The influence of networks on consumer behavior: Understanding how social media
networks impact online word of mouth and purchase behavior

Soufian Mamlouk

A Thesis

In

John Molson School of Business

Presented in Partial fulfillment of the Requirements

For the Degree of Master of Science in Administration (Marketing) at

Concordia University

Montreal, Quebec, Canada

March 2014

CONCORDIA UNIVERSITY
School of Graduate Studies

This is to certify that the thesis prepared

By: Soufian Mamlouk

Entitled: The influence of networks on consumer behavior: Understanding
                how social media networks impact online word of mouth and
                purchase behavior

and submitted in partial fulfillment of the requirements for the degree of

Master of Science (Administration/Marketing)

complies with the regulations of the University and meets the accepted standards with
respect to originality and quality.

Signed by the final examining committee:

                        Dr. Christopher A. Ross   Chair

                        Dr. Tieshan Li   Examiner

                        Dr. Mrugank V. Thakor   Examiner

                        Dr. H. Onur Bodur   Supervisor

Approved by   Christopher A. Ross_____
                  Chair of Department or Graduate Program Director

                  Dr. Harjeet S. Bhabra_____
                  Dean of Faculty

Date March 14, 2014

Abstract

The influence of networks on consumer behavior: Understanding how social media networks impact online word of mouth and purchase behavior

Soufian Mamlouk

Social media has permeated the everyday life of consumers and with that, its influence on consumer behavior has only grown. To better understand this growth a look into the different networks of influence is needed. This research looked at how the influence of personal networks and that of the general community impact online word of mouth and purchase behavior on facebook. We proposed that the endorsement of a marketing page from a user's own network and general community would both have positive impact on a consumer's intent to engage in online word of mouth activities and purchase related behaviors. Furthermore, we propose that this relationship would be further moderated by the level of cognitive load consumers are exposed to. However, findings in this study suggest that while social media networks do have an influence on purchase behaviour and online word of mouth, there are different combinations of behaviors associated with different product types. Personal networks more heavily influence some Facebook pages, while others are more influenced by the general community, or by both types of networks or even by neither of the networks. This suggests that consumers react differently to the influence of networks based on the page category type.

Dedication

Reflecting back on this thesis experience leaves me feeling blessed, thankful and proud. Blessed to have been born into a family that gives new meaning to the word support. Thankful to have found a second home in the city of Montreal and finally, proud to have surrounded myself with people whom I not only trust and love but who continue to motivate me to be a greater person. While these words cannot begin to express my gratitude, it is my hope that they will forever remind me of the individuals who stood by me during this journey.

First and foremost I would like to thank my parents, Eman Malass and Yassin Mamlouk. This moment is every bit as much theirs as it is mine. Your continued support has lifted me through every obstacle I have faced in life. Mom, your capacity to love knows no bounds, and I could not begin to imagine where I would be without it. Thank you for always being so selfless and devoting your time and energy to making my life better. I Dad, you are the hardest working person I know. Thanks to you I have lived a life of privilege and opportunity that few people enjoy. I will forever fall short in describing to you both just how valuable the experience of studying abroad has been for me.. To my sister Serena, I am proud to see the transformation that has to taken place ever since I left home. You have grown up into a mature woman, and I am very proud of you. Finally, but most certainly not least, my aunt Huda Malass; you definitely are my mom #2. You have always been the one person who I could not only pick up the phone to vent to in times of need, but also the person who is most honest with me.

Anita, we only met three years ago, but your impact on me was profound from day one. You have helped me grow so much over the last few years and I could not have asked for a better partner. Your patience, generosity, and sense of humor are all traits that I admire and ones that I will never take for granted. I can safely say that without your support this project would have never been as fulfilling as it has been. Of course, I would also like to take the time to acknowledge the rest of your family: Arsen, Seta, Ara and Carolyn. You have all welcomed me as part of the family from day one and have never allowed me to feel like an outsider, something for which I will always be thankful. The escapes to the country have become a family tradition I look forward to, especially since they remind me of the pampering that I enjoyed back home.

To the other members of my family, although we do not see each other as much as I would like, your support has never waivered. First of all, to my loving Teta, they do not making women like you anymore. Thank you for being my number one champion. Khalo, you are the most the most honest person I know and you show it in every facet of your life. AB and Hattan, your commitment to the family is unparalleled. I can always count on you both to bring all of us together. And finally to Auntie Fatina and Amo Karim, you are the family guardians and having you around us is both reassuring and appreciated.

To my friends: thank you for putting up with me this past year and keeping me going with all the good times we have shared. Moe, you have always made me laugh, but

beyond that, I would really like to thank you and Natasha for your unyielding generosity and kindness. Khaled, your visits, though short, are never lacking in amusement and good laughs. Mickey, your work effort is legendary, thank you for pushing me with your honest advice. To Julie, thank you for your amazing sense of humor and kindness. And finally, to Steve, Sabrina, Harkeet, Nicole, Jordan, Michelle, Athena and Andria, who were kind enough to take my long pretest and otherwise support me throughout this process with a slew of entertaining nights, thank you so much.

My parents never gave me a brother, but in the end, it did not really matter since I have been blessed with four since high school. Tarek and Kamal, though you have been the furthest from me, your hard work continues to inspire me. Hopefully we can all end up in the same part of the globe soon enough. Abdul, what can I say. I do not think anybody could hope for a more devoted friend. Your loyalty knows no limits. You have done the unthinkable to help me and have sacrificed every bit as much as those nearer to me to help me get this thesis done. Nour, I would like to apologize for harassing you throughout this process. You have served as my second advisor throughout, but know that I appreciate each and every piece of advice you have provided me with. I can always count on your advice and friendship when a big problem or decision lies ahead.

Dr. Bodur, thank you for challenging me throughout this process. Often, it would have been easier for you to the feed me the answers to my questions, but your approach allowed me to grow both as a person and a scholar, making my thesis all the more rewarding when it was completed. To the committee members who took the time out of their busy schedules to evaluate and oversee my defense, I am grateful. Dr. Li and Dr. Thakor, your insights were both valuable and astute.

Table of Contents

Introduction

The impact of online word of mouth (WOM) has been heavily researched topic (Schivinski & Dąbrowski, 2013). Social media sites have exploded in size, with Facebook alone having attracted one billion monthly active users in 2012 (Ljepava, Orr, Locke & Ross, 2013) thus making it an interesting network to explore. While blogs, boards and online communities were fragmented in the past, today social media sites offer a one-stop location to share information and host communities on a variety of topics. This has been part of the reason for the recent surge in popularity for social media sites (Livingstone & Brake, 2010; Kaplan & Haenlein, 2010) and as such, many researchers have tried to expand WOM research to better understand this rapidly evolving environment (Brown, Broderick & Lee, 2007).

The opinions and behaviors of the community as a whole on social media networks (referred to as "overall network influence") and the opinions and behaviors of one's own friends (referred to as "own network influence") are the focus of this research. This research investigates how own and overall network influence can impact consumption-related behavior in social media. The outcomes of interest are online word of mouth, measured as whether the person endorses (e.g., likes) content, comments on and shares content on social media, and purchase-related behaviors, measured as information search about the content and purchase intent.

This study contributes to the existing body of social media research by demonstrating the effects of own and overall network influence upon online WOM and

purchase behaviour across different types of Facebook page categories. It also aims to expand on the foundations set by previous research on online word of mouth and purchase behavior in social media with the use of the world's most popular social media site Facebook as its host. This research looks at the spread of influence both from one's own network and overall network to other members of a social media network, and how it can induce positive online WOM behaviors (e.g., like, comment, share) and increased purchase related behaviors (e.g., info seek, purchase intent). In addition, it seeks to identify when one type of influence is more dominant than the other and when they are equally influential. Furthermore, how this influence may differ across different product category types is also looked at. From a practical standpoint managers can use such information to better utilize resources available to them to impact purchase and online word of mouth behavior.

Literature Review

Interpersonal Effects:

Trusov (2009) studied who the most influential people were for each Facebook user in terms of their site usage. His overall goal was to quantify how much these influencers were worth in a monetary sense. Although it was accurately surmised that only about 15 percent of users could be called influencers, pinpointing who these people are has proved far more difficult. Using a framework based on diffusion models (Mahajan, 1993; Mahajan, Muller & Bass, 1990), Katona, Zubcsek, and Sarvary (2011) also focused on identification of influencers in online social networks. Their findings suggested the following outcomes: (1) the size of one's network is positively related to

2

the probability that the individual will adopt others into his/her circle and (2) that those with many friends have more influence than those who have less (also see Bell & Song, 2007). This research investigates how consumer behavior specifically online WOM and purchase behavior are influenced by the activities of ones own personal network and overall-network as it was important to see how influencers and non-influencers alike have an impact on behavior.

Own-Network Influence:

Examining the effects of interpersonal influence on changes in behavior has also garnered much attention since it is well established that consumers readily influence other consumers (Phelps, Lewis, Mobilio, Perry, and Raman, 2004). In this section, research related to the impact of Own-Network Influence is reviewed. This refers to social influences originating from individuals within one's own online social network and is thus characterized by close own-network influences, such as those between friends, family members, coworkers etc. The term own network influence is used synonymously here with a number of different terms covered by other researchers in the literature, such as peer influence (Henkel & Block, 2013), strong personal ties (Young, 2011) and interpersonal connections (Anderson, Fagan, Woodnutt & Chamorro-Premuzic, 2012). Own-network influence strength refers to how much of an association a participant had with a certain page based on his own networks influence, or in other words how much of his network "liked" this page. Furthermore, this research supports predictions about how the greater one's own-network presence on a page the more likely it is for a social media user to engage with said page (Phelps, Lewis, Mobilio, Perry, and Raman, 2004).

Research on the effects of groups on consumer behaviour demonstrated how consumer spending changes in-group settings (Ariely & Argo, 2001; Argo, Dahl, & Manchada, 2005). Chebat, Haj-Salem and Oliveira (2012) found that shopping with friends enhances shoppers' arousal, apprehension and attentiveness and therefore their consumer behaviour. Also, Kurt, Inman, and Argo, (2011) show that agentic consumers spend more when a friend accompanies them, whereas communal shoppers spend less. This effect is even more prominent when the latter scores high in a self-monitoring assessment. However, when the good is perceived to be charitable in nature even communal shoppers spend more in the presence of a friend. Nitzan and Libai (2011) found that there is a significant increase, about 80%, in the propensity to switch brands (defection probability) if a person within one's social network also defects. In other words, if the person switching brands is identifiably close to people around them, those surrounding people will most likely be persuaded to switch brands, (Van den Bulte & Lilien, 2001; Godes & Mayzlin, 2004). In addition, a high own-network influence is not only found to increase defection rates but is also associated with negative WOM (Wangenheim, 2005). It was also found that those who are labeled as loyal are not swayed by the choices of others. Thus, since own-network influence has been seen to have a definitive influence upon behavior and this same logic is used to see if the group behavior across a Facebook landscape translated into behavioral change on an individual level.

Studies that also focused on the character of social media as an ideal outlet for emotional expression complimented views that there is a correlation between own network influence and behavior. The very nature of social media as a social avenue makes it an excellent medium in stimulating closeness and most importantly own network influence in the form of mutual interests. In social media, one's like and dislikes are very easily communicated visually, common interests easily accessible to others for each user. In this way, Buechel and Berger (2012) found that social media engenders a sense of well being through perceived social approval of such activities when looking at social media micro blogging. Individuals with low emotional stability were positively affected by such interactions as they help regulate otherwise scattered or silenced forms of self- expression (Amichai-Hamburger & Ben Artzi, 2003; Bargh & McKenna, 2004). In other words, social media helps otherwise untold sentiments be expressed and hopefully approved, increasing the well being of such people and providing an important outlet for communication. More to the point, social media is said to be a valuable emotional regulation tool since most people believe that sharing emotions is a cathartic experience (Zech, 1999). Moreover, verbalization or venting (of what) has a strong effect on emotional healing (Breuer & Freud, 1895). These characteristics are unique to social media because the medium provides an outlet unique in its potential for responses and ongoing interpersonal interactions. This is particularly important for those who would not otherwise garner such responses. Collectively, this body of research on self-esteem, groups and self-expression as moderators of online social media behavior, respectively, reinforce the correlation between the closeness and influence. Thus it is concluded that own network influence would have a significant impact upon the behavior of this studies

subjects in regards to purchase and online word of mouth activities. Social media is unique in its ability to facilitate such feelings of closeness and thus should theoretically yield a more prominent impact on behavior.

> Cain defines an endorsement as follows:
> A endorsement means any advertising message (including verbal Statements, demonstrations, or depictions of the name, signature, likeness or other identifying personal characteristics of an individual or the name or seal of an organization) that consumers are likely to believe reflects the opinions, beliefs, findings, or experiences of a party other than the sponsoring advertiser, even if the views expressed by that party are identical to those of the sponsoring advertiser. (p. 4)

This definition can be extended for the purpose of this study to include Likes, Comments, Or Shares as other forms of endorsements. As such the following hypothesis is presented:

H1: The endorsement of a marketing page from the user's own network will have a positive impact on the intent to (a) perform online WOM behaviors (e.g., like, comment, share) and (b) perform purchase related behaviors (e.g., info seek, purchase intent).

Overall- Network Influence:

Overall Network Influence refers to social influences originating from the general population of a social media network or "the interaction of consumers and users of a product or service that serves to amplify the original message" (Thomas, 2006). It is more conventionally referred to as, word of mouth (WOM) and in the social media domain electronic word of mouth or (eWOM). These include basic online communities, review boards, blogs etc. and it was predicted that with an increase in overall network influence surrounding the page participants are more likely to engage in online WOM and purchase behavior on social media networks. Together, these indirect sources generate a form of overall network influence. Zhu, Dholakia, Chen, and Algesheimer (2012) evaluated the decision-making processes of consumers and their propensity to exhibit risky financial behavior. Social media users who feel a strong affinity to their

6

online social community (Dholakia, Bagozzi & Pearo, 2004) and support from said community were more likely to demonstrate risky financial behaviour such as increased bidding and higher final bids on auction site than those who did not, demonstrating the effect of online communities on purchasing behavior (Muniz & O'Guinn 2001; Cova & Cova 2002). In addition, Zhu et. al. (2011) found that the perception of closeness could also have an effect on behavior. More specifically it is not just overt connections, which can have an influence i.e. friends and family. It was suggested that even just a perceived veil of closeness or support from the community at large could have an impact on conduct. This is an important distinction, since it is much easier to simulate this guise of closeness in an artificial environment. In the case of a study conducted on Facebook such as this, creating an appearance of closeness is a much more viable alternative.

Social distance has an important effect on the impact of reviews and is relevant to the constructs of own-network and external online influences. While more personal interactions were previously looked at, where the endorsers/influencers in questions stemmed from a pool of known people within a virtual community, reviews are usually from complete strangers. Knowing how such far away ties can affect behavior is thus as important as the insights gained from the reversed interactions. It was shown that reviews directly correlate with a change in sales (Chevalier & Mayzlin, 2003). Chevalier and Mayzlin (2003) find that improved book ratings on Amazon or Barnes & Noble lead to increased sales; the impact of one star reviews was greater than five, negative reviews thus hold more sway; people are inclined to read through the text of reviews rather than just the symbolic summary review. Anonymous sources are indicating that a product is

noteworthy and consumers are reacting in a positive way to this stimulus. A general consensus of approval of a given product, even by people who consumers are not acquainted with at all, generates increased sales. For this research, community of a specific Facebook page refers to the people who choose to Like the page in question and thus represent the overall network. The reviews and endorsements of these anonymous individuals, which can be seen and shared on the product Page, represent the overall network influence.

When examining gaming as particular product, Zhu and Zhang (2009) state that online reviews have an impact depending on the unique characteristics of the target consumer and of the product itself. Reviews have the most impact when the games in question are not so popular and suggesting that these are most important when alternative means of evaluation are not available (Chatterjee, 2001; Talmud & Mensch, 2006). Thus low familiarity pages should be used in a study to increase the impact of influence on purchase and online word of mouth behavior. Doing so would in theory highlight and possibly exaggerate to some extent the impact of reviews a form of overall network influence when it is the only source of information.

Yet another avenue for social media, blogging, adds a personal touch to an otherwise anonymous voice. It is acknowledged that bloggers systematically alter the character of marketing messages through communal WOM, whether they do so implicitly or explicitly (Kozinets, de Valck, Wojnicki, & Wilner, 2010). Product seeding in such outlets is shaped by a character narrative, which is constructed by each blogger altering

the perception/reception of the product itself. Seeding here refers to placing a given product in the hands of a known influential user and letting that influencer communicate favorably about that product in hopes that others will emulate their fondness for it (Balter, 2005). It is found then that these "passive" endorsements are more persuasive than more traditional avenues since bloggers are perceived to be a regular person with no monetary motivation. Blogs "are second only to newspapers as a trusted information source" (Brown, Broderick & Lee, 2007, p. 16). Trust is hence established quite easily since their readers regard them in such a colloquial manner. For this study, WOM behavior was one of the primary areas of interest specifically, how the community at large for a Facebook page and Facebook friends specifically affect your future online word of mouth behavior. It was predicted that much like blogging's passive form of persuasion, Facebook 's online network influence would elicit a similar response as a trusted source of unbiased material. Much like bloggers, endorsements on Facebook are anonymous in nature and thus perceived to be trustworthy. This would thus correlate with a positive increase in WOM in the same way as blogging does. In light of this change in behavior the following hypothesis is predicted:

H2: The endorsement of a marketing page from the user's overall network will have a positive impact on the intent to (a) perform online WOM behaviors (e.g., like, comment, share) and (b) perform purchase related behaviors (e.g., info seek, purchase intent).

Overall Network Influence vs. Own-Network Influence:

Combining elements of both Own- Network Influence and Overall- Network Influence**,** one can also examine the reasons for which products grow in popularity i.e. how the enthusiasm for a product can bolster sales. Stephen and Berger (2009) studied the reasons for which social epidemics occur, particularly how they are sustained through

9

the eWOM of consumers on social media platforms. The decay of enthusiasm is best counteracted by the sheer frequency a given product is mentioned rather than the content of the information supplied (Stephen & Berger, 2009). Thus in this research the content of the interactions on the Facebook pages was ignored in favor of quantity of interactions. In this way, more frequent conversations were paramount and both own-network and overall network influences lead to collective enthusiasm for an item through frequent interactions with a product.

Cognitive Load:

      Another element introduced in this research was cognitive load. Cognitive load indicates the level of cognitive resources that are available to perform a particular task (Pass, Renkl & Sweller, 2003). It was psychologists who first examined cognitive load and its effects on behavior but it has since expanded to other disciplines such as marketing where consumer behavior theorists have researched it extensively. While most researchers, such as Chandler and Sweller (1991) and Barrouillet, Bernardin, Portrat, Vergauwe and Camos (2008), examine the immediate effect of changes in cognitive load, research by Dewitte, Pandelaere, Briers & Warlop demonstrates the long lasting effects of cognitive load. Specifically, it is shown that the effects of a cognitive resource redirection can affect future behaviour well after such stimulants have been removed. Furthermore, Drolet and Luce (2004) show that by decreasing cognitive resources with increased cognitive load, consumers are able to participate in more normative decision-making. Allocating cognitive resources to another task is said to disrupt their ability to consider other important factors in one's decision-making.

Most importantly however, it was found that easily obtained information which, can be found using few cognitive resources, is more freely used by consumers to find their particular preference and increase their confidence in their purchase (Ariely, 2000). Furthermore, in a an online shopping environment it was found that decreasing the effort involved in searching for products increased the efficiency and quantity of purchase decisions (Haubl& Trifts, 2000). Finally, research also suggests that a previously active degree of decision-making in consumers, or an increased allocation of cognitive resources, lead to reduced self-control by consumers (Vohs, Baumeister, Schmeichel, Twenge, Nelson & Tice, 2008). As such cognitive load was included as a moderator of the relationship between own and overall network influence and online WOM and purchase behavior. To test the impact of cognitive load the following hypothesis was developed:

H3: These effects of network influence on online word of mouth and purchase behavior will further be moderated by cognitive load. Specifically, it is expected that the effects of these variables will be amplified for individuals under low cognitive load.

Methods

Facebook was used as the grounds for this research because it is equipped with the most expansive and detailed set of tools to conduct such research, while also maintaining a strong popularity among users. Whereas other social media sites have singular mechanisms to induce online word of mouth, such as retweets with Twitter, Facebook has several independent tools that can be utilized for word of mouth such as likes, comments and shares. Though other social media sites, such as Google+, may have a similar variety of word of mouth tools, however they fall short in terms of popularity

11

among users. With this unique set of characteristics Facebook was selected as the sole platform for this research.

When selecting the Facebook pages to be used in this study, pages with low familiarity were selected. When examining gaming as particular product, Zhu and Zhang (2009) state that online reviews have an impact depending on the unique characteristics of the target consumer and of the product itself. Reviews have the most impact when the games in question are not so popular and suggesting that these are most important when alternative means of evaluation are not available (Chatterjee, 2001; Talmud & Mensch, 2006). Thus low familiarity pages should be used in a study to increase the impact of influence on purchase and online word of mouth behavior. Doing so would in theory highlight and possibly exaggerate to some extent the impact of reviews or network influence when it is the only source of information. As such these low familiarity pages were selected on Facebook to create a more pronounced impact on subsequent behavior when the manipulations would be introduced. This is because for pages with less familiarity, each voice of opinion whether it is that of the overall or personal network will reverberate higher and become more influential on subsequent behavior.

Participants

Participants were recruited with the help of an online panel provider (uSamp) and received monetary credit for their participation. Participants were U.S. participants with active Facebook accounts (median age of 34, 61%female and 69% employment rate). To eliminate any confounding effects of familiarity, novel Facebook pages were developed

12

or adopted. Participants who reported high familiarity were excluded to eliminate potential effects of participant earlier experiences or perceptions with selected pages. A collection of the screening questions is included in the appendix section for more information (Appendix 2.1). The analysis was conducted with a final sample of 504 participants.

Design

Pretest

A pretest was used to learn about the approximate amount of likes from within the overall and own network of Facebook friends usually needed to elicit a behavioral response from Facebook users. These numbers served as a basis for the study's own page manipulations, with the primary concern when designing the manipulations was to select realistic figures for the Facebook page promotional tools as well as ones that would make a noticeable impact on page evaluations and subsequent behavior. For realism, repeated manipulations of these figures were varied within a 1% margin to eliminate display of identical number of people or friends who endorsed the page. In other words, the number of friends displayed across each of the four categories were only approximately the same and not identical. In addition, the pretest was used to discover unique Facebook pages with low familiarity that could be used in the study.

Main Study

The experiment was a full factorial between subjects design: 4 (Category: Audio, Store, Move, Product) × 3 (Own-Network Influence Strength: Strong Own-Network Influence, Weak Own-Network Influence, No Own-Network Influence) × 2 (Overall Network Influence: High Overall Network Influence, Low Overall Network Influence) × 2 (Cognitive Load: High Cognitive Load, Low Cognitive Load). What follows is a breakdown of how the manipulation was created for each variable.

Measures

Independent Measures

Category

To gather information about different types of Facebook pages four page categories were used in this study: music ("Area 52" Band, fictitious, see Figure 2.1), retailer ("Fullum & Holt" store page, see Figure 2.2), movie ("Old Boy" movie, fictitious, see Figure 2.3), and product ("Yo Dough Cookies" product page, see Figure 2.4). All pages were formatted for consistency across pages and appropriateness for the category. While two of the stimuli were fictitious and two were real, the selection criterion was low familiarity to avoid any pre-conceived opinions regarding the stimuli.

Own network influence

Own-network influence strength was operationalized as a percentage of "the number of friend likes" a page had from within a participants network. This amount represents the total number of Facebook friends the participant had who liked the page in

question and thus establishes the number of people with a real own-network influence to the participant who liked the page. This variable had three levels Strong, Weak and No own network influence. The sample was limited to participants with 150 to 1500 Facebook friends. The average number of friends reported for this sample was 302, consistent with the average number of Facebook friends a typical Facebook user has (Derickson, 2013). To account for idiosyncratic network size of each participant, this manipulation was customized to each participants overall network size through piping. Individuals were assigned to one of five groups (200, 325, 475, 775, 1000), which most closely represented the number of Facebook friends the participant reported. For strong own-network influence, the number friends who liked the page reflected approximately 55% of the total number of Facebook friends the participant had. For weak own network influence, the number of friends who liked the page reflected approximately 5% of the total number of Facebook friends the participant had. For no influence conditions, information about friends was not displayed.

For example, consider Figures 2.5-2.7. If a participant self reported 250 Facebook friends then the "200" group most closely represents the number of friends he has. As such, if this participant were to receive a strong own-network influence manipulation he would see that 110 (200 x 55%) friends have liked the page of interest, whereas if he were to receive a weak own-network influence manipulation he would see 10 (200 x 5%) friends have liked this page and finally if he were to receive a no own-network influence manipulation he would not see any friends liking the page.

Overall network influence

   Overall network influence was operationalized using the "talking about this page"
metric. This variable had two levels high and low. This metric reflects the total
interactions a Facebook page has received over the course of the last seven day period
from the entire Facebook community including: like on a page, posts on the page wall,
like a post, comment on a post, share a post, answer a question, RSVP to a page event,
mention the page in a post, tag the page in a photo, check in at a place, share a check-in
deal, like a check in deal, a recommendation and finally the claiming of an offer.
According to a published report "*Inside Facebook"* by social media analytics company
Sysmos, as of 2009, the average Facebook page has around 5,000 likes. Consequently,
this number was used when creating the overall network influence manipulations for all
four Facebook pages used in this study. For the high overall network influence condition,
55% of total page likes was used which, approximate total of 2750 (5,000 x 55%) people
talking about this. As for the low overall network influence condition, 5% of total page
likes was used for an approximate total of 250 (5,000 x 5%) people talking about this.
Both values were consistent throughout all four presented Facebook pages. Refer to
Figure 2.8-2.9 to see these manipulations.

Cognitive Load

   Cognitive load refers to the available mental capacity that a participants may have
for a given task. In this study participants were randomly assigned into a high or low
cognitive load condition in order to manipulate the level of cognitive load imposed on
them. This was done to test if the manipulations would cause participants to react

differently to the stimulus under changing levels of cognitive load. Thus cognitive load was included as a moderator of the overall network influence and own-network influence relationship with DV's. For cognitive load manipulation, a consumer related, product choice task (Bodur & Peck, 2012) for ecological validity was used. Participants were asked to make choices in 10 product categories (apartments, athletic shoes, digital cameras, e-readers, vacation hotels, deodorants, laptops, MP3 players, pillows and refrigerators). Participants in the low cognitive load condition were presented with choice sets that had aligned attributes for all alternatives (e.g., side-by-side comparison of 5 alternatives in each choice set) and were asked to use a heuristic (elimination by aspect) decision strategy. Participants in the high cognitive load condition were presented with mixed (not aligned) attributes and asked to switch between a compensatory and a heuristic decision strategy.   A sample of the manipulation is displayed in Figure 2.10. To evaluate cognitive load, a four-item 7-point likert scale (α=0.695) was used that included questions about exercise difficulty, effort, exhaustion and concentration required.

Dependent Measures

There were two dependent variables in the study to measure the behavioral change of the participants. The first of which was online word of mouth behavior and this variable was measured using a combination of a 3-item 7-point likert scale (α = 0.965). The three items measured likelihood to "like" a page, likelihood to "comment" on a page and finally likelihood to "share" a page all of which represent different elements of online word of mouth. The second DV used was purchase behavior and was composed of a 2-item 7-point likert scale (α=0.928). These were likelihood to "seek out more information"

and likelihood to "purchase" both of which are important steps in the purchase behavior process.

Procedure

Participants filled out a 40-minute questionnaire. After the aforementioned screening questions, the study began with some simple demographic questions. Next, participants were asked to open their Facebook accounts and self report some of their behavior patterns history on Facebook. These behaviors included how often they liked, commented, posted or shared content on their Facebook accounts. To report this information, they were shown instructions on how to find a section detailing past Facebook activity and upon reviewing the usage patterns over the last four weeks, participants were asked to report frequency of common Facebook activities such as likes, comments, shares, uploads and profile modifications (Figure 2.11). This was followed up by the product evaluation task described earlier and acted as a cognitive load manipulation.

Upon completion of the evaluation task participants were asked about the difficulty, effort, exhaustion and concentration required for this task, which was used to determine the effectiveness of the manipulation by measuring state of cognitive load (Bodur & Peck, 2012).

The second phase of the study began with a warm up task. Participants were presented with a Facebook page for the movie "Craigslist Joe" which included total

number of likes, people talking about the page, and total number of friends who like the page. On the next screen, participants reported how many "likes" "Craigslist Joe" received, how many people were reported to be "talking about" the page, and how many friends were reported to "like" the page. The purpose of this warm-up task was to direct participant's attention to these figures displayed, which served as manipulations in follow up screens. See Appendix for representation of the warm up task (figure 2.12).

Next, participants were asked to evaluate one of the four focal Facebook pages (music, retailer, movie, product) in the study. The Facebook page had either low or high amounts of people "talking about this page" (overall network influence) and had either likes by many friends (55%), few friends (5%), or no likes by friends (own-network influence). They were then asked to indicate on a six item 7-point scale how likely they were to visit, like, comment on, and share the presented page on Facebook. They also reported likelihood to purchase products seen on this page, and likelihood to seek out more information about the page.

Following the review of the focal Facebook page and the subsequent evaluation questions, participants were asked to recall the number of "total likes", "people talking about" the page and "friend likes". These measures were used as task attention measures. Analyses are conducted for the complete sample (n=504) however, results filtered by the task attention measure are also presented (n=423) in the subsequent sections.

Results

Cognitive Load

To test the effectiveness of the cognitive load manipulations, a t-test with cognitive load manipulation check items (i.e., difficulty, effort, exhaustion and concentration) were used as dependent variables and cognitive load manipulation as the group variable. Results confirmed that participants in the high cognitive load condition perceived the task to be more difficult (t (502)= 2.096, p= 0.032), more effortful (t (502)= 2.309, p= 0.021), more exhausting (t (502)= 3.886, p< 0.001), and requiring more concentration (t (502)= 2.045, p= 0.041) than those in the low cognitive load condition. These results are displayed in Table 3.1.

Main Study

An ANOVA with Facebook WOM as the dependent variable and own-network influence, overall network influence, cognitive load, and category as independent factors revealed no significant main or interaction effects of cognitive load, overall network influence or own-network influence, however, there was a significant main effect of category (F (3, 456)= 11.795, p<0.001) and a significant 4-way interaction of categories, cognitive load, overall network influence and own-network influences (F (6, 456)= 1.866, p=0.085; see Table 3.2).

When ANOVA was replicated with FB-purchase related activity as the dependent variable results were similar: There was a significant main effect of category (F (3, 456)= 18.72, p<0.001) and a marginally significant 4-way interaction of categories, cognitive

load, overall network influence and own-network influences (F (6, 456)= 1.95, p=0.07). All other main or interaction effects were not significant (at $p<0.05$). Note FB category pages were included as a replication in this study and there were no a priori hypothesis regarding the main or interaction effects of the category. To understand the main effect of category, post-hoc contrasts were conducted. Results revealed that online WOM intent and purchase related activity intent were higher for the movie category compared to music, retailer, or product categories (all ps < .01). The means are displayed in (Figure 3.1).

The 4-Way interaction effect between cognitive load, overall network influence, own-network influence and categories were marginally significant on both FB WOM and purchase related activity. To understand the nature of the interaction, ANOVAs with the hypothesized factors (own-network influence, overall network influence, and cognitive load) for both dependent variables (WOM, purchase related activity) are replicated in each category. Overall, these results did not provide a consistent story. The significant results are summarized below.

Categories

Music Category

A two-way interaction effect of cognitive load and overall network influence was significant on FB WOM (F (1, 129)= 4.988, p= 0.027), however this interaction was only marginally significant for FB Purchase (F (1, 129)= 3.861, p= 0.052) (Table 3.3). The plot for this interaction revealed that participants in the low cognitive load condition and

exposed to high overall network influence were more likely to engage in online word of mouth and purchase behavior (Figure 3.3) compared to those with low overall network influence.

Store Category

A two-way interaction effect of cognitive load and own-network influence was marginally significant on FB Purchase ($F (2, 103)= 2.506$, $p= 0.086$) (Table 3.3), but not on FB WOM. The plot of the interaction indicated that the participant's own network had a greater influence on purchase related activity under the low cognitive load condition as opposed to the high cognitive load condition when participants had no own network influence or strong own network influence (Figure 3.3).

Movie Page

A three-way interaction between cognitive load, overall network influence and own-network influence on the DV was significant on FB WOM ($F (2, 141)= 5.358$, $p= 0.006$), and also significant for FB Purchase ($F (2, 141)= 4.016$, $p= 0.020$) (Table 3.3). The plot for this interaction shows that under low cognitive load, high overall network influence and strong own network influence result in the biggest increase in online word of mouth behavior. Also under high cognitive load online word of mouth behavior is consistent under varying conditions of overall and own network influence. The same pattern is seen for the purchase related behavior in which under low cognitive load, high overall network influence and strong own network influence result in the biggest increase

22

in purchase related behavior. Also under high cognitive load purchase related behavior is consistent under varying conditions of overall and own network influence (Figure 3.4).

Product Page

No significant results were found for the Product Page (Table 3.3).

Looking at the outcomes, results consistent with the predicted hypotheses were not found. A possible outcome for these results may have been how attentive participants were to the manipulations. As such the data was filtered using the task attention manipulation exercise. In doing so all participants whom failed the three-attention task measures were eliminated reducing sample size from 504 to 423 participants. It was then predicted that the higher the attention task score the more likely participants are to respond to the manipulations. In the following section the analyses are repeated and significant results are reported, the full table is included in the appendix.

Task Attention filtered Results

Main Effect

As in the full data set, category was found to be highly significant for FB WOM (F (3, 422)= 10.445, p<0.001) and FB Purchase (F (3, 422)=16.671, p<0.001) (Table 3.4). From this it was concluded that participants responded differently to the DV's for different Facebook page categories. The remainders of the results for main effects were consistent with the original data set.

Interactions

It was found that Cognitive Load x Overall network influence was marginally significant for FB WOM (F (1, 422)= 2.994, p<0.084) (Table 3.4). Thus it was concluded that under different levels of cognitive load and overall network influence the participants experience a change in their online word of mouth behavior. The three-Way interactions were not significant similar to the findings with the original data set (Table 3.4). The four-Way interactions were marginally significant on (FB WOM F (6, 422)=1.995, p<0.066) and FB Purchase (F (6, 422)=2.076, p<0.055) (Table 3.4).

Next the data was again further explored by splitting by Category. Since Category was significant it was important to test for weather the relationship between the IV and the DV would change for the different types of Facebook page categories like it did in the full data set. To avoid repetition only significant results are included in this section, complete tables are also included in the appendix.

Categories

There were no significant results found across the Music and Store pages for both main effects and interactions (Table 3.5). However, the three-Way interaction for the movie page was found to be significant between cognitive load, overall network influence and own-network influence on FB WOM (F (2, 117)=6.220, p<0.003) and FB Purchase (F (2, 117)=4.525, p<0.013) (Table 3.5). There were no significant results for the product page (Table 3.5).

Discussion

In this section some of the findings obtained in the prior analyses are discussed and explained. The most consistent finding and the one that influenced how the data was analyzed most was that participants responded differently to each of the four Facebook page categories. As such to attribute any effect found from the independent variables on the dependent variables, the data was isolated by category. In doing so varying affects were found for each of the different Facebook page categories. Findings suggest that the different Facebook promotional tools can influence online word of mouth and purchase behavior in different ways across different Facebook page categories.

Cognitive Load

Cognitive load was introduced as a moderator of the relationship between the Independent variables (Overall network influence and Own-network influences) and Dependent variables (Online WOM and Purchase behavior). It was predicted that under lower levels of cognitive load participants would be more susceptible to the changes for the overall network influence and own-network influence manipulations when compared to participants in the low cognitive load condition due to the higher cognitive resources available to them. Thus with lower levels of cognitive load, participants are more likely to notice and in turn react to the changes to the pages then their more cognitively depleted counterparts. In other words, when they are under greater mental strain they are less likely to notice the manipulated Facebook promotional tools. However the results indicate that the effect of Facebook promotional tools are not only minimized, but eliminated entirely when participants are under higher cognitive load. By including this

variable the Facebook page evaluation process is looked at from both the perspective of an individual with high or low available cognitive resources, which serves to recreate a more comprehensive view of the average Facebook user. The cognitive load manipulation was effective and it translated to most of the category specific results, indicating that users under low cognitive load are more likely to respond to own and overall network influences during online word of mouth and purchase behavior.

Music Facebook pages

For the "Area 52" Band Facebook page, an interaction was found between cognitive load and overall network influence for both DV's. This suggests that for the music related pages; overall network influence is more likely to influence online word of mouth and purchase behavior when participants are under low cognitive load. So it can be concluded that for music type Facebook pages people are more influenced by general attitudes of the Facebook page community then those of their own Facebook friends. Considering the positive influence of "Radio Play", "Top 100" lists and "Platinum sellers" often touted by record labels, one can see why overall network influence was more effective in influencing online word of mouth and purchase behavior for this type of Facebook page Category.

Store Facebook pages

For the "Fullum & Holt" Store Facebook page an interaction between cognitive load and own-network influence strength for only one of the DV's was found. It is concluded then that for store related pages own-network influence strength is more likely

to influence purchase behavior when participants are under low cognitive load.
Conversely to what was found in the music Facebook pages, it was concluded here that
for the Store type of Facebook pages people are more influenced by attitudes of their own
Facebook friends then those of the general public. One explanation for this may relate to
the generally more significant financial investment required when trying different stores.
Consumers are hence more likely to trust people they know first hand rather than the
general community of the store page. Whereas music has a lower barrier to entry, trying
different stores constitutes a higher cost and thus consumers look to make decisions
based on more trusted sources of information when selecting stores to purchase from.

Movie Facebook pages

For the "Old Boy" movie Facebook page a 3-Way interaction was found between
cognitive load, overall network influence and own-network influences for both DV's.
This demonstrates that for movie related pages a combination of both overall network
influence and own-network influence influences online word of mouth and purchase
behavior when participants are under low cognitive load. Following the same reasons as
the music industry overall network influence in the form of box office numbers and
opening day sales reports are often used to lure in moviegoers. A distinction however can
be seen in that while music is primarily consumed on an individual basis, movies are
often watched in groups with friends, which could explain why own-network influence
strength may factor in to the decision to spread the word or purchase movies. Since
movies are more of a group activity it makes sense that how friends react towards a
movie would translate to greater online word of mouth and purchase related activities.

Limitations and Improvements

Unexpected Impact of Categories

       The study focused on four unique categories and it was originally anticipated that they would be similar in terms of reference attitudes based on results obtained in the pre test. This was not the case for the main study and thus the data had to be split by category, which turned out to be a major limitation in terms of sample size. By having such a small sample size, no conclusions were presented but rather a pattern of behavior was proposed for this limited sample. Also one page for each category type was used and thus the findings cannot be generalized to that category type of page in general. Future improvements to this research would benefit from greater scrutiny during the Facebook pages selection phase in the design process, and while time was taken to identify pages with low familiarity, this study's pre-tests failed to focus on congruence of page attitudes. Had the study had similar baseline attitudes for the different Facebook page categories sample issues could have been avoided and more generalizable results could have been obtained.

Privacy Constraints on Ecological Validity

       While a great effort was put to recreate an authentic experience during the Facebook page evaluation task limitations arose that prevented us from doing so. Pictures of Facebook pages were shown rather then having participants view the pages on Facebook. This was done to control the data displayed on the Facebook pages but at the same time maintain the privacy and ethical obligations to the participants. In creating the

Facebook pages and controlling what the participants saw an important element of the own-network influence strength variable was sacrificed. This was the actual friend's that "Liked" a page; in the real Facebook experience when you browse a Facebook page you are able to see who of your friends specifically are interacting with the page of interest in the study's design however, only the number of friends that "Liked" this page was provided. While this serves as a single aspect of own-network influence strength it fails to account for the individual relationship with the person influencing a participant. To expand on this further one would need to consider his own circle of Facebook friends, and while numbers surely can be influential it is sometimes the case that some individuals are more influential then others. For example having a few of your friends that you watch movies with engage with a Facebook movie's page would surely be more influential than colleagues in your work space. Facebook as a social media platform understands this distinction and allows you to combine several of your networks but that doesn't mean that all these networks are equally influential on your behavior. So without being able to account for the nature of the relationship an integral aspect of the influence on behavior was ignored. While such research will always be limited in terms of authenticity due to the same privacy and ethical concerns discussed, it is necessary to factor in the type of relationship when exploring the own-network influence strength variable. A possible suggestion for this may come in the form of modified instructions before each page evaluation. Future work can be more specific in the information they present about the friends who liked the page. For example instead of just using friends the instructions can describe the relationship type with the friends such Colleagues, Family members, etc. and

then later ask questions about the relationship with the different groups of people used to get a better idea of the nature of the relationship.

Demand Characteristics

Another important concern with this research was demand characteristics and its subsequent effect on participant behavior. During the warm up exercise for the "Craigslist Joe" Facebook page, the promotional tools were circled in an attempt to draw attention to the manipulated figures in future Facebook pages as can be seen in figure 2.12. While this was used to prime participants, this may have inadvertently revealed the purpose of the study and affected consequent online WOM and purchase behavior. Results from the task attention filtered data indicate that even participants who correctly responded to attention measures, did not in fact exhibit a change in behavior. Therefore, it is unlikely that demand artifacts were present in this study.

Self report

Due to privacy and ethical concerns the only way to research this topic was to use self-report methods. However, as is common with this method one major limitation comes in the form of validity problems. The data, although personal, may bear little resemblance to the reality of the social media climate. The participants were compensated for their time and as is common with online panels some participants are just rushing from one survey to the next with little regard to the quality and implications of their answers. It is often the case that demand characteristics play a part in such scenarios and thus hurt the credibility of findings. Several screens were used including task attention

assignments to try and eliminate this issue but such screens were not properly implemented in the pre test, which was used to develop the design of the final study. It would have been wise to include the same level of screening in the pre test phase of the study. Perhaps future research would befit from the same level of scrutiny with regards to screening, having participants whom are more alert and attentive to the study may yield better results.

Conclusion

Research on social media has expanded tremendously in recent years and word of mouth continues to be one of the cornerstones of this topic. Behaviorists have focused on motivation and understanding which aspects of the social media platform act as triggers for change. More recently, research has stepped away from the motivations behind behaving a certain way within social media and has instead focused more on what makes a message resonate and gain considerable traction through the medium. In doing so "Virality" has become the next hot topic for researchers and modern marketing firms.

 Looking at the marketing field generally, the trend is slowly moving back to examining anonymous sources of information. It started with message boards and online reviews and then shifted to a more connected quest for information with the dawn of social media. This came in part due to the need for trust; knowing your source of information allowed for you to make a better decision towards evaluating product and services. In todays environment the shift back to anonymous information can be partially

attributed due to the growth of "Virality". Research indicates that the anonymous nature of viral marketing has an element of truth and purity to it. Since in essence viral information gets distilled to its core because it is sifted through enough people and channels to give it credibility, trust is established by virtue of how many are sharing it.

While this research is a step in the right direction in bridging the gap between online word of mouth and behavior, more research is needed to focus on the spark that ignites this change. The impact of the community at large and one's own social network on online word of mouth behavior and purchase behavior for different Facebook page types was looked at. It was learned that perhaps the "Page" marketing tools that Facebook uses are not always influential and that for different product categories there can be a combination of distinctive influences on behavior. In addition, future research would benefit from looking at other social networking sites beyond just Facebook to see if behavior is consistent or unique to Facebook specifically or social media platforms more generally.

Appendix

Do you use social media?
- ❍ Yes (1)
- ❍ No (2)

Which online networking sites do you have an account with? (Select all that apply)
- ❑ Facebook (1)
- ❑ Twitter (2)
- ❑ MySpace (3)
- ❑ LinkedIn (4)
- ❑ Flixster (5)
- ❑ Tumblr (6)
- ❑ Flickr (7)
- ❑ Pintrest (8)
- ❑ Google+ (9)
- ❑ Bebo (10)
- ❑ Other, Please specify (11) _____

Do you have an active Facebook account?
- ❍ Yes (1)
- ❍ No (2)

Approximately how many Facebook "friends" do you have?

How strong are your English reading and writing skills?
- ❍ Still learning (1)
- ❍ Almost fluent (2)
- ❍ Perfectly fluent (3)

Do you have any experience with these Brands/ Products?

	Yes (1)	No (2)
Area 52 (1)	❍	❍
Fullum and Holt (2)	❍	❍
Old Boy (3)	❍	❍
Yo Dough Cookies (4)	❍	❍

Table 3.1 *t-test Cognitive Load Manipulation*

Dependent Variables	df	t
Exercise Difficulty	502	2.096**
Exercise effort	502	2.309**
Exercise Exhaustion	502	3.886***
Exercise Concentration	502	2.045**

*Note. t-values *p<.1, **p<.05, *** p<.001*

Dependent Variables	Condition	N	Mean
Exercise Difficulty	Low CL	260	3.096
	High CL	244	3.389
Exercise effort	Low CL	260	4.242
	High CL	244	4.549
Exercise Exhaustion	Low CL	260	2.581
	High CL	244	3.115
Exercise Concentration	Low CL	260	5.354
	High CL	244	5.574

Table 3.2 *GLM Full Data*

Independent Variables	df	FB WOM	FB Purchasing
		Dependent Variables	
Categories	3	11.795 ***	18.717 ***
Cognitive Load	1	0.944	1.418
Overall Network Influence	1	0.161	0.981
Own Network Influence	2	0.464	0.401
Categories x Overall Network Influence	3	0.349	0.037
Categories x Own Network Influence	6	1.012	0.480
Cognitive Load x Overall Network Influence	3	1.642	1.159
Cognitive Load x Own Network Influence	6	1.387	0.473
Overall Network Influence x Own Network Influence	2	0.267	0.032
Categories x Overall Network Influence x Own Network Influence	6	1.417	1.617
Categories x Cognitive Load x Overall Network Influence	3	1.426	1.404
Categories x Cognitive Load x Own Network Influence	6	0.451	1.053
Cognitive Load x Overall Network Influence x Own Network Influence	2	0,284	0.113
Categories x Cognitive Load x Overall Network Influence x Own Network Influence	6	1.866 *	1.951 *

*Note. F-values*p<.1, **p<.05, *** p<.001*

Table 3.3 *GLM Full Data By Category*

		Audio		Store		Movie		Product	
Independent Variables	df	FB WOM	FB Purchasing	FB WOM	FB Purchasing	FB WOM	FB Purchasing	FB WOM	FB Purchasing
Cognitive Load	1	0.858	2.030	0.004	0.184	1.635	1.550	0.000	0.062
Overall Network Influence	1	0.353	0.199	0.058	0.067	0.290	0.356	0.429	0.444
Own Network Influence	2	0.007	0.638	1.100	0.409	2.070	0.920	0.940	0.002
Cognitive Load x Overall Network Influence	3	4.988 **	3.861 *	0.090	0.595	0.329	1.149	0.002	0.000
Cognitive Load x Own Network Influence	6	0.797	0.103	0.614	2.506 *	0.329	0.504	0.764	0.368
Overall Network Influence x Own Network Influence	2	0.781	1.593	2.133	2.025	0.696	1.251	0.788	0.130
Cognitive Load x Overall Network Influence x Own Network Influence	2	0.828	0.445	0.297	1.178	5.358 **	4.016 **	0.895	0.678

*Note. F-values *p<.1, **p<.05, *** p<.001*

Table 3.4 *GLM Filtered by Attention Task*

Independent Variables	df	Dependent Variables	
		FB WOM	FB Purchasing
Categories	3	10.445 ***	16.671 ***
Cognitive Load	1	2.281	1.963
Overall Network Influence	1	0.071	0.131
Own Network Influence	2	0.254	0.122
Categories x Overall Network Influence	3	0.104	0.137
Categories x Own Network Influence	6	1.466	0.423
Cognitive Load x Overall Network Influence	3	2.994 *	1.093
Cognitive Load x Own Network Influence	6	1.396	0.376
Overall Network Influence x Own Network Influence	2	0.683	0.306
Categories x Overall Network Influence x Own Network Influence	6	1.494	1.388
Categories x Cognitive Load x Overall Network Influence	3	0.507	0.734
Categories x Cognitive Load x Own Network Influence	6	0.213	0.599
Cognitive Load x Overall Network Influence x Own Network Influence	2	0.040	0.002
Categories x Cognitive Load x Overall Network Influence x Own Network Influence	6	1.995 *	2.076 *

*Note. F-values *p<.1*, **p<.05, *** p<.001*

Table 3.5 *GLM Filtered by Attention Task By Category*

		Audio		Store		Movie		Product	
						Dependent Variables			
Independent Variables	df	FB WOM	FB Purchasing	FB WOM	FB Purchasing	FB WOM	FB Purchasing	FB WOM	FB Purchasing
Cognitive Load	1	0.698	1.883	0.135	0.005	2.885	2.557	0.140	0.001
Overall Network Influence	1	0.209	0.462	0.109	0.043	0.022	0.007	0.019	0.029
Own Network Influence	2	0.210	0.351	0.592	0.640	0.730	0.200	2.786*	0.221
Cognitive Load x Overall Network Influence	3	2.470	1.729	0.002	0.261	1.076	1.637	0.764	0.025
Cognitive Load x Own Network Influence	6	0.362	0.044	0.363	1.751	0.673	0.142	0.655	0.208
Overall Network Influence x Own Network Influence	2	0.574	1.255	1.025	1.520	1.154	1.758	2.105	0.099
Cognitive Load x Overall Network Influence x Own Network Influence	2	0.391	0.524	0.429	1.360	6.220**	4.525**	0.709	0.218

*Note. F-values *p<.1, **p<.05, ***p<.001*
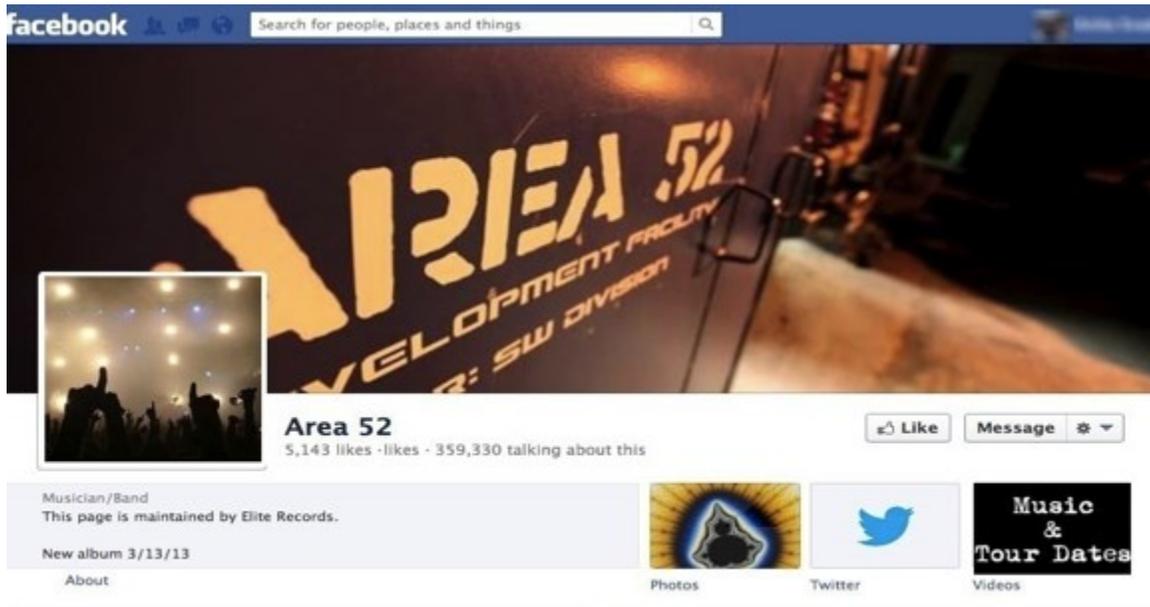
Figure 2.1 *Music page sample*

Figure 2.2 *Store page sample*

Figure 2.3 *Movie page sample*

Figure 2.4 *Product page sample*

Figure 2.5 *Strong Own Network Influence Condition for 200 Facebook Friends group*

Figure 2.6 *Weak Own Network Influence Condition for 200 Facebook Friends group*

Figure 2.7 *No Own Network Influence Condition for 200 Facebook Friends group*

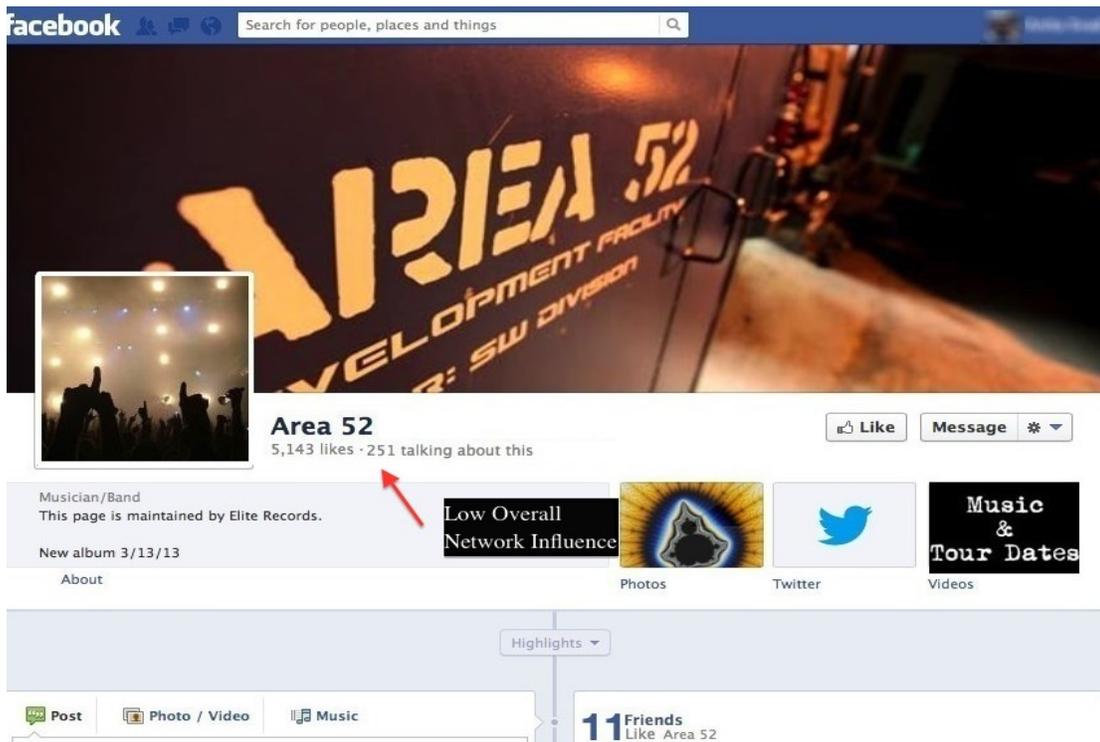Figure 2.8 *High Overall Network Influence Condition*

Figure 2.9 *Low Overall Network Influence Condition*

Figure 2.10 *Evaluation task for different Cognitive Load conditions*

Low Cognitive Load:

Apartment Evaluation Task

Examine the information about the apartments for rent below.

Option A	Option B	Option C	Option D	Option E
$650/month	$1,000/month	$825/month	$900/month	$1,000/month
900 sq. ft.	1,150 sq. ft.	900 sq. ft.	800 sq. ft.	900 sq. ft.
15 minutes from downtown	20 minutes from downtown	Downtown	5 minutes from downtown	Downtown
2 bedrooms	3 bedrooms	2 bedrooms	1 bedroom	2 bedrooms

High Cognitive Load:

Apartment Evaluation Task

Examine the information about the apartments for rent below.

| Option A	Option B	Option C	Option D	Option E
15 minutes from downtown	3 bedrooms	900 sq. ft.	$900/month	Downtown
2 bedrooms	20 minutes from downtown	$825/month	800 sq. ft.	$1,000/month
900 sq. ft.	$1,000/month	2 bedrooms	5 minutes from downtown	2 bedrooms
$650/month	1,150 sq. ft.	Downtown	1 bedroom	900 sq. ft.

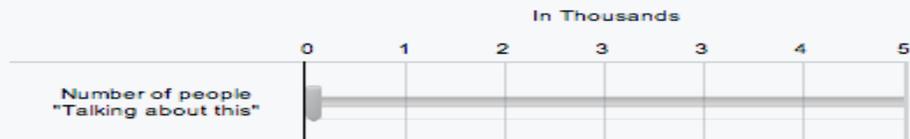Figure 2.11 *Instruction page for past Facebook activity*

Figure 2.12 *Warm Up Task*

What were the total number of "Likes" for the following Facebook page?

In Thousands

	0	2	4	6	8	10	12	14	16	18	20
Number of Total "Likes"											
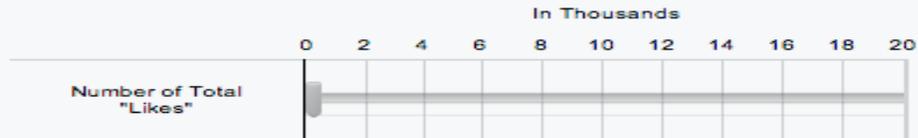
What were the total number of people talking about the following Facebook page?

In Thousands

	0	1	2	3	3	4	5
Number of people "Talking about this"							

What was the total number friends who "Liked" the following Facebook page?

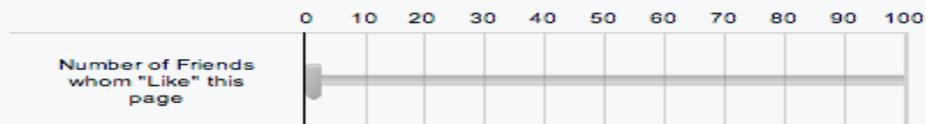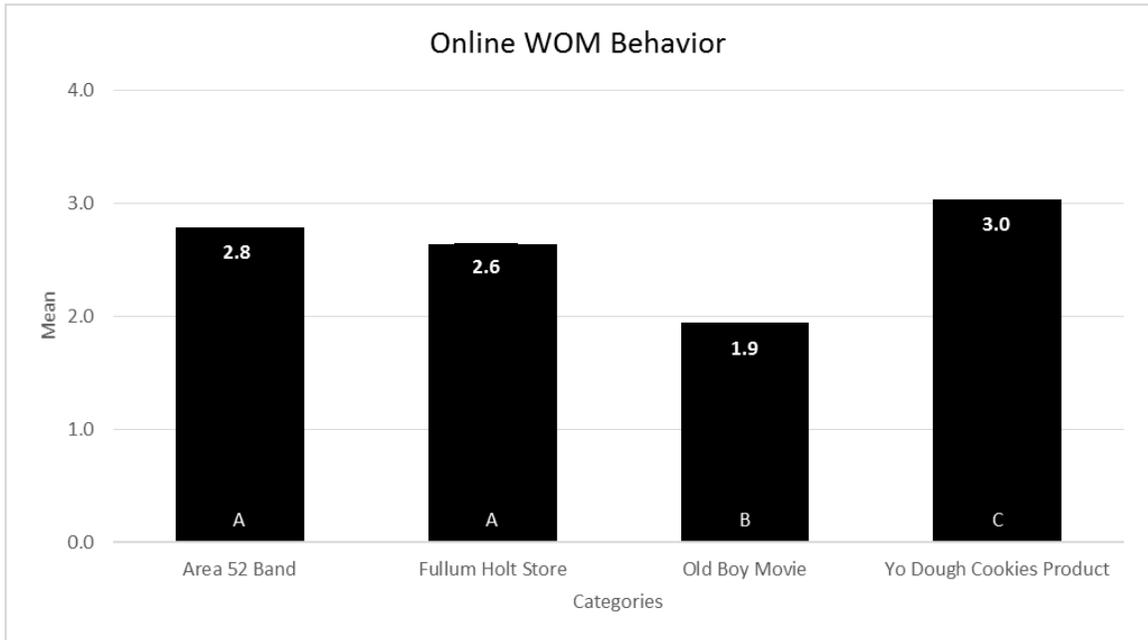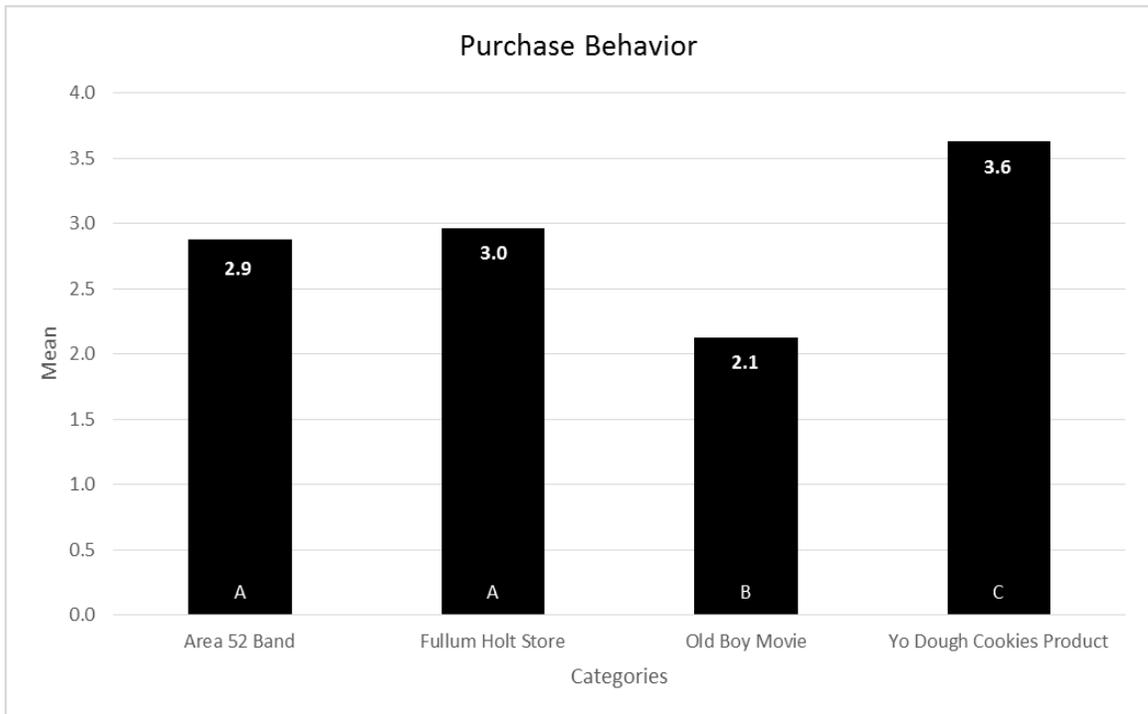|	0	10	20	30	40	50	60	70	80	90	100
Number of Friends whom "Like" this page											

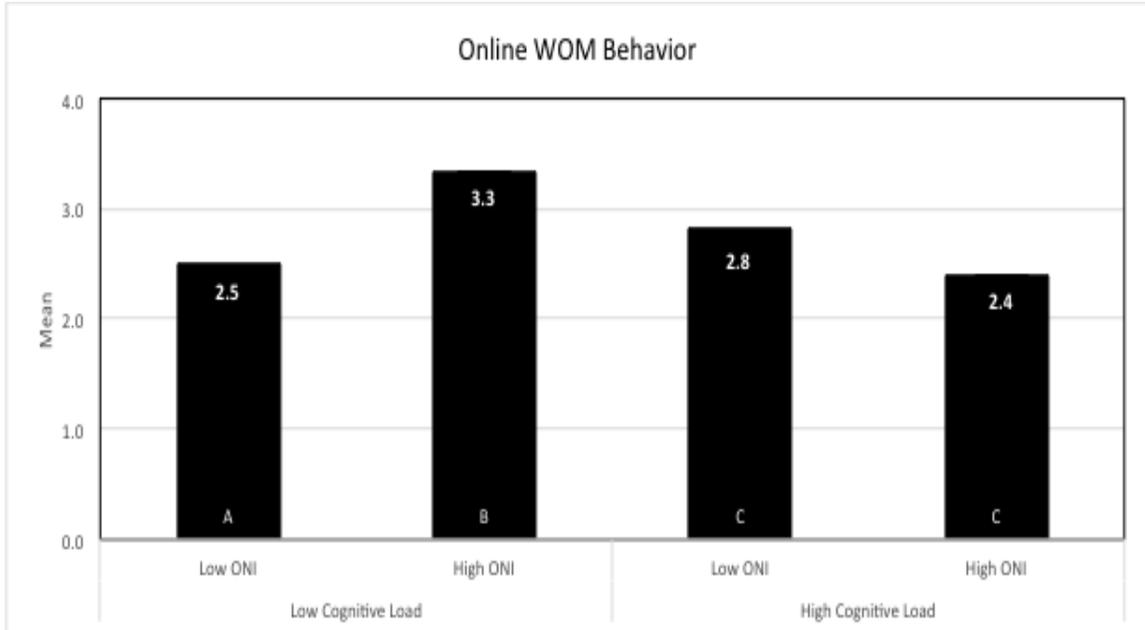43

Figure 3.1 Category Main Effect Full Data

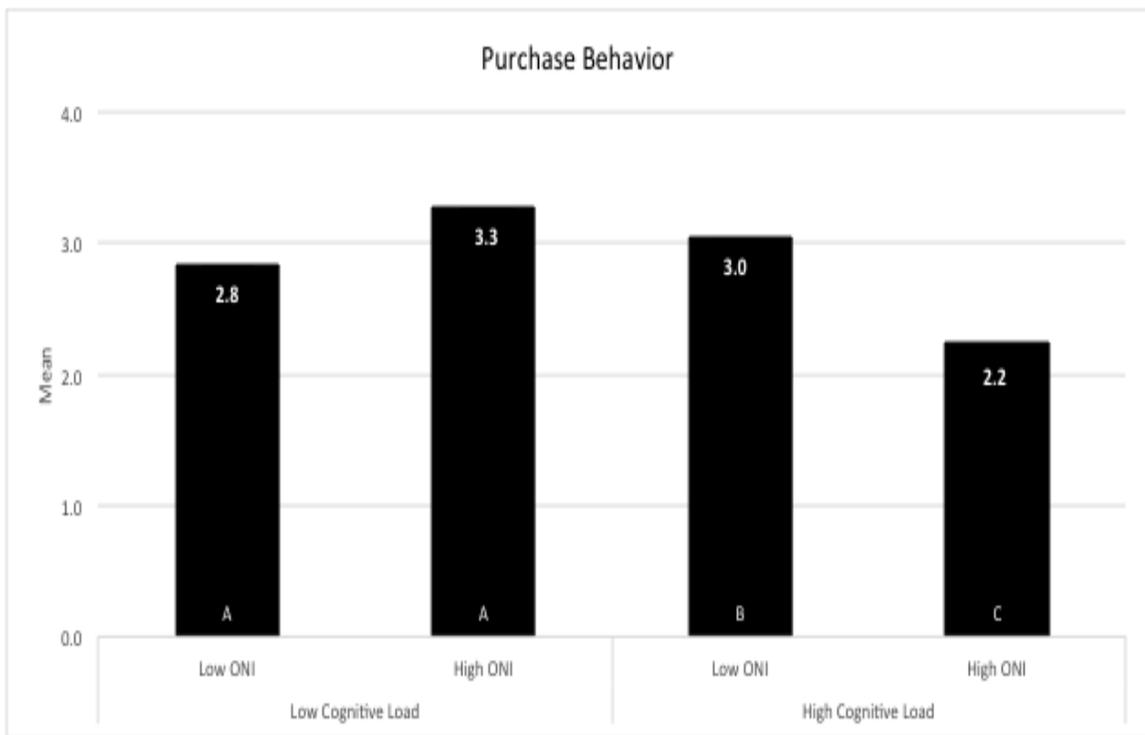*Different letter indicates significant difference for each level of variable at 5%*

Different letter indicates significant difference for each level of variable at 5%

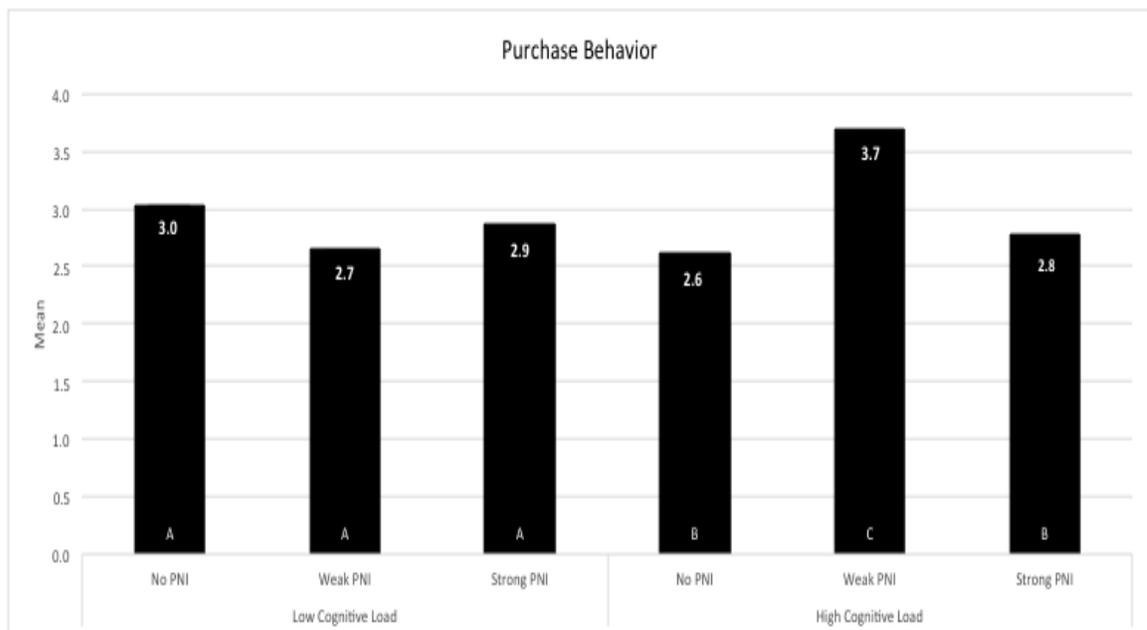Figure 3.2 Cognitive Load x Overall Network Influence Category Audio

Online WOM Behavior

Different letter indicates significant difference for each level of variable at 5%
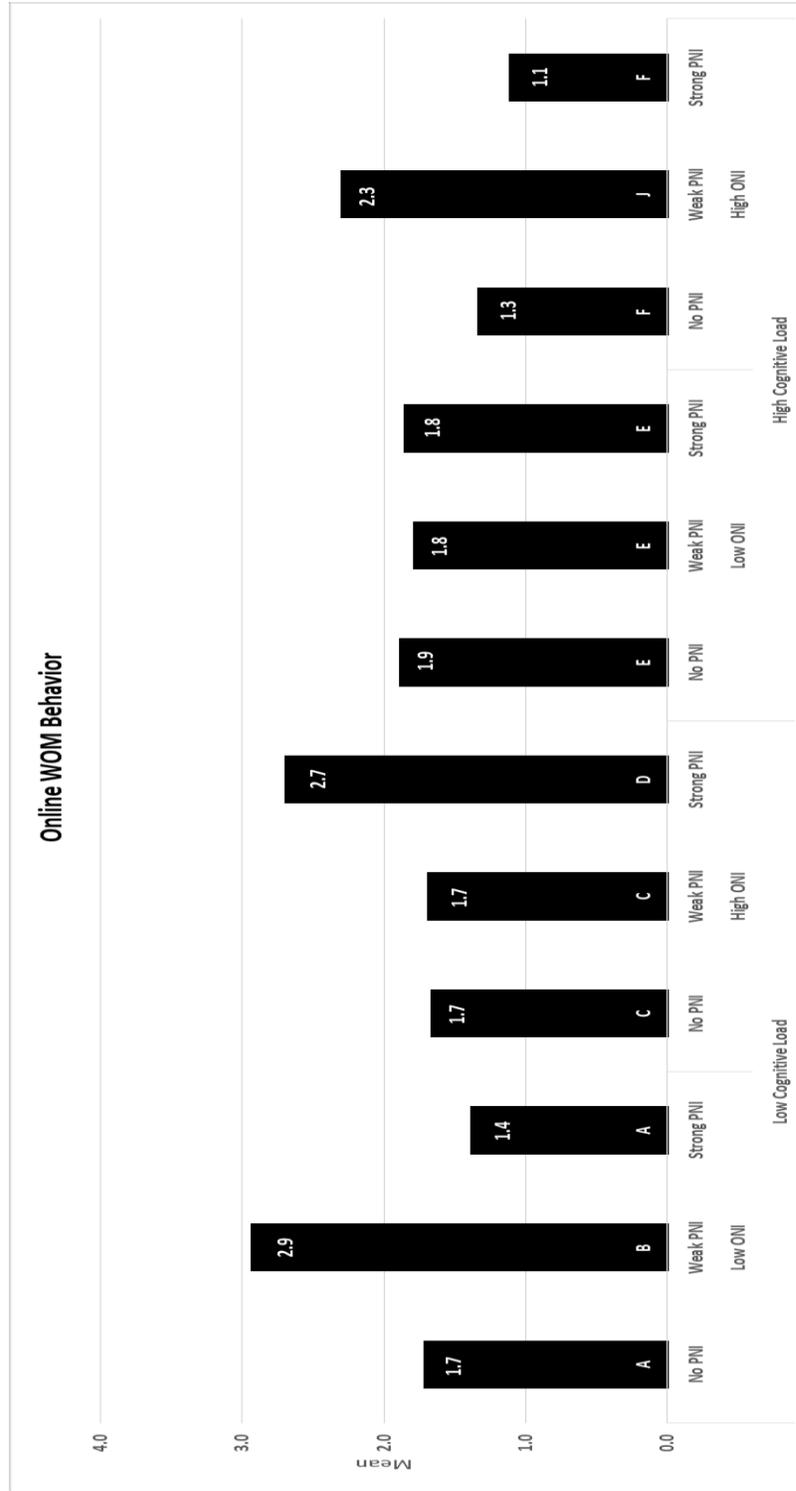

Purchase Behavior

Different letter indicates significant difference for each level of variable at 5%

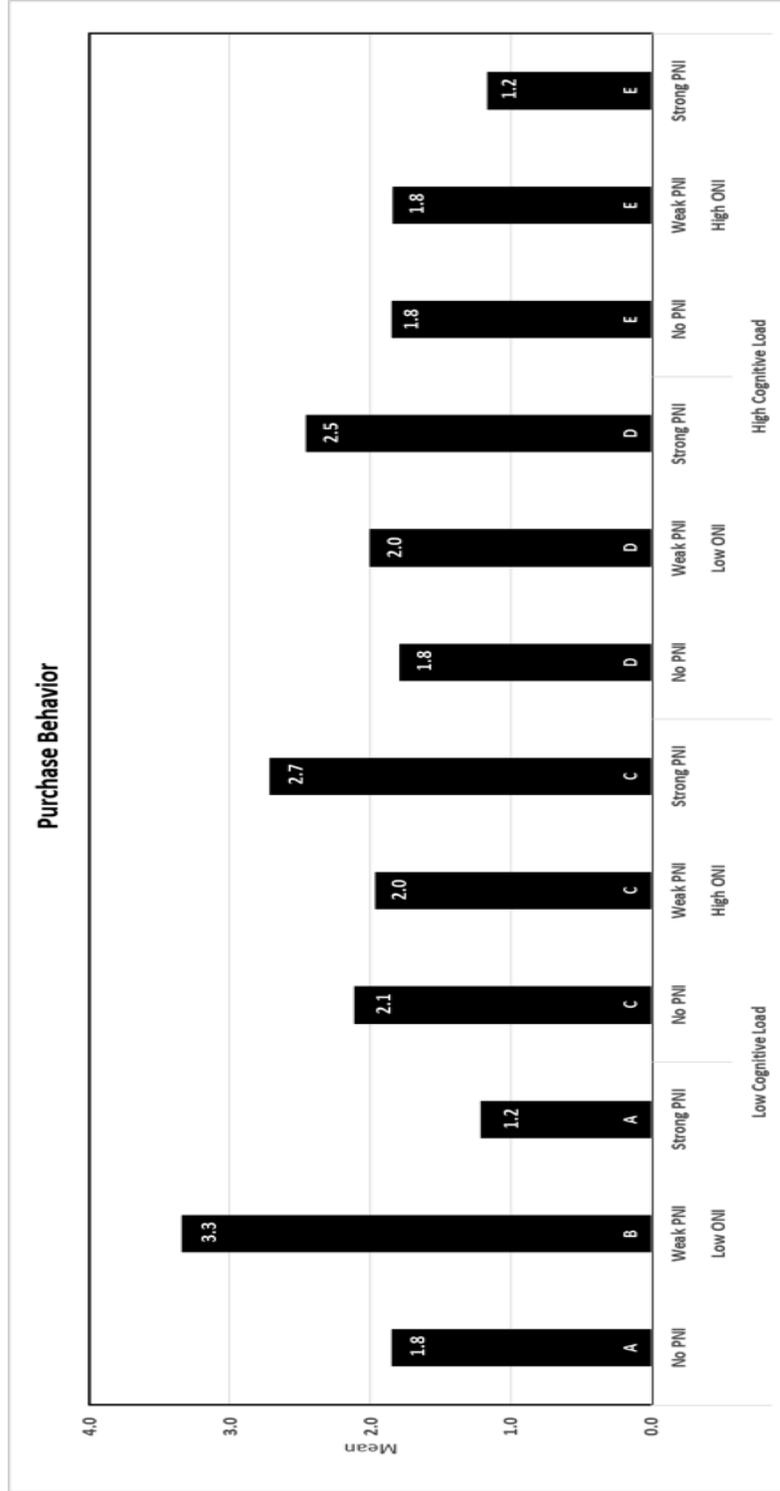Figure 3.3 Cognitive Load x Own Network Influence Category Store

Different letter indicates significant difference for each level of variable at 5%

Figure 3.4 Cognitive Load x Overall Network Influence x Own Network Influence Category Movie

Different letter indicates significant difference for each level of variable at 5%

Purchase Behavior

	Low ONI		High ONI			Low ONI			High ONI	
	Low Cognitive Load					High Cognitive Load				
No PNI	Weak PNI	Strong PNI	No PNI	Weak PNI	Strong PNI	No PNI	Weak PNI	Strong PNI	No PNI	Weak PNI	Strong PNI
A	B	A	C	C	C	D	D	D	E	E	E
1.8	3.3	1.2	2.1	2.0	2.7	1.8	2.0	2.5	1.8	1.8	1.2

Different letter indicates significant difference for each level of variable at 5%

48

References

Amichai-Hamburger, Y., Ben-Artzi, E. (2003). Loneliness and Internet Use. *Computers in Human Behavior*, 19(1), 71-80.

Anderson, B., Fagan, P., Woodnutt, T., Chamorro-Premuzic, T. (2012). Facebook psychology: Popular questions answered by research. *Psychology of Popular Media Culture*, 1 (1), 23-37.

Argo, J. J., Dahl, D. W., Manchanda, R. V. (2005). The Influence of a Mere Social Presence in a Retail Context. *Journal of Consumer Research,* 32 (2), 207-212.

Ariely, D. (2000). Controlling the Information Flow: Effects on Consumers' Decision Making and Preferences. *Journal of Consumer Research*, 27 (2), 233-248.

Bargh, J. A., McKenna, K. Y. A. (2004). The Internet and Social Life. *Annual Review of Psychology*, 55, 573-590.

Bell, D. R., Song, S. (2007). Neighborhood effects and trial on the internet: Evidence from online grocery retailing. *Quantitative Marketing and Economics*, 5 (4), 361-400.

Breuer, J., Freud, S. (1974). *Studies in Hysteria* (J. Strachey, Trans.). UK: Penguin Books Ltd. (Original work published 1895)

Brown, J., Broderick, A. J., Lee, N. (2007). Word of mouth communication within online communities: Conceptualizing the online social network. *Journal of Interactive Marketing,* 21 (3), 2-20.

Chatterjee, P. (2001). Online Reviews: Do Consumers Use Them?. *Advances in Consumer Research*, 28(1), 129-133.

Chebat, J., Haj-Salem, N., Oliveira, S. (2014). Why shopping pals make malls different? *Journal of Retailing and Consumer Services,* 21(2), 77-85.

Chevalier, J. A., Mayzlin, D. (2003). The Effect of Word of Mouth on Sales: Online Book Reviews. NBER Working Papers 10148, National Bureau of Economic Research, Inc.

Cova, B., Cova, V. (2002). Tribal marketing: The tribalisation of society and its impact on the conduct of marketing. *European Journal of Marketing,* 36(5/6), 595-620.

Dholakiaa, U. M., Bagozzia, R. P., Pearo, L. K. (2004). A social influence model of consumer participation in network- and small-group-based virtual communities. *International Journal of Research in Marketing,* 21(3), 241-263.

49

Didem, K., Inman, J. J., Argo, J. J. (*2011*). The Influence of Friends on Consumer Spending: The Role of Agency– Communion Orientation and Self-Monitoring. *Journal of Marketing Research*. 48 (4), 741-754.

Drolet, A., Luce, M. F. (2004). The Rationalizing Effects of Cognitive Load on Emotion- Based Trade- off Avoidance. *Journal of Consumer Research*. 31(1), 63-77.

Duval, Kimberly H. Onur Bodur, and Stephanie Peck (2014), "The Effect of Social Identity Complexity on Adherence to Social Norms to Purchase Sustainable Products," *Proceedings of the 43rd Annual Conference of the European Marketing Academy (EMAC)*, Valencia, Spain: European Marketing Academy.

Godes, D., Mayzlin, D. (2004). Using Online Conversations to Study Word-of-Mouth Communication. *Marketing Science,* 23 (4), 545-560.

Häubl, G., Trifts, V. (2000). Consumer Decision Making in Online Shopping Environments: The Effects of Interactive Decision Aids. *Marketing Science.* 19 (1), 4-21.

Kaplan, A. M., Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons.* 53 (1), 59-68.

Katona, Z., Zubcsek, P. P., Sarvary, M. (2011). Network Effects and Personal Influences: The Diffusion of an Online Social Network. *Journal of Marketing Research*. 48 (3), 425-443.

Kozinets, R. V., de Valck, K., Wojnicki, A. C., Wilner, S.J.S. (2010). Networked Narratives: Understanding Word-of-Mouth Marketing in Online Communities. *Journal of Marketing.* 74(2), 71-89.

Livingstone, S., Brake, D. R. (2010). On the Rapid Rise of Social Networking Sites: New Findings and Policy Implications. *Children & Society,* 24 (1), 75-83.

Ljepava, N., Orr , R.R., Locke , S., Ross, C. (2013). Personality and social characteristics of Facebook non-users and frequent users. *Computers in Human Behavior.* 29 (4), 1602-1607.

Mahajan, V., Muller, E., Bass, F. M. (1990). New Product Diffusion Models in Marketing: A Review and Directions for Research. *Journal of Marketing,* 54 (1), 1-26.

Muniz, A. M. Jr., O'Guinn, T. C. (2001). Brand Community. Journal of Consumer Research, 27(4), 412-432.

Nitzan, I., Libai, B**.** (2011). Social Effects on Customer Retention. *Journal of Marketing*,

75(6), 24-38.

Paas, F., Renkl, A., Sweller, J. (2004). Cognitive Load Theory: Instructional Implications of the Interaction between Information Structures and Cognitive Architecture. *Instructional Science*, 32(1-2), 1-8.

Pandelaere, M., Briers, B., Dewitte, S., Warlop, L. (2010). Better think before agreeing twice: Mere agreement: A similarity-based persuasion mechanism. *International Journal of Research in Marketing*, 27(2), 133–141.

Phelps, J. E., Lewis, R., Mobilio, L., Perry, D., Raman, N. (2004). Viral Marketing or Electronic Word-of-Mouth Advertising: Examining Consumer Responses and Motivations to Pass Along Email. *Journal of Advertising Research*, 44 (4), 333-348.

Portrat, S., Barrouillet, P., Camos, V. (2008). Time-related decay or interference-based forgetting in working memory?. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 34(6), 1561-1564.

Schivinski, B., Dąbrowski, D. (2013). The impact of brand communication on brand equity dimensions and brand purchase intention through facebook. *Working Paper Series A (Economics, Management, Statistics)*. GUT Faculty of Management and Economics.

Stephen, A. T., Berger, J. (2009). Creating Contagious: How Social Networks and Item Characteristics Combine to Spur Ongoing Consumption and Reinforce Social Epidemics. (Unpublished doctoral dissertation). Graduate School of Business, Columbia University.

Sweller, J., Chandler, P. (1991). Evidence for Cognitive Load Theory. *Cognition and Instruction*, 8(4), 351-362.

Thomas, G. Jr. (2006). Building the buzz in the hive mind. *Journal of Consumer Behaviour,* 4(1), 64–72.

Trusov, M. (2009). Effects of Word-of-Mouth Versus Traditional Marketing: Findings from an Internet Social Networking Site. *Journal of Marketing,* 73 (5), 90-102.

Van den Bulte, C., Lilien, G. L. (2001). Medical Innovation Revisited: Social Contagion versus Marketing Effort. *American Journal of Sociology*, 106 (5), 1409-1435.

Vohs, K.D., Baumeister, R. F., Schmeichel, B.J., Twenge, J.M., Nelson, N.M., Tice, D. M. (2008). Making choices impairs subsequent self-control: A limited-resource account of decision-making, self-regulation, and active initiative. *Journal of Personality and Social Psychology.* 94(5), 883-898.

Wangenheim, F. (2005). Postswitching Negative Word of Mouth. *Journal of Service Research,* 8 (1), 67-78.

Young, K. (2011). Social Ties, Social Networks and the Facebook Experience. *International Journal of Emerging Technologies & Society*, 9 (1), 20-34.

Zhu, F., Zhang, X. (2010). Impact of Online Consumer Reviews on Sales: The Moderating Role of Product and Consumer Characteristics. *Journal of Marketing*, 74(2), 133-148.

Zhu, R., Dholakia, U. M., Chen, X., Algesheimer, R. (2012). Does Online Community Participation Foster Risky Financial Behavior?. *Journal of Marketing Research*, 49(3), 394-407.