Center for Science in the Public Interest (an organization that had sued Coca-Cola earlier for its misleading product information).

The press release only appeared on KFC's website, and generated discussion in the blogosphere. It received positive comments from most bloggers, for example, "*I think this is a smart move for Yum!*" and "*Great job Colonel!*" (referring to KFC's founder and icon that is still the official face on the logo). Although most bloggers acknowledged this was good for consumers as well, some expressed doubts, stating, for example, "*as if us health nuts didn't have enough reasons not to eat there?*". Self-proclaimed 'professional marketer' bloggers raised concerns as to the possibility of driving customers away, which might eventually harm shareholders. There was also support for the argument that healthy food can never be the focus of fast-food restaurants: "*The reason I eat your greasy, fat pills are because they taste good and are not good for you. If I want to watch my calories I'm not visiting your restaurants*". This contradicts the very rationale put forward by the company and illustrates the dilemmas at play.

2.5.3 Co-Promoting Healthy Options

This category deals with a range of initiatives in which companies collaborate with others, most often NGOs and governments. Basically three types can be found, dealing with respectively the promotion of healthy living in general, of exercising, and of raising awareness for illness. We will discuss the three consecutively below.

Healthy Living in General

Most often this included an approach to educate customers to make smart food choices including a balanced diet. For example, McDonald's worked with the Colorado Department of Public Health and Environment to encourage customers to eat healthier. In a 2007 press release, a McDonald's shop manager said that "*The key [to fight obesity] is to educate Colorado consumers, and what a great way to do it through us because we reach so many people*". As part of the program, the company promoted 11 menus that fit the standard of a "smart meal" containing not more than 700 calories, with less than 15% coming from saturated fat. The press release, as others belonging to this category, generated zero responses from bloggers.

Another example relates to UK government's "Change4Life" program to "eat well, move more, live longer". Many parties were involved, including media channels, fitness associations, supermarket chains and food and beverage companies. Coca-Cola, Mars, PepsiCo and Nestlé all joined, but Nestlé was the only one that did not issue a press release about the pledge. Coca-Cola first published a press release, stating that it "will continue to assist Government in meeting its public health policy objectives", followed by Mars a month later. Its Director of Corporate Communications said that "As an originator of this campaign, Mars is keen to take an active role in ensuring the company's support of 'Change 4 Life' has a significant impact on tackling obesity and truly changing consumer behavior". PepsiCo was the last to announce its participation.

Bloggers reacted to none of the press releases, however, which may be due to the fact that the news was UK-oriented, and escaped the largely US blogger base. The specific topic might have played a role as well, because policies that emphasized exercising and that raised awareness for illness did generate responses.

Exercising

A clear example here is McDonald's initiative to encourage children to exercise, presented as "One Minute to Move It", a program that "empowers kids to take an active role in their own well-being by creating a minute of joyful self-expression". In addition to the press release, McDonald's started a marketing campaign that included online promotions with free giveaways. The free giveaways were revealed on a mom-community blog (called Mom Salon) which attracted 56 direct comments (i.e., from participants in the free giveaway) and some other subsequent discussions. All posts link to the program's website, with bloggers also sharing ideas on what kids could do in that one minute. In general, reactions were fairly positive; as one blogger wrote "*While some might say it's 'too little, too late', I am impressed with McDonald's attempt to change its image*".

Responses were not so positive when KFC's parent corporation Yum! Brands launched a free online personal fitness training program, eFIT4Me, in partnership with the University of Louisville's Men's basketball Coach Rick Pitino. The company presented this as part of its long-term "Keep It Balanced" effort to "educate consumers about the importance of fitness in a balanced lifestyle", and the "Better For You" campaign mentioned in a preceding section. Apart from a few neutral blog posts, most bloggers were negative about these initiatives. There were sarcastic remarks like "*In our opinion, there's really no better way to follow up an 840-calorie Fiesta Taco Salad than a quick trip to a no-impact virtual gym*"; "*'balanced' is the code word the junk food industry loves to use in their attempts to place all blame for obesity and other diet-related diseases on the people who consume their products*"; and "*it makes me feel like a battered spouse! They hit you in the fat cells, then tell you they love you. The only option is divorce, if you ask me*". One

commenter even found it to be *“the equivalent of the Tobacco Companies offering quit smoking programs”*, a remark that relates to Wansink and Huckabee’s observation that *“the treat of being the tobacco industry of the new millennium”* is not *“trivial”* for large food companies (Wansink and Huckbee, 2005).

Raising Awareness for Illness

If promoting exercising already triggered negative associations, it is not hard to imagine the wave of unenthusiastic responses one might get when introducing a partnership between fizzy drinks and a heart foundation. This was what happened to Coca-Cola when they announced Diet Coke’s partnership with the National Heart, Lung, and Blood Institute in the US, which aimed to increase awareness of women’s heart disease. Only one blog post was positive about what she referred to as *“A Campaign With A Heart”*. All other bloggers, including one doctor who authored a best-seller diet book, objected to the partnership. Some called it a marketing trick, commenting, for example, *“just when I thought the world couldn’t possibly get any more messed up, along comes Coca-Cola with yet another hair-brained PR stunt!”*. Others pointed at medical concerns related to the product: *“one of the many damages diet coke may bring to the body is heart disease”*, or expressed doubts about the motivations of the company: *“What’s a company to do when its product is not recommended as part of a healthy lifestyle? Simple: Put on a little red dress”* (this was one activity that came along with the partnerships). The statements point at the fact that the concept of healthy living may undermine a company’s own product and reveal its weaknesses in battling obesity.

2.5.4 Research Results

The few press releases that announced research results did not generate much discussion. Examples without any reaction included a press release by Burger King which had sponsored Leeds University to examine consumer perceptions of ‘junk food’; results showed that the majority of adults in UK rates price and taste over nutrition. Similar findings and lack of responses characterized a study commissioned to Ipsos MORI UK by Subway. It might be that the UK focus and lower blogger activity in that country played a role. A press release in this category that generated some responses was one by Mars, in which it claimed that cocoa flavanols improved blood flow and help patients suffering from diabetes. The study was conducted by its research group and triggered 15 blog posts. More than half of them were from self-claimed experts, including doctors, nutritionists, nurses, and dieticians. Most bloggers did not oppose the results from the research, but several pointed out that consumers would have to consume a huge number of products that also contain sugar and other harmful ingredients in order to reach the effective cocoa level. Although they applauded the company’s R&D efforts in nutrition

studies, a few bloggers criticized the company's motivation to announce such results.

2.6 BLOGOSPHERE REACTIONS PER COMPANY TYPE

Bloggers have shown distinctive reactions towards different companies. This may be driven by the contents of press releases as discussed in previous sections, but company-specific factors seem to play a role as well. To explore possible patterns, we considered blogosphere reactions per cluster of related companies, as far as possible on the basis of the limited number covered in our study, for respectively beverage companies, QSRs, and food & confectionery companies. An overview of the sentiments of blog posts is given in Table 2.6.

Overall, positive sentiments prevail ($X^2=86.743$, $df=2$, $p<.001$), and significantly different patterns among the three company types were found ($X^2=39.618$, $df=8$, $p<.001$). While there were no significant differences among the valences of the blog posts in response to food & confectionery companies' press releases ($X^2=2.603$, $df=2$, $p=.272$), blog posts were significantly more negative for beverage companies ($X^2=9.282$, $df=2$, $p<.01$), and more positive for QSRs ($X^2=114.898$, $df=2$, $p<.001$). This appears to indicate that the company type most strongly associated with the obesity issue, i.e., beverages, also generates more negative reactions in the blogosphere, as suggested earlier in this article. If we want to consider this pattern within the company types, it should be noted that numbers are getting small which limits the generalizability of statements, and points at the need for further study. Where possible, we will tentatively formulate some directions for follow-up research in our discussion.

Table 2.6 Distribution of Blog Posts' Sentiments Per Company (Type)

Company type and company		Total number of press releases	Total number of blog posts	Sentiments of blog posts (in %) ^a		
				Positive	Neutral	Negative
Beverage	Coca-Cola	29	131	26.7	26.7	46.6
	PepsiCo	51	141	39.7	24.8	35.5
	Subtotal	80	272	33.5	25.7	40.8
Quick-Service Restaurants	McDonald's	6	32	40.6	18.8	40.6
	Subway	4	6	.0	100.0	.0
	KFC	8	120	45.8	16.7	37.5
	Starbucks	12	254	66.5	11.0	22.4
	Pizza Hut	4	47	31.9	14.9	53.2
	Burger King	7	17	52.9	29.4	17.6
	Subtotal	40 ^b	476	54.8	15.1	30.0
Food & Confectionery	Mars	7	15	20.0	40.0	40.0
	Nestlé	16	15	66.7	33.3	.0
	Subtotal	23	30	43.3	36.7	20.0
Total		143 ^a	778	46.9	19.7	33.4

^a percentages do not always add up to 100 due to rounding; ^b One press release issued by Pizza Hut is identical to one of KFC. Therefore, the subtotal number of press releases for quick-service restaurants is 40 and the total number of press releases is 143.

2.6.1 Beverage Companies

The two beverage companies (Coca-Cola and PepsiCo) published most press releases, perhaps due to their wide range of brands and products. As the two companies compete intensely and quite often launch fairly similar products, it is not surprising that they seem to have comparable approaches towards healthier consumption. They both focused on taste and knowledge, and on extending their product line while encouraging a healthy life style. PepsiCo had the highest number of press releases, while those by Coca-Cola's generated more responses, with reactions differing considerably sometimes.

A case in point is Pepsi Raw, an alternative low-calorie sub brand with added vitamins. It generated a huge number of blog posts, mostly from fans genuinely excited about the new product, with only a few criticizing the promotion of an unhealthy product with a health message. Conversely, Coca-Cola's debut 'diet' product of the year, Enviga, received much more negative responses, also because it was presented as a fat-burning green tea. Most responses in the blogosphere labeled this as misleading and irresponsible. Besides its self-developed new products, Coca-Cola focused its health strategies on acquisitions of healthier brands, such as Honest Tea in 2008 and Innocent Drinks in 2009. While most criticisms targeted the companies being acquired, as mentioned earlier, Coca-Cola was described as an evil enterprise that lazily bought its way into the healthy-living markets. In the time frame studied, PepsiCo focused on renewing its current product portfolio and did not announce large acquisitions.

With regard to knowledge solutions, both companies provided more information online and improved the labels on pack, but there was a difference in the promotion of healthy options. While Coca-Cola used its core brand to promote healthy living, PepsiCo tended to leverage its peripheral brands in other product categories, such as Quaker, Tropicana and Frito-Lay. As mentioned in the preceding section, Coca-Cola's co-promoting campaigns often generated negative responses, while PepsiCo created considerably less buzz in the blogosphere. Between the two beverage companies, differences with regard to issue association are tiny, with Coca-Cola scoring two percentage points higher on the obesity topic and generating significantly more negative reactions than positive ones.¹⁴

2.6.2 *Quick-Service Restaurants*

The QSRs that we included showed clear efforts in addressing and communicating about the issue. While each company exhibited different patterns, most companies in this cluster changed and/or launched new products. Examples include Burger King's children menu with options of apple slices and milk, KFC with grilled chicken, Starbucks' products with "real nutrition" and lower calories, and Pizza Hut's all-natural pizzas.

Most discussion amongst the QSRs has been generated by Starbucks' products, similar to the reactions to the company in general. Its press releases consistently stated that "Our customers asked for a delicious option. We listened", thus openly providing reassurance of tasty flavors. The obesity issue association amongst QSRs was the lowest for Starbucks, which seems in line with a predominance of positive valence. Still, notable for the company is also the large cohort of brand enthusiasts that appeared to successfully create mainly positive buzz around every Starbucks product launched. Different from how bloggers reacted to other companies, those who responded to Starbucks appear to be regular customers who try new products and write their reviews on blogs. It is hard to find somebody who writes blog posts or remarks about one of the products without having tried or planning to try it first. Conversely, remarks based on initial impressions and previous experiences were common in blogger responses to other companies.

One particularly notable blog is Starbucks Gossip which is run by a US journalist, Jim Romenesko, and keeps close attention to Starbucks Coffee with regular updates. It has a large following of employees and customers. Although the blog clearly states not be affiliated with Starbucks Corporation, discussions emerge almost every time the company publishes a new press release. Most importantly, Jim Romenesko is not the

¹⁴ Given small numbers, we could only test this for Coca-Cola and Pepsi-Co. For Pepsi-Co there were no significant differences regarding valence.

only one who writes a blog about Starbucks: many were found online, but these seemed smaller in size. It is only in the Starbucks case that one can find self-proclaimed fans and people who show strong affection to the brand.

Although much less than Starbucks, KFC generated debate as well. Its new product attracted attention, partially due to Oprah's promotion in her talk show. Bloggers mostly praised the effort but still wondered about the extent to which the product was really healthy. Moreover, the company's announcement to put calorie information on menu boards was one of the most discussed press releases in the knowledge category. Although Subway did this much earlier already, KFC's move was still described as "bold" and "daring". Whereas some bloggers said that they did not appreciate being confronted with such information, most agreed that the gesture showed determination on the part of the company.

Pizza Hut's products were discussed particularly due to its accompanying internet marketing campaign and draws for free coupon on popular blog sites. However, despite positive remarks on flavor and taste, some questioned the framing of the "all-natural" pizzas, for which the company issued three (out of the four) press releases. These specific releases on one and the same product line might explain why Pizza Hut, while less associated with obesity than some other QSRs such as McDonalds, KFC and Burger King, received more negative than positive blog posts. However, as noted above, most QSRs have only a few press releases and relatively low numbers of blog posts, which makes it more difficult to draw meaningful conclusions on the basis of this study.

This applies, for example, to Burger King and Subway which received rather limited attention, with relatively low numbers of blog posts. Burger King introduced different kinds of initiatives with a particular focus on the kids menu. Policies either directly targeted children's products, or addressed parents' concerns for health and nutrition, all under its "BK Positive Steps Nutrition Program". Its apple slices received only few reactions, with those from parents being mixed. Possible explanations for lack of buzz may be that half of its press releases concerned the UK market, where internet users are less active than in the US, and the relatively small size of BK's customer base compared to other QSRs. Subway did not draw much attention in the blogosphere, with low numbers of reactions, that were all neutral as well. Perhaps thanks to Jared Fogle who famously lost weight by eating Subway every day, and who writes blogs about fitness and healthy living, the company has been said to have a healthier image than other QSRs (Chandon and Wansink, 2007), and the obesity issue association is amongst the lowest. The company's official website and press releases focused on this 'better' image and delivered the same message, but this approach did not give rise to much debate.

McDonalds stood out amongst QSRs for other reasons, particularly its high association with the obesity issue and relatively high percentage of negative blogs. The

company did not publish information on its product development, but instead focused on showcasing knowledge-related policies and a range of marketing activities. A campaign that attracted particularly negative reactions was one in which the company invited six mommy-bloggers to visit factories and write about this; there was even one “mom” setting up a blog, referring to herself as the 7th Mommy blogger, to criticize only this campaign.

2.6.3 Food & Confectionery Companies

Observations are rather limited for this category, as we only included Mars and Nestlé, which were amongst the least discussed companies. They did not generate much debate in the period covered, and apparently had no customer base interested to actively express their views in the blogosphere. Both companies announced to put nutrition information on the website and to cooperate with governments. However, even then, compared to similar press releases by other companies, such as PepsiCo, reactions in the blogosphere were much less. Mars only attracted attention when it announced that one of the ingredients in chocolate can improve the blood flow which beats diabetes. While some bloggers viewed this as good news, most questioned the trustworthiness of the research. Compared to Nestlé, which scored lowest on the association with the obesity issue, Mars came as second after McDonalds and received a relatively high percentage of negative reactions, and few positive ones. However, total numbers are very small as there was hardly any debate in the blogosphere.

The lack of debate for Nestlé might be due to the low issue association, with consumers not expecting much from the company in this regard. Press releases would then just be a ‘little something extra’, not worth much discussion, at least considerably less than for companies ‘notorious’ in relation to the issue. Another reason may be that most of the press releases promoted new products, thus resembling rather generic advertising. The few blog posts that responded to Nestlé’s press releases contained product reviews instead of reflections on motivations or preferences of the company’s overall policy. Only rarely did we come across blogger comments about Nestlé’s efforts to improve health and de-market obesity, which is rather different from patterns found for other types of companies.

2.7 DISCUSSION AND CONCLUSIONS

This article explored reactions in the blogosphere to corporate announcements about healthier products. We analyzed blog posts and comments to press releases of ten large food companies active on the US market, to generate insight into which announcements

and which companies appear to give rise to most buzz, positive and negative, and thus also whether companies should make changes “quietly or with fanfare”. Attention was paid to volume and valence of online discussions as well as obesity issue association, considering the type of companies in particular (beverage companies, quick-service restaurants, food & confectionery companies). Based on our study, we can conclude that the decision whether to communicate “quietly or with fanfare” depends on several factors: the topic of the press release (with taste triggering more positive responses); the issue association with obesity (with high issue association going hand in hand with more debate, and low levels of issue association with low numbers of reactions); and the number of ‘fans’ on the internet (with those with a dedicated base generating many, also positive reactions). Below we will further elaborate on these findings, and offer recommendations for companies while also suggesting some areas for further research.

Although each company type and even each company has shown a distinctive use of press releases, it is clear that some topics and companies generate much more debate than others. In the context of this study, we were able to compare knowledge and taste in particular, as announcements related to cost were not made in the time frame we investigated and only three press releases dealt with convenience. Despite the recent debate and suggestions concerning ‘supersize’ and serving portions, companies have opted for communicating about adapting the taste to address health concerns and about engaging in an educational role (Dobson and Gerstner, 2010). Overall, 42% of the press releases have generated responses in the blogosphere. These results are in line with recent findings that blogger activities can be influenced and triggered by traditional media, and that consumers use the blogosphere as an outlet to express their opinions (Kerr et al., 2012; Onishi and Manchanda, 2011). As press releases are often published before the initiatives are implemented or products are launched, the approach followed in this study can be helpful to obtain more insight into pre-launch buzz, which has been mentioned as a valid indicator for market performance in the entertainment sector (Chintagunta, Gopinath and Venkataraman, 2010).

On average, the press releases resulted in positive rather than negative buzz. This shows that bloggers welcome companies’ initiatives addressing health concerns. In line with the argumentation developed from the literature (Chandon and Wansink, 2010), we found that press releases on topics related to taste generated significantly more, and also more positive, responses than those related to knowledge. Considering the taste category, the analysis of blog posts suggests that if a product is new on the market, it will at least generate some posts from food and drink reviewing blogs, more than adding new ingredients to an existing product. Removing harmful ingredients from existing products is widely discussed. This buzz was in general positive.

Looking at blogger patterns, vitamin-added soda drinks are apparently more intriguing than vitamin-added water, for example; and grilled chicken instead of fried

chicken generates more reactions than low-sodium chips instead of normal chips. This leads to the question of how a company can assess what is interesting for consumers and to what extent they will perceive something as creative and/or new enough. If a corporate claim is perceived as too bold, and especially if third parties, such as news media or NGOs, have voiced their opposition towards the press release, responses tend to be rather negative. There seems to be a thin fine line here between being innovative and over-exaggerating. For example, how to predict that the claim that Coca-Cola's Enviga Green tea helps to burn calories would be perceived as false and/or annoying, while the statement that vitamin-added diet Coke is something extra healthy for diet coke drinkers would be welcomed and seen as acceptable? To say that something helps to burn calories or that it is healthy appear to be two different things to bloggers, considering the divergent reactions.

Moreover, when companies announced moves that deviated from their original core products, negative responses were found. Examples include KFC's launch of grilled chicken and Coca-Cola's acquisition of Honest Tea. This interplay of message framing and consumers' original beliefs or perceptions is not always easy to forecast, however, and requires further study. This also applies to how blogger reactions to companies' announcements on such a social issue may subsequently affect their bottom line. And even though the literature contains generic recommendations for companies on how to generate positive responses, particularly by demonstrating sincerity and trustworthiness (Dean, 2004; Du, Bhattacharya and Sen, 2010; van de Ven, 2008), consumer evaluations depend on personal impressions that relate to perceived company-specific peculiarities including issue association on a concept such as obesity that evolves over time as well. While some companies, such as Nestlé and Coca-Cola, only have overall health and wellbeing schemes, others, such as Burger King, have very specific regimes for tackling obesity. In theory, the latter should be encouraged (Wansink and Huckabee, 2005), but in practice that approach did not receive so much recognition in the blogosphere, which may be due to a lack of connection with the online target audience.

Particularly Starbucks and Coca-Cola stand out for having the highest counts of blog posts and comments. However, the debate for Starbucks has not only been most intense but also positive, which was different for Coca-Cola as that company generated a substantive amount of negative buzz. This difference may be caused by company-specific factors, such as the existence of a dedicated 'fan base': Starbucks turned out to have a large cohort of brand enthusiasts who show strong affection. The company also scored low on issue association with obesity, different from Coca-Cola, and this appeared to relate to predominantly positive blog posts for Starbucks versus much more negative ones for Coca-Cola. If we extend this to an analysis of the company types, we found that beverages also had the strongest association to the obesity issue and provoked significantly more negative buzz than QSRs.

Interestingly, food & confectionery, which was least associated with the obesity issue, also generated least discussions in the blogosphere, even though Mars individually scored relatively high on its issue association. These findings suggest that when the overall company type is generally not associated with obesity in consumers' mind, it is more likely that health-related press releases remain unnoticed, as the influence of individual company scores may be diminished by the lower attention directed to the 'collective'. This may be the reverse for, in this case, beverage companies that are highly associated with obesity. Individual beverage companies are more likely to trigger discussions as a result, but they also run a greater risk of generating negative responses to their announcements. Such companies are thus advised to evaluate their own association score related to health issues before communicating their related activities. Unless companies' individual issue association have (positively) overwhelmed those of the collective, it might be better to conduct activities quietly rather than 'with fanfare'. Our findings extend the theory of negative double jeopardy, by adding that the critical determinants of anti-brand activities may not only be influenced by the brand value but also by the association with a particular issue (Kucuk, 2008).

Companies such as those in food & confectionery that are not strongly associated to obesity face a rather different challenge, that is, how to provoke any response at all in the blogosphere. To generate debate, internet marketing campaigns such as free giveaways on particular blogs appear to work. Pizza Hut is the one company that used this method particularly well; while it may not have led to positive valence overall, it certainly encouraged discussions. The successful use of internet marketing requires that companies carefully identify influential blog sites. For example, Pizza Hut's intention was to encourage consumers to try the product as they choose to offer free samples on a popular food critic's site. However, even if a company implements an internet marketing campaign for each press release, the buzz may still not be as large as for the ones that have a group of company 'fans' interested in (pro)actively talking about the company online. In the absence of such a base and of active connections with internet users in general, and if companies publish press releases with nothing particularly interesting, they are not likely to generate much debate.

From a public health standpoint, the limited appreciation in the blogosphere for a QSR such as Burger King may not be so bad. Chandon and Wansink found that people tend to underestimate the calorie intake when eating in a so-called 'healthy' QSR such as Subway, compared to one that is perceived to be unhealthy, for example, McDonald's (Chandon and Wansink, 2007). This incorrect assessment results in consumption of too many calories. The authors suggest that the best public health policy might be to ensure that consumers view food in all QSRs as indulgence, because this leads to greater self control. This means that if consumers regard a company as 'unhealthy' even though its products have become healthier, then this keeps them aware and perhaps even induce

behavioral change. Such a route towards de-marketing obesity may not be the one that companies prefer, however, even though it reflects the complexity of the issues at hand.

From a managerial perspective, in order for a company to maximize the impact of its press releases, the Starbucks approach of engaging consumers both offline and online might be a good model to follow. Setting up a corporate blog and engaging in continuous conversations this way could be a good starting point to give people access to information and get them involved (Fieseler, Fleck and Meckel, 2010). However, this only works if the association with a social issue, in this case obesity, is not too negative for the company type in particular. Companies should thus carefully consider how the issue association of their company type relates to their own individual score. Companies that belong to a company type with a high level of obesity association or are themselves strongly associated with the issue are advised to focus on taste-related press releases or to carry out health-related policies quietly. Companies that score low on issue association, or belong to a company type with low issue association should first focus on increasing the volume of the buzz with respect to health initiatives.

In view of the importance of internet discussions for many companies, the insights from this study may be relevant for other non-food companies, and for other companies than the ones included here as well. Particularly the more generic aspects regarding online consumer reactions to corporate communication and marketing activities may well apply beyond the food industry and the specific companies examined. However, further research that extends the analysis to other companies, sectors and issues would be worthwhile to build on the exploratory findings of this article.

CHAPTER 3

ON THE ROLE OF SOCIAL MEDIA IN THE 'RESPONSIBLE' FOOD BUSINESS: BLOGGER BUZZ ON HEALTH AND OBESITY ISSUES¹

ABSTRACT

To contribute to the debate on the role of social media in responsible business, this article explores blogger buzz in reaction to food companies' press releases on health and obesity issues, considering the content and the level of fit between the CSR initiatives and the company. Findings show that companies issued more product-related initiatives than promotion-related ones. Among these, less than half generated a substantial number of responses from bloggers, which could not be identified as a specific group. While new product introductions led to positive buzz, modifications of current products resulted in more negative responses, even if there was a high fit with core business. While promotion-related press releases were received negatively in general, particularly periphery promotion (compared to core promotion) generated most reactions. Our exploratory study suggests that companies can increase the likelihood of a positive reaction if they carefully consider the fit between initiatives and their core business, while taking the notion of 'controversial fit,' relating to the unhealthy nature of original products, into account. Further research avenues and implications, as well as limitations, are discussed.

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3.1 INTRODUCTION

In recent years, food companies have increasingly been called upon to take responsibility in reducing obesity and promoting health (Young and Nestle, 2007). Although individual behaviour and genetic predispositions could result in health problems, high-calorie products and marketing practices are believed to contribute to the obesity epidemic (Seiders and Petty, 2007). These social issues have entered the public debate as corporate social responsibility (CSR) concerns to which food companies have felt obliged to respond, also because of (threats of) regulatory measures. Reputation clearly plays a role in this respect, as potential consequences may be large (cf. Yoon, Gurhan-Canli and Schwarz, 2006); as noted by Wansink and Huckabee (2005, p. 6), “the threat of being the tobacco industry of the new millennium is not a trivial fear of leading packaged goods companies and quick service restaurants”. In reaction, food companies have started to take steps, including changes in package-size, portions and recipes, and the provision of nutrition information through labels (Kolk, Lee and van Dolen, 2012; Wansink and Huckabee, 2005). However, as the food industry is currently producing more than the population needs and profits rely on increasing consumption (Ludwig and Nestle, 2008), many people believe that its CSR activities are limited and have focused on transferring responsibility to personal will power (e.g., Koplan and Brownell, 2010), resulting in negative responses towards these initiatives.

Coca-Cola, for example, recently launched a two-minute advertisement in the US, which emphasised that the company provides low-caloric options and has included this information on its labels. The campaign suggests that “if you eat and drink more calories than you burn off, you’ll gain weight.” While the content of advertising is in line with Coca-Cola’s CSR theme ‘Live Positively’ and the company indeed offers more low-calorie options than in the past, the adverts immediately drew negative criticism from various stakeholders.² Similarly, the exclusive deal with McDonalds as the only branded restaurant on site during the 2012 Olympics in London was strongly criticised, despite the Olympic committee’s defense that the company’s healthier menu options indicate that it takes its “public health responsibility” seriously.³ On the other hand, Burger King’s introduction of apple slides cut to look like fries was positively received by the press, although not extensively discussed.

The negative associations with health issues may have forced companies to proactively communicate and engage in health improving initiatives (Schrempf, 2012). At the same time, however, legitimacy of companies that are subject to societal debates is often challenged by stakeholders who are sceptical (Du and Vieira Jr. 2012). Different

² See e.g., <http://www.ft.com/intl/cms/s/0/cbd21108-66c1-11e2-a83f-00144feab49a.html#axzz2LwE11qyi>, last accessed 28 February 2013.

³ See e.g., <http://edition.cnn.com/2012/07/19/opinion/olympic-sponsorship-clark>, last accessed 28 February 2013. We thank one of the reviewers for this suggestion.

responses of consumers towards CSR initiatives of food companies might be explained by the level of fit between the CSR activities and the company. The influence of fit has been widely studied in the context of cause-related marketing (e.g., Becker-Olsen and Hill, 2006) and social alliances (e.g. Vock, van Dolen and Kolk, 2013), but has not been applied to general CSR policies thus far. Literature on the influence of fit shows that the level of the fit between CSR activities and the company can be high or low. A high fit means that there is congruence between the cause and the brand in terms of image, function, and target markets, while a low fit refers to inconsistency between the cause and the brand. Researchers show that a high fit is more positively perceived by consumers than a low fit (e.g., Becker-Olsen and Hill, 2006). In the context of the food industry, this would suggest that a high fit between CSR initiatives and companies' core business, i.e., manufacturing and/or serving food, will lead to favourable consumer responses. When the activities are inconsistent and have a low fit with core business, perceptions will be more negative.

So far, it has been unclear how consumers respond to different types of CSR activities in the food industry. We focus on two types of CSR initiatives that have been implemented by food companies, product-related and promotion-related activities. In order to compare the differential perceptions toward the two types of initiatives, we explore press releases from food companies about health and obesity issues and blogger responses to these releases on the internet. Press releases are regularly used by food companies to announce their health-related initiatives to the public (Whysall, 2005). Until recently, these were targeted at traditional media such as newspapers, radio, and television. However, with the rise of social media, corporate announcements are often picked up and discussed by others than professional journalists (Wright and Hinson, 2008). In view of their greater interactivity and frequency, small online contributions via social media can quickly spread and generate 'buzz'. For companies, online responses are unpredictable but with a potentially large impact, even separate from the 'traditional' news media, and thus something that they need to take into account (Meraz, 2011). User-generated content such as blogs may affect reputation and performance; it has even been said that social media contribute to long-run sales growth, while traditional media have a shorter-term impact (Stephen and Galak, 2012).

In light of the unique challenges the food industry is facing, this article explores blogger buzz in reaction to company press releases on health and obesity issues in the food industry. We focus on blogging, which has become more important in demonstrating consumer power over the years (Kerr et al., 2012). As the most used approaches by the food industry to prime consumers' interpretations of companies' activities and values are product and promotion (Schröder and McEachern, 2005), we use these two categories to critically examine blogger responses and sentiments toward the CSR practices of 10 leading food companies. More specifically, this research intends to

explore the following questions: 1) What are the health-related CSR practices that have been communicated by these food companies? 2) Which types of CSR initiatives have generated awareness among bloggers? 3) What are the bloggers' responses toward these CSR communications? 4) Who are the bloggers that participate in the discussions?

This paper responds to the call for a better understanding of CSR communications in industries and companies that are negatively associated with social, environmental and ethical issues (Du and Vieira Jr. 2012; Godfrey, Merrill and Hansen, 2009; Yoon, Gurhan-Canli and Schwarz, 2006). It focuses on a specific set of issues faced by companies for which CSR concerns directly relate to their core business activities. We also add a novel perspective on CSR awareness research by empirically exploring bloggers' responses toward CSR initiatives. We aim to provide input into the broader debate about the (future) role of social media in responsible business by contributing insights from one type of online reaction. Before moving to a presentation and discussion of results, we will first give an overview of health issues and CSR in the food industry, and CSR communications and blogging, followed by an explanation of sample and methodology.

3.2 HEALTH ISSUES AND CSR IN THE FOOD INDUSTRY

The food industry has seen a dynamic process of rules imposed by governments and standards and/or codes adopted voluntarily by companies. For example, after bans on soda sales were adopted in several states in the US, the American Beverage Association, which included PepsiCo and Coca-Cola, agreed to 'voluntarily' stop the sale of all high caloric drinks in schools in 2006 (Burros and Warner, 2006). This example shows that many of the 'responsibilities' expected from food companies are in direct conflict with their core businesses, i.e., selling more products. Moreover, despite growing demand for (self-) regulation from various stakeholders, the effectiveness of such initiatives is still under discussion (Simon, 2006). Scholars argued that government intervention targeted at restaurants was unlikely to remedy the obesity epidemic (Marlow and Abdulkadirov, 2012) and even damage societal welfare (Anderson and Matsa, 2011). Taber et al. (2012) showed that the ban of sugar-sweetened drinks in schools may have reduced in-school access but not overall consumption among teenagers. And while governments have continued to tighten up the rules, food companies have spent large budgets on lobbying against such proposals (Wilson and Roberts, 2012). Their resistance may be partially due to uncertainties about consumer acceptance, perceptions of such initiatives, and fear of declining sales.

Concurrently, food companies have addressed health and obesity issues as part of their CSR. In the broader CSR context, relevant activities have been differentiated into two categories: institutional and promotional. Institutional CSR initiatives take a more

comprehensive approach and aim for long-term performance implications, while promotional ones focus more on short-term results such as sales (Pirsch, Gupta and Grau, 2007). In their review of CSR activities, Pelozo and Shang (2011) distinguished three different types: philanthropy, business practices, and product-related initiatives. They propose that, compared to the two other categories, product-related activities require more commitment and effort from companies, and are, therefore, better perceived by stakeholders. In the food industry, product and promotion are the two most used approaches to prime consumers' interpretations of companies' ethical values (Schröder and McEachern, 2005). We, therefore, take this perspective to further explore the activities undertaken by food companies, as reflected in their press releases.

Product and promotion can be related to insights from a different body of research, on cause-brand fit, in the marketing field. Cause-brand fit has been defined as "the degree of similarity or compatibility that consumers perceive exists between the cause and the brand" (Lafferty, 2007, p. 448). Previous literature suggests that higher fit enhances the associations between the brand and the cause, which facilitates the process of integrating information, and results in more positive consumer responses (e.g., Becker-Olsen and Hill, 2006). Similarly, it can be argued that in the food industry a high fit between CSR initiatives and the company's core business, i.e., offering food products, should receive favourable responses from consumers. It seems plausible that product-related initiatives to improve health and obesity issues have a high fit with the company's core food business, as these initiatives aim to adapt the product to become healthier or to introduce healthier alternatives. However, promotion-related initiatives are often further removed from core business as they mostly involve the promotion of healthier life styles, including more exercise. These initiatives are not entirely consistent with selling food that is calorie-dense, and may thus be perceived as low fit. The literature also shows that these activities might be perceived by consumers as predominantly based on firms' egoistic motives, leading to negative responses (Du, Bhattacharya and Sen, 2007). For example, consumers perceive a beer company sponsoring anti-drinking and driving campaigns as being driven by egoistic motives (Szykman, Bloom and Blazing, 2004). To explore this influence of fit, we consider CSR communications from food companies and evaluate consumer responses by analysing blogs.

3.3 CSR COMMUNICATIONS AND BLOGGING

In the context described above, communication about health-related activities is taking place; namely, companies publish press releases to 'give sense' to stakeholders about CSR (Morsing and Schultz, 2006), including obesity (Schrempf, 2012), and health issues (Maloni and Brown, 2006). However, CSR communications often suffer from low awareness (Sen, Bhattacharya and Korschun, 2006), and how and when they effectively generate favourable reactions is unclear (Bhattacharya, Korschun and Sen, 2009). CSR initiatives in consumer-oriented sectors, including the food industry, are often communicated via press releases (Holder-Webb et al., 2009), which may be viewed as promises that companies make to the general public (Harris et al., 2009). This reflects a more general trend that press releases are not solely targeted to or handled by journalists anymore (Ward-Johnson and Guiniven, 2008). Everybody, (potential) consumers included, has access to the information and can write opinions or report on a news event (Hennig-Thurau et al., 2010). Virtual CSR dialogues have recently been mentioned as ways in which companies may generate value (Korschun and Du, 2012). While such direct interactions with consumers are encouraged, it is largely unknown to what extent press releases are picked up by online users other than journalists. Moreover, research on how companies can influence the process of stakeholder involvement and engagement through the initial message issued has also remained scarce. It is crucial for companies to understand if and how various users receive this type of information, and social media discussions can give a clear indication.

Amongst social media platforms, blogs provide rich information and insightful conversations, and have less privacy issues than other settings (Hookway, 2008). Blogs are user-generated, not produced by professional media outlets, and can be interactive through readers' comments on posts (Stephen and Galak, 2012). Blogging as a phenomenon evolved from online personal diaries, but has quickly developed into a 'new medium' with the power of agenda setting (Wallsten, 2007). Bloggers, in particular, have been identified as empowered internet users that can potentially become online pressure groups (Kerr et al., 2012). Blogging has become prominent, even though other social media has grown rapidly as well (Hookway, 2008). This popularity has not been fully reflected in empirical academic research yet. Broader publications have considered the influence of blog(ger)s on politics and mass communications (e.g., Porter et al., 2007), tourism (e.g., Lin and Huang, 2006), journalism (e.g., Kaye, 2005) and public relations (Terilli and Arnorsdottir, 2008). Blogs are considered as a highly effective tool for public relations engagement (Kent, 2008), and the blogosphere, the totality of all blogs, has been characterised as an arena where executives can learn what has been said about their companies (Wyld, 2008).

In business-related research, two types of studies can be distinguished: one in

which blogs serve to collect data, and one in which blogs are examined. Blogs can be categorised and understood by looking at, for example, bloggers' profiles and genres of blogging topics, such as personal diaries, hobbies and interests, and consideration of public affairs issues (Kent, 2008). Blogs are commonly used in the field of information management to capture the spread of the Internet and usage. They are generally categorised as positive, negative and neutral (e.g., Ku, Liang and Chen, 2006) with regard to topics discussed. One study that also considered press releases used the total number of blog posts as a measure to assess impact on sales, complementary to the activities in traditional media (Stephen and Galak, 2012). In this article, we will also use press releases and blog posts, but rather in a different way, i.e., to assess numbers and types of responses by bloggers and their peculiarities, considering specific types of CSR initiatives. Hence, it is not only used as data tool but also as a phenomenon that companies face and need to consider in their communication activities.

Existing research on blogs as object of study, the second category identified above, has paid attention to motivations for blogging (e.g., Huang et al., 2007), blog categories (e.g., Dearstyne, 2005), interactions between bloggers and readers (e.g., Huang, Chou and Lin, 2008) and the influence of employee bloggers (e.g., Aggarwal et al., 2011). Madsen (2009) suggested companies to utilise information transparency on the Internet, via corporate blogs, to become socially responsible. Along this line, Fieseler and colleagues (2010) took McDonald's corporate CSR blog as a starting point to illustrate how blogs can be valuable in CSR communications. They demonstrated how blogs allow stakeholders, consumers included, to write and give their views about companies' CSR initiatives, thus providing direct feedback and offering possibilities for companies to engage in micro-dialogues with stakeholders. However, the responses of the general public in the blogosphere to companies' broader communications on CSR-related issues have remained underexposed.

3.4 SAMPLE AND METHODOLOGY

The food sector is often related to responsibility for health issues such as the growing obesity problem (Chou, Rashad and Grossman, 2008). This study included three sub-sectors of the food industry: quick-service restaurants, beverage, and food & confectionary companies, which have been at the centre of the obesity epidemic debate (Kolk, Lee and van Dolen, 2012; Marshall, O'Donohoe and Kline, 2007). Following industry data (Millward Brown Optimor, 2009; Rogers, 2009), we selected companies that were either the top two industry leaders in English language countries, or listed in the 100 global brands in 2007-2009. We focused on companies with the highest revenues and brand values in respective sub-sectors, mainly because prominent companies are more likely to engage in and communicate about CSR activities (Campbell, 2007; Gray,

Kouhy and Lavers, 1995). Moreover, companies with high brand value tend to attract more attention from consumers, which increases the likelihood of critical scrutiny (Krishnamurthy and Kucuk, 2009). Based on these criteria, Burger King, KFC, McDonald's, Pizza Hut, Subway, Starbucks (quick-service restaurants); Coca-Cola, PepsiCo (beverage companies), and Mars and Nestlé (food and confectionery companies) were selected. More quick-service restaurants were included because the top 100 global brand list contained more leading companies in this (sub)sector. They were also more discussed in general, along with the leading beverage companies, in terms of responsibility to address the obesity issue.

Press releases of these companies were retrieved from their websites, which usually listed them chronologically in the news sections. Although food companies are often associated with health and obesity issues, they hardly use the word 'obesity' in their communications. Instead, they tend to refer to the topic as 'Nutrition and Well-being' (McDonald's), 'Commitment to Food' (Burger King) or 'Active Healthy Living' (Coca-Cola). All press releases with information on policies, initiatives, and news about diet, health, nutrition, and wellbeing were included. The press releases were taken from the websites for the period between January 1, 2007 and July 31, 2009. At the time that data collection started, in 2009, the oldest press releases commonly available on the companies' websites were from 2007.

After all press releases were identified, the subsequent blog posts were retrieved online via Google Blog Search. Previous research has confirmed that media coverage for events is most intensive for a few days after an incident and then declines (Vasterman, 2005). Earlier blogging studies on political and social incidents found that blog discussions, like traditional media coverage, lasted for four days (Wallsten, 2007) to the first two weeks after the initial news events (Thelwall, 2006). Based on these findings, we set our search for blog posts for the period of up to two weeks after the release was first made public. Several keywords from the press releases' title and content were used as criteria to track the relevant blog posts. For example, on October 1, 2008, KFC published a press release entitled "Yum! Brands announced U.S. divisions will place calories on all company restaurant menu boards". The blog search was subsequently performed to find posts with keywords such as 'KFC', 'Yum!', 'calories' and 'menu' that were written between October 1, 2008 and October 15, 2008.

Each blog post was screened for its relevance to assess whether it is indeed related to the focal press release. Furthermore, only those blogs that had proven traffic and evidence of readership during the time of investigation were included in the sample, either by counting the number of visitors or the existence of comments from readers. Comments attached to a blog post were retained. We also collected the profile of the blog and blogger(s), including, if available, the characteristics of the blogs, such as the featured topics and the number of contributors, and whether they were single-authored

or multi-authored. Moreover, bloggers' country of origin, profession, and interests were recorded when that data was published on the site. Finally, the blog posts were coded according to the sentiments of the overall blog posts; positive, neutral or negative (Dickson and Eckman, 2008), in terms of their opinions regarding the initiatives (see Table 3.1 for an illustrative example). Blog posts that appeared to be sponsored by companies, such as providing free samples to give away, were included in the study. Even though the number of comments these blog posts received may be biased and considered to be marketing practices, they should still be recorded as they were part of the blogosphere activities.

The analysis of press releases built on earlier research (Pirsch, Gupta and Grau, 2007; Pelozo and Shang, 2011; Schröder and McEachern, 2005), resulting in two main categories: product-related and promotion-related press releases as indicated above. Product-related press releases were further divided in 'current product modification' (e.g., reducing salt and calorie density in chips) and 'new product introduction' (e.g., introducing new low-calorie fizzy drinks). Promotion-related press releases were divided into 'core promotion activities' that directly relate to the product (e.g., a ban on fast-food advertising towards children) and 'periphery activities' (e.g., promoting healthy life styles by encouraging exercising). Furthermore, to analyse the influence of fit between initiatives and companies on blogger responses, the press releases were coded as 'high fit' or 'low fit' based on the definition of "comparability between the initiatives and the company's core business" (Lafferty, 2007, p. 448). As explained in the previous section, the press releases were categorised based on whether the initiatives were seen as "consistent/inconsistent" and "compatible/incompatible" with companies' core business. When initiatives were considered to be consistent and compatible in light of companies' core business, they were coded as "high fit."

Table 3.1 Examples of Coded Blog Posts

Blog posts in response to Burger King's press releases on including apple slices in kids' menu	Sentiments as coded
"Great news! Burger King plans to sell apple slices that look like French fries. The <i>Associated Press</i> is all over this stroke of marketing genius. Take a look: ... <i>[direct quote from the press release]</i> ..."	Positive
"Burger King has jumped on the healthy wagon, and is now going to offer a healthier Kids' Meal in its restaurants. The meal will include flame-broiled Chicken Tenders, apples cut to resemble thick-cut french fries and lowfat milk... <i>[direct quote from the press release]</i> ..."	Neutral (only describes the news without personal opinion)
<p>"Burger King announced today that they're going to offer healthier food for kids this fall. Their new "Kids Meal" will offer low-fat milk, flame-broiled chicken strips, and "Apple Fries"—red apples sliced (via BK's patented cutting process) and packaged, you guessed it, to look like fries. Although, leave it to Burger King to leave out the most nutritious part of the apple—the skin....</p> <p>Burger King's attempt to provide healthier food could be in the interest of public health (or pressure?), but to me it sounds like just another marketing ploy which is par for the course for the fast food industry these days. But what's BK up to with these apple fries? Are they shaped like fries to trick children into eating them, or to have kids associate healthiness with french fries? Why not just give the kids a whole apple, skin and all?</p> <p>After all, a recent <i>Washington Post</i> survey of DC fourth graders showed that kids actually do like fruit. Minimally processed mandarin orange segments, applesauce, and pineapple receive as high a kid's review as processed, sweetened treats. But I guess kids can't have it their way at Burger King."</p>	Negative

Two coders were trained to analyse the category of press releases and blog posts, including one independent researcher who was not involved in the coding development, and one of the co-authors of the paper. We also trained two coders to analyse the fit level. These two had not been involved in the coding development and the coding of the category of press releases and blog posts. For both procedures, coders undertook the coding on the entire set of data separately and any disagreements were addressed at the end through discussion (as in Kerr et al., 2012). To ensure reliability of the result, the inter-rater reliabilities of the encoded blogs and press releases were tested. Agreement between the coders on the valence of the blogs, categories and fit level of the press releases was 94%, 95% and 95% respectively, while Cohen's Kappa was .91, .92, and .86 respectively. Based on previous research, this level of inter-coder reliability was deemed sufficient (Desai, 2011; Kolbe and Burnett, 1991). Chi-square analysis was conducted to analyse the relationships between press release categories and the fit level.

3.5 FINDINGS

We start by addressing the first research question mentioned in the introduction, related to the types of health-related initiatives communicated by the food companies. Overall, the 10 investigated companies published 165 relevant press releases during the research time frame, of which 67 generated in total 815 responses from bloggers, and 6,203 subsequent comments. Table 3.2 shows a detailed distribution of the press releases and accompanying blog posts over the 10 companies. It should be noted that there is one press release issued by YUM! Brands!, the company that owns both KFC and Pizza Hut, that was identical on both websites. Interestingly, when bloggers discussed the policy, they targeted KFC rather than Pizza Hut. We therefore counted the blog posts for this particular press release in the KFC figures, and did the same for the press release itself; there were thus 165 different press releases in total (this would have been 166 if the identical one had been included twice).

Table 3.2 An Overview of Press Releases and Related Blog Responses for Each Company

Company name	Number of press releases	Press releases without blogger responses (No. and %)*	Press releases with blogger responses (No. and %)*	Number of responses from bloggers	Average number of blog posts per press release with response	Number of comments on blog posts	Average number of comments per press release with blogger response
Burger King	11	5 (45%)	6 (55%)	21	3.5	233 ^a	38.8 ^a
McDonald's	10	5 (50%)	5 (50%)	42	8.4	256 ^b	251.0 ^b
KFC	8	3 (38%)	5 (63%)	120	24.0	315	63.0
Pizza Hut	4	0 (0%) ^d	3 (75%) ^d	47	15.7	959 ^c	319.7 ^c
Subway	4	3 (75%)	1 (25%)	6	6.0	12	12.0
Starbucks	12	2 (17%)	10 (83%)	254	25.4	2680	268.0
Coca-Cola	29	16 (55%)	13 (45%)	131	10.1	636	48.9
PepsiCo	57	40 (70%)	17 (30%)	151	8.9	1011	59.4
Mars	13	11 (85%)	2 (15%)	18	9.0	21	10.5
Nestlé	18	13 (72%)	5 (28%)	25	5.0	80	16.0
Total	165 ^d	98 (61%) ^d	67 (41%) ^d	815	12.1	6203 ^e	92.6

* percentages do not always add up to 100 due to rounding; ^a including 110 comments on 1 marketing blog post; if excluded, number in last column would have been 20.5; ^b including 56 comments on 1 blog marketing post; if excluded, number in last column would have been 40.0; ^c including 662 comments on 3 blog marketing post; if excluded, number in last column would have been 99.0; ^d one press release was issued under YUM! Brands!, the mother corporation of both KFC and Pizza Hut; when bloggers discussed the press release they focused on KFC, and it here therefore been included there; ^e including 828 comments reacting to blog marketing posts.

Among the 165 press releases, each category and sub-category was represented, as the following examples show. PepsiCo announced on 4 February 2009 to cut the sodium level of current products under its crisps brand Walkers, which is product-related and a modification of the current product. An example of a new product introduction is Nestlé's press release from 15 July 2009 that announced the introduction of new candy, cranberry RAISINETS, targeted at health-conscious consumers. Promotion related to core product activities is Mars' 2008 announcement to restrict communication activities for kids under the age of 12. An example of periphery promotion is Coca-Cola's press release about the joint work of its foundation with the government of the US state of Alabama to promote summer activities and an education programme for youth.

To give an indication of the level of activity in the blogosphere, we calculated the average number of blog posts per press release for each company, and did the same for comments (see last columns in Table 3.2). For blog posts, this overall amounted to 12.1, and for comments to 92.6 per press release that generated a response. Companies with more press releases did not necessarily generate more responses in the blogosphere. For example, in two and a half years' time, the two leading beverage companies, Coca-Cola and especially PepsiCo, sent out considerably more press releases than the others, but that did not lead to higher response rates among bloggers.

To answer our second research question, we analysed blogger responses in more detail. Table 3.3 shows a detailed distribution of the press releases and accompanying blog posts over the categories. Of the 165 press releases, contrary to the general belief, we found that the product-related ones accounted for 64%, with new product introductions as highest within the category, while the rest was promotion-related. However, companies did have more periphery promotion-related CSR initiatives (25% of the overall press releases) than the ones concerning current product modification (17% of the overall press releases). Overall, bloggers responded to 67 (41%) of the total press releases, with product extension generating most discussion. Product-related press releases had a higher response rate (47%) than the promotion-related ones (28%).

Table 3.3 An Overview of Press Releases and Related Blog Responses for Each Category

Press release category		Number of press releases	Press releases with blogger responses (No. and %)	Number of responses from bloggers	Average number of blog posts per press release with response	Number of comments on blog posts	Average number of comments per press release with blogger response
Product	Current product modification	28	11 (39%)	140	12.7	1486	135.1
	New product introduction	78	39 (50%)	557	14.3	4255 ^a	109.1
	Subtotal	106	50 (47%)	697	13.9	5741 ^b	114.8
Promotion	Core promotions	18	7 (39%)	54	7.7	109	15.6
	Periphery promotions	42	10 (24%)	64	6.4	353 ^c	35.3
	Subtotal	60	17 (28%)	118	6.9	462	27.2
Total		165	67 (41%)	815	12.2	6203 ^d	92.6

^a including 772 comments on 4 marketing posts; if excluded, number in last column would have been 89.3; ^b including 772 comments on 4 marketing posts; if excluded, number in last column would have been 99.38; ^c including 56 comments on 1 marketing posts; if excluded, number in last column would have been 29.7; ^d including 828 comments on 5 marketing posts; if excluded, number in last column would have been 80.2.

Similarly, to indicate the level of popularity for each topic in the blogosphere, we calculated the average number of blog posts and comments per press release for each category (see last columns in Table 3.3). Product-related press releases generated the most 'buzz' for both blog posts and comments, whereas core promotion generated the least in comments and periphery promotion generated the least in blog posts. Even if we excluded the blog posts that were blog marketing posts (e.g. giving free samples), the average number of comments on a blog post was still higher when it dealt with product modification rather than periphery promotion. Table 3.4 gives the distribution between press releases categories and fit levels. It shows that 129 press releases (78.2%) were coded as high fit, and 36 (21.8%) as low fit. Product-related initiatives have a higher proportion of high-fit press releases, while promotion-related ones had a more balanced distribution ($X^2=19.2$, $df=1$, $p<.001$). Upon further analysis of the various subcategories, we found that press releases on core promotions were mostly high fit, while periphery promotions appeared to be the only one with equal high-fit and low-fit press releases ($X^2=30.8$, $df=3$, $p<.001$). This indicates that, depending on the congruence between the activities and the company's core business, promotional activities could be high fit as well.

Table 3.4 An Overview of Categories of Press Release and Company-Initiative Fit

		Press release topic						Total
		Product			Promotion			
		Current Product modification	New product introduction	Subtotal	Core promotions	Periphery promotions	Subtotal	
Company-Initiative Fit	High	21	73	94	14	21	35	129
	Low	7	5	12	3	21	24	36
Total		17	78	106	28	42	59	165

We also explored blog posts' sentiments, which address the third research question posed in the introduction. In general, product-related press releases generated more positive responses (47.2%) than negative ones (33%). Conversely, promotion-related press releases led to more negative reactions (44.1%) than positive ones (38.1%). As expected, high-fit press releases generated more positive responses (47.2%) than negative ones (33.6%), while low-fit press releases generated more negative responses (42.7%) than positive ones (37.3%). Table 3.5 lists the detailed distribution of the blog post sentiments per category and fit level, which shows interesting differences within categories. While product extension reflected the overall category pattern of more positive responses for high fit and more negative responses for low fit, current product modification actually led to more negative responses for high fit and more positive responses in the case of low fit. And while periphery promotion led to more negative reactions in the low-fit condition, it had slightly more neutral responses when fit was high. Core promotions generated comparable percentages of positive and negative responses in case of high-fit press releases, but very limited observations for drawing meaningful conclusions for the low-fit condition.

Finally, when it comes to the bloggers who were active, a considerable variety can be seen. The 815 blog posts were published on 721 unique blogs; the overwhelming majority of bloggers (93%) posted one relevant post in reaction to a press release. 7% of the bloggers (53 in total) reacted to more than one press release and altogether wrote 147 out of the 815 blog posts. Of these 53 bloggers, 40 reacted to various press releases from different companies, while 13 responded to just one specific company, Starbucks. 11 out of these 13 bloggers responded to only 2 press releases, and 2 bloggers to 3 and 7 press releases. Starbucks had more bloggers who repeatedly responded to more than one of their press releases (254 blogs came from 232 bloggers). For other companies that also had bloggers with more than one post per company (Coca-Cola, PepsiCo, KFC and Pizza Hut) this amounted to just a few 'interested' bloggers.

Table 3.5 Distribution of Blog Posts' Sentiments Per Category and Fit Level

Press release category			Total number of blog posts	Sentiments of blog posts (in %)*		
				Positive	Neutral	Negative
High fit	Product	Current product modification	124	36.3	16.1	47.6
		New product introduction	537	50.8	20.1	29.2
	Promotion	Core promotions	51	47.1	7.8	45.1
		Periphery promotions	28	25.0	39.3	35.7
	Subtotal			740	47.2	19.3
Low fit	Product	Current product modification	16	43.8	37.5	18.8
		New product introduction	20	35.0	25.0	40.0
	Promotion	Core promotions	3	33.3	.0	66.7
		Periphery promotions	36	36.1	11.1	52.8
	Subtotal			75	37.3	20.0
Total			815	45.9	19.5	34.6

* percentages do not always add up to 100 due to rounding

Looking at the bloggers' profiles, the overwhelming majority (86%) appeared to be from the US, a small percentage from the UK (8%) or other countries (3%), while the origin of the rest (3%) could not be identified. Only a limited percentage of bloggers (14%) revealed details of their profession, with a considerable spread over dietitians, doctors, journalists, business specialists, and parents, mostly mothers. The type of blogs on which reactions were posted showed a large variety. This ranged from daily updates (mostly personal blogs; 32% of total), healthy living (diet, fitness, nutrition; 27%), food and drinks (product and restaurant reviews, focusing on taste and flavour; 16%), to business-oriented (17%). This latter category discussed press releases from a marketing or strategic perspective, e.g. characterising the launch of a new diet product as a "smart strategic move tapped into the health market". There were a few other small categories such as topic-specific blogs on sustainability and ethical consumption, or the politics of food and other social issues, as well as a limited percentage that could not be clearly identified.

3.6 DISCUSSION AND CONCLUSIONS

Health issues in general and obesity in particular have been of growing concern for the public, policy-makers, and also for companies. In this article, we examined responses in the blogosphere to press releases by food companies on health-related issues. While it is just a first study and there are still many issues that deserve follow-up research, the findings give insights into the scale of the phenomenon, in terms of numbers of press releases, blog posts and comments in the blogosphere, peculiarities of bloggers, and responses and sentiments. Regarding the research questions we wanted to answer, the analysis shows that companies communicated more product-related initiatives than promotion-related ones, with the former receiving more discussions among bloggers than the latter. While it is difficult to pinpoint a particular blogger community or blogger type exclusively involved in discussing health issues online, product-related press releases were generally perceived more favourably than the promotion-related ones, which can be partially explained by the fit between companies' core business and the initiatives. This final section will further reflect on the study and its findings, and discuss implications, limitations and possible avenues for further research.

3.6.1 Communication and Bloggers

The main challenge of CSR communication is to generate awareness; and the key peril of social media and thus the potential risk for companies lies in the uncontrollability of information flows as Internet users can directly state their opinions about an issue (Capriotti, 2011), without companies' consent or guidance. Our study shows that bloggers indeed pick up information from companies and directly respond to it in the blogosphere. While not all press releases have generated equal awareness, there was substantial buzz around the topic. This is in line with Wright and Hinson (2008) who found that corporate announcements are often picked up online and discussed by others than only professional journalists.

It is important for companies to realise that the uncontrolled information flow occurs anyway and not only when companies proactively engage in social media (Korschun and Du, 2012). A more traditional instrument, such as a press release, can also reach social media and generate considerable discussions online. In that sense, it is not an issue of either/or in terms of addressing those active on social media, but the more common older approaches can continue to play a role as well. Online listening can be a useful method for understanding the debate about the company and its health-related activities and to detect potential challenges.

Regarding types of bloggers, we found a large presence of bloggers from the US. This may be due to the fact that most companies originate from the US and that press

releases were in English. It has also been noted that Americans are in general more active in the blogosphere (Sobel, 2010). There may have been an influence of media attention to health and obesity issues in the US as well. Saguy, Gruys and Gong (2010), who compared news reporting on this topic in the US and France in the period between 1995 and 2005, found higher levels of attention in US newspapers, and also more discussion on individual choices and solutions.

More importantly, however, we found that blog posts originated from many different bloggers, i.e., the 815 posts were published on 721 unique blogs, written by bloggers that could not easily be put in one specific category. This means that, while many people seem to be interested in engaging about the topic, it is rather difficult to pinpoint who they are exactly. Although much research has focused on particular groups of bloggers (Fieseler, Fleck and Meckel, 2010), our study suggests that 'non-specific' Internet users also voiced their opinions and can be influential. They express an interest in a particular press release rather than consistently engaging in blogging about health-related issues. This group of random bloggers generated most of the buzz found on the Internet in response to the press releases studied.

While blogs generate helpful knowledge for companies from a large variety of potential consumers from different origins, it is rather difficult to use blogs to identify key stakeholder groups to engage in micro-dialogues with them. This latter approach was recommended by Fieseler, Fleck and Meckel (2010) based on their study on corporate blogs, so that companies could receive input on, for example, CSR initiatives. Korschun and Du (2012) also suggest to identify "the community of dialog participants" to maximize the value of CSR virtual communications. However, this may not be that valid when applied to the blogosphere in general, as done in this study. The actual bloggers might not be health-conscious bloggers who are monitoring companies' health and obesity policies, but in fact be individuals who are discussing whatever they like to talk about.

As shown by Kozinets et al. (2010), bloggers may strongly vary in their background and motives to blog about a particular topic. This means that expectations for a clear CSR voice from people active on this social media platform may be too much, as opinions and expertise are all over the place. These results are different from what has been suggested by previous studies. Du, Bhattacharya and Sen (2010) suggested that CSR communication is more effective when targeted at activists, who believe that companies should engage in CSR, rather than at 'disbelievers' who think that companies should primarily focus on their shareholders. Our study suggests that the effectiveness of the CSR communication outreach is not different for CSR activists and disbelievers. Although the general public may not proactively seek CSR information about a company (Dawkins, 2004), when they come across the information, they can still make their voice heard via online platforms.

3.6.2 Types of Press Releases and Blogger Responses

Although companies communicated more product-related CSR initiatives than promotion-related ones, those that might really change their business, i.e., modification of core products, were in a minority, compared to peripheral activities. This reflects public perceptions of companies trying to shift responsibilities toward consumers by offering more product options and encouraging a healthy life style, instead of taking direct (corporate) responsibility themselves. We also found that promotion-related campaigns received mainly negative discussions, whereas product-related ones were perceived positively. These findings are in line with Pirsch, Gupta and Grau (2007) who suggested that consumers are more cynical if initiatives do not relate to core business. However, different from impressions that product-related initiatives tend to be overlooked compared to promotion-related ones, the findings suggest that product-related press releases generated more discussions than promotion-related ones. This may be particularly the case in the food industry because the product itself is not only the contact point with consumers but also at the root of the health and obesity issue, which could therefore be more interesting to talk about.

Furthermore, our results indicate, as expected, that high-fit press releases generated more positive responses compared to the low-fit ones. However, high-fit press releases still generated negative responses, even though proportionally less than in case of low fit. This suggests that perceptions of press releases, while reflecting reactions amongst bloggers, could not only be explained by the level of fit. Taken together with the content of press releases, we found that modification of the current product, a high-fit activity, resulted in negative buzz, which differs from what would be expected on the basis of earlier research on company-cause fit in the literature on marketing and social alliances. This might be caused by what we call a 'controversial fit'; the adaptation of products in the food industry might underscore consumers' ideas that the original products were unhealthy.

These negative responses toward product modification highlight the dilemmas of implementing CSR initiatives when there is a fundamental conflict between expected responsibilities and companies' core business of providing food products that are usually calorie-dense. Also, since some consumers are already sceptical about healthy and diet food (Hamilton et al., 2000), it may be more challenging to offer the same product and to convince consumers that the modified version is better, than to offer an alternative to attract new customers and retain current ones. The difficulty of adapting existing products has been demonstrated before, as product modification has been found to account for the highest rate of failures (Rochford and Rudelius, 1997). Moreover, introducing new products, also a high-fit activity, is received positively. It could be that bloggers directly react to the item as a new healthy food product without being

reminded of the negative consequences of the original product, i.e., obesity. We also found that core promotional activities led to comparable percentages of positive and negative responses for high-fit press releases (for low fit, the number of observations was too limited). Concurrently, periphery promotional activities generated more negative buzz regardless of the fit level, but more when press releases were low fit than in case of high fit. This suggests that consumers generally had more negative perceptions toward promotional activities, which could only partially be explained by fit levels. A high level of fit may offset some negative responses but seems insufficient to result in positive reactions. Future research is needed to confirm these initial findings and to study the underlying processes to further explain mechanisms that influence consumer perceptions toward CSR communications.

3.6.3 Limitations and Future Research

The study reported in this article obviously had limitations in view of its exploratory nature, and there are several issues that deserve follow-up research to better understand what influences consumers' responses. Specifically, previous research on obesity found positive links between responsibility attributions and support for (self)regulation, such as restrictions on food marketing (Oliver and Lee, 2005). When coding the data according to the categories used for this study, we also came across a statement that pointed in that direction, such as criticism on food companies' initiative to stop advertising to kids because parents were seen to be the ones taking responsibility for children's diets: "...parents need to start acting like what you are called, PARENTS!!!!...". Similarly, consumers who see obesity as a personal responsibility may favour initiatives that would provide more options by introducing new products rather than limiting their options by modifying current products. For instance, a blogger wrote in reaction to Starbucks' announcement to only use reduced fat milk in its coffee drinks: "Let me just say that I drink 1% in my own home, but when I go out to "treat" myself that should be exactly what it is, a treat. [...] when I enjoy a latte I want the real deal". Such self-interest may induce a perception that a company compromised one's 'right' to enjoy a product for other people's personal issues. These examples suggest that responsibility attributions may influence bloggers' responses towards press releases, which is worth further study.

This also applies to an additional aspect that we observed in the coding process, which is that responsibility attributions revealed by bloggers in their posts appeared to be influenced by the topics of the press releases. Their contents seemed to suggest or remind the readers of different parties that bear responsibility for causing/solving obesity. For example, none of the bloggers mentioned parents or governments in response to Starbucks' initiative, whereas these two parties were brought up in blogger responses to communications by PepsiCo and Burger King about (self)restrictions on

their own promotional activities. This observation suggests that responses are not only influenced by the bloggers' individual beliefs of responsibility, but also by different informational cues in press releases. It highlights the complexity of responsibility attributions, especially in the context of CSR communications. In the same vein, we observed that bloggers often did not mention responsibility attributions in their posts. Follow-up research using questionnaires and/or an experimental design could help to shed further light on (causal) relationships between bloggers' responsibility attributions and their perceptions towards company initiatives, which could not be uncovered through the research approach that we followed. Moreover, it would be worthwhile to further investigate the interplay between initiatives and consumer perceptions, also considering different interpretations of fit levels based on consumers' understanding of companies' core business, image, and target markets.

In addition, from a CSR communication viewpoint, it would be interesting to study blogger responses towards a company's proactive social media strategy (e.g., when it starts the debate about a health-related product change). This type of communication gives companies more control as they can (partly) steer the direction of the debate and transform CSR communication from a one-way into a two-way interactive process (Jones, Temperley, Lima, 2009). For a more comprehensive picture, it would be helpful to also include other platforms, such as twitter, and other CSR issues, even beyond the social media to study the interplay with traditional mass media. As outcomes of online discussions are difficult to predict and may be negative, it would be interesting as well to understand to what extent discussions online attract mass media attention and influence views of internet users. Finally, while our study covered a longer time frame than others by analysing 2.5 years, an extension to more and later years could add value as well. This article, thus, only presents a first step towards a better understanding of the (potential) role of social media in responsible business by contributing insights from one type of online reactions about a specific set of issues faced by companies for which CSR concerns directly relate to their core activities.

CHAPTER 4

HOW SOCIAL INFLUENCE SHAPES POPULARITY: EMOTION AND OPINION FORMATION IN ONLINE COMMENTING¹

ABSTRACT

Why are some topics more widely and positively discussed than others in online communities? Based on social impact theory and attribution theory, we investigate individual commenting in online communities and its influence on popularity. Data from an online community suggest that users are influenced by both the immediately preceding comments, i.e., the immediacy of sources, and the comments of the majority, i.e., the number of sources. Individual comments tend to mimic the emotions of and express opinions similar to preceding comments. Concurrently, the popularity of topics is shaped by the content of these comments, rather than the content of the initial information alone. Discussions that are highly emotional and in agreement with each other are less likely to be popular. On the other hand, discussions that have high variance in opinions and emotions are more likely to be popular. This study suggests that, due to sequential influence, the first comments play an important role in how conversations are formed and in the resulting popularity of the online discussion.

¹ This chapter is based on a paper that is to be submitted to an international journal (with W. van Dolen as second author).

4.1 INTRODUCTION

Commenting or expressing opinions is an important aspect of online interaction, because these activities create and add value to online communities (Hennig-Thurau et al., 2004). In communications about specific products, the volume of comments reflects the popularity of the brand (de Vries, Gensler and Leeflang, 2012) or product, which can have a direct influence on sales (Liu, 2006). Therefore, companies establish online communities to directly engage with consumers and encourage discussion. Online marketing researchers have studied extensively how to motivate participation in online communities (e.g., Brodie et al., 2013; Burton and Khammash, 2010; Smith, Fischer and Yongjian, 2012; Sweeney, Soutar and Mazzarol, 2008). However, increased overall participation does not guarantee popular and favorable discussions, and little is known about why certain discussions are more popular or more positive/negative than others.

Recent research on online reviews stresses that to understand how people comment on a topic, it is important to analyze the dynamic process of commenting, rather than treating all comments as static entities (e.g., Ludwig et al., 2013). A few studies on product reviews illustrate a pattern in reviews, such that product characteristics, ratings of all preceding reviews (e.g., Godes and Silva, 2012; Li and Hitt, 2008), and number of preceding reviews (Duan, Gu and Whinston, 2008) influence the content and number of subsequent reviews. To date, this dynamic process has not yet been explored in the context of online communities, which exhibit a higher level of interactivity among members than do product review sites. Interactivity in communities highlights the importance of understanding the influence of preceding discussions during the individual commenting process. However, it remains unclear whether the content of preceding comments influences subsequent comments, and whether the content of all comments influences the total number of comments, i.e., the popularity of discussion threads.

To address this research gap, we turn to the social influence literature and to social impact theory, which explain the mechanism and strength of this influence in a social context. We distinguish the three sources of influence on how people comment, namely, initial information (the thread starting post, i.e., the first message), descriptive norms (majority of other users' comments), and immediacy of information sources (immediately preceding comments). Studies suggest that information with high immediacy, i.e., sources that are close in time or space proximity, and high quantity, i.e., number of repeated pieces of information, exhibits stronger social influence on the receivers of that information (e.g., Latané, 1996). Specifically, the number of information sources has been examined using the concept of descriptive norms, under whose influence people tend to follow what the majority of others do (e.g., Huang and Chen, 2006). Accordingly, users may be more likely to make comments in agreement with the majority of others' comments. Based on the influence of immediacy, we argue that

immediately preceding comments, i.e., the last comments made right before, would have a stronger influence on subsequent commenting behavior than all other comments. Besides the influence of others, initial information is shown to influence reader behavior (e.g., Berger and Milkman, 2012). Considering such distinctions, we aim to identify which information sources play a key role in shaping subsequent user comments.

Since the number of comments in an online discussion thread is actually the aggregated outcome of individual comments, we examine whether and how the content of these collective comments contributes to the popularity of a discussion thread. Attribution theory asserts that people try to make sense of others' behaviors by assessing the locus of causality of events. According to Kelley's covariation principles, individuals attribute the cause externally when the information has high consensus, consistency and distinctiveness (Kelley, 1973). Internet users are more likely to be convinced that the original information is indeed favorable (unfavorable) when the comments have congruent in positive (negative) emotions and opinions. Conversely, when the variance among preceding discussions is high, subsequent users tend to attribute the content to personal opinions and are more likely further to express their own opinions. Research also suggests that moderately controversial topics are more interesting to discuss and are more likely to generate responses online, particularly when people are anonymous to each other (Chen and Berger, 2013). Consequently, we argue that discussions that are in consensus are less likely to be popular. On the other hand, when variance is high, indicating opposing views in prior discussions, the thread is more likely to continue to attract comments, leading to high popularity. We aim to use this notion to shed light on the formation of popular threads.

Specifically, we focus on the valence and agreement/disagreement of the comments. Emotions, positive or negative, form the valence of a post, and are known to influence viewer interpretation of the piece of information (Kim and Gupta, 2012) and its virality (Berger and Milkman, 2012). Concurrently, along with emotions, users may express opinions on whether they agree or disagree with the piece of information. The degree of agreement between user posts is found to influence subsequent user response (Chiou and Cheng, 2003). Hence, in this research, we aim to understand to what extent the valence and opinions from comments are influenced by emotions in the initial message, the emotions and opinions of the majority of others and/or of the immediate predecessors, and to what extent collective emotions and opinions influence thread popularity.

In particular, this study is guided by the following research questions: a) to what extent are emotions and opinions from online comments influenced by prior information, including initial messages and preceding comments? b) How, if at all, does consensus or variance of emotions and opinions from comments contribute to formation of popular discussion threads? In answering these questions, we hope to provide a

theoretical framework on the formation of threads in online communities and to deepen understanding of what drives online conversations. Study of the popularity of online information poses a fruitful and central issue for scholars and marketers interested in shaping and driving online discussions.

4.2 A SOCIAL INFLUENCE FRAMEWORK OF ONLINE COMMENTING

The popularity of discussion threads represents the aggregated outcome of multiple individual commenting behaviors. While the number of times a piece of information is transmitted or discussed is known to be influenced by the characteristics and content of this initial information (e.g., Berger and Schwartz 2011; Berger and Milkman 2012), studies on why people respond positively or negatively to a topic online are still scarce. Such processes of online discussion formation have recently received increased attention, particularly in online product reviews (e.g., Godes and Silva, 2012; Li and Hitt, 2008; Moe and Schweidel, 2012; Moe and Trusov, 2011; Moon, Bergey and Lacobucci, 2010). From these studies, there is considerable evidence that reviews are written not only based on the characteristics of the initial information or independent judgments, but are also influenced by the opinions of others (Moe and Schweidel, 2012). Specifically, it is established that online users adjust their ratings in accordance with others (Schlosser, 2005). Thus, the factors that influence review formation can be identified at two levels, the characteristics of the initial information source, and the reviews that have already been submitted. To date, however, research on how individual posts are influenced by others' posts is limited to product ratings, and has not been investigated in the context of online communities.

Differing from product rating scenarios, where reviewers give scores to each product, comments in online communities are often in a text format. Users can express their comments as emotionally positive or negative, e.g., happy or unhappy and/or with opinions, such as agreeing or disagreeing. In this study, we thus distinguish between valence, or the emotional content, and agreement/disagreement, or the cognitive content of comments. Research on online discussions stresses that the development of individuals' "public" opinions is heavily affected by social influence (Ho and McLeod, 2008). More importantly, the effect of social influence could be even stronger due to the highly interactive nature of online communities of likeminded individuals. To understand how prior discussions influence current comments, we build our conceptual framework on informational social influence and social impact theory. Informational social influence suggests that people perceive others' behavior as an information source that indicates reality in an uncertain environment. Much of this influence is achieved through observation and imitation, whose mechanism is rooted in social impact theory (Argo, Dahl and Manchanda, 2005). Social impact theory asserts that individuals' emotions and

beliefs can change due to “the real, implied, or imagined presence or actions of other individuals” (Latané, 1981: 343). Accordingly, we argue that individuals’ commenting behaviors are affected by the presence of others’ comments, though the persons who made these comments may not be online at the time.

Research drawing on social impact theory suggests that individuals infer cues from others to make their own judgments (Latané, 1996). In particular, individuals are most likely to be biased toward information that has immediate proximity and high quantity, especially when the social status of others is unknown (Mangleburg, Doney and Bristol, 2004). Studies on online discussions tend to focus on identifying which users are more likely to be influential, and conclude that opinion leaders (Iyengar, van den Bulte and Valente, 2011), light users, customers that are less loyal to specific products (Godes and Mayzlin, 2009), and the critical mass (Watts and Dodds, 2007) are likely to influence fellow users’ online behavior. However, online commenting actually has the characteristic of being anonymous. User profiles rarely indicate information on personality, values, and motivations (Sukumaran et al., 2011). In this situation, influence based on user status may not be as effective. This ambiguous situation, in which the “power” of others cannot be determined, may lead to higher dependency on other informational cues, such as the proximity and amount of information. With regard to immediacy, in online discussions, the order of comments determines their relative proximity to each other. Comments made immediately before new ones have the highest immediacy and should have the strongest impact in terms of social influence.

Immediacy of information has also been found to influence the effectiveness of information integration and belief formation. In the context of information transmission, information that is more recent appears to have greater influence on consumer perceptions (van Hove and Lievens, 2007). Research suggests that online users tend to anchor on the most recently acquired online word of mouth (Christodoulides, Michaelidou and Argyriou, 2012); as a result, the valence of their evaluation of information would be similar to that of their anchor (Cohen and Reed, 2006). In other words, subsequent comments are likely to express similar emotions and opinions as those of the immediately preceding comments. To help individuals make evaluations, many online review sites, such as Amazon.com, present user comments according to their recency. This implies that in online conversations, comments that occur immediately prior to new comments may have greater impact than those further away. We thus posit Hypothesis 1 as follows:

H1a: Comments are more likely to be positive (negative), when the immediately preceding comments are positive (negative).

H1b: Comments are more likely to agree (disagree), when the immediately preceding comments agree (disagree).

With respect to number of sources, it is argued that individual behaviors are biased toward what the majority of others say or do (Banerjee, 1992), which often serves as an indicator of what is the “correct” thing in a given situation and is described as a “descriptive norm” (Cialdini, Reno and Kallgren, 1990). People are often influenced by descriptive norms through observational learning; people disregard their own information and act on information provided by predecessors after observation (Bikhchandani, Hirshleifer and Welch, 1992). This is because individuals tend to believe that others have better information, especially when one has limited resources to evaluate a situation (Duan, Gu and Whinston 2009). In the context of online discussions, when the direction of discussions is unclear and the criteria for making “good” comments are unknown, we argue that it is likely that people are influenced by descriptive norms and will converge to the majority of others’ comments.

The impact of descriptive norms suggests that people purchase or review items that are more popular and already have more comments, regardless of intrinsic product features (e.g., Chen 2011; Duan, Gu and Whinston, 2008; Huang and Chen, 2006; Oh and Jeon, 2007). This influence can be both emotional and cognitive. With respect to emotion, prior studies suggest that people have a tendency to imitate other people’s emotions and that a group will reach emotional convergence during this process (e.g., Small and Verrochi, 2009). This suggests that users observe emotions expressed by the majority of others and consciously or subconsciously express the same emotions in their own comments. Similarly, when Internet users make comments in a discussion thread, whether agreeing or disagreeing, descriptive norms of opinions may also be influential. We propose that when there are few other reference points available, people are more inclined to mimic others’ opinions. Online users have a tendency to express and transmit certain information that is more “desirable” to the social goal of the group in computer-mediated communications (Lin and Peña, 2011). As a result, the comments are more in line with what the majority of others have already said. We thus propose that:

H2a: Comments are more likely to be positive (negative) when the majority of the preceding comments are positive (negative).

H2b: Comments are more likely to agree (disagree) when the majority of the preceding comments agree (disagree).

Lastly, research suggests that the initial source of information influences how people react to a piece of information (Berger and Milkman, 2012). While opinions toward each topic of discussion (i.e., agreement/disagreement) may be individually different and difficult to predict, the emotions embedded in the initial message may provide cues about the direction of comments. Studies on word of mouth have found that emotions play a key role in how people react to received information. Part of the mechanism by which word of mouth information influences consumers is that the

emotions embedded in the message can directly trigger similar emotions in readers' minds (Bickart and Schindler, 2001; Howard and Gengler, 2001; Pugh, 2001). These findings suggest that reading positive information can lead to positive reactions, whereas negative information can result in negative responses. In other words, when the initial message is more positive or more negative, the comments become more positive or negative, respectively. We thus posit that:

H3: Comments are more likely to be positive (negative), when the initial message is positive (negative).

4.3 DISCUSSION THREAD POPULARITY

It is important for companies to create a topic or item to spur the interest of Internet users and trigger a significant amount of online discussion, because online popularity often indicates brand popularity in general (e.g., de Vries, Gensler and Leeflang, 2012). Scholars used to assume that a high volume of online conversation resulted from product characteristics, in particular, the popularity of the product itself (Lee, Lee and Shin, 2011; Zhu and Zhang, 2010). The more popular a product is, in terms of sales and reputation, the more reviews it receives. However, many online discussions are not directly related to products. To understand the popularity of online conversations, one may consider informational cues other than product characteristics. Content characteristics, such as emotions, along with topics and authors, appear to influence whether a piece of information is shared (Heath, Bell, and Sternberg 2001). Previous research on online WOM suggests that messages that elicit emotions are more likely to be shared (Dobele et al., 2007). Positive valence embedded in the initial information, in particular, is more likely to trigger information transmission (Berger and Milkman, 2012; Lin and Peña, 2011). These findings suggest that positive emotions appear more likely to activate individuals. Thus, we argue that in online discussions, positive posts are more likely to result in commenting behavior, which leads to higher popularity for a discussion thread. Therefore, we hypothesize that:

H4: Volume of comments is more likely to be high (low) when initial message is positive (negative).

Though these studies help to address the question of why certain information is more popular than other information, it is important to note that when users participate in an online discussion, there may be multiple information sources. Once the content characteristics of the initial message lead to the first comments, subsequent commenters are exposed to all preceding comments, along with the initial message.

When a user first joins a discussion thread, the aggregated preceding comments, along with the initial message, create a commenting climate which represents overall discussion thread characteristics. Prior research indicates that such a so-called climate of opinions could influence user willingness to post a message (Yun and Park, 2011). Therefore, it is important to consider overall discussion thread characteristics when evaluating the popularity of each discussion. Research drawing upon attribution theory suggests that when the emotional elements of preceding reviews are in consensus, this helps users attribute the emotions externally to the products, rather than internally to the reviewer's personal disposition. In particular, reviews that express convergent positive and negative emotions are deemed to have higher information value and to help users make judgments (Kim and Gupta, 2012). Attribution theory asserts that individuals tend to assign causal explanations to the experienced events and respond accordingly; the consensus of emotions in observations helps individuals to validate attributions (Freling and Dacin, 2010). Accordingly, we argue that when all preceding comments express similar emotions, whether negative or positive, individuals share the same emotions and attribute these emotions to the initial messages. In other words, subsequent users may feel the same emotions and that there is no need to further comment. Consequently, convergent emotions result in lower volume of overall comments, and hence less popularity.

Similarly, when all preceding comments express similar opinions, whether agreeing or disagreeing, individuals are more likely to experience the same opinions and believe that they themselves should think like previously expressed opinions. This pattern is also observed in the relevant literature. "Silence" behaviors in online discussions often result from users feeling that there is nothing more for them to contribute (e.g., Ballantine and Stephenson, 2011), as they share the same opinions and feelings with other participants. If individuals feel that whatever they say does not make a difference to the outcome of the discussion, since consensus has already been reached, they choose not to express themselves (e.g., Morrison and Milliken, 2000). This is to say that when consensus is high, subsequent users are less likely to comment, which eventually results in lower popularity. Therefore, we hypothesize:

H5a: Volume of comments is more likely to be low when discussion threads have high emotional consensus.

H5b: Volume of comments is more likely to be low when discussion threads have high consensus of opinion.

Research suggests that "interesting" topics are more likely to create buzz online (Berger and Milkman, 2012). In particular, a controversial topic that triggers diverse responses is more likely to be discussed (Chen and Berger 2013). In the same vein, we

argue that high variance among comments indicates diverse opinions and emotions in prior discussions and could lead to even more comments. These diverse comments may provide little informational value (Godes and Silva, 2012), which suggests an uncertain situation requiring further discussion. According to attribution theory, consensus information is needed to determine whether the observed events can be attributed to persons or entities (Kelley, 1973). When diversity in comments is high, i.e., low consistency and consensus in prior comments, users are likely to attribute the cause of these variations in emotions and opinions to prior individual commenters as their personal opinions instead of responses that are caused entirely by the initial messages. Consequently, the emotion and opinion climate of the discussion threads would suggest that there is still room for further discussion. Previous research also suggests that an argumentative opinion climate elicits greater participation (Rafaeli and LaRose, 1993). The high variance of prior discussions seems to suggest a more tolerant comment environment more welcoming to participation. Accordingly, we hypothesize:

H6a: Volume of comments is more likely to be high when discussion threads have high variance of emotion.

H6b: Volume of comments is more likely to be high when discussion threads have high variance of opinion.

4.4 METHODOLOGY

4.4.1 Data

To test our hypotheses, we extracted data from a brand community, Dell IdeaStorm. Dell officially launched IdeaStorm in February 2007, as an attempt to utilize online crowdsourcing. Internet users can create a free account and submit ideas or write comments about others' ideas. We chose a co-creation community as our research platform for the following reasons. First, the layout of the community makes a clean distinction between the initial message and subsequent comments. This structure makes it easier to detect what information sources one person has accessed prior to making comments. Second, in co-creation forums, comments are made in response to conceptually described ideas instead of an existing product. This avoids potential bias from pre-existing knowledge and experience of product usage, as in product review platforms. Lastly, IdeaStorm is well established and is considered one of the best crowdsourcing practices, providing abundant discussion threads to analyze.

All discussion threads within a four-year time-span since the site launch were extracted from the site, including initial ideas, comments, author aliases, author profiles, and their timestamps when available. Over the study period, excluding the posts

archived and removed from the site by the site company, 14,404 ideas were documented, among which 10,178 (70.66%) attracted more than one comment; 9,436 unique individuals were recorded, for a total of 84,784 valid comments. Among these unique users, 91 were Dell employees, and they contributed 3,730 (4.40%) comments. Since we investigate only genuine user comments, comments by Dell employees were excluded from analysis, except when they preceded comments to others. The average number of comments per idea was 65.42. However, comment distribution was positively skewed (Skewness=3.93) and the median number of comments per idea was nine.

4.4.2 Variables and Coding Process

Based on our hypotheses, the variables were divided into two main dimensions, valence and agreement/disagreement. Summary descriptions for all variables are listed in Table 4.1. We labeled each variable with each associated comment made as idea k at order i in the threads. We computer-coded the valence, using Linguistic Inquiry and Word Count (LIWC; Pennebaker, Booth and Francis, 2007), as applied in a previous online information transmission study (Berger and Milkman, 2012). We coded all comments based on their use of positive and negative emotional words. $POSITIVE_{ki}$ was coded according to the percentage of positive emotional words listed in the comments, and $NEGATIVE_{ki}$ was coded based on the percentage of negative words. Similarly, the percentage of positive and negative emotional words in the initial messages, idea post k , was coded $IDEA_POSITIVE_k$ and $IDEA_NEGATIVE_k$, respectively. The valence of the majority of comments was calculated using the moving average and moving variance of the preceding comments. The moving average of positive valence of the preceding comments until comment order i was noted as $MVPOSITIVE_{ki-1}$, and the moving variance was calculated based on standard deviation and labeled as $VAPOSITIVE_{ki-1}$. Similarly, negative valence and its variance were labeled $MVNEGATIVE_{ki-1}$ and $VANEGATIVE_{ki-1}$, respectively. The overall valence and variance of a discussion thread initiated by idea k were calculated as the overall mean of positive and negative, which were labeled $POSITIVE_k$ and $NEGATIVE_k$. The overall variance of valence of each thread was calculated and marked as $VAPOSITIVE_k$ and $VANEGATIVE_k$.

The second dimension, opinions of comments, i.e., agreement/disagreement, was human-coded. We coded opinions of comments toward the initial messages with the label "agree," "disagree," "neutral," or "unclear." In our analysis, only agree and disagree were included. Similar to how user-generated content was coded in the literature (Smith, Fischer and Yongjian, 2012), comments on idea k at order i were coded $AGREE_{ki}$, $DISAGREE_{ki}$, $NEUTRAL_{ki}$, or $UNCLEAR_{ki}$, based on the overriding positions in response to the previous messages. Due to the large number of overall comments, three independent coders who did not participate in the hypothesis development process

coded the comments separately. Each coder coded 10% of randomly selected discussion threads to verify the coding scheme and to test intercoder reliability. Selection of the subsample was considered sufficient (Li, Daugherty and Biocca, 2001) to establish the validity of the scheme. Ultimately, 8,429 comments from 1,017 discussion threads were tested. Intercoder reliability was sufficient. Average Cohen's Kappa among the three coders was .90, and the percentage of agreement was 94.09%. Differences in coding were discussed and resolved before the remainder of the comments were coded. The opinions in the majority of the preceding comments were then calculated in accordance with how the valence was calculated, and labeled $MVAGREE_{ki-1}$, $MVDISAGREE_{ki-1}$, $VAAGREE_{ki-1}$, or $VADISAGREE_{ka-1}$. Opinions of the overall discussion thread initiated by idea k were calculated as the overall average opinion and noted as $AGREE_k$ or $DISAGREE_k$. Overall variance in agreement and disagreement of each thread was calculated by their standard deviations, and labeled $VAAGREE_k$ or $VADISAGREE_k$.

Finally, the number of comments for each idea thread was extracted directly from the community and labeled $COMMENTS_k$. An idea thread k was considered popular if it had more comments than the mean plus one standard deviation of comments per thread for the entire forum (Aggarwal et al., 2012); we created dummy variable $POPULARITY_k$ to label this. This represents only 2.36% of all discussion threads.

To control for other factors that may influence the content and number of comments, we included various control variables in our models. The topics of idea k were distinguished based on categorization by the community, namely, $TOPIC_k$, $DELL_k$, and $PRODUCT_k$. In addition, we included $WORD COUNTS_k$ of the idea posts, $VOTES_k$ that it received, and the $DURATION_k$ of time the idea remains posted on the community. We also established the baseline of user j 's usual emotional tendency by calculating their average $POSITIVITY_j$ and $EMOTIONALITY_j$. The former was calculated based on the difference between the percentage of positive words and the percentage of negative words in comments posted by the same users. Emotionality, on the other hand, was calculated as the sum of these two percentages. The formula was used to calculate content characteristics of news articles (Berger and Milkman, 2012). Based on a similar logic, we defined $OPINIONATED_j$ as the average of agree and disagree comments among all comments made by the user, and $CONFORMITY_j$ as the difference between agreeing comments and disagreeing comments. Users who posted only once were excluded from the analysis, as their baselines would be the same as that one comment. Moreover, we controlled for activity levels of individual users by calculating the $FREQUENCY_j$ of their activities on the community. We took the average number of posts made by the person since the first time they appeared on the community until the day the data were extracted. Finally, we added dummy variables for each comment under idea k at order i for whether it was published during $WEEKEND_{ki}$ and which year between 2007 and 2011, as control variables.

Table 4.1 Description of Variables

Variables	Coding Methods	Coding Unit	Label	Description and Measures
<u>Main Variables</u>				
Valence of comments	Coded through textual analysis (LIWC)	Comment	POSITIVE _{ki}	Percentage of positive emotional words per comment to idea k at order i
			MVPOSITIVE _{ki-1}	Moving average of POSITIVE of idea k until order i
			VAPOSITIVE _{ki-1}	Moving standard deviation of POSITIVE of idea k until order i
			NEGATIVE _{ki}	Percentage of negative emotional words per comment to idea k at order i
			MVNEGATIVE _{ki-1}	Moving average of NEGATIVE of idea k until order i
			VANEGATIVE _{ki-1}	Moving standard deviation of NEGATIVE of idea k until order i
		Thread	POSITIVE _k	Average POSITIVE of idea k
			VAPOSITIVE _k	Standard deviation of POSITIVE of idea k
			NEGATIVE _k	Average NEGATIVE of idea k
			VANEGATIVE _k	Standard deviation of NEGATIVE of idea k
Opinions of comments	Manually coded	Comment	AGREE _{ki}	A dummy variable measuring whether the comment to idea k at order i agrees with idea k
			MVAGREE _{ki-1}	Moving average of percentage of AGREE of idea k until order i
			VAAGREE _{ki-1}	Moving standard deviation of AGREE of idea k until order i
			DISAGREE _{ki}	A dummy variable measuring whether the comment to idea k at order i disagrees with idea k
			MVDISAGREE _{ki-1}	Moving average of percentage of DISAGREE of idea k until order i
			VADISAGREE _{ki-1}	Moving standard deviation of DISAGREE of idea k until order i
		Thread	AGREE _k	Percentage of AGREE comments of idea k
			VAAGREE _k	Standard deviation of AGREE of idea k
			DISAGREE _k	Percentage of DISAGREE comments of idea k
			VADISAGREE _k	Standard deviation of DISAGREE of idea k
Characteristics of the initial messages	Coded through textual analysis (LIWC)	Idea post	IDEA_POSITIVE _k	Percentage of positive emotional words of idea k
			IDEA_NEGATIVE _k	Percentage of negative emotional words of idea k
	Captured by WebCrawler		COMMENTS _k	Total number of comments of idea k
			POPULARITY _k	A dummy variable measuring whether idea k has above-mean plus one standard deviation of COMMENTS

Control Variables				
Characteristics of the users	Coded through textual analysis (LIWC)	Registered user	POSITIVITY _j	Difference between POSITIVE and NEGATIVE of all comments from user j
			EMOTIONALITY _j	Sum of POSITIVE and NEGATIVE of all comments from user j
	Manually Coded		CONFORMITY _j	Difference between percentage of AGREE and DISAGREE of all comments from user j
			OPINIONATED _j	Sum of percentage of AGREE and DISAGREE of all comments from user j
	Captured by WebCrawler		FREQUENCY _j	Number of comments made by user j from its first appearance until 10 May 2011
			EMPLOYEE _j	A dummy variable measuring whether user j is an employee
Characteristics of ideas	Captured by WebCrawler	Idea post	TOPIC _k	A dummy variable measuring whether idea k is tagged with topic-related subjects
			DELL _k	A dummy variable measuring whether idea k is tagged with Dell-related subjects
			PRODUCT _k	A dummy variable measuring whether idea k is tagged with product-related subjects
			VOTES _k	Final score of votes received by 10 May 2011
			DURATION _k	Time-span between publish date and 10 May 2011 of idea k
			WORD COUNTS _k	Total word counts of idea k
			COMMENTS _{ki}	Total number of comments of idea k at order i
Time	Captured by WebCrawler	Comment	WEEKEND _{ki}	A dummy variable measuring whether a comment on idea k at order i was published during the weekend
			YEAR _{ki}	A dummy variable measuring which year a comment on idea k at order i was published, between 2007 and 2011

4.4.3 Models

To understand how individual comments were formulated, we analyzed the impact of initial messages and their preceding comments in three different stages. We first examined the initial comment made in each thread. Then, we examined the second comments, when there was only one preceding comment along with the initial message. Finally, we examined the remainder of the comments. We separated the models as such because the first two stages had only one comment, whereas the final stage included multiple comments for the outcome variables. The impacts of preceding information sources, whether ideas or comments, on $POSITIVE_{ki}$ and $NEGATIVE_{ki}$ were analyzed with ordinary least square regressions, and $AGREE_{ki}$ and $DISAGREE_{ki}$, due to their categorical nature, were analyzed via logistic regressions. On the other hand, in the last stage, each discussion thread had multiple observations on dependent variables, which gave the data a panel structure. Thus, for the third stage, we employed a generalized least squares random model to calculate the impact of valence, and random effect logistic models to calculate the impact of opinions, which fits longitudinal data with binary output. We report standard errors that are robust to heterogeneity.

To explore what contributed to forming a popular thread, we analyzed the influence of thread characteristics and their impacts on the volume of comments. We employed the Poisson-Logit Hurdle regression model (PLHR) (Mullahy, 1986), as applied in the literature (Hinz et al., 2011). The model is separated into two stages of calculation. PLHR first predicts the impact of the idea-specific variables on the chances that an initial message receives any comments at all, and then predicts the impact of these variables on the total volume of comments. Due to the high variance in the number of comments, we then fitted the model with a negative binomial regression to check the impact of both idea-specific and comment-specific characteristics on the total volume of comments. Finally, to verify the negative binomial model results of the impact on the volume of comments, we further conducted a logistic regression analysis to check whether the identified variables made the cutoff point for establishing a popular idea. All analyses were performed using the statistical software STATA.

Table 4.2 Descriptive Statistics and Correlation Matrix of Key Variables

(a) Correlations										
Variables	1	2	3	4	5	6	7	8	9	10
1 POSITIVE _{ki}	1									
2 NEGATIVE _{ki}	-.05 ^{***}	1								
3 AGREE _{ki}	.20 ^{***}	-.02 ^{***}	1							
4 DISAGREE _{ki}	-.12 ^{***}	.06 ^{***}	-.51 ^{***}	1						
5 IDEA_POSITIVE _k	.03 ^{***}	-.01 ^{***}	.04 ^{***}	-.01 ^{***}	1					
6 IDEA_NEGATIVE _k	-.00 ^{***}	.04 ^{***}	-.01 [*]	-.00 ^{***}	-.06 ^{***}	1				
7 MVPOSITIVE _{ki}	.50 ^{***}	-.02 ^{***}	.14 ^{***}	-.09 ^{***}	.06 ^{***}	-.01 ^{***}	1			
8 MVNEGATIVE _{ki}	-.02 ^{***}	.51 ^{***}	-.02 ^{***}	.05 ^{***}	-.00 ^{***}	.11 ^{***}	-.04 ^{***}	1		
9 MVAGREE _{ki}	.11 ^{***}	-.02 ^{***}	.58 ^{***}	-.33 ^{***}	.06 ^{***}	-.02 ^{***}	.24 ^{***}	-.04 ^{***}	1	
10 MVDISAGREE _{ki}	-.07 ^{***}	.04 ^{***}	-.32 ^{***}	.59 ^{***}	-.02 ^{***}	-.00 ^{***}	-.16 ^{***}	.08 ^{***}	-.57 ^{***}	1
11 VAPOSITIVE _{ki}	.37 ^{***}	-.01 ^{***}	.08 ^{***}	-.08 ^{***}	.04 ^{***}	.00 ^{***}	.85 ^{***}	-.01 ^{***}	.16 ^{***}	-.17 ^{***}
12 VANEGATIVE _{ki}	.00 ^{***}	.37 ^{***}	-.02 ^{***}	.02 ^{***}	-.01 ^{***}	.07 ^{***}	.01 ^{***}	.86 ^{***}	-.04 ^{***}	.04 ^{***}
13 VAAGREE _{ki}	.04 ^{***}	-.00 ^{***}	.22 ^{***}	-.17 ^{***}	.01 ^{***}	-.00 ^{***}	.12 ^{***}	-.01 ^{***}	.43 ^{***}	-.32 ^{***}
14 VADISAGREE _{ki}	-.03 ^{***}	.02 ^{***}	-.14 ^{***}	.19 ^{***}	-.02 ^{***}	.01 ^{***}	-.08 ^{***}	.05 ^{***}	-.27 ^{***}	.38 ^{***}
Descriptive Statistics										
Mean	4.66	1.29	.34	.34	3.08	.88	4.57	1.27	.35	.35
SD	9.19	3.50	.47	.48	2.85	1.64	3.56	1.46	.25	.26
Min	0	0	0	0	0	0	0	0	0	0
Max	100	100	1	1	100	50	68.75	50	1	1
	11	12	13	14						
11 VAPOSITIVE _{ki}	1									
12 VANEGATIVE _{ki}	.09 ^{***}	1								
13 VAAGREE _{ki}	.16 ^{***}	.05 ^{***}	1							
14 VADISAGREE _{ki}	.00 ^{***}	.08 ^{***}	.20 ^{***}	1						
Descriptive Statistics										
Mean	6.29	2.28	.39	.39						
SD	5.94	2.55	.20	.20						
Min	0	0	0	0						
Max	70.71	70.71	.71	.71						

(b) Correlations											
Variables	1	2	3	4	5	6	7	8	9	10	11
1 COMMENTS _k	1										
2 IDEA_POSITIVE _{ki}	-.01	1									
3 IDEA_NEGATIVE _{ki}	.00	-.05 ^{***}	1								
4 POSITIVE _k	.01	.05 ^{***}	-.00	1							
5 NEGATIVE _k	.01	-.01	.10 ^{***}	-.04 ^{***}	1						
6 AGREE _k	.00	.01	.02	.24 ^{***}	-.00	1					
7 DISAGREE _k	.00	-.01	-.00	-.13 ^{***}	.07 ^{***}	-.55 ^{***}	1				
8 VAPOSITIVE _k	.07 ^{***}	.03 ^{**}	-.00	.86 ^{***}	-.01	.17 ^{***}	-.13 ^{***}	1			
9 VANEGATIVE _k	.06 ^{***}	-.01	.07 ^{***}	-.01	.90 ^{***}	-.05 ^{***}	.08 ^{***}	.05 ^{***}	1		
10 VAAGREE _k	.07 ^{***}	.00	.02 [*]	.09 ^{***}	-.02	.36 ^{***}	-.28 ^{***}	.12 ^{***}	.02	1	
11 VADISAGREE _k	.06 ^{***}	-.02	.00	-.10 ^{***}	.02 [*]	-.30 ^{***}	.40 ^{***}	-.02	.06 ^{***}	.18 ^{***}	1
Descriptive Statistics											
Mean	5.89	3.21	.89	4.50	1.26	.34	.36	5.45	1.96	.36	.36
SD	27.03	3.24	1.57	4.63	1.87	.29	.29	6.78	2.95	.25	.25
Min	0	0	0	0	0	0	0	0	0	0	0
Max	1383	100	50	67.59	50	1	1	70.71	70.71	.71	.71

Table (a) includes key variables used in models estimating valence and agreement/disagreement; Table (b) includes variables used in models estimating presence of a popular discussion thread. *, ** and *** indicate significance at the $p < .05$, $p < .01$ and $p < .001$ level, respectively.

4.5 RESULTS

4.5.1 Influence of Immediately Preceding Comments

Descriptive data and correlations among key variables are listed in Table 2. We first examine how individuals formulate their emotions and opinions under the influence of preceding information. Table 4.3 depicts estimated results for valence of subsequent comments, whereas Table 4.4 displays estimated results for opinions in subsequent comments. The results suggest that $POSITIVE_{ki}$ are found to be positively influenced by the preceding $POSITIVE_{ki-1}$ ($\beta_{ki=2}=.0324$, $p=.019$; $\beta_{ki>2}=.0232$, $p<.001$), while $NEGATIVE_{ki}$ are found to be positively influenced by the preceding $NEGATIVE_{ki-1}$ ($\beta_{ki=2}=.0482$, $p=.005$; $\beta_{ki>2}=.0269$, $p<.001$). H1a is accepted. Similarly, the results suggest that if the preceding comments are $AGREE_{ki}$ comments, the subsequent comments are also more likely to agree ($\beta_{ki=2}=.578$, $p<.001$; $\beta_{ki>2}=.265$, $p<.001$) and less likely to disagree ($\beta_{ki=2}=-.437$, $p<.001$; $\beta_{ki>2}=-.191$, $p<.001$). Likewise, when the preceding comments are $DISAGREE_{ki}$ comments, the subsequent comments are also more likely to disagree ($\beta_{ki=2}=.604$, $p<.001$; $\beta_{ki>2}=.578$, $p<.001$) and less likely to agree ($\beta_{ki=2}=-.437$, $p<.001$; $\beta_{ki>2}=-.330$, $p<.001$). Thus, H1b is confirmed.

4.5.2 Influence of Majority of Others' Comments

The results, the last two columns of Table 4.3 and 4.4 ($i>2$), indicate that subsequent comments are indeed influenced by the valence and opinions of the majority of others. When the $MVPOSITIVE_{ki-1}$ is high, the $POSITIVE_{ki>2}$ of subsequent comments are likely to be high ($\beta=.0815$, $p=.018$). Conversely, the $MVNEGATIVE_{ki-1}$ are found to have a positive impact on $NEGATIVE_{ki>2}$ ($\beta=.207$, $p<.001$). However, this effect is diminished if $VANEGATIVE_{ki-1}$ is high ($\beta=-.259$, $p<.001$). Therefore, H2a is accepted. Similarly, when the majority of others' comments agree ($MVAGREE_{ki-1}$), subsequent comments are more likely to agree ($\beta=.703$, $p<.001$). On the other hand, when the majority of others disagree ($MVDISAGREE_{ki-1}$), subsequent comments are not only more likely to disagree ($\beta=.848$, $p<.001$), but also less likely to agree ($\beta=-.237$, $p=.001$). Variance of agreement ($VAAGREE_{ki-1}$) or disagreement ($VADISAGREE_{ki-1}$) of preceding comments has no impact on subsequent comments. H2b is accepted.

4.5.3 Influence of Initial Messages

$IDEA_POSITIVE_{ki}$ has a positive impact on $POSITIVE_{ki=1}$ ($\beta=.0793$, $p=.003$) and $POSITIVE_{ki>2}$ ($\beta=.0390$, $p<.05$). $IDEA_NEGATIVE_k$ has a longer-lasting impact on $NEGATIVE_{ki}$ ($\beta_{ki=1}=.164$, $p<.001$; $\beta_{ki=2}=.0968$, $p<.024$; $\beta_{ki>2}=.0562$, $p<.001$). Thus, H3 is

partially confirmed.

Table 4.3 Estimated Results for Valence of Subsequent Comments

	<i>i</i> =1		<i>i</i> =2		<i>i</i> >2	
	POSITIVE _{ki}	NEGATIVE _{ki}	POSITIVE _{ki}	NEGATIVE _{ki}	POSITIVE _{ki}	NEGATIVE _{ki}
Control Estimates are Reported in Appendix A						
IDEA_POSITIVE _k	.0793** (.0263)	.0289 (.0283)	.0844 (.0486)	-.0104 (.0114)	.0390* (.0175)	-.00269 (.00931)
IDEA_NEGATIVE _k	-.0213 (.0465)	.164*** (.0366)	-.0581 (.0582)	.0968* (.0429)	.000981 (.0229)	.0562*** (.0149)
POSITIVE _{ki-1}			.0324* (.0138)	.00551 (.00815)	.0232*** (.00701)	.000810 (.00176)
NEGATIVE _{ki-1}			.0152 (.0419)	.0482** (.0170)	.0110 (.0120)	.0269*** (.00599)
MVPOSITIVE _{ki-1}					.0815* (.0344)	-.0143 (.0145)
VAPOSITIVE _{ki-1}					-.0183 (.0187)	.0154 (.00871)
MVNEGATIVE _{ki-1}					-.0138 (.0660)	.207*** (.00831)
VANEGATIVE _{ki-1}					.0109 (.0357)	-.259*** (.0290)
Intercept	.167 (.472)	-.0999 (.241)	.306 (.722)	-.224 (.305)	.0747 (.261)	.477*** (.132)
<i>Number of Comments</i>	7653	7653	6098	6098	52225	52225
Number of Ideas	7653	7653	6098	6098	5639	5639
Adjusted R ²	.123	.0672	.0777	.0618		
Within R ²					.0733	.0297
Between R ²					.146	.134
Overall R ²					.0919	.0450
RMSE	7.134	3.221	8.818	3.472	9.158	3.525

Generalized least squares regression models above examine the factors influencing emotional expression in subsequent comments. Results indicate a clear impact of the valence in preceding comments, which increase the level of the same valence of subsequent comments. Controlling variables for these models are listed in Appendix A. Standard errors are shown in parentheses. *, ** and *** indicate significance at the $p < .05$, $p < .01$ and $p < .001$ level, respectively.

Table 4.4 Estimated Results for Opinions in Subsequent Comments

	<i>i</i> =1		<i>i</i> =2		<i>i</i> >2	
	AGREE _{ki}	DISAGREE _{ki}	AGREE _{ki}	DISAGREE _{ki}	AGREE _{ki}	DISAGREE _{ki}
Control Estimates are Reported in Appendix B						
IDEA_POSITIVE _k	.000915 (.00786)	.0115 (.00777)	.0105 (.00909)	-.0114 (.00934)	-.000610 (.00407)	-.0000622 (.00429)
IDEA_NEGATIVE _k	.0132 (.0164)	-.0176 (.0161)	-.00388 (.0169)	.0275 (.0170)	-.00184 (.00666)	-.00144 (.00701)
AGREE _{ki-1}			.578*** (.0705)	-.437*** (.0728)	.265*** (.0275)	-.191*** (.0291)
DISAGREE _{ki-1}			-.460*** (.0738)	.604*** (.0674)	-.330*** (.0287)	.578*** (.0272)
MVAGREE _{ki-1}					.703*** (.0709)	-.0850 (.0754)
VAAGREE _{ki-1}					.00523 (.0664)	-.0378 (.0694)
MVDISAGREE _{ki-1}					-.237** (.0684)	.848*** (.0689)
VADISAGREE _{ki-1}					-.0269 (.0663)	.0356 (.0650)
Intercept	-2.672*** (.182)	-2.248*** (.168)	-2.415*** (.195)	-2.068*** (.189)	-2.266*** (.0891)	-2.611*** (.0928)
<i>Number of Comments</i>	7708	7708	6175	6175	53107	53107
<i>Number of Ideas</i>	7708	7708	6175	6175	5670	5670
<i>Chi</i> ²	1003.0	840.2	803.3	831.8	5423.3	5856.1
<i>Log Likelihood</i>	-4305.1	-4700.6	-3523.7	-3687.6	-29738.9	-30168.9
<i>Correctly Classified</i>	71.41%	64.95%	70.49%	66.20%		

Logistic regression models above examine the factors influencing position statements in subsequent comments. Results indicate that opinions in subsequent comments are influenced by opinions in the preceding comments. Control variables for these models are listed in Appendix B. Robust standard errors are in parentheses. *, ** and *** indicate significance at the $p < .05$, $p < .01$ and $p < .001$ level, respectively.

4.5.4 Thread Characteristics and Popularity

The final purpose of this research is to investigate the cause of the popularity of particular discussion threads. As indicated in Table 4.5, the logistic regression portion of the PLHR shows that positive emotions embedded in the idea have no impact on the odds of having at least one comment. It appears that only content-specific factors, such as the topic concerned, have an influence. In the second step, in which we fit the model to estimate the number of comments, it appears that the positive emotions in the initial idea posts have a positive impact on the number of comments received ($\beta = -.0197$,

$p=.041$). This implies that when the percentage of positive words increases by 1% in the initial idea, the expected number of comments decreases by 1.9. This effect, however, is not observed when we fit the model with the comments' characteristics. Thus, we reject H4.

We then include comment characteristics in our model to investigate how these result in different volumes of comments in each discussion thread. The models that fit with either POPULARITY_k or COMMENTS_k show similar results. The result suggests that comment characteristics have better predictive power in identifying popular threads than do the initial messages. Both the increase in POSITIVE_k and NEGATIVE_k decrease the chances of having a popular thread (POPULARITY: $\beta_{\text{positive}}=-.409$, $p<.001$, $\beta_{\text{negative}}=-.399$, $p<.001$; COMMENTS: $\beta_{\text{positive}}=-.0849$, $p<.001$, $\beta_{\text{negative}}=-.310$, $p<.001$). H5a is confirmed. Similarly, when the majority of comments agree, the volume of comments also decreases (POPULARITY: $\beta_{\text{agree}}=-1.216$, $p=.020$; COMMENTS: $\beta_{\text{agree}}=-.389$, $p=.013$). However, we find no significant result with disagreement; thus, H5b is partially accepted. On the other hand, we find that when comments have diverse valence, they are more likely to be popular (POPULARITY: $\beta_{\text{positive}}=.231$, $p<.001$; $\beta_{\text{negative}}=.243$, $p<.001$; COMMENTS: $\beta_{\text{positive}}=.0701$, $p<.001$; $\beta_{\text{negative}}=.239$, $p<.001$). Likewise, when comments have diverse opinions, they are more likely to be popular (POPULARITY: $\beta_{\text{agree}}=2.270$, $p<.001$; $\beta_{\text{disagree}}=1.918$, $p<.001$; COMMENTS: $\beta_{\text{agree}}=.814$, $p<.001$; $\beta_{\text{disagree}}=.700$, $p<.001$). These results were as expected. Consequently, H6a and H6b are accepted.

Table 4.5 Estimated Results for Having a Popular Thread

Model	a		b	c
	COMMENTS _k		POPULARITY _k	COMMENTS _k
Variables	Logit	Poisson	Logit	Negative Binomial
IDEA_POSITIVE _k	.00193 (.00621)	-.0197* (.00964)	.0260 (.0155)	-.0116 (.00604)
IDEA_NEGATIVE _k	.00486 (.0144)	.0233 (.0142)	.0416 (.0379) ***	.0228 (.0125) ***
POSITIVE _k			-.409 (.0416) ***	-.085 (.00750) ***
NEGATIVE _k			-.399 (.0738) ***	-.310 (.0225) ***
AGREE _k			-1.216* (.524)	-.389* (.157)
DISAGREE _k			-.721 (.412)	-.177 (.154)
VAPOSITIVE _k			.231*** (.0215)	.0701*** (.00515)
VANEGATIVE _k			.243*** (.0368)	.239*** (.0191)
VAAGREE _k			2.270*** (.358)	.814*** (.0555)
VADISAGREE _k			1.918*** (.254)	.700*** (.0586)
PRODUCT _k	-.170* (.0694)	-.161 (.0961)	-.471 (.298)	-.176** (.0630)
DELL _k	-.182** (.0643)	.0904 (.0862)	.174 (.292)	.0186 (.0468)
TOPIC _k	-.133 (.0963)	-.283** (.0906)	-2.159** (.735)	-.194** (.0598)
WORD COUNTS _k	.000313 (.000163)	.0000959 (.000203)	.000948* (.000422)	.000267 (.000159)
VOTES _k	.00184*** (.000319)	.0000438*** (.0000233)	.000348*** (.0000398)	.0000107*** (.0000201)
DURATION _k	.000594*** (.0000461)	.000832*** (.0000644)	.00123*** (.000297)	.000347*** (.0000569)
Intercept	.147 (.0897)	1.153*** (.132)	-6.185*** (.532)	1.347*** (.159)
<i>Number of Ideas</i>	14273			7366
Pseudo R ²			.292	.452
Chi ²	300.0		403.2	1733.88
AIC	187217.8		1488.1	46301.109
BIC	187354		1605.5	46425.392
Log Likelihood	-93590.9		-727.1	-23123.555
Correctly Classified			97.3%	

Model a uses Poisson-logit Hurdle regression to examine the effect of the characteristics of the initial messages on volume of comments. Results indicate that the valence of initial messages does not increase the chance of attracting comments. Model b uses logistic regression to estimate popularity based on characteristics of the discussion threads. Model c uses negative binomial regression to examine the effect of the same factors on volume of comments. The two models yield similar results. Discussions having comments that are emotional or in agreement were less likely to be popular. The variance of valence and opinions, on the other hand, increases the chance of having more comments. Robust standard errors are in parentheses. *, ** and *** indicate significance at the $p < .05$, $p < .01$ and $p < .001$ level, respectively.

4.6 DISCUSSION AND IMPLICATIONS

The emergence of social media has increased interest in understanding what contributes to the popularity of certain online discussions. It is clear that consumers often comment on online information, but less is known about why consumers comment emotionally or opine about particular topics, and why certain content becomes more popular. Analysis of four years of discussion threads in an online community sheds light on what types of discussions are more popular and why. Contributing to the growing literature on online conversation development, our results demonstrate that individual comments are influenced by multiple factors, including the initial messages, the immediately preceding comments, and the majority of others' comments. When the perceived information is more positive (negative), subsequent comments are more likely to be positive (negative). Likewise, when the preceding comments express agreement (disagreement), the subsequent comments are more likely to agree (disagree) and less likely to disagree (agree). These findings are consistent with our hypothesis on how preceding comments influence subsequent commenting behavior. In other words, the first comments influence the overall comment characteristics that follow.

This research links social influence theory to the study of online discussions. Previous studies focus on individual motivations for participating in online discussions (e.g., Brodie et al., 2013; Smith, Fischer and Yongjian, 2012). However, individuals do not make comments in isolation. The results support our hypothesized process, indicating two separate forces of social influence, namely, the immediacy and the amount of information, reinforcing findings from online review studies. Confirming previous empirical evidence that subsequent raters and their ratings may be influenced by preceding reviews (e.g., Godes and Silva, 2012), we provide a theoretical explanation that individual comments are heavily affected by informational social influence. It is important to note that though the valence of initial messages does still have an impact on individual comments, this effect is reduced when other comments are present. These results highlight the importance of considering social influence from other comments in online discussions.

The influence of the immediacy and number of preceding comments on subsequent comments is demonstrated in our study, and is as suggested by social impact theory. Immediately preceding comments can influence the content of subsequent comments, because users anchor their comments on the most recent preceding comments, and imitate their emotions and opinions. For the reason that people are likely to be influenced by immediately preceding information, once the majority of opinions and emotions are formed following such sequential behavior, discussion is then likely to follow the more prominent opinions and emotions. However, it is worth noting that the effect of immediacy is reduced when the majority of others voice the same valence or opinions. This influence from the majority of others is effective

for both emotions and opinions, and is found to be dominant among all information sources. These results suggest that, in the context of online discussions, the number of information sources, measured by the majority of others' comments in our study, has stronger impact on influencing behavior than the immediacy of information. In other words, once the direction of discussion is set by the first group of comments, it is difficult then to change it toward an opposite direction. Even if a new comment expressing different opinions and emotions is added, it may take several persistent followers to turn the tide.

It is important to note, however, that discussions that are in consensus with the emotions, whether positive or negative, and in agreement with the initial messages, are less likely to be popular. Variance in emotions and opinions is positively linked to popularity. The results suggest an impact from the commenting climate different from the literature. Studies on product reviews indicate that when past reviews are more positive, products are more likely to attract a high volume of subsequent reviews (Moe and Schweidel, 2012). In contrast to this, in the online community, when the majority of comments appears to be leaning toward one direction, whether positive, negative or in agreement, we find that few users make new comments. Drawing on attribution theory, we argue that this may be because a consensus has already been reached within the discussion thread. The informative value provided by the discussions is enough for the users to attribute the cause of such consensus to the initial ideas and to convince subsequent users with the convergent arguments. When all the prior comments share similar emotions and opinions, it may suggest that the original ideas trigger these emotions and opinions. This is opposed to the situation when the comments are diverse. The high variance in the comments indicates that the original ideas do not necessarily result in one specific emotion or opinion. The cause of the various opinions and emotions thus lies in prior commenters' personal views. Our findings confirm that controversial topics are more likely to trigger discussion (Chen and Berger, 2013). In particular, previous research on online user behavior suggests that those who are incongruent with the rest tend not to voice their opinions (Yun and Park, 2011), and those who are congruent with the rest believe there is no need to repeat the same thing. Conversely, high variance in emotions and opinions indicates a climate that welcomes diversity and that results in a higher volume of comments.

In this study, we observe that people are motivated to contribute (from the high variance) but are inclined to imitate others' opinions, which highlights the dual motivations that drive user participation. Research on consumer decision making suggests that the need for uniqueness and conformity co-exists in consumers' minds (Papyrina, 2012). While in the public environment people are more likely to conform, offline sequential choice studies find that in the consumption context, the need for uniqueness often drives people to choose products that are different from others (e.g.,

Ariely and Levav, 2000). We argue that the switch between these two motivational drives may also be triggered depending on how others' comments are formed. High variance in preceding comments may result from a high degree of "variety seeking," but could also lead to an even higher level of variety seeking. When the consensus in preceding comments is high, the opinion climate may indicate that it is not welcoming for variety seeking and the pursuit of being unique. As a result, users who feel they are suppressed may not comment, and when they do, they choose to conform.

The popularity of a discussion thread, then, is not influenced only by the content of the initial messages, but also by comments contributed during the discussions. The valence of the initial message has a direct impact on the emotions of the first comments, which then in turn influence the valence of the whole discussion thread. This is because these online discussions may be biased due to social influence. Later comments are prone to mimic earlier comments, both the majority of others' comments and the immediately preceding comments. Thus, the first comments seem to have a significant impact on the direction of the overall discussion. These results offer an alternative explanation for how popular topics can be created and how online buzz can be influenced. Different from the ongoing debate on whether opinion leaders (Iyengar, van den Bulte and Valente, 2011), light users (Godes and Mayzlin, 2009), or the critical mass (Watts and Dodds, 2007) are more likely to be influential, our study suggests that the first persons making comments appear to be most critical to shaping online discussions and their popularity.

4.6.1 Managerial Implications

Our study sheds light on how companies can create or identify potentially popular discussions. Since consumers are influenced by other users' comments in a thread, their comments may be biased. Relatedly, companies should interpret emotions and opinions in popular threads with caution because such emotions and opinions are not simply a function of the post itself, but also a function of other comments. The popularity of a topic or the volume of comments should also be evaluated carefully. In particular, an idea that gains a large number of agreeing comments is not necessarily plausible, as the reaction may stem from the overall mood rather than the idea. This is also true for ideas that receive overly disagreeing comments. As the number of comments observed could simply result from social influences, people might not be making comments based on their own independent thinking. Topics that have more comments may not be better or worse, but are more diverse and have not reached a consensus. Conversely, topics that receive fewer comments may have reached consensus and/or everyone is mimicking their predecessors. This presents a dilemma for companies in managing online discussions. To generate popularity, one would need to ensure and embrace diversity in

discussions. It may be the case that controversial topics (Chen and Berger, 2013), or topics that trigger opposing emotions and opinions, generate a higher volume of discussion. In other words, companies may have to compromise between having popular vs. having favorable discussions. Topics that lead to positive emotions and opinions are more likely to be shared (Berger and Milkman, 2012) than commented on.

Further, since the first comments have such a strong impact in shaping overall discussions, it may be wise to secure a seeded word-of-mouth campaign when the intention is to spread positive opinion. However, in an online community setting, companies may be forced to rely on users to make the first move. Though users who participate more frequently seem to be more critical, they also appear to have a greater likelihood of being the first to make a comment. This emphasizes the importance for companies of keeping knowledgeable users as frequent users, to increase the likelihood of securing good-quality first comments. Interestingly, we find in our study that if company employees wrote the preceding comments, users are more likely to respond emotionally positive but express disagreement. This finding can serve as a starting point for companies to develop online discussion management strategies.

4.6.2 Limitations and Future Research

Despite the encouraging results of this study regarding how online community users make comments that result in popular discussion threads, further research is required in a number of directions. Our investigation is limited to one brand community with a very specific focus and structure. It may be useful to study such a sequential effect on other communities and forums. In particular, social-oriented communities and well-connected networks may yield an even stronger effect or higher social influence, since users are more tightly bound together. Moreover, as we do not investigate interactions between emotions and cognitive elements, future studies could examine under what condition emotions moderate the effect of opinions. Literature suggests the possibility that emotions embedded in information influence viewer judgment of that information (Kim and Gupta, 2012). It would be interesting to investigate whether the valence of comments affects perceptions of preceding opinions when making new comments.

Many aspects remain to be examined in the theoretical development of online discussions. In particular, it is noteworthy that the biggest influence on user comments found in our study is rooted in individual differences. The results suggest that users who tend to agree with others and/or express more positive emotions are more likely to continue doing so in their comments, regardless of social influence from others. Similarly, those who tend to conform may also be different users from those who tend to differ, thereby changing the direction of discussions. It is thus important to continue investigating the underlying individual-level psychological processes that shape

commenting behavior. We show that social influence theories can explain the phenomenon to a certain extent. Research to understand how these mechanisms work at the personal level is still needed. Future research might also examine how personal motivation to participate in communities and discussions affects susceptibility to social influence.

In addition, the literature suggests that people who perceive themselves to be “experts” tend to be more negative (Schlosser, 2005). Our results indicate a similar pattern, in which people who are more active in the community show a tendency to disagree, and when they are the first to comment they tend to be less positive. However, it is important to note that active users are not necessarily real experts. People may perceive themselves as being influential when they are actually not (Iyengar, van den Bulte and Valente, 2011). It is essential to clarify this issue in future research before confirming what effect “expertise” has on how opinions are expressed (Moe and Schweidel, 2012). Our study highlights the necessity of taking the heterogeneity of individual characteristics into consideration when investigating online discussions. It may also be interesting to investigate whether those who have higher tendency to fulfill the need for uniqueness, i.e., those who express different ideas than those of preceding comments, are the same individuals who are often perceived as experts or opinion leaders. Although this study has limitations, we hope that it will serve as a basis for further research in understanding the way people herd when writing online comments to express their opinions.

CHAPTER 5

CREATIVE PARTICIPATION: COLLECTIVE EMOTIONS IN ONLINE CO-CREATION PLATFORMS¹

ABSTRACT

Can collective emotions influence collective community outputs, and if so, how can these emotions be managed online? This research investigates the influence of collective user emotions on collective performance, namely, collective creativity (i.e., number of creative ideas) and participation (i.e., number of comments) in an online co-creation platform. It finds that negative collective emotions reduce subsequent creativity, but encourage future participation. Companies can manage collective emotions via influencing individual user emotions by specifying employees' communication style; positive user emotions can be enhanced by employees' positive emotions, and reduced by employees' negative emotions. Moreover, employees' task-oriented communication style can evoke both positive and negative user emotions, whereas a proactive style reduces them. Overall, this study suggests that retaining active users by managing the desired collective emotions seems to be an efficient approach in creating a productive online co-creation community.

¹ This chapter is based on a paper that is under first-round review at an international journal (with W. van Dolen as second author).

5.1 INTRODUCTION

Emotional expression is the epitome of online communication. The role of emotions in online information creation and transmission is well established at the individual level (e.g., Berger and Milkman, 2012; Kim and Gupta, 2012). The influence of emotions at the collective level has not yet been studied, however, even though the success of many online activities such as co-creation has been said to rely on users' collective efforts. Decades of research in organizational behavior suggest that collective emotions do not only influence individual behaviors, but also organizational performance and group outcomes (Barsade and Gibson, 1998; George and Brief, 1992). Recent work in information science has demonstrated the causal impact of collective emotions on online community developments (e.g., Chmiel et al., 2011). Although it is clear that collective emotions do exist and are influential, little is known about how these collective emotions are formed online and how they affect online activities.

Of all consumer online activities, co-creation platforms have attracted considerable attention among scholars. Users' participation and their creative ideas are proven to create value for companies (Healy and McDonagh, 2013; Hoyer et al., 2010; Kozinets, Hemetsberger and Schau, 2008). Many companies have established such platforms to obtain and leverage the benefits of collective consumer creativity. Co-creation processes often involve emotional engagement with the brand (Payne et al., 2009), but previous studies of online co-creation revolved around technical perspectives of site accessibility and usability (Novak, Hoffman and Yung, 2000). Despite the recognized significance of emotions in managing co-creation experiences (Kohler et al., 2011), no prior research has investigated the influence of collective emotions on online co-creation community performance. Can collective emotions influence collective community outputs, and if so, how can these emotions be managed online?

We approach these research questions in two stages. In order for an innovation community to sustain itself, companies not only rely on users to contribute their creative ideas, they also require users to comment on other users' ideas. Thus, we first distinguish two user activities on co-creation platforms as outcome variables: user creativity (i.e., the number of creative ideas) and user participation (i.e., the number of comments). We identify whether collective emotions influence these activities and how. Since a collective emotion is the aggregation of individual emotions, in the second stage of our study we focus on how individual users' positive and negative emotions are shaped by employees' communication styles, i.e., how the employees of the company can manage the platform. The theory of emotional contagion asserts that emotions can directly spread from one person to another (Hatfield, Cacioppo and Rapson, 1993). In line with this, we examine whether employees can have a direct influence on user emotions through emotional expression during communications. In addition to their emotional influences, community moderators are often instructed to communicate with users in

certain ways. Thus we also study how these communication styles, such as reactive/proactive (Kohler et al., 2011) and task- and social-oriented approaches (van Dolen, Dabholkar and de Ruyter, 2007) may influence user emotions.

This study makes several contributions to the literature. Prior research on co-creation and online community has focused on antecedents of user contributions (e.g., Füller, Jawecki and Mühlbacher, 2007; Füller, Matzler and Hoppe, 2008; Tsai, Huang and Chiu, 2012) and on platform designs that enhance user experiences (e.g., Kohler et al., 2011; Nambisan and Nambisan, 2008). However, getting users to join well-designed platforms does not guarantee the success of co-creation communities. Productive innovation platforms require both quantity and quality of user contributions. Whereas prior research has tended to focus on attracting more users, the present study directly measures the quality of outcomes, i.e., creativity of the contributed ideas.

Moreover, little attention has been paid to how an affective environment can help sustain and secure continuous creativity and ongoing user participation. Most prior literature focuses on cognitive and rational aspects of community management. By introducing the concept of collective emotions into our analysis, we demonstrate how the affective characteristics of a community can drive its user activities, and we enrich the understanding of the nature of online co-creation community development.

Finally, community moderators, who often represent particular brands, may have a critical influence on motivating and sustaining member participation (e.g., Leimeister et al., 2009; Wise, Hamman and Thorson, 2006). The aggregated individual user emotions can result in collective user emotions, which in turn influence the community outputs, as will be illustrated in the first part of our study. Our findings shed light on how companies can manage collective emotions via individual user emotions through employees' direct participation in communities.

The chapter is organized as follows. First, we discuss collective emotions and their influence on community output. Next, we discuss how employees' communication style can influence collective emotions via user individual emotions. In Section 3, we briefly describe the methodology used in our study, followed by our findings. We conclude our discussion with comments about managerial implications and future research.

5.2 COLLECTIVE EMOTIONS AND USER INNOVATION PLATFORMS

5.2.1 *Collective Emotions*

Collective emotions have been defined generally as emotions that are shared by a large number of individuals (Brief and Weiss, 2002). Emotions serve as informational cues for others to evaluate the social environment (Keltner and Haidt, 1999), thereby shaping individuals' behavior (Schwarz, 1990). In general, positive emotive cues are believed to result in positive responses, whereas negative emotions elicit negative reactions. When personal emotions are spread from one person to another and shared by a group of individuals, they transform into group emotions (Rhee, 2006), which can be viewed as the aggregated sum of individual emotions, that is, the "affective composition of the group" (Barsade and Gibson, 2012: 119). These collective emotional states are critical to maintain the viability of a group in achieving its common goals (Frijda and Mesquita, 1994; Haidt, 2003).

In the organizational literature, it has been demonstrated that collective emotions can activate or deactivate group actions (e.g., Sy, Cote and Saavedra, 2005) and have a direct influence on group performance (e.g., Piderit, 2000). Prior research in online communities has found evidence that internet communication can facilitate the creation and moderation of collective emotions, which are critical to sustain the communities (Chmiel et al., 2011; Chmiel et al., 2011). Group emotions can be positive or negative. Positive emotions such as excitement and joy (e.g., Barsade, 2002) and negative emotions such as fear and anger (e.g., Hatfield, Cacioppo and Rapson, 1993) have been empirically found to be shared within a collective of interacting individuals. Negative collective emotions curtail prosocial behavior (George, 1990), while positive collective emotions are positively related to group performance (Barsade and Gibson, 1998).

5.2.2 *Collective Emotions and Community Output*

It is only recently that marketing scholars have tried to understand the role of emotions in innovative behaviors (Wood and Moreau, 2006). Positive emotions are often linked with creativity. Creativity can be broadly defined as the "production of novel and useful ideas in any domain" (Amabile et al., 1996: 1155). In the context of company-hosted co-creation communities, as in our study, we thus measure the level of creativity by counting the number of ideas that are implemented by the company. Extant studies suggest that positive emotions indicate a welcoming environment for people to explore and be more creative (Fredrickson, 2001). People who experience positive emotions tend to think more creatively (e.g., Sy, Cote and Saavedra, 2005), and they are cognitively flexible to engage in tasks such as product design. Participants on user-innovation

platforms also claim that experiencing positive emotions such as excitement, fun, and joy motivates them to contribute more ideas (Füller, Jawecki and Mühlbacher, 2007).

Conversely, negative emotions can hinder cognitive processing (Isen, Daubman and Nowicki, 1987), which consequently inhibits creative thinking. The collective negative emotions of a group have been associated with counterproductive behaviors and lower group performance (Duffy and Shaw, 2000). Negative group emotions such as anger, anxiety, and envy are found to reduce the group's efficiency, particularly its creativity (Rhee, 2006). Consequently, we argue that positive collective emotions in online user-innovation communities have a direct impact on the collective creativity of the group. In other words, positive collective emotions can increase the number of creative ideas contributed to the community, whereas negative collective emotions would reduce the number. We thus hypothesize as follows:

H1a: Positive collective emotions have a positive impact on collective user creativity.

H1b: Negative collective emotions have a negative impact on collective user creativity.

Concurrently, users may participate in user-innovation platforms by making comments on others' ideas. The level of user participation can be measured by the total number of comments made on the platform. Although positive emotions typically lead to positive comments and negative emotions lead to negative ones, past studies have observed a "negativity bias." Not only may negative comments lead to higher impact on readers' evaluations, people tend to generate more negative comments than positive ones (e.g., Anderson, 1998). Negative emotions such as anger and frustration seem to carry more weight (Baumeister et al., 2001) and cause people to take action. Accordingly, we suggest that when users experience positive emotions on the innovation platform, they are less inclined to make comments, compared to when negative emotions are experienced. Consequently, positive collective emotions would result in a lower number of user comments. On the other hand, a negative environment has been empirically shown to trigger more thread comments (Chmiel et al., 2011). We thus predict that collective negative emotions will lead to more total comments. Therefore, we hypothesize as follows:

H2a: Positive collective emotions have a negative impact on collective user participation.

H2b: Negative collective emotions have a positive impact on collective user participation.

5.2.3 Employee Communication and User Emotions

One way in which companies can facilitate collective emotions is to manage individual

participants' emotions through expressing certain emotions via employees who have direct contact with users. The communication style of the frontline service personnel often determines the relationship between a company and its customers (Morgan-Thomas and Veloutsou, 2013). Similar to the offline context, employees operating on the internet (whether considered to be managers or moderators of the forum) are the ones having such direct contact with online users. The emotional expression of employees can elicit similar affective reactions from the receivers. This direct spread of emotions is referred to as the emotional contagion process (Hatfield, Cacioppo and Rapson, 1993). Emotional contagion is rooted in crowd psychology, where an individual's behavior and emotions are influenced by what occurs at the collective group level. When an employee influences a user through direct communications, observations, or subconscious social influence, the effect can spread through the group of users. The collective emotions, in turn, would sustain these emotions among the group via continuous emotional contagion. This effect is the fundamental underlying mechanism of modern network marketing (Iyengar, van den Bulte and Valente, 2011) and online information diffusion (Angst et al., 2010).

The effect of emotional contagion between employees and customers has been widely studied in the past. In the service environment, employees are found to be able to influence customer emotions via emotional contagion (e.g., Hennig-Thurau, et al., 2006). While positive emotions of employees lead to positive emotions of customers, negative emotions of employees result in negative reactions from customers. Furthermore, Du, Fan and Feng (2011) show that positive emotional displays by employees not only increased the number of positive emotional displays from customers, but also reduced their negative emotional displays. Similarly, such emotional contagion has been demonstrated in organization studies among employees and between employers and employees (e.g., Barsade, 2002). It was found that an individual's affective displays, which are triggered by the leader's affective displays, can influence emotions at the group level through the process of emotional contagion (Dasborough et al., 2009). We thus propose that employees in user-innovation platforms can act as emotion agents that influence users' emotions via the route of emotional contagion. Positive user emotions may be enhanced by employees' positive emotions and reduced by employees' negative emotions. Similarly, employees' positive and negative emotions can decrease or increase the users' negative emotions. Accordingly, we formulate Hypothesis 3 as follows:

H3a: Employees' positive emotions increase individual users' positive emotions and decrease individual users' negative emotions.

H3b: Employees' negative emotions decrease individual users' positive emotions and increase individual users' negative emotions.

Other than emotional displays, moderators on forums are often instructed to communicate with users in a certain style. The communication style shapes the quality of employees' communication and signifies the quality of the relationship between a company and its users (Kozinets, 2002). Prior studies have discussed various communication styles of online community moderators that could influence the desired outcomes (e.g., Dabholkar, van Dolen and de Ruyter, 2009; van Dolen, Dabholkar and de Ruyter, 2007). For instance, the focus of the communication has been found to influence communication efficiency. In general, these styles can be separated into task-oriented communication, which is directly related to the assigned tasks, and social-oriented communication, which focuses on building relationships. It is suggested that task-oriented communication indicates a good quality of communication (Adjei, Noble and Noble, 2010). However, prior studies have shown that task-oriented communication leads to a tendency for cognitive-based processing and only indirectly influences the affective-based thinking process (Dabholkar, van Dolen and de Ruyter, 2009). In other words, when users encounter task-oriented communication, they are more likely to focus on the tasks rather than having emotional responses. Prior empirical online research supports the theory that there is less emotional communication in a task-oriented environment compared to a social-emotional one (Derks, Bos and Grumbkow, 2007). We suggest that when users are encouraged to think critically through employees' task-oriented communication, they are less likely to express their comments emotionally. Therefore, we posit Hypothesis 4 as follows:

H4: Employees' task-oriented communication decreases users' positive and negative emotions.

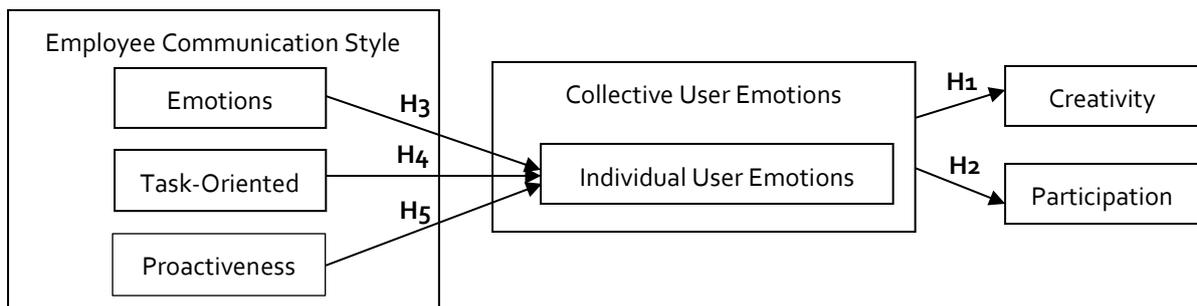
Furthermore, recent theorizing and research in online communication has established the importance of companies adopting a reactive or a proactive approach. A proactive communication style, which signifies that online users are welcome and willing to actively engage in online activities, is suggested to lead to more favorable user behaviors (Kohler et al., 2011). Likewise, proactive communication on the part of companies is considered to be more effective on company-initiated platforms than on consumer-generated platforms (van Noort and Willemsen, 2012). This is because the purpose of company-initiated platforms, such as brand-sponsored co-creation communities, is to allow companies to proactively engage in conversations with online users (Kelleher, 2009). Similarly, during service encounters a proactive employee is found to enhance a company's relationship with customers and to encourage customers to repeat the visit in the future (de Jong and de Ruyter, 2004). However, proactive communication does not always result in favorable responses. In organizational studies, proactive behaviors were shown to be perceived negatively by supervisors due to their

suspicion of individual motives (Lam, Huang and Snape, 2007). In fact, in an online environment, proactive communication is found to result in less affective reactions in establishing interactive conversations, when compared to reactive communications (Liu and Shrum, 2009). Thus, we suggest that in user-innovation platforms, proactive communications from employees may result in a lower level of affective reactions. We hypothesize the following:

H5: Employees' proactive communication decreases users' positive and negative emotions.

The resultant conceptual framework of the above hypotheses is depicted in Figure 5.1.

Figure 5.1 Conceptual Framework and Hypotheses



5.3 METHODOLOGY

5.3.1 Sample and Data Collection

To test the hypotheses, we analyzed a well-developed company-hosted user-innovation community, Dell's IdeaStorm. Since its official launch in February 2007, this community where users can freely register to contribute ideas and make comments has been complimented as one of the best crowd-sourcing practices (Sullivan, 2010). Unlike many other user-innovation practices, Dell encourages employees to actively participate in the community; and some of the initial employee activities have been previously investigated (Di Gangi and Wasko, 2009; Di Gangi, Wasko and Hooker, 2010), which makes the community suitable for our study. Prior research addressed the creativity of this particular forum, but focused on individual users' characteristics (Bayus, 2013). Our study builds on the research methods established in the study of Bayus (2013), while aiming to determine the influence of collective emotions on collective community output.

We extracted all discussion threads from the community using a web crawler written with Java, including all the ideas, comments, authors, and their time stamps

when available. We gathered data from the first posts that appeared at launch to those posted on April 30, 2011. Community users and employees were identified and categorized based on their profiles. During the four-year period, 14,404 ideas were documented, among which 427 (2.96%) had been implemented or partially implemented by Dell; 84,784 comments were extracted, among which 81,054 (95.60%) were posted by 9,436 unique users, and 3,730 (4.40%) were posted by 91 employees. To examine how collective emotions influence creativity and participation, the longitudinal observations of all comments were aggregated into daily data for further analysis. To study the impact of employees on user emotions, the data were aggregated into a longitudinal panel structure across users.

5.3.2 Measures

In the following sections, we specify the definitions and coding processes of all measures. A summary and example of how each variable was coded can be found in Table 5.1.

First, we investigated the influence of collective emotions on community performance. Following the literature, we investigated two dimensions of community performance, namely, creativity and participation. $CREATIVITY_t$ is defined as the number of ideas published on day t that were fully or partially implemented by the company during the course of observation; $PARTICIPATION_t$ is defined as the number of comments posted on day t . To better interpret the data, we used the 10-base logarithm of $PARTICIPATION_t$ as a dependent variable. The time stamps of these activities were based on the initial date that the posts appeared on the platform.

Collective emotions were computer-coded the same way as individual emotions. Following prior research (Duan, Gu and Whinston, 2008), we measured the possible short-term and long-term effects of collective emotions with two distinct variables: daily collective emotions and cumulative collective emotions. The positive collective emotions on day t of the community ($POSITIVE_t$) were calculated as the average percentage of positive words from all comments on that day. Similarly, the negative collective emotions on day t ($NEGATIVE_t$) were calculated as the average percentage of negative words from all comments on that day. Cumulative positive collective emotions on the community forum from day 1 until day t ($CUMPOSITIVE_t$) were calculated as the average percentage of all positive words from day 1 until the observing day. Likewise, cumulative negative collective emotions ($CUMNEGATIVE_t$) were calculated as the average percentage of all negative words on the community forum from day 1 until the day of observation.

In the second stage, to inspect the influence of employees' communication style on users' emotions, we coded the employees' and users' comments separately. Since 91

employees responded to only a limited number of discussion threads and did not have direct interactions with all users, we focused on those users who appeared in the same threads with the employees and traced their comments after the encounters. Individual emotions were computer-coded using Linguistic Inquiry and Word Count (LIWC; Pennebaker, Booth and Francis, 2007), based on the percentage of words that demonstrate either positive or negative emotions. The approach has proven useful in previous online communication studies (e.g., Berger and Milkman, 2012; Ludwig et al., 2013). We calculated the average percentage of positive words among all comments posted by user i on day t to represent the user average positive emotions ($POSITIVE_{it}$) and likewise for average negative emotions from user i on day t ($NEGATIVE_{it}$). Similarly, the emotions of employees were computer-coded like those of the users. We coded the employees' average percentage of positive words during all encounters with user i between the day that the user had previously made a comment and day t , on which a new comment from user i was made, as $ePOSITIVE_{it-1}$, and likewise for negative emotions $eNEGATIVE_{it-1}$.

The other two employee communication factors, namely task-oriented communication style and proactive approach, were manually coded. Task-oriented communication was coded following the same method as in Adjei, Noble and Noble (2010). Adapting from Adjei, Nobel and Noble (2010), task-oriented comments ($eTASK_{it-1}$) were defined as "employee comments that were related to the initial idea posts." We calculated the average percentage of comments that were classified as task-oriented during the previous encounter(s) with user i until day t , i.e., (task-oriented comments/total number of comments)*100. Lastly, based on definitions by Kohler et al. (2011) and van Noort and Willemsen (2012), proactiveness ($ePROACTIVE_{it-1}$) was coded as the employee comments that were initiated by employees without any solicitation on the part of users. We calculated the percentage of comments that were classified as proactive during the prior encounters with user i until day t , i.e., (proactive comments/total number of comments)*100.

Two coders, the author of this thesis and a second coder who had not participated in the development of the coding scheme (and also not the co-author of this chapter), independently analyzed each employee comment; along with the employee comments, the coders also read the title and content of each idea, and the user comments that were written prior to the employees' comments. The coders practiced the coding scheme on 50 comments, and necessary changes were made to ensure that the instructions were clear. The two coders then coded all employee comments separately. The intercoder reliability suggested a sufficient result. The Cohen's Kappa for task-oriented communication and proactiveness was .89 and .87, respectively, with percentages of agreement at 97.0% and 94.3%. After the independent coding process, the two coders resolved any differences through discussion.

Table 5.1 Coding Descriptions and Examples

Variable	Coding Definition	Coding Methods
<u>User Emotions</u>		
POSITIVE _{it}	Percentage of positive words of all the comments from user <i>i</i> on day <i>t</i>	Coded through textual analysis (LIWC)
NEGATIVE _{it}	Percentage of negative words of all the comments from user <i>i</i> on day <i>t</i>	
POSITIVE _t	Percentage of positive words of all the comments on day <i>t</i>	
NEGATIVE _t	Percentage of negative words of all the comments on day <i>t</i>	
CUMPOSITIVE _t	Average percentage of positive words of all the comments from day 1 until day <i>t</i>	
CUMNEGATIVE _t	Average percentage of positive words of all the comments from day 1 until day <i>t</i>	
<u>Community Output</u>		
CREATIVITY _t	Number of ideas published on day <i>t</i> which have been implemented or partially implemented by May 10, 2011	Obtained with WebCrawler
PARTICIPATION _t	Number of comments published on day <i>t</i> across all idea threads	
<u>Employee Communication</u>		
ePOSITIVE _{it}	Average percentage of positive words of all the employee comments in all the encounters with user <i>i</i> from the day the user previously commented until day <i>t</i> on which user <i>i</i> made a new comment	Coded through textual analysis (LIWC)
eNEGATIVE _{it}	Average percentage of negative words of all the employee comments in all the encounters with user <i>i</i> from the day the user previously commented until day <i>t</i> on which user <i>i</i> made a new comment	
eTASK _{it}	Percentage of task-oriented employee comments in all the encounters with user <i>i</i> from the day the user previously commented until day <i>t</i> on which user <i>i</i> made a new comment	Manually coded
ePROACTIVE _{it}	Percentage of proactive employee comments in all the encounters with user <i>i</i> from the day the user previously commented until day <i>t</i> on which user <i>i</i> made a new comment	
<u>Control Variables</u>		
CUMCREATIVITY _t	Cumulative number of implemented or partially implemented ideas from Day 1 until day <i>t</i>	Obtained with WebCrawler
CUMPARTICIPATION _t	Cumulative number of comments from Day 1 until day <i>t</i>	
IDEAS _t	Total number of ideas posted on day <i>t</i>	
WEEKEND _t	A dummy variable measures whether an idea was posted during weekends	
YEAR _t	Series of dummy variables measure which year the ideas and comments first appeared on the forum	

eTIMELINESS _{it}	Average of the response latency of all the employee comments in all the encounters with user <i>i</i> from the day the user previously commented until day <i>t</i> on which user <i>i</i> made a new comment	
eDURATION _{it}	Average of the length of all the employee comments in all the encounters with user <i>i</i> from the day the user previously commented until day <i>t</i> on which user <i>i</i> made a new comment	
eFREQUENCY _{it}	Total number of all the employee comments in all the encounters with user <i>i</i> from the day the user previously commented until day <i>t</i> on which user <i>i</i> made a new comment	
EMOTIONALITY _{it-1}	Average of the sum of percentage of positive and negative words in all comments made by user <i>i</i> until day <i>t</i> on which the user made a new comment	Coded through textual analysis (LIWC)
POSITIVITY _{it-1}	Average of the difference between the percentage of positive and negative words in all comments made by user <i>i</i> until day <i>t</i> on which the user made a new comment	
Examples of Employee Communication		
<p>Original Idea: Please make it available: Dell Dock for Windows XP user (<i>posted by user_1543 on July 4, 2008</i>)</p> <p>Comments:</p> <p>Have you looked recently? It's up on the support site now (for Windows Vista)... (<i>posted by user_8432 on July 5, 2008</i>)</p> <p>@jeopardy Yes I have look at support site and it not work on Windows XP From Chris (<i>posted by user_1543 on July 5, 2008</i>)</p> <p>What happens if you download the one that's there (presumably Vista only then) and try installing that? (<i>posted by user_8432 on 7th July, 2008</i>)</p> <p>@jeopardy error said this: Dell Dock Setup Error This product requires at least Windows Vista. Setup cannot continue. (<i>posted by user_1543 on 7th July, 2008</i>)</p> <p>All- Indeed we do not have the Dock for XP users at this point. I am asking to understand if this is a plan for the future, More info to come! (<i>posted by employee_21 on July 7, 2008</i>)</p>		
Coding:		
<i>Emotions:</i> 0% of positive or negative emotional words.		
<i>Task-oriented:</i> The comment was coded as task-oriented because the employee acknowledged the idea and explained the action that he would take.		
<i>Proactiveness:</i> The comment was coded as proactive because no one was asking for employees prior to this comment.		
<i>Timeliness:</i> We coded July 4 to 7 as 4 days. When the employee responded on the same day, we coded it as 1.		
<i>Duration:</i> Total count of 31 words.		
<i>Frequency:</i> There is only one employee response in this thread.		

5.3.3 Control Variables

In estimating the influence of collective emotions on community performance, we took into account the short-term and long-term effects of previous community outputs and made them control variables. According to previous literature, internet users are drawn by popular items (Duan, Gu and Whinston, 2009). The more popular a discussion thread, the more likely that people will continue adding comments to it. We therefore controlled for the participation and number of creative ideas presented in the community until day t , as past activity level may serve as informational cues that influence users' decisions to participate in a community. We coded the number of creative ideas that were posted the day before ($CREATIVITY_{t-1}$), representing the short-term effect, and coded the cumulative sum of the creative ideas until the day before ($CUMCREATIVITY_{t-1}$) as the potential long-term effect. Likewise, we controlled for the number of comments posted the day before ($PARTICIPATION_{t-1}$) and the cumulative sum of the participation until the day before ($CUMPARTICIPATION_t$). When predicting the quantity of participation, we also controlled for the creativity of the day ($CREATIVITY_t$), since increasingly creative ideas could potentially attract more discussion. In addition, as the total number of ideas posted on that day could have directly influenced the number of creative ideas contributed, we controlled for the number of total ideas posted on day t ($IDEAS_t$).

When exploring how employees can influence user emotions with their communication style, we controlled for individual user differences and other elements that have been previously identified to influence employee communication quality. Prior research suggests that some people are, in general, happier than others due to individual differences in cognitive and motivational process (Lyubomirsky, 2001). We therefore established the baseline of users' emotional profile according to their overall average emotionality and positivity. Based on the definitions put forward by Berger and Milkman (Berger and Milkman, 2012), user $EMOTIONALITY_{it-1}$ was quantified as the cumulative average of the total percentage of words that were classified as containing either positive or negative emotions of user i until the day before day t . The $POSITIVITY_{it-1}$ was quantified as the average of the difference between the percentage of positive words and negative words in each comment from user i until the day before day t . Also, as it is known that negative and positive emotions can occur simultaneously (Folkman and Moskowitz, 2000), we controlled for the opposite emotions when predicting user emotions.

Other employee communication quality measures including timeliness, frequency, and duration of encounters were coded according to Adjei, Noble and Noble (2010). Timeliness was operationalized as the response latency between an employee's comments and the prior user comments. When the employees made several comments in a thread, from the second comment onward, timeliness was calculated from the day

that the first user commented after the employees' prior comments to the day that an employee made a new comment. The average of timeliness that user i has experienced until day t , on which the user made a new comment, was labeled $eTIMELINESS_{it-1}$. Duration of encounters ($eDURATION_{it-1}$) was measured as the average number of words of employees' comments during all the encounters with user i until day t that the user made a new comment. Frequency ($eFREQUENCY_{it-1}$) was coded as the average number of total comments from employees during prior encounters with user i until day t . All the variables mentioned above were computer-coded. Finally, we also controlled whether the comment was posted on the weekend ($WEEKEND_t$) and in which year ($YEAR_t$). The descriptive statistics and the correlations of the main measures are provided in Table 5.2.

5.3.4 Analysis Methods

In our study, creativity was calculated based on how many creative ideas were posted per day. This approach included the underlying assumption that the idea went through a two-stage process. First, there needed to be at least one idea posted, and only from there could an inflow of creative ideas proceed. In addition, the idea-implemented rate has been low on the platform; merely 3% of the ideas were ultimately implemented. These two factors have resulted in many zeros in our data; out of 1,448 days of valid observations, 1,165 days (80.45%) had zero creative ideas. The distribution of $CREATIVITY_t$ was positively skewed (6.64) and zero-inflated. To model the influence of collective emotions on creativity, we thus adopted the Hurdle Negative Binomial Regression model (HNB). Following the arguments of Hinz et al. (2011), HNB is used to correct the data structure that is highly skewed, overdispersed, and contains a large share of zeros. Theoretically, the HNB is preferred over competing models, such as the Zero-Inflated Negative Binomial (ZINB) (Vuong, 1989). However, we still calculated ZINB for a robustness check.

The influence of collective emotions on participation was estimated by ordinary least squares (OLS) regression. However, as $CREATIVITY_t$ and $PARTICIPATION_t$ shared most of the independent variables, $CREATIVITY_t$ could be an instrumented variable and may account for the endogeneity (Duan, Gu and Whinston, 2008). We thus compared the model with the other competing calculation, generalized method of moments (GMM), as if there was a potential endogeneity bias. We applied the Durbin-Wu-Hausman test to investigate whether instrumental variable is preferred over OLS. The result suggested no evidence of endogeneity ($\chi^2=1.46$, $p=.23$) and revealed that there is no need for structural modelling (Davidson and MacKinnon, 1993). The result of the C-test suggested the same pattern (.921, $p=.34$). Moreover, because the cumulative positive collective emotions and cumulative negative collective emotions included in our models are highly correlated, multicollinearity was a potential problem. Similarly, the

control variables $CREATIVITY_t$, $CUMCREATIVITY_{t-1}$, $PARTICIPATION_{t-1}$, and $CUMPARTICIPATION_{t-2}$ are also fairly highly correlated. We thus orthogonalized the highly correlated variables so that all variance-inflation factors are less than 5, as suggested in previous studies (Pollock and Rindova, 2003; Rhee and Haunschild, 2006). Furthermore, the models were robust to heteroskedasticity and auto-correlations within panels.

We employed Feasible Generalized Least Squares (FGLS) to analyze the impact of employee communications on user emotions. This method was chosen to account for the potential inter-correlation between multiple observations per individual user that were due to unobserved individual characteristics (George, 2005). This fixed-effect approach is often chosen when there are potential omitted variables (Wooldridge, 2001), as in our case, to avoid potential heteroskedasticity and to produce robust results. We used STATA 12.1 to run all the statistical calculations mentioned above.

Table 5.2 Descriptive Statistics and Correlation Matrix of Key Variables

<u>(a) Correlations</u>						
Variables	1	2	3	4	5	6
1.POSITIVE _{it}	1					
2.NEGATIVE _{it}	-.07 ^{***}	1				
3.ePOSITIVE _{it-1}	-.00	.02 ^{**}	1			
4.eNEGATIVE _{it-1}	-.03 ^{***}	.04 ^{***}	.10 ^{***}	1		
5.eTASK _{it-1}	.01	-.02 [*]	-.30 ^{***}	-.31 ^{***}	1	
6.ePROACTIVE _{it-1}	-.01	.02	-.06 ^{***}	-.04 ^{***}	.16 ^{***}	1
<u>Descriptive Statistics</u>						
Mean	4.6	1.22	3.61	.54	.83	.69
SD	6.53	2.30	3.63	1.29	.27	.29
Min	0	0	0	0	0	0
Max	100	50	50	14.29	1	1

<u>(b) Correlations</u>									
Variables	1	2	3	4	5	6	7	8	9
1.POSITIVE _t	1								
2.NEGATIVE _t	-.07 ^{**}	1							
3.CUMPOSITIVE _t	-.00	.01	1						
4.CUMNEGATIVE _t	-.04	-.01	.84 ^{***}	1					
5.PARTICIPATION _t	.01	.02	.09 ^{***}	-.25 ^{***}	1				
6.CUMPARTICIPATION _t	-.03	-.03	.18 [*]	.46 ^{***}	-.71 ^{***}	1			
7.CREATIVITY _t	.03	-.01	-.31 ^{***}	-.45 ^{***}	.44 ^{***}	-.38 ^{***}	1		
8.CUMCREATIVITY _t	.03	.02	-.16 ^{***}	-.62 ^{***}	.66 ^{***}	-.93 ^{***}	.41 ^{***}	1	
9.IDEAS _t	.02	.00	-.19 ^{***}	-.39 ^{***}	.74 ^{***}	-.45 ^{***}	.52 ^{***}	.50 ^{***}	1
<u>Descriptive Statistics</u>									
Mean	4.48	1.19	4.42	1.15	58.03	64124.45	.29	.6	8.13
SD	3.21	.83	.21	.09	75.33	23837.45	.81	.33	20.91
Min	0	0	2.26	.34	0	11	0	.28	0
Max	53.57	10	4.69	1.2	679	84784	13	2.42	290

Table (a) includes key variables used in models estimating user emotions with employee communication style; Table (b) includes key variables used in models estimating community outputs with collective emotions. *, ** and *** indicate significance at the $p < .05$, $p < .01$ and $p < .001$ level, respectively.

5.4 RESULTS

We first examined the influence of collective emotions on community performance. Table 5.3 depicts the estimated results for creativity. HNB and ZINB yielded similar coefficients of predicting variables, though AIC, BIC, and log-likelihood suggested that the ZINB model may have a better fit. However, checking the differences between the predicted and observed results, we found that ZINB underestimated the chance of having non-creative ideas and overestimated the chance of having one creative idea. This poor estimation is reflected in its result for the control variable $IDEAS_t$, which was calculated to have a negative impact on the probability of change in odds always being zero. Since the chance of having a creative idea is always higher when there is one idea than when none is posted, the direction of the coefficient for $IDEAS_t$ in ZINB did not make sense. Thus, we reported only the coefficient results from HNB. The results from HNB suggested that positive collective emotions had no impact on creativity ($POSITIVE_t$: $\beta=.880$, $p=.239$; $CUMPOSITIVE_{t-1}$: $\beta=3.071$, $p=.071$). H1a was rejected. On the other hand, $CUMNEGATIVE_{t-1}$ was found to negatively influence creativity ($\beta=-11.05$, $p=.022$). This means that when the cumulative negative collective emotions increase by 1% in the comments, the number of creative ideas decreases by 11.05. H1b was thus confirmed. However, it is noteworthy that the daily negative collective emotions, $NEGATIVE_t$, did not yield any impact ($\beta=-.106$, $p=.692$).

Table 5.4 displays the results of the influence of collective emotions on user participation. The OLS model was the preferred model based on the previously mentioned endogeneity test results. It also yielded better model fit and was therefore chosen. The results indicated that positive collective emotions have no long-term impact on participation ($CUMPOSITIVE_{t-1}$: $\beta=.0324$, $p=.19$), but they do have a short-term effect; this factor had a marginal negative impact on the same-day participation ($POSITIVE_t$: $\beta=-.00701$, $p=.046$). H2a was supported. Conversely, negative collective emotions appeared to have a long-term positive effect ($CUMNEGATIVE_{t-1}$: $\beta=.106$, $p=.013$), while having no short-term effect ($NEGATIVE_t$: $\beta=.0256$, $p=.18$). H2b was confirmed.

Table 5.3 Determinants of Number of Creative Ideas

Pr(CREATIVITY) _t	Model1 (HNB)		Model2 (ZINB)	
	Negative-Binomial	Logit	Negative-Binomial	Inflate
POSITIVE _t	.0880 (.0747)	.0270 (.0297)	.142 ^{**} (.0451)	.245 [*] (.112)
NEGATIVE _t	-.106 (.267)	-.0395 (.127)	.195 (.149)	.757 [*] (.367)
CUMPOSITIVE _{t-1}	3.071 (1.701)	.689 (1.293)	1.561 (1.006)	-3.430 (6.073)
CUMNEGATIVE _{t-1}	-11.05 [*] (4.816)	-2.116 (3.615)	-6.794 [*] (2.856)	2.948 (15.74)
CREATIVITY _{t-1}	-.0231 (.0536)	.168 (.0960)	-.00777 (.0378)	.252 (.340)
CUMCREATIVITY _{t-2}	-1.168 ^{**} (.364)	.248 (.561)	-.822 ^{***} (.242)	-1.196 (1.661)
IDEA _t	.00796 ^{***} (.00201)	.0237 ^{***} (.00577)	.00559 ^{***} (.00140)	-.261 ^{**} (.0868)
YEAR2008 _t	.0327 (.452)	.0230 (.300)	-.347 (.248)	-3.153 (1.776)
YEAR2009 _t	.126 (.555)	-1.224 ^{**} (.396)	-.513 (.466)	-1.221 (1.507)
YEAR2010 _t	-13.936 (12.877)	-2.317 ^{***} (.536)	-.972 (.811)	-.514 (1.559)
YEAR2011 _t	-12.585 (11.966)	-1.624 ^{**} (.578)	-2.636 ^{***} (.563)	-5.403 (3.410)
WEEKEND _t	.0233 (.252)	-.139 (.173)	-.0260 (.158)	-.0621 (.468)
Intercept	-1.388 (2.233)	-1.987 (2.370)	.0599 (1.330)	11.09 (9.675)
AIC	1.085		1.081	
AIC*N	1599.4		1565.4	
BIC	1741.9		1707.9	
Log likelihood	-772.7		-755.7	
N	1448			

Notes. The two models documented above examined the number of creative ideas in two different stages. First, listed as Logit or Inflate, the models estimated the chances of having at least one creative idea. In the second stage, each model predicted the number of ideas based on the input factors. The two models yielded similar results. Though ZINB appeared to have a better fit, HNB had more precise estimation. The cumulative average of negative emotions, along with the past creative performances, reduced creativity. Robust standard errors are listed in parentheses. Significant levels are indicated with asterisks: ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

Table 5.4 Determinants of Level of Participation

PARTICIPATION _t	Model 1 OLS	Model 2 GMM
POSITIVE _t	-.00701 [*] (.00351)	-.00694 (.00359)
NEGATIVE _t	.0256 (.0191)	.0260 (.0192)
CUMPOSITIVE _{t-1}	.0325 (.0249)	.0205 (.0296)
CUMNEGATIVE _{t-1}	.106 [*] (.0423)	.0970 (.0520)
CREATIVITY _t	.0273 [*] (.0134)	-.0531 (.105)
CUMCREATIVITY _{t-1}	.0306 (.0188)	.0970 (.0353)
PARTICIPATION _{t-1}	.345 ^{***} (.0260)	.354 ^{***} (.0307)
CUMPARTICIPATION _{t-2}	-.0502 (.0387)	-.0987 (.0642)
IDEA _t	.00606 ^{***} (.000739)	.00720 ^{***} (.00180)
YEAR2008 _t	-.0643 (.0446)	-.0687 (.0506)
YEAR2009 _t	-.694 ^{***} (.0625)	-.721 ^{***} (.0768)
YEAR2010 _t	-1.145 ^{***} (.0795)	-1.192 ^{***} (.104)
YEAR2011 _t	-.964 ^{***} (.0863)	-1.009 ^{***} (.107)
WEEKEND _t	-.245 ^{***} (.0250)	-.242 ^{***} (.0258)
Intercept	.549 ^{***} (.0579)	.563 ^{***} (.0661)
<i>R</i> ²	.838	.835
adj. <i>R</i> ²	.837	.833
<i>AIC</i>	1370.6	1402.8
<i>BIC</i>	1449.4	1481.6
Log likelihood	-670.3	-686.4
<i>N</i>	1412	1412

Notes. The two models above examined the influence of emotional climate on the number of comments. OLS had a better fit and the results from endogeneity test also suggested that OLS model is preferred. Negative emotions, creativity, and past participation seemed to enhance participation, while positive emotions had a negative effect. Robust standard errors are listed in parentheses. Significant levels are indicated with asterisks: ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

In the second part, we examined how the employee communication style influences user emotions. Table 5.5 summarizes the estimated results of user emotions under the influence of the employees' communication style. Among all the registered users, only 797 unique users, having made comments and shared at least two encounters with employees, were included in the analysis. We found that the communication style $e\text{POSITIVE}_{it-1}$ had a positive impact on positive user emotions ($\beta=.0178, p<.001$) but did not reduce negative user emotions ($\beta=.000297, p=.506$). H3a was partially confirmed. Similarly, $e\text{NEGATIVE}_{it-1}$ had a negative impact on positive user emotions ($\beta=-.0701, p<.001$) but did not increase negative user emotions ($\beta=.00154, p=.503$). H3b was also partially confirmed.

We then examined the effects of the two communication-style factors, task-oriented and proactive comments from employees, on user emotions. $e\text{TASK}_{it-1}$ was found to have a positive effect on both users' positive ($\beta=.379, p<.001$) and negative emotions ($\beta=.0453, p<.001$). This result suggested that task-oriented employee comments in general led to more emotional responses, which was opposite to what we expected. Thus, we rejected H4. Contrary to $e\text{TASK}_{it-1}$, $e\text{PROACTIVE}_{it-1}$ was found to have significant negative effects on both POSITIVE_{it} ($\beta=-.837, p<.001$) and NEGATIVE_{it} ($\beta=-.0778, p<.001$), suggesting that a proactive message in general resulted in a lower degree of emotions in user comments. Therefore, H5 was accepted.

Table 5.5 Estimating User Emotions with Employee Communication

	Model 1 POSITIVE _{it}	Model 2 NEGATIVE _{it}
ePOSITIVE _{it-1}	.0178 ^{***} (.000158)	.000297 (.000447)
eNEGATIVE _{it-1}	-.0701 ^{***} (.00119)	.00154 (.00230)
eTASK _{it-1}	.379 ^{***} (.00231)	.0453 ^{***} (.00770)
ePROACTIVE _{it-1}	-.837 ^{***} (.00309)	-.0777 ^{***} (.00402)
POSITIVE _{it}		-.0267 ^{***} (.000271)
NEGATIVE _{it}	-.157 ^{***} (.000756)	
POSITIVITY _{it-1}	.238 ^{***} (.000171)	-.0698 ^{***} (.000560)
EMOTIONALITY _{it-1}	.111 ^{***} (.000110)	.0862 ^{***} (.000789)
eDURATION _{it-1}	-.000800 ^{***} (.0000161)	.00172 ^{***} (.0000641)
eFREQUENCY _{it-1}	-.00235 ^{***} (.0000212)	-.00092 ^{***} (.0000612)
eTIMELINESS _{it-1}	-.000694 ^{***} (.0000124)	-.0000302 (.0000535)
WEEKEND _t	-.410 ^{***} (.00103)	.00920 ^{**} (.00317)
YEAR2008 _t	-.390 ^{***} (.00495)	.0354 ^{***} (.00184)
YEAR2009 _t	-.587 ^{***} (.00665)	.105 ^{***} (.00991)
YEAR2010 _t	-.744 ^{***} (.0567)	.106 ^{**} (.0357)
YEAR2011 _t	-.463 ^{**} (.171)	-.467 ^{***} (.0146)
Intercept	3.912 ^{***} (.00120)	1.086 ^{***} (.00550)
<i>Number of Comments</i>		9466
Wald X ²	258439861.1	77351.4
<i>Number of Users</i>		797

Notes. The two models above examined the influence of employee communications on user emotions. Positive emotions seem more likely to be influenced by employees than negative emotions. Robust standard errors are listed in parentheses. Significant levels are indicated with asterisks: * $p < .05$, ** $p < .01$, *** $p < .001$.

5.5 DISCUSSION AND IMPLICATIONS

5.5.1 Findings and Theoretical Implications

The surge of online co-creation communities has increased the interest in understanding what contributes to the success of such practices. Based on prior research (e.g., Füller, Jawecki and Mühlbacher, 2007), it is clear that emotions play a key role in driving user contributions in these platforms, but less is known about how collective emotions of the community can affect the community performance. Furthermore, although online-community research has examined how a certain management style and platform design can enhance user experiences during the co-creation process, less attention has been given to how the affective environment of the community, e.g., collective emotions, might shape community outcomes, namely creativity and participation. The current research examines the role of collective emotions in two stages. By attempting to understand how companies can manage collective emotions in a way that subsequently influences community output, we shed light on potential drivers of successful co-creation practices.

Our findings contribute to the existing literature of online user-innovation communities. First, they highlight the importance and challenges of managing user emotions. While negative user emotions seem hard to change, positive user emotions increase when employees' positive emotions increase; and they decrease when employees express negative emotions. Furthermore, an employee with a proactive communication style appears to decrease user emotions, both positive and negative, whereas a task-oriented communication style generally increases user emotions. Second, our results illustrate that collective emotions can be used to predict the community's collective creativity and participation on user-innovation platforms: positive collective emotions have no impact on creativity and lower the level of participation, whereas negative collective emotions reduce creativity and increase user participation.

This research links the concept of collective emotions to studying online user-innovation communities. Previous studies have focused on functional aspects of co-creation platforms and suggestions for modifying the platform design to enhance user experiences (e.g., Kohler et al., 2011). However, hedonic motivations, such as pursuit of pleasure and enjoyment, which are often associated with emotions, are important for increasing co-creation participation (Antikainen, Mäkipää and Ahonen, 2010). The results of the present study support our hypothesized framework that collective emotions signify the affective environment of the community, which accounts for subsequent idea submissions and comment making. Moreover, part of the mechanism of forming collective emotions is through emotional contagion. We provide empirical

evidence that, to a certain extent, employees can manage the collective emotions through their own emotional displays, along with other communication styles.

Confirming our hypotheses, the results suggest that collective emotions can influence community output. However, it is important to note that collective emotions have opposite effects on creativity and user participation. In particular, the opposite effect of negative collective emotions decreasing creativity and increasing user participation is evident in our study. This highlights the importance of making a distinction between contributing novel ideas (i.e., initiating a discussion) and making comments (i.e., participating in discussions) in future co-creation studies. The results confirmed that users may perceive a community with a highly negative emotional climate as a risky and problematic environment (Gasper, 2003), which discourages creative thinking but encourages contributions of comments to help solve this problem. These findings suggest that in developing user-innovation platforms, if the purpose is to generate as many useful ideas as possible, companies should focus on reducing negative emotions. Conversely, when the purpose is to increase overall participation by attracting a higher number of user comments, negative collective emotions are actually favorable. The paradoxical effect highlights the importance of managerial choices to design a small but highly creative community or a large but less creative one.

Moreover, it is worth noting that previous studies on the influence of emotions have focused on personal, short-term, and immediate influence (e.g., Berger and Milkman, 2012; Nambisan, 2003). Our results suggest that it is mainly the cumulative collective emotions, instead of the immediate collective emotions that shape the user activities. It is perhaps less likely that users will judge the affective environment of a community based on what has happened on a particular day. In particular, it takes time for a community to establish its collective emotions with aggregate contributions from all users.

It is important to note that employees have limited means of directly influencing user emotions with their own emotions. In general, employees seem more likely to influence positive user emotions than negative user emotions. Employees can only increase or reduce positive user emotions with their own positive and negative emotional displays. While employee negative emotions are found to be more efficient, with a stronger effect, in influencing user emotions, as suggested by previous literature (van Kleef, 2009), negative user emotions are more difficult to suppress or to change (Schaefer, 2010). This may be because in an environment in which people strive for negative emotions, people may resist emotional changes (Darmody and Bonsu, 2008). The fact that people are more likely to comment when they have negative emotions rather than positive ones may contribute to this propensity. Even if employee positive emotions can positively influence users, the users tend not to change their negative displays.

Along with emotional displays, we found that employees' task-oriented comments and a proactive communication style are paramount in influencing user emotions. Proactiveness in particular reduces overall user emotional expressions, both positive and negative. This suggests that even in company-hosted user-innovation platforms where direct feedback is welcomed and needed (Di Gangi, Wasko and Hooker, 2010), proactive participation by an employee may not always lead to favorable outcomes. While proactiveness softens negative user emotions, it also reduces positive user emotions. This might help explain why proactive participation by an employee is not always appreciated by forum users (Fournier and Avery, 2011). Because user participation (commenting behaviors in particular) is driven mainly by negative emotions, as confirmed in this study, users may not be motivated to contribute to a less emotionally charged environment.

On the other hand, task-oriented communication from employees was found to elicit both positive and negative emotions, which is opposite to what was hypothesized. This may be because of the actual content of the employee communication. Drawing on affective events theory, feedback about task performance (failure of a task, in particular) is regarded as an affective event in the workplace, which can induce emotional responses (Dasborough, 2006; Gaddis, Connelly and Mumford, 2004). Similarly, in the context of co-creation communities, employees' task-oriented comments may be perceived as a direct feedback to the user ideas and preceding discussions, which leads to subsequent user emotional responses. This may be an interesting aspect for future research.

To conclude, our study suggests that user activities on user-innovation platforms are influenced by the collective emotions of all participants. Employees may manage the community output by effectively influencing user emotions through controlling their communication style. The results offer an alternative approach for maintaining and designing user co-creation communities. Different from the current focus on identifying user motivations (e.g., Tsai, Huang and Chiu, 2012) and platform design (e.g., Nambisan and Nambisan, 2008), our study suggests that community development is an ongoing process. Along with the change of collective emotions on platforms between positive and negative, communities also develop their creativity and user participation. Cumulative negative collective emotions in particular can increase future user participation, i.e., the number of comments, but reduce subsequent creativity, i.e., the number of creative ideas. The collective emotions—aggregate emotions of all participants—are important in shaping collective community outputs.

5.5.2 Managerial Implications

Our study sheds light on how companies can manage user-innovation platforms by closely monitoring and managing collective emotions of the communities. Since

negative collective emotions have opposite effects on two community outputs—namely, creativity and user participation—companies should choose a managerial approach based on their purpose. The counter-effects set a paradoxical challenge for companies to determine the goal of a community prior to its full development and to adjust their communication style accordingly during the process. In particular, if the priority is to maximize the creative output of innovation platforms, companies should focus on reducing negative emotions. On the other hand, if the priority is to maximize the size of community and to encourage comments and conversations, negative emotions are less of an issue. Yet companies should be aware that the continuing negative emotions would eventually reduce the willingness of users to submit creative ideas. The approach of tolerating negative emotions might be more suitable for companies that allow consumers to give comments on company-initiated ideas rather than encouraging the users to comment on user-developed ones.

In addition, if companies decide to have employees participating in co-creation communities, it is more efficient to regulate user emotions through adapting the employee communication style, such as focusing on task-oriented or proactive communication, instead of controlling employees' emotional displays. This is perhaps less demanding for employees, as overwhelming emotional labor can cause work withdrawal (Scott and Barnes, 2011). When employees are experiencing emotional exhaustion in an unwanted emotionally charged interaction, they may end up suppressing emotional displays even if they are instructed not to. However, it is worth noting that companies can either evoke user overall emotional responses by posting task-related comments or reduce the emotions by proactively participating in online conversations. This indicates that it may be difficult to control for and demand particular user emotions. It is thus crucial to carefully monitor the development of collective emotions and to adapt the style in a timely manner when needed. For example, when dealing with unwanted negative emotions, employees may proactively engage in the conversations but be restricted to administrative content instead of task-oriented comments.

5.5.3 Limitations and Future Research

Even though our research offers valuable insights into how emotions influence community performance, it has some limitations that require further research. Since the research involved only one specific platform, the results need to be treated with caution. In particular, combining other functional design factors that are suggested to influence user experiences might provide a more profound story of how a community environment may influence collective outputs. Moreover, due to the exploratory nature of investigating how collective emotions work in the context of online co-creation, specific

emotions have not been identified or specified. Barsade and Gibson (1998) have suggested that studying group emotions based on specific discrete emotions, such as anger and joy, would help us better understanding the mechanism of collective emotion. It would be interesting to further identify which specific emotions can best influence collective community outputs and how.

Regarding the employee communication style, it would also be interesting to further clarify which specific emotions are elicited by employee task-oriented communication. Considering that it generates both positive and negative emotions, it is critical to understand exactly how users respond to employee task-related comments. Related to this, future research might also examine how emotions interact with the cognitive information in a message. The task-oriented communication style is a starting point to further understand how the content of employee communications should be formulated. In addition, prior research on collective emotions demonstrates the importance of the group leader identifying the dynamics of the emotional composition of groups (Sanchez-Burks and Huy, 2009). The success of managing collective emotions partially depends on how well employees can detect the current aggregate emotions in the community. Further research might examine how the emotional intelligence of employees influences the development of user-innovation platforms. This research, though only partially identifying the effect of emotional contagion from employees to users, does suggest that the role of emotions in online communities is a promising line of future inquiry.

CHAPTER 6

DISCUSSION AND CONCLUSION

This thesis focuses on structured discussions on company-administered platforms and unstructured discussions on consumer-administered platforms. By analyzing the content of online buzz, the thesis aims to unravel noteworthy patterns and key factors (both uncontrollable and controllable) to also help companies develop strategies to manage user-generated content. Specifically, it investigates the factors that influence the content of online discussions, in particular, the valence and opinions expressed in user-generated content. Furthermore, it examines 1) how these factors can be influenced and managed in “uncontrollable” situations, namely, unstructured discussions on consumer-administered platforms, and 2) how these factors can influence the output of discussions in “controlled” situations, namely, structured discussions on company-administered platforms. Two different and specific empirical settings were examined: corporate social responsibility communications and co-creation, which reflect pressing challenges companies are dealing with in modern business practice, especially in the face of increasing internet user prominence.

The first two studies of the thesis examine blogger responses toward food industry press releases in addressing obesity and health concerns. The studies identify three factors that may influence the sentiments of online discussions: the content of the company communications, the level of fit between companies and their initiatives, and the degree of issue association. While the first two factors offer more control opportunities for companies, the degree of issue association should be closely monitored by companies and is less likely to be directly controlled by companies. Data from the blogosphere suggest that there is no specific community of bloggers on whom companies should directly focus their communication. The bloggers who voiced their opinions online are not connected with each other, as previous research has suggested (e.g., Fieseler, Fleck and Meckel, 2010). As a result, to overcome the unstructured random user-generated responses, companies are advised to carefully build their fan base in a community prior to commencing communications, which could result in more

structured discussions, to achieve more favorable outcomes. The third and fourth study of this thesis investigate user contributions in online communities. Data from a company-administered co-creation community suggests that users tend to mimic other users' emotions and opinions when they make contributions online. The content of the discussions in turn influences the popularity of discussion threads and the continuing development of the community. Specifically, positive emotions may increase subsequent creativity but could reduce future user comments. Companies may manage user-generated content on such a platform by having employees directly interact with users, although the impact is somewhat limited.

The findings revealed in the four chapters highlight the complexity of user-generated content online. It is true that increasing demands for transparency from consumers, expanding channels of social media, and promising relational bonds with internet users may press companies to engage with online users even more aggressively. This thesis suggests, however, that, in many cases, considering the characteristics of the companies and the platforms, it may be wise to communicate less loudly and proactively, as much of the content is not controllable. Even on company-administered platforms where companies seem to have more control, the users appear to have more influence on each other than companies do.

6.1 CORPORATE SOCIAL RESPONSIBILITY COMMUNICATIONS AND USER-GENERATED CONTENT

Chapters two and three are empirical studies that examine companies' corporate social communication and related user-generated content in the blogosphere. In particular, it focuses on press releases published by food companies on health-related issues and the subsequent blogger reactions, a topic and context unexplored in prior literature. In line with previous research (Wright and Hinson, 2008), the present studies suggest that corporate announcements can be picked up by internet users without a company's consent or intention. This implies that "uncontrolled" user-generated content focusing on social issues circulates online freely and not only when companies proactively engage with consumers (Korschun and Du, 2012). Companies should understand that, when

users come across such information, although not proactively seeking social information about a company (Dawkins, 2004), they may still express their opinions online. User-generated content does not only occur when companies demand it. These small-scale individual comments, which are not necessarily embedded in structured networks, still have the potential to accumulate into collective public concerns (Koku, 2012). It is important to note that online reactions came mostly from “non-specific” internet users, rather than known activists or particular communities of bloggers. While a diverse group of interested individuals may provide incentives for companies to reach a large variety of potential consumers online, it is more difficult to identify key stakeholder groups and engage in micro-dialogues with them. The findings differ from the prior suggestion that, in dealing with online users, particularly concerning corporate social responsibility, companies should engage with specific activists (Du, Bhattacharya and Sen, 2010) or communities (Korschun and Du, 2012). Consequently, in managing their reputation and public relations, especially when user-generated content occurs as unstructured discussions on consumer-administered platforms, companies cannot only monitor specific target audiences, such as journalists’ responses toward press releases, but also listen to other stakeholders’ voices online.

While in this particular context, companies may have no control in targeting particular audiences online, they may control the content of their communications. Chapter two and three analyzed the content of companies’ press releases. The results are generally in line with prior research that taste-related announcements generate proportionally more reactions and positive buzz than knowledge-related ones do, and product-related press releases are more widely discussed and better perceived, compared to promotion-related ones. However, not all initiatives that fall into the same category result in a similar pattern of discussions. Not all taste-related press releases resulted in positive responses. For example, to claim that a tea drink helps burn calories is perceived as false and generates significant amounts of negative buzz. Similarly, while press releases of new “health” product introductions are welcomed by bloggers, the modification of existing products tends to suffer from negative responses. The findings also highlight that the way in which an initiative is phrased and communicated may also influence the valences of online discussions. There seems to be a fine line between being innovative and over-exaggerating in corporate communications.

Other than the content of press releases, there are two manageable factors identified in the thesis that may also influence user-generated content. How prominent companies are associated with obesity and how consistent the initiatives are with companies' core business of selling food products are found to influence online buzz. These two factors are mainly based on consumer perceptions and may thus intensify the "uncontrollability" of user-generated content; companies can manage the impact by carefully evaluating their own situations and choosing specific initiatives that give the "right" (intended) message. The degree of associations that a company has with a particular social issue was seen to influence user-generated content in chapter two. Prior studies suggest that very specific approaches for tackling a social issue, such as obesity, are more suitable than generic well-being schemes (e.g., Wansink and Huckabee, 2005). However, in reality, the former approach did not necessarily receive much positive recognition in the blogosphere. Frequent company communication regarding its activities addressing social issues does not lead to more reactions. Instead companies with high levels of issue associations generally trigger more responses, both positive and negative, whereas companies having low associations generate fewer reactions. Issue association influences the volume of the buzz but not necessarily its valence. It is only when companies have a dedicated fan base online that they can trigger many positive reactions among bloggers. These findings extend previous evidence of the theory of "negative double jeopardy" which suggests that the more well-known brands are more likely to be the target of online anti-brand activities (Kucuk, 2008). It seems to be true still in the case of corporate social responsibility communications that the better-known and higher-profile companies are more likely to be talked about, both positively and negatively.

In general, our results are in line with prior studies, which suggest that high-fit activities, that is, initiatives that are highly compatible with companies' core business are better perceived (e.g., Becker-Olsen and Hill, 2006). However, in our study, modification of the current product, a high-fit activity, results in negative buzz, despite the fact that this activity indicates a higher level of commitment from companies. These unexpected results might be caused by what we call a "controversial fit". The initiatives are highly compatible with core business but underscore consumers' ideas that the company's offerings may seem suspicious. The reminder of this negative connotation, despite high

fit with the core business of selling food, may strengthen undesirable associations with obesity. These negative associations would eventually lead to negative buzz, as discussed in chapter two.

The outcomes of chapters two and three imply that low awareness of socially responsible initiatives, as previously considered (Du, Bhattacharya and Sen, 2010), may no longer be the central obstacle for all companies. Activities may be noticed and discussed by online users, especially when companies are highly associated with the social issue concerned. The challenges lie in the “uncontrollable” reactions that companies might receive. In an unstructured channel like the blogosphere, the findings highlight the difficulties of identifying particular opinion leaders to focus companies’ communication efforts. The word associations (Aggarwal, Vaidyanathan and Venkatesh, 2009) as implied in chapter two may be a useful tool to adapt as a starting point for listening to and observing the user opinions circulated online. The challenges remain, however, for companies that are under higher scrutiny from consumers; their strong associations with particular social issues make it almost impossible to conduct their business without being noticed. Their corporate social responsibility policies, even well-intended ones, may be negatively criticized even without being proactively communicated. Conversely, for companies that are not highly associated with particular issues, the challenge would rather be whether their efforts are noticed at all.

6.2 CO-CREATION AND USER-GENERATED CONTENT

The second part of the thesis moves from the unstructured buzz on consumer-administered platforms, the blogosphere, toward structured discussions on company-administered platforms. Having their own, structured online communities may make it easier for companies to target particular users and manage content. However, the final two studies on co-creation suggest that there are some uncontrollable and unexpected elements that companies should be aware of. The essence of establishing a successful co-creation community is to attract more innovative users and have them commenting on others’ ideas to foster the best collective outcomes. However, internet users do not necessarily make their comments independently and having “controversial”

or negative discussions may not be a bad thing, as discovered in our studies. Prior research focuses on investigating user motivations to participate in online communities (e.g., Brodie et al., 2013) and tailoring platform designs to these motivations (e.g. Novak, Hoffman and Yung, 2000). The longitudinal studies of chapters four and five provide explanations on how positive/negative and popular discussions are formed on company-administered platforms and illustrate how these discussions influence the community output.

The results from chapters four and five suggest that even users on company-administered platforms are more likely to be influenced by other users than by employees of the companies. Users, instead of exhibiting individual thinking, contribute content under the influence of other users. The tendency of “imitating” other users’ content is found during the commenting process. When the perceived information is more positive (respectively negative), subsequent content is more likely to be positive (respectively negative). Likewise, when the preceding content expresses agreement (disagreement), the subsequent user content is more likely to agree (disagree) and less likely to disagree (agree). The sequential dynamics that have been observed in online product review sites (e.g., Godes and Silva, 2012) are thus found to be also present in online communities.

However, this effect is not prominent when employees’ content is considered; employees’ emotions are found to influence only users’ positive emotions, but do not seem to influence users’ negative emotions. If companies want to manage user emotions, it seems more efficient to do so through controlling their exposed management/communication styles – namely, through task-oriented and proactive communication. Task-oriented communication leads to an increase in user emotions, whereas a proactive approach results in a decrease in user emotions. What is significant in the findings is that even in company-administered communities, where direct feedback is presumed (Di Gangi, Wasko and Hooker, 2010), proactive participations from employees may neither always be appreciated (Fournier and Avery, 2011) nor necessarily lead to favorable reactions. On the other hand, task-oriented communication, which usually leads to responses that are less emotional (Derks, Bos and Grumbkow, 2007), is found to lead to more emotional reactions among subsequent user-generated content in our study. Notwithstanding the above, if companies seek a specific emotion, whether

positive or negative, the most powerful influence stems from users themselves, not from moderators of the community sent from companies.

Drawing on social impact theory, the results demonstrate that the influence of other users originates from two sources, immediacy and number of preceding posts or comments. Of these two factors, the number of preceding user-generated posts appears to have a stronger impact. Once the direction of the discussion is set by the first group of users, it is difficult to move the content in an opposite direction. This highlights the importance of the first few people who contribute to the discussions. The results entail that in the structured environment, as opposed to the unstructured platforms in chapters two and three, it is indeed possible to find the leader and target particular users. However, in contrast to previous suggestions that opinion leaders (Iyengar, Van Den Bulte and Valente, 2012), light users (as opposed to loyal customers) (Godes and Mayzlin, 2009) or the critical mass (Watts and Dodds, 2007) are the most influential users and should be cautiously monitored, the first few users who submit contributions, it seems, would be the ones that companies should focus on. Results suggest that the “collective creation” that companies are trying to achieve by allowing users to comment on each other may not be as collective as it seems.

Furthermore, escalating emotions and opinions starting from the first comment would eventually determine the affective opinion environment of the community, which, in turn, determines the popularity of each discussion thread and the overall development of the community. Contrary to previous findings that a positive environment would attract a higher volume of discussions (Moe and Scheweidel, 2012), chapter four suggests that variance in emotions and opinions is key in determining popularity. The discussions that are in consensus regarding user emotions, whether positive or negative, are less likely to be popular. This confirms the prior research finding that controversial topics are more likely to trigger discussion (Chen and Berger, 2013). It seems that people are motivated to contribute when the prior comments have high variance, but are inclined to imitate others when they actually do make comments. This highlights the critical role of affective and opinion climate in shaping user-generated content in online communities.

The influence of the community climate and the unexpected negative effect on popularity from positive emotions has led to the final study in the thesis. Chapter five

explores the effect of collective emotion on subsequent community output, making comments and submitting creative ideas. Collective emotions, i.e., emotions that are shared by a large number of individuals (Brief and Weiss, 2002), were previously found to affect group actions (e.g., Sy, Cote and Saavedra, 2005) and directly influence group performance (e.g., Piderit, 2000). Our study confirms findings from prior literature that community creativity and participation are indeed influenced by user collective emotions. However, these two interrelated outputs are driven by opposite emotions. While positive emotions encourage users to contribute creative ideas, negative emotions encourage more commenting in the community. This paradoxical effect of collective emotions highlights the complexity that companies are facing when utilizing online co-creation. User-generated content in online communities should not be treated the same, because distinct behaviors, such as contributing creative ideas and commenting on others' ideas, may be driven and influenced by opposite emotions as revealed in our study.

6.3 GENERAL IMPLICATIONS

To summarize the results between the unstructured consumer-administered blogosphere in chapters two and three, and the structured company-administered online communities in chapters four and five, the thesis illustrates that companies may control parts of the "uncontrollability" of user-generated content in both circumstances. While in the blogosphere, content may be somewhat influenced by the content of corporate communications, in online communities it seems to be more efficiently influenced by other users' content. In other words, when users are not necessarily connected with each other, companies may actually have a better chance of foreseeing the direction of online buzz. When communicating corporate social responsibility policies, it is inevitable for companies to deal with some uncontrollable elements, such as non-specific target audiences. Companies can adjust their communication strategies by carefully evaluating consumer perceptions of their issue associations and the fit level of their initiatives. Conversely, in the context of co-creation communities, the success of having an efficient platform largely depends on the participating users and the content they generate. Social influence, particularly emotional influence, largely comes from other users rather

than employees representing the companies. It is thus important to consider these characteristics when understanding user-generated content online. Moreover, the role of traditionally defined opinion leaders in all our studies seems minor, compared to other scenarios that have been illustrated in prior studies. When capturing user-generated content online, distinctions between the types of platforms, emotions and opinions, individual and collective behaviors, as well as static or dynamic influences, should all be considered to evaluate which elements are controllable and which are not.

6.3.1 Implications for Management and Marketing

In order for a company to maximize the efficiency of its communications and better control user-generated content online, it seems worthwhile to embrace internet users and establish structured communities. Having a portal with clear target audiences appears to be easier than facing a non-specific audience. Since internet users are going to voice their opinions anyhow, engaging in direct communications could help concentrate efforts. For example, Starbucks' press releases are found to receive the most positive buzz in the blogosphere in the studies in chapters two and three. Their approach of engaging with consumers both online and offline might be a good model to follow. Although outside the research scope of this thesis, their co-creation platform, My Starbucks Ideas, could also be one of the outlets for them to monitor centralized opinions.

Notwithstanding the above, companies should be aware that setting up company-administered platforms does not lead to "controlled" content. While the dynamic influence among users is apparent, the extent to which companies can be influential is deemed to be minimal. It is advisable for companies not to over-intervene. They need to give up some control, even in their own communities; that is, allowing users to influence each other, while carefully monitoring those frequent and heavy users who have the tendency to voice their opinions first. A closer monitoring of user activities, especially the emotional environment, would be recommended. The LIWC tool that was applied in this thesis seems to be reliable as also illustrated in prior research (Berger and Milkman, 2012). It is particularly critical to consider what kind of behavior is triggered by each emotion. In our study, submitting creative ideas is more frequently encountered in

a positive emotional environment, while making comments occurs more in a negative one. If companies want to combine the two, some specific designs could be considered when building the site. For example, a like-only voting scheme would be suitable for the communities that prefer positive emotions, and a dislike-only voting system and commenting function for the communities that encourage wider participation.

In a related vein, while a moderated company-administered community is preferred by most internet users, having employees proactively engage in communities is usually not favored by community members as confirmed in this thesis. This depends on the preferences of users having a more or less emotional environment. Similarly, although the pressure of increasing transparency is forcing companies to communicate their social initiatives, some are actually better off if they stay low-profile, especially for the companies that have negative and strong associations with a particular social issue. Working quietly without promoting it in their communication may reap the greatest benefits and help them avoid negative criticism. The diverse expectations that internet users hold of companies have been reflected in their reactions toward company communications, whether broadcasted through press releases or narrowcasted to users in communities. While it may be inevitable that companies must disclose information, the results suggest a more passive route, unless companies have pre-engaged with internet users.

Finally, in the past decade, companies have been striving to identify opinion leaders in order to seed positive influences within online networks. The practices of viral marketing and referral marketing have been implemented, based on the assumptions that some people are more influential than others. This thesis suggests that this is partially true, as long as the leader is also the first to voice the favorable sentiments and there is a structured network in place. In the disconnected platforms, when bloggers are not interconnected with each other, both the possible benefits and the drawbacks resulted from identifying the leaders would be diminished. What is important, however, is that even when the target audiences were not specific, a particular piece of information could be picked up and spread within bloggers' own networks. A better option for companies seeking to gain more control is to be selective of the first persons who receive the information. In the blogosphere, the once-controversial or unethical practices of blog marketing, such as giving people monetary incentives to talk favorably

about companies, would consequently seem to be the option. However, companies should be aware of the damage to their corporate reputation that may potentially come with such a strategy (Cox, Martinez and Quinlan, 2008).

6.3.2 Limitations and Future Research

In addition to the limitations and future research directions that have been mentioned in chapters two to five, this section highlights some generic points and overriding ideas for future research. Sentiment analysis appears to be useful for analyzing user-generated content. However, the distinction between emotions and opinions has not yet been widely applied. As mentioned earlier, users may hold affective commitment to a brand/company but not necessarily agree with all its acts. Similarly, emotions can compound positive and negative opinions. Users may address their disagreement with positive emotions. It would be interesting to further investigate the interactions between these two elements in other contexts, especially in situations regarding hedonic and controversial brands and products. Furthermore, as observed in chapters four and five, negative emotions and positive emotions can indeed coexist. Experiences of emotional ambivalence and cognitive dissonance may explain some of the “unpredictable” reactions among user-generated content and are worthy of further investigation.

On the other hand, the formation of opinions in user-generated content is found to be influenced by companies’ perceived associations with the topic in question in chapter two. While the opinions of comments within a community are found to exhibit sequential bias, the associations that companies have with a particular issue could also be influenced by this sequential effect at the societal level. A longitudinal study to trace how these associations have been formed and influenced over time would be interesting and critical for future research. Before the internet took its role, traditional media and journalists were believed to have set the social agenda (Iyengar and Simon, 1993). To understand how in the era of social media these types of associations can be established, whether and how the sequential bias is at work and how companies can influence or direct trends is critical for future crisis and reputation management research.

In a related vein, the consequences of social influence that are observed in chapter four imply that some opinions could be suppressed due to the tendency of following

others instead of exhibiting independent ideas. Parallel to this crowd-following effect, there is the bystander effect. Also based on crowd psychology, the bystander effect suggests that people are less likely to contribute or help when they perceive that there are already enough people doing so (Voelpel et al., 2008). These effects may compromise the consumer empowerment that is expected from the internet. The basic assumption of consumer empowerment online is that individuals can freely express their opinions regardless of who they are. It would be interesting to examine how the perception of empowerment could be affected by having opinions that are in the minority of the online group, especially in the case of collective crowd wisdom. As it seems that, instead of the combination of individual wisdom, the collective wisdom is influenced by the preceding others who voice their opinions first and by collective emotions. When participating in a community where the community of practice is strong, and thus the pressure for convergence is especially high, individuals may actually experience suppression of their opinions and emotions.

Furthermore, as employee communications in our study did not yield prominent results, it would be appealing to investigate what kind of employee responses would be appreciated and efficient. Prior research on corporate correspondences has mainly focused on negative electronic word-of-mouth and complaint handling (e.g., Strauss and Hill, 2001). However, our study suggests that negative emotions are less likely to be changed. While positive user-generated content is preferred and can be relatively easily influenced, companies may actually have a higher chance of influencing positive buzz via mechanisms of social influence. Moreover, the increasing interactions with internet users and the demand for more interactions from consumers would imply that a better understanding of the communication style is required. In many cases, such as in the context of co-creation communities, the aim of corporate correspondence may not necessarily be to change user opinions from negative to positive, but rather to engage in a discussion. Understanding the mechanism of how to control content in order to encourage more conversations rather than to suppress particular opinions is critical.

User-generated content research mostly involves empirical studies, but there also seems to be a need to develop further theoretical understanding. In this thesis, theories of social influence have been applied to explain parts of users' behavior, but there are theories that can be employed to extend the explained observed results. For example,

prior research has used self-presentation and media richness to explain the motivations of people's choice to participate in a particular type of social media platform (Kaplan and Haenlein, 2010). It is suggested that online buzz about the same brand could reveal different patterns across various channels (Smith, Fischer and Yongjian, 2012). Further research is needed to examine how these motivations interact with user-generated content and how these would influence users' preferences toward company correspondence. For example, Domino's Pizza is applauded by public relations specialists for having responded directly via the same medium to the public relationship crisis in 2008 mentioned in chapter one (Gaines-Ross, 2010). Having a matching level of self-presentation seems critical in engaging in interactions with consumers, which warrants future investigation.

Finally, it is worth noting that the research settings in this thesis have been limited to two particular contexts residing on two specific platforms, using particular data sources. The limitations of the conclusions in the previous chapters are undeniable; to obtain more reliable and objective data, future research could replicate the studies to include other types of platforms and contexts to further explore the uncontrollability of user-generated content, as well as additional types and sources of data. In spite of these limitations, the findings of the thesis are hopefully intriguing enough to invite further research on the topic of user-generated content.

APPENDICES

Appendix A: Control Estimates For Models Estimating Valence in Chapter 4

	i=1		i=2		i>2	
	POSITIVE _{ki}	NEGATIVE _{ki}	POSITIVE _{ki}	NEGATIVE _{ki}	POSITIVE _{ki}	NEGATIVE _{ki}
POSITIVE _{ki}		-.0187** (.00697)		-.0210** (.00723)		-.0228*** (.00159)
NEGATIVE _{ki}	-.0915* (.0365)		-.136* (.0543)		-.151*** (.0116)	
POSITIVITY _i	.424*** (.0698)	-.473*** (.0727)	.255* (.0992)	-.505*** (.0761)	.454*** (.0313)	-.466*** (.0352)
EMOTIONALITY _i	.478*** (.0513)	.469*** (.0716)	.691*** (.0975)	.535*** (.0760)	.561*** (.0304)	.486*** (.0374)
FREQUENCY _i	-.160* (.0642)	-.00785 (.0348)	-.177 (.109)	-.0252 (.0446)	.0207 (.0348)	-.0264 (.0155)
EMPLOYEE _{ki-1}			1.669 (.853)	-.0454 (.145)	1.617*** (.291)	-.0684 (.0996)
PRODUCT _k	-.389 (.323)	-.119 (.128)	-.673 (.420)	-.108 (.166)	-.550*** (.154)	-.296*** (.0777)
DELL _k	.0636 (.304)	.0403 (.120)	-.0456 (.352)	.0296 (.154)	-.145 (.130)	-.0268 (.0644)
TOPIC _k	-.0693 (.520)	-.137 (.183)	-.399 (.630)	-.152 (.190)	-.268 (.247)	-.255 (.133)
WORD COUNTS _k	.00218*** (.000650)	.000834** (.000287)	-.00110 (.000774)	.000624 (.000373)	-.0000215 (.000333)	.0000803 (.000157)
COMMENTS _{ki-1}					.000361 (.000266)	.000277 (.000159)
WEEKEND _{ki}	.00649 (.202)	-.0251 (.0837)	.0608 (.259)	.207 (.146)	-.0303 (.103)	-.0484 (.0366)
2008	-.0778 (.187)	.0138 (.0912)	.0547 (.271)	-.0577 (.108)	-.243* (.0979)	.0732 (.0521)
2009	.0833 (.240)	-.0919 (.0971)	-.238 (.355)	-.184 (.109)	-.308 (.162)	.032 (.0812)
2010	-.0729 (.383)	-.182 (.116)	-.798 (.473)	-.00790 (.181)	-.350 (.312)	-.101 (.101)
2011	.638 (.576)	.241 (.289)	-.419 (.977)	-.117 (.172)	-.695* (.351)	-.165 (.151)

Robust standard errors in parentheses. *, ** and *** indicate significance at the $p < .05$, $p < .01$ and $p < .001$ level, respectively.

Appendix B. Control Estimates For Models Estimating Opinions in Chapter 4

	<i>i=1</i>		<i>i=2</i>		<i>i>2</i>	
	AGREE _{ki}	DISAGREE _{ki}	AGREE _{ki}	DISAGREE _{ki}	AGREE _{ki}	DISAGREE _{ki}
CONFIRMITY _j	2.626 ^{***} (.0992)	-2.391 ^{***} (.0934)	2.246 ^{***} (.105)	-2.227 ^{***} (.102)	2.407 ^{***} (.0434)	-2.485 ^{***} (.0456)
OPINIONATED _j	2.891 ^{***} (.192)	2.051 ^{***} (.173)	2.456 ^{***} (.198)	2.168 ^{***} (.195)	2.306 ^{***} (.0828)	2.147 ^{***} (.0869)
FREQUENCY _j	.0285 (.0242)	.124 ^{***} (.0221)	.0421 (.0271)	.0919 ^{***} (.0265)	.0500 ^{***} (.00907)	.0508 ^{***} (.00888)
EMPLOYEE _{ki-1}			-.220 (.145)	.0833 (.135)	-.0850 (.0523)	.110 [*] (.0526)
PRODUCT _k	-.146 (.0976)	-.00828 (.0923)	-.175 (.106)	-.164 (.102)	-.186 ^{***} (.0421)	-.0790 (.0444)
DELL _k	.0848 (.0905)	-.0217 (.0854)	.00913 (.0997)	-.0228 (.0953)	.0283 (.0479)	-.00242 (.0419)
TOPIC _k	-.490 ^{**} (.155)	-.00632 (.131)	-.147 (.155)	-.0963 (.145)	-.227 ^{**} (.0678)	-.0447 (.0688)
WORD COUNTS _k	.000461 [*] (.000203)	.000247 (.000201)	.000456 (.000244)	-.000247 (.000236)	.000153 (.0000947)	.000487 (.0001)
COMMENTS _{ki-1}					-.000187 (.0000991)	-.000412 ^{***} (.0001)
WEEKEND _{ki}	-.0948 (.0635)	.0620 (.0592)	-.0494 (.0723)	.121 (.0693)	-.0710 ^{**} (.0273)	.0465 (.0267)
2008	.109 (.0616)	.0156 (.0587)	.270 ^{***} (.0659)	-.153 [*] (.0644)	.0363 (.0239)	-.00596 (.0247)
2009	-.0919 (.0870)	.0805 (.0803)	.208 [*] (.104)	-.0160 (.102)	-.00566 (.0525)	.126 (.0526)
2010	-.121 (.134)	-.207 (.129)	.235 (.164)	.142 (.166)	-.00726 (.0996)	.156 (.103)
2011	.0815 (.162)	-.0191 (.162)	-.0643 (.199)	.359 (.199)	.00569 (.131)	.180 (.137)

Robust standard errors in parentheses. *, ** and *** indicate significance at the $p < .05$, $p < .01$ and $p < .001$ level, respectively.

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ENGLISH SUMMARY

User-generated content online has become prominent in recent years. The internet and ever expanding social media have empowered consumers with increased access to information and growing interactivity with companies. The online buzz created by internet users may be overwhelming for companies developing their online communication strategies. Much research has been done to investigate user-generated content, especially its influence on consumer behavior (e.g., Gruen, Osmonbekov and Czaplewski, 2005) and company performance (e.g., Chevalier and Mayzlin, 2006). As both favorable and non-favorable information can now be created and circulated fast online, the “uncontrollability” of user-generated content (Dobele, Toleman and Beverland, 2005) is the main challenge for practitioners and scholars. The impact of user-generated content could differ across contexts. In many situations, the question remains: considering the influence of platforms and discussion characteristics, how can the valence and opinions expressed in user-generated content be managed and influenced in “uncontrollable” situations? And how can they influence the output of discussions in “controlled” situations?

Addressing the potential interplay between user-generated content and its “uncontrollability,” this thesis explores user-generated content in two particular typologies: structured discussions in company-administered platforms and unstructured discussions on consumer-administered platforms. While the former seemingly offers more control for companies compared to the latter, this thesis aims to identify the factors that influence user-generated content which may or may not be controlled by the companies. The study is set in two imperative empirical settings, namely, corporate social responsibility concerns and brand/product-related co-creation ideas, which are chosen for their relevance to modern business practices. User-generated content that is related to corporate social responsibility communications often poses challenges for companies. Internet users may engage in negative word-of-mouth on the topic of corporate social responsibilities, due to consumer skepticism (e.g., Du, Bhattacharya and Sen, 2010), or even initiate boycotts and anti-consumption campaigns (e.g., Koku, 2012). On the other hand, co-creation, known as the collective contribution of online crowds,

can directly benefit company performance in terms of new product development and value co-creation (e.g., Grönroos, 2011). The study examines unstructured user-generated content in response to corporate social responsibility communications in the blogosphere and explores the content of company-administered co-creation communities. Analyzing text-based content online, with the focus of these two particular emerging contexts that are developed in the two contrasting platforms, the thesis aims to unravel a noteworthy pattern of online buzz that companies should monitor among the vast information circulated on the internet.

The first two studies, chapters two and three, explore user-generated content in the blogosphere in response to corporate social responsibility communications on obesity and health issues. In recent years, food companies have increasingly been requested to take responsibility in reducing obesity and promoting health (Young and Nestlé, 2007). However, their initiatives and efforts at communication are often confronted by stakeholders who are skeptical (Schrempf, 2012). To investigate the valence of the blogs and the factors that may have influenced the direction of online buzz in response to corporate announcements, press releases from 10 major food brands and the discussions in the blogosphere following the company communications are examined. The results from the two studies show that “uncontrollable” user-generated content may exist as internet users often respond to corporate communications not directed at them. Most importantly, contrary to prior suggestions of focusing on specific dialogue participants (Korschun and Du, 2012), the findings suggest that it is difficult to pinpoint a particular blogger community exclusively involved in discussing health issues online. This makes it challenging for companies to focus their communications on finding target audiences; instead, they may have more control over the content of their communications.

Chapter two suggests that taste-related press releases generate not only more reactions but also more positive ones than knowledge-related communications. Moreover, the findings in chapter three indicates that companies communicated more product-related initiatives than promotion-related ones, with the former receiving more comments and more favorable discussions among bloggers than the latter. Based on prior research (e.g., Becker-Olsen and Hill, 2006; Dean, 2004; Erdem and Swait, 1998), the thesis argues that the differences in responses may be partially explained by the

associations that each brand has with the obesity issue, and the consistency between the corporate social responsibility initiatives. The results suggest that companies with high obesity associations generate more negative buzz, while low obesity associations lead to limited reactions in the blogosphere. On the other hand, a high fit between the initiatives and the core business practices of companies results in positive responses in general. However, companies should be careful to avoid a potential “controversial fit”, which results from initiatives that highlight the unhealthy nature of original products, such as modifications of the current products. This indicates that whether companies should communicate “quietly or with fanfare” depends on, to a certain extent, the policy contents, companies’ level of associations with the social issue and the fit level. Though the discussions online can indeed pose some unfavorable outcomes for companies, the valence and the volume of the seemingly unpredictable user-generated content can be anticipated, depending on these controllable factors.

Chapters four and five address the second context of the thesis, namely, collective crowd wisdom as structured discussions on company-controlled platforms. The two studies explore user-generated content on a firm-hosted co-creation platform, Dell IdeaStorm. Prior research has illustrated the benefits of company-controlled communities and co-creation platforms. Much research has been done to motivate more user participation (e.g., Brodie et al. 2013; Tsai, Huang and Chiu, 2012). However, little is known about why certain discussions are more popular or more positive/negative than others and why certain communities attract more creative ideas and participation than others. An understanding of which of these can be controlled or managed by companies would enhance the efficiency of the development of company-controlled communities. To answer these questions, based on social impact theory (Latané, 1996) and attribution theory (Freling and Dacin, 2010), chapter four investigates the influence of preceding user-generated content on subsequent content. The findings suggest that individual users do not formulate content in isolation. Their emotions and opinions tend to be influenced by both the immediately preceding content and that of the majority of other contributors. The aggregated user-generated content then shapes the popularity of the discussions; discussions that are not highly emotional or in agreement, and have high variance in emotions and opinions, are more likely to be popular. This indicates that in evaluating the user-generated content in a structured context, such as online

communities, companies should consider the impact of the first user-generated contents, i.e., whoever first expresses their emotions and opinions, rather than opinion leaders (Iyengar, van den Bulte and Valente 2011), light users (Godes and Mayzlin 2009), or the critical mass (Watts and Dodds 2007).

Furthermore, chapter five, introducing the concept of collective emotions (e.g., Barsade and Gibson, 1998), that is, aggregated emotions of individuals within the community, investigates its longitudinal impact on collective creativity and participation. The findings yield paradoxical effects of collective emotions, suggesting that negative collective user emotions reduce subsequent creativity, but encourage future participation. Companies can manage these collective user emotions through influencing individual emotions by adapting employees' communication styles. Drawing on the theory of emotional contagion, this chapter suggests that individual users' positive emotions can be enhanced with employees' positive emotions and reduced by employees' negative emotions. Moreover, employee task-oriented communication can evoke both negative and positive user emotions, whereas a proactive communication style can decrease the emotions. Though co-creation generally presents positive outcomes for companies, the two studies highlight the importance of understanding the ongoing development of user-generated content. Not only is it crucial to realize the significant influences of others on forming individual content online, but the collective content, emotions in particular, also plays a critical role in community development. To strike a balance of emotions embedded in the user-generated content while managing an online community is the key to successfully utilizing collective wisdom.

This thesis yields some practical managerial and future research implications. The findings from the four studies imply that sentiment analysis seems to be useful in filtering user-generated content, but the distinction between emotions and opinions should be made when analyzing content. The thesis provides explanations of some of the "unpredictable" user-generated content. In the context of corporate social responsibility communications, to maximize the efficiency of corporate communications and have a better control of user-generated content online, it seems worthwhile to embrace internet users and establish a portal with a clear target audience. Engaging in direct communications via structured communities may help concentrate efforts, generate "fans", and reduce the proportion of negative responses from non-specific internet users.

However, setting up company-administered communities did not necessarily lead to “controlled” content. User opinions appear to be influenced more by fellow users than by companies. While a moderated community is preferred by most internet users on company-administered platforms, having employees proactively engage in communities is not always preferred. Moreover, in developing co-creation platforms, it is particularly critical to monitor the development of user collective emotion as it may influence the development of communities, and have a direct impact on community performances, namely, creativity and user participation. Companies should be aware not to over-interpret user-generated content or treat it as a static entity on such platforms. As noted in the thesis, the “collective” online buzz may actually be under the influence of only a few that voice their thoughts first. Thus, it is advisable to carefully monitor those frequent and heavy users who have the tendency to comment first and subsequently influence later user-generated content. In dealing with user-generated content online, it is important for companies to be aware that the “uncontrollable” may be predicted by some controllable factors, whereas the “controllable” may be influenced by some uncontrollable factors.

Nederlandstalige Samenvatting

Gebruikersgegenereerde online content is de laatste jaren prominent aanwezig geworden. Het internet en de zich alsmaar uitbreidende sociale media hebben de consument mondiger gemaakt door de betere toegang tot informatie en de vermeerderde interactiviteit met bedrijven. Voor bedrijven die hun online communicatiestrategieën aan het ontwikkelen zijn, kan de 'buzz' die internetgebruikers online creëren overweldigend overkomen. Er is veel onderzoek geweest naar gebruikersgegenereerde content, in het bijzonder naar de invloed die het heeft op het consumentengedrag (bv. Gruen, Osmonbekov en Czaplewski 2005) en op de prestatie van bedrijven (bv. Chevalier en Myzlin 2006). Aangezien men zowel gunstige als ongunstige informatie zeer snel online kan aanmaken en laten circuleren, wordt de "onbeheersbaarheid" van gebruikersgegenereerde content (Dobele, Toleman en Beverland 2005) de grootste uitdaging voor bedrijven en onderzoekers. De impact van gebruikersgegenereerde content kan verschillen per context. In vele gevallen blijft de vraag: Rekening houdend met het soort platform en de discussiekenmerken, hoe kunnen in "onbeheersbare" situaties de valentie van en de opinies geuit in gebruikersgegenereerde content beheerd en gestuurd worden? En hoe kan men in "beheerste" situaties het resultaat van de discussies sturen?

Met het zicht op een mogelijke wisselwerking tussen gebruikersgegenereerde content en de "onbeheersbaarheid" ervan, bestudeert deze verhandeling gebruikersgegenereerde content in twee specifieke typologieën: gestructureerde discussies op platforms die door bedrijven aangereikt werden en ongestructureerde discussies op platforms die aangereikt werden door de consument. De eerste lijkt aan bedrijven een grotere controle te bieden in vergelijking met de tweede, en in deze verhandeling zullen we de factoren identificeren die gebruikersgegenereerde content, al dan niet gereguleerd door de bedrijven, beïnvloeden. Onze studie kijkt naar twee imperatieve empirische settings, namelijk kwesties rond sociale bedrijfsverantwoordelijkheid en ideeën over co-creatie verbonden aan merken en producten, die gekozen werden omwille van hun relevantie voor moderne bedrijfspraktijken. Gebruikersgegenereerde content die verbonden is aan de

communicatie rond sociale bedrijfsverantwoordelijkheid, betekent vaak een uitdaging voor bedrijven. Internetgebruikers kunnen aan negatieve mond-aan-mondreclame doen over het onderwerp van de sociale bedrijfsverantwoordelijkheid omwille van consumentenscepticisme (bv. Du, Bhattacharya en Sen 2010), of ze kunnen zelfs een boycot starten of een anti-consumptiecampagne opzetten (bv. Koku 2012). Co-creatie echter, of de collectieve bijdrage van onlinegroepen, kan de bedrijfsprestaties rechtstreeks ten goede komen m.b.t. de ontwikkeling van nieuwe producten en de co-creatie van waarden (bv. Grönroos 2011). Het onderzoek bestudeert ongestructureerde gebruikersgegenereerde content in de blogosfeer die reageert op communicatie rond sociale bedrijfsverantwoordelijkheid en het verkent de content van co-creatiegemeenschappen die door bedrijven opgezet zijn. Via een analyse van tekstgebaseerde online content, met de nadruk specifiek op deze twee groeiende contexten die ontwikkeld werden in de twee contrasterende platforms, tracht deze verhandeling een significant patroon in de online 'buzz' te ontdekken waar bedrijven de aandacht op moeten vestigen temidden de grote hoeveelheid informatie die op het internet circuleert.

De eerste twee studies, in hoofdstukken twee en drie, verkennen de gebruikersgegenereerde content in de blogosfeer die een reactie is op bedrijfscommunicatie rond sociale verantwoordelijkheid over obesitas en gezondheidskwesties. De laatste jaren werd er aan voedselbedrijven meer en meer gevraagd om hun verantwoordelijkheid te nemen in de strijd tegen obesitas en de promotie van een gezonde levensstijl (Young en Nestlé 2007). Hun initiatieven en communicatie-inspanningen worden door de stakeholders vaak met scepsis onthaald (Schrempf 2012). Om de valentie van de blogs te onderzoeken en de factoren die een invloed gehad kunnen hebben op de teneur van de online 'buzz' die een reactie is op bedrijfsmededelingen, werden de persmededelingen van 10 grote voedselbedrijven en de daaropvolgende discussies in de blogosfeer onderzocht. De resultaten van de twee studies tonen aan dat "onbeheersbare" gebruikersgegenereerde content kan ontstaan omdat internetgebruikers dikwijls reageren op bedrijfscommunicatie die niet aan hen gericht is. Het belangrijkste is dat, in tegenstelling tot de eerdere suggestie om te focussen op specifieke deelnemers in het gesprek (Korshun en Du 2012), geven de resultaten aan dat het moeilijk is om een specifieke bloggemeenschap aan te duiden die

zich online uitsluitend bezighoudt met gezondheidskwesties. Dit maakt het de bedrijven moeilijk om hun communicatie te richten op een doelpubliek. Ze kunnen daarentegen wel meer controle over de inhoud van hun communicatie hebben.

Hoofdstuk twee stelt dat smaakgerelateerde persmededelingen niet enkel meer reacties genereren, maar ook meer positieve dan kennisgerelateerde communicatie. Daarenboven toont hoofdstuk drie aan dat de bedrijven meer product- dan promotiegerelateerde initiatieven communiceerden, waarbij deze eerste meer commentaren en gunstigere discussies uitlokte bij de bloggers dan de tweede. Gebaseerd op eerder onderzoek (bv. Becker-Olsen en Hill 2006, Dean 2004, Erdem en Swait 1998), beargumenteert deze verhandeling dat de verschillen in reacties deels verklaard kunnen worden door de associaties die elk merk heeft met de obesitaskwestie en door de consistentie van de initiatieven rond sociale bedrijfsverantwoordelijkheid. De resultaten tonen dat bedrijven met een hoge associatie met obesitas meer negatieve 'buzz' genereren, terwijl een mindere associatie voor beperkte reacties in de blogosfeer zorgen. Maar indien de initiatieven goed passen bij de kernactiviteiten van een bedrijf, dan heeft dit algemene positieve reacties tot gevolg. Bedrijven moeten echter opletten dat ze een potentiële "controversiële relatie" moeten vermijden, die het resultaat kan zijn van initiatieven die de ongezonde aard van de originele producten belichten, bijvoorbeeld wanneer er modificaties gebeuren aan bestaande producten. Dit geeft aan dat de vraag of bedrijven "stil" of "met toeters en bellen" moeten communiceren, in zekere mate afhankelijk is van de beleidsinhoud, de associatie van het bedrijf met sociale kwesties en hoe dit past bij hun initiatieven. Hoewel online discussies weliswaar ongunstig kunnen zijn voor bedrijven, kan de valentie en het volume van deze schijnbaar onvoorspelbare gebruikersgegenereerde content wel geanticipeerd worden, afhankelijk van deze factoren die wel beheerst kunnen worden.

Hoofdstukken vier en vijf behandelen de tweede context in deze verhandeling, namelijk de collectieve publiekswijsheid als gestructureerde discussies op platforms die door bedrijven beheerd worden. De twee studies verkennen gebruikersgegenereerde content op een co-creatieplatform dat door een firma beheerd wordt, nl. Dell IdeaStorm. Eerder onderzoek heeft reeds de voordelen geïllustreerd van bedrijfsbeheerde gemeenschappen en co-creatieplatforms. Er is veel onderzoek gedaan naar hoe gebruikersparticipatie aangemoedigd kan worden (bv. Brodie et al. 2013; Tsai,

Huang en Chiu 2012). Er is echter weinig geweten over waarom sommige discussies populairder of positiever/negatiever zijn dan andere en waarom bepaalde gemeenschappen creatievere ideeën en betrokkenheid aantrekken dan andere. Als we zouden weten welke van deze door bedrijven beheerst of gestuurd kan worden, dan zouden bedrijfsbeheerde gemeenschappen op een efficiëntere manier ontwikkeld kunnen worden. Om deze vragen te beantwoorden baseert hoofdstuk vier zich op de sociale impacttheorie (Latané 1996) en de attributietheorie (Freling en Dacin 2010) om de invloed te bestuderen van eerdere gebruikersgegenereerde content op daaropvolgende content. De resultaten tonen aan dat individuele gebruikers hun content niet geïsoleerd formuleren. Hun emoties en opinies worden meestal beïnvloed door zowel de onmiddellijk voorafgaande content als die van de meerderheid van de andere deelnemers. De geaggregeerde gebruikersgegenereerde content zorgt voor de populariteit van de discussies. Discussies die niet zo emotioneel zijn of waarin deelnemers het eens zijn, en die veel variatie hebben aan emoties en opinies, worden gemakkelijker populair. Dit toont aan dat bij een evaluatie van gebruikersgegenereerde content in een gestructureerde context, zoals die van online gemeenschappen, bedrijven de impact moeten bekijken van de eerste gebruikersgegenereerde content, i.e. wie het eerst zijn emoties en opinies uitdrukt, eerder dan naar opinieleiders (Iengar, van den Bulte en Valente 2011), lichte gebruikers (Godes en Mayzlin 2009) of de kritische massa (Watts en Dodds 2007).

Hoofdstuk vijf introduceert het concept van collectieve emoties (bv. Barsade en Gibson 1998), d.w.z. geaggregeerde emoties van individuen in de gemeenschap, en onderzoekt wat de longitudinale impact ervan is op de collectieve creativiteit en participatie. De bevindingen geven aan dat collectieve emoties paradoxale effecten hebben, wat doet uitschijnen dat negatieve collectieve gebruikersemoties de daaropvolgende creativiteit verminderen, maar toekomstige participatie wel aanmoedigen. Bedrijven kunnen deze collectieve gebruikersemoties beheren door individuele emoties te beïnvloeden door de communicatiestijl van hun werknemers aan te passen. Verwijzend naar de theorie van de emotionele besmettelijkheid, tonen het onderzoek aan dat individuele positieve gebruikersemoties vermeerderd kunnen worden door positieve werknemersemoties en verminderd worden door negatieve werknemersemoties. Daarenboven kan de taakgerichte communicatie van een

werknemer zowel negatieve als positieve gebruikersemoties veroorzaken, terwijl een proactieve communicatiestijl de emoties kan verminderen. Hoewel co-creatie meestal positieve resultaten heeft voor bedrijven, benadrukken de twee studies het belang van het begrijpen van de ontwikkeling van gebruikersgegenereerde content. Niet enkel is het cruciaal om te erkennen dat anderen een belangrijke invloed hebben op de creatie van individuele online content, maar ook dat de collectieve content, meer bepaald emoties, een belangrijke rol spelen in de gemeenschapsontwikkeling. Om collectieve wijsheid effectief aan te wenden moet men een balans in de emoties teweegbrengen terwijl men de online gemeenschap beheert.

Deze verhandeling heeft enkele praktische implicaties voor managers en voor verder onderzoek. De bevindingen van de vier studies impliceren dat gevoelsanalyses nuttig blijken te zijn als men gebruikersgegenereerde content wil filteren, maar wanneer men de content wil analyseren moet men een onderscheid maken tussen emoties en opinies. Deze verhandeling geeft enkele verklaringen voor de "onvoorspelbare" gebruikersgegenereerde content. In de context van de communicatie rond sociale bedrijfsverantwoordelijkheid is het nuttig om rekening te houden met internetgebruikers en om een portaal op te zetten voor een specifiek doelpubliek, zodat de efficiëntie van de bedrijfscommunicatie gemaximaliseerd kan worden en de gebruikersgegenereerde content beter gestuurd kan worden. De directe communicatie via gestructureerde gemeenschappen zorgt voor een concentratie van de inspanningen, kan "fans" genereren en de hoeveelheid negatieve reacties van niet-specifieke internetgebruikers reduceren. Echter, het opzetten van bedrijfsbeheerde gemeenschappen leidde niet noodzakelijk tot "beheerste" content. Gebruikersopinions worden meer door medegebruikers beïnvloed dan door de bedrijven. Terwijl een gemodereerde gemeenschap de voorkeur heeft van de meeste internetgebruikers op bedrijfsbeheerde platforms, is het niet altijd aangewezen om werknemers proactief deel te laten nemen. Daarenboven, wanneer men co-creatieplatforms ontwikkelt is het bijzonder belangrijk om de ontwikkeling van de collectieve gebruikersemoties te monitoren, omdat die een invloed kan hebben op de ontwikkeling van de gemeenschappen en een directe impact kan hebben op de prestaties van de gemeenschap, m.n. de creativiteit en gebruikersparticipatie. Bedrijven moeten erop letten dat ze gebruikersgegenereerde content op dergelijke platforms niet

overinterpreteren of beschouwen als een statische entiteit. Zoals in de verhandeling gesteld wordt kan de “collectieve” online ‘buzz’ beïnvloed worden door die enkele eersten die hun gedachten neerschreven. Daarom is het aangewezen om de frequente en zware gebruikers te monitoren die de neiging hebben om eerst commentaar te geven en daarmee de latere gebruikersgegenereerde content te beïnvloed. In de omgang met online gebruikersgegenereerde content is het belangrijk dat bedrijven er zich van bewust zijn dat het “onbeheersbare” door een aantal beheersbare factoren voorspeld kan worden, terwijl het “beheersbare” door enkele onbeheersbare factoren beïnvloed kan worden.

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