THE IMPACT OF REFERENCE GROUP AND GROUP NORMS ON WORD-OF-MOUTH

COMMUNICATION OF NUTRITION INFORMATION ON FACEBOOK AND INTENDED

BEHAVIORAL CHANGE

by

MINGYUE ZHANG

A dissertation submitted to the

Graduate School-New Brunswick

Rutgers, The State University of New Jersey

In partial fulfillment of the requirements

For the degree of

Doctor of Philosophy

Graduate Program in Nutritional Sciences

Written under the direction of

William K. Hallman

And approved by

_____

_____

_____

_____

New Brunswick, New Jersey

OCTOBER, 2017

ABSTRACT OF THE DISSERTATION

The Impact of Reference Group and Group Norms on Word-Of-Mouth Communication of

Nutrition Information on Facebook and Intended Behavioral Change

By MINGYUE ZHANG

Dissertation Director:

William K. Hallman, PhD

Social media is a very quick, economical, and efficient way to spread food safety and

nutrition education messages. It contributes to the "democratization of information" (Wallace &

Fleet, 2005), permitting anyone to become an author online, providing the opportunity to get

personal opinions heard and spread throughout the Internet. However, with a variety of

information sources available online, nutrition educators and policy makers have to compete for

the attention of consumers with the food and beverage industries, individual companies,

consumer organizations, and with individual bloggers. The question facing nutrition educators

and policy makers is how to take advantage of social media to ensure that accurate and science-

based food safety and nutrition education information is widely disseminated and reaches

targeted consumers?

During the previous iteration of the Internet (the age of Web 1.0), consumers would seek

information from a variety of websites with official content published or reported by news and

media professionals. However, the emergence of social media has shifted the pattern of

communication of information from that of professionally produced mass media such as TV,

newspapers, and aggregator websites to individualized social media websites such as Wikipedia,

YouTube, Twitter, and Facebook, where users employ technology and mobile devices to create their own Internet content and to interact with each other. These Social Networking Sites enable individuals to combine and critique information from multiple sources and to provide points-of-view and commentary of their own, enabling social media users to put themselves in the center of the online virtual world.

People across demographic categories have quickly adopted social media, seamlessly incorporating into their modern lives. Online communication via Social Networking Sites has become an increasingly significant way to exchange information with others, get the most up-to-date news feeds, and to connect with friends regardless of physical distances. The power of social media to influence, and to motivate behavior is also becoming increasingly clear. For example, Facebook has been widely acknowledged as a primary platform for consumers' news reading (Somaiya, 2014).

The popularity of social media has also led to a desire on the part of both individuals and organizations, including corporations, governments, academics, and non-profits to understand why some efforts to influence the public using social media are successful while others are not. To make message sharing more efficient, the first question to ask is, "why do individuals choose to "share" some content on social media but not others?"

Focusing on information "sharing" behavior on Facebook, this study investigates the information transmission process through social media, motivations underlying online users' information sharing behavior, and psychosocial factors influencing the flow of messages through Social Networking Sites (SNS). The study uses Social Identity Signaling Theory and the notion that "You are what you share" to identify factors that motivate people's information

communication processes. The study hypothesizes that reference social group and group norms will strongly influence online users' news "sharing" behavior on Facebook. To explore this, different reference groups were created and associated with a healthy eating behavior (eating vegetarian meals) in a news article; group norms were also manipulated as either descriptive norms (what the group is actually doing) or injunctive norms (what the group ought to do, but is not currently doing).

This dissertation is composed of three studies. All three studies use randomized controlled incomplete factorial (2 by 2 plus a control group) experimental designs. Study I manipulated reference group as in-group or out-group condition in the news article; Study II manipulated reference group as either a socially proximate group or a socially distant group in the news article; Study III manipulated reference group as either an aspirational group or non-aspirational group in the message. In addition, all three studies manipulated group norms as either descriptive or injunctive norms in the news article. Six outcome variables were measured on a 7-point Likert Scale (1 indicating "Not at all likely" and 7 indicating "Very likely"). These were: 1) "How likely would you be to share this news article on your Facebook page?" 2) "How likely would you be to share this news article, especially with your close friend(s) on Facebook?" 3) "How likely would you be to recommend the article to your family and friends when you meet them in person?" 4) "How likely would you be to share a popular vegetarian recipe on Facebook if you read one online?" 5) "How likely would you be to order a vegetarian dish for your next lunch/ dinner?" and 6) "How likely would you be to take a photo of your next vegetarian meal and post it on Facebook?" Eight covariates including age, gender, ethnicity, vegetarian consumption behavior, and attitudes towards vegetarian dishes and vegetarian people, self-monitoring, and susceptibility to normative influence were controlled in the models.

In Study I and Study II where results showed that reference groups were not a significant predictive factor of participants' news article sharing behavior or intended vegetarian consumption behavior. However, consumers who read a news article describing a reference group's behavior in terms of injunctive group norms (should do) were more likely to share a vegetarian recipe on their Facebook than consumers who read a similar news article describing a reference group's behavior in terms of descriptive group norms (currently doing). In addition, there was an interaction between group norms and reference group, which influences consumers' news sharing behavior on Facebook and in-person in both studies:

In Study I, participants who read the news article describing an in-group is consuming vegetarian dishes at least twice per week were more likely to say they would recommend the news article to family and friends in person than participants who read the news article describing that an in-group should consume vegetarian dishes at least twice per week. In comparison, participants who read the news article describing that an out-group thinks they should consume vegetarian dishes at least twice per week (which implied they were not currently doing so) were more likely to say they would recommend the news article to family and friends in person than participants who read the news article describing that an out-group is currently consuming vegetarian dishes at least twice per week.

In Study II, participants who read the news article describing an socially proximate group that is consuming vegetarian dishes at least twice per week were more likely to share the news article on Facebook, share the news article on Facebook especially with family and close friends, and to recommend the news article to family and friends in person than participants who read the news article describing that an socially proximate group should consume vegetarian dishes at least twice per week. In contrast, participants who read the news article describing a socially

distant group that thinks they should consume vegetarian dishes at least twice per week (which implied they were not currently doing so) were more likely to share the news article on Facebook, share the news article on Facebook especially with family and close friends, and recommend the news article to family and friends in person than participants who read the news article describing that an socially distant group are currently consuming vegetarian dishes at least twice per week.

Study III showed that participants reading the news article associating the healthy eating behavior with an aspirational group (scientists) were significantly more likely to "share" the news article on Facebook, recommend the news article to family and friends when meeting with them in person, and to order a vegetarian meal for their next lunch or dinner than the similar news article associating the healthy eating behavior with a non-aspirational group (politicians).

The research bridges Social Identity Signaling Theory with Group Norms and applies both theories to demystify the process of inter-group information communication. The findings highlight the importance of social factors in motivating information sharing across different social groups on Social Networking Sites, inform social group selection in marketing campaigns, and suggest management implications concerning how to leverage Social Networking Sites as a tool to promote innovative products.

ACKNOWLEDGEMENTS

I am incredibly grateful to my family and friends for their love and support throughout my PhD program and dissertation. Thank you to my fantastic supporting and encouraging parents, Peilun Zhang and Taiying Dong. I would not have reached this point in my education and career without your love, understanding, support, and continuous encouragement. Thank you Brenda Burgess, my dearest friend, for being my biggest cheerleaders and for always encouraging me to overcome all those hardships on my way to a PhD. To my terrific friends Jie Liao, Xingyu Li, Zhengwei Wang, Haiyan Dong, thank you for your genuine love and support throughout my education. You have lent your ears and offered advice, and I am truly grateful for all your encouraging words.

Thank you to my dear mentor, Dr. William K. Hallman, for your trust and support! I feel so appreciated for your guidance throughout the PhD program and my dissertation. I learned so much from you: how to be an independent thinker, how to be a genuine researcher, how to think critically, how to face the hard moments in my life, and how to navigate all those tricky situations in different settings. I gained so much confidence both personally and professionally through the many opportunities that you facilitated. I sincerely thank you for all your help and mentorship!

I would like to express my sincere gratitude to Rutgers University for giving me the opportunity to realize my dream of pursuing my PhD here. I would also like to thank Department of Nutritional Sciences for all the help and support with my doctoral studies and the training to help me become a real research scientist. I owe my deepest gratitude to my committee members, Dr. Carol Byrd-Bredbenner, Der. Cara Cuite, Dr. Jerome Williams, and Dr. Itzhak Yanoviztky.

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

CHAPTER ONE

Introduction

- **Nutrition and Health Communication Challenges in the Age of Social Media**

Communicating nutrition and health information to the public can be extremely challenging in the age of social media. The development of the Internet and mobile technology have greatly shifted people's information exchange and communication channels. Traditional communication channels such as mass media (TV, radio, newspaper, and news aggregator websites, etc.) are competing with social media channels such as YouTube, Facebook, Instagram, and Twitter, etc. These social media websites represent different forms of user-generated content websites, on which online users can provide their own points-of-view and make comments. The emergence of websites featuring user-generated content has made information sources decentralized and flat as compared with the authority and power of information sources in traditional media. People no longer rely solely on the authority of traditional news media, but have other options such as personal bloggers or twitter for other opinions. According to a recent study on news use across social media platforms by Pew Research Center (2016), approximately two thirds of Facebook users (67% of US adults, the largest user group among other social media user groups on Twitter, Instagram, etc.) read news via Facebook. This amounts to 44% of US general populations, whom treat Facebook as a news resources getting news and get news through the channel. Though the news available on Social Networking Sites is still mostly derived from traditional media websites, online users played a key role as a gatekeeper of the news posted on their personal Social Networking Sites. What's more, the "re-sharing" behavior typically involves online users' positive or negative comments

on the news content. I believe the "re-sharing" behavior is not merely a physical transportation of the news online, but rather could be regarded as a secondary processing of the news with posters' personal opinions. Those opinions could be very influential to the readers since they will be seen by the posters' social connections, who shared the similar background (or something in common) with the poster since they are in the same social network and thus trust (or disagree) with the posters' opinions even more. The situation mimics "filter bubbles", where search engine algorithm selectively present certain information to online users based on their personal searching data history (Bskshy, Messing & Adamic, 2015). What's different, the opinion or news bubbles formed in this situation is created by the close social network online users owned on their Social Networking Site platform (e.g. Facebook or Twitter). Being isolated in the news or opinions by one's social network and separated from other news streams or different viewpoints would have great effect on one's perception of a certain topic. It has been showed that exposure to uncivil comments online about a new technology could lead to readers develop extreme opinions on the risk associated with the particular technology (e.g. nanotechnology). And this effect was named as The "Nasty Effect" (Anderson et al., 2014). It is foreseeable that social network bubbles would exert even stronger "Nasty Effect" on online users' (risk) perceptions of various topics of interest. When it comes to nutrition information, communication, and education, nutrition educators and food policy makers play a significant role in guiding consumers' nutritious food choice and safety handling in food preparations, as suggested in the Dietary Guidelines for Americans 2015-2020, eighth edition (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015). Their voices used to be heard primarily through mass media such as news report on TV, radio, newspapers or magazines. However, the emergence of social media has decentralized the authority of nutrition educators

and food policy makers regarding information on nutrition and food safety issues. The consumer packaged goods industry, independent consumer organizations, as well as individual nutrition and health bloggers are competing with nutrition educators and food policy makers for the attention of the public.

On the other hand, social media is a double-edged sword in terms of facilitating information communication. Because of its highly interactive nature, broad outreach to the population and variety of user involvements, social media can be a powerful tool for nutrition educators and policy makers who wish to spread nutrition and healthy eating messages in a more efficient way. The user-centered characteristic of social media contributes to the "democratization of nutrition and health information" (Helm JS. FENCE), permitting anyone to become an author online, providing the opportunity to get personal opinions heard and spread throughout the Internet. People across different demographics have quickly adopted social media. The most recent data from Pew Research Center indicates that as of July 2016, 89% of Internet users between the ages of 18 and 29, 76% of female Internet users, and 73% of Internet users with a college or higher degree use at least one Social Networking Site. Among all kinds of Social Networking Sites, 79% of Internet users (68% of all U.S. adults) use Facebook, with young adults being the majority. What's more, people have seamlessly integrated a variety of Social Networking Sites into modern life, influencing their study, work, and personal lives. Nearly six-in-ten (58%) of American adults aged 18 and older use Facebook, 19% use Twitter, and 21% use Instagram (Pew Research Center, 2016).

Despite the aforementioned advantages for nutrition education brought by Social Networking Sites, the potential downsides of social media communication are also foreseeable. That being said, Social Networking Sites decentralize the information sources from authoritative

professional news agencies and publishing corporations, making almost everyone online a potential source or transmitter of a piece of news. However, this not only empowers the general population to transmit correct information, it also gives them the power to create or transmit false or misleading information. The freedom to create and disseminate information on Social Networking Sites also makes it very easy to lose control of information transmission among social media users. This can present significant problems for nutrition educators who must compete for attention with a myriad of information sources when attempting to disseminate correct nutrition information via Social Networking Sites. Moreover, the cacophony of voices belonging to the uninformed and the misinformed, purporting to offer useful nutrition advice on Social Networking Sites may distract users from finding or believing the legitimate information provided by nutrition educators and other health professionals, and may undermine their credibility.

In summary, the question faced by registered dietitians, nutrition educators, food and nutrition policy makers is how to capitalize upon social media to disseminate accurate and sound evidence-based nutrition information to a wide audience? To address this question, this study investigated online users' health information "sharing" behavior on Facebook, motivations underlying people's communication behaviors online, social and psychological factors that influences the flow of messages via Social Networking Sites.

- **Vegetarianism and Vegetarian Consumption Behavior**

The health benefits of consuming an adequate amount of vegetables on a daily basis is well acknowledged by most nutritionists and health professionals. However, promoting vegetable consumption has always been quite a big challenge for nutrition educators. According

to the 2015 Study on America's Consumption of Fruits & Vegetables, annual per capita consumption of vegetables had declined by 7% in 2014 as compared with 2009 (Statistics Brain Research Institute, 2016). On the other hand, vegetarianism has become a popular diet throughout US. Data from Statistic Brian Research Institute (2016) showed that 7.3 million U.S. adults are vegetarians and 22.8 million U.S. adults follow a vegetarian-inclined diet, which means that they are gradually including more vegetarian meals in their diet and on the way to becoming vegetarians. When it comes to the vegetarian self-identity among U.S. adults, data showed that about 10% of U.S. adults consider themselves to be a vegetarian, and 5.2% of U.S. adults say that they are "definitely interested" in following a vegetarian diet in the future.

There are two reasons why vegetarianism and vegetarian diets were chosen as the healthy behaviors focused upon in the study: 1) increasing people's awareness of the benefits of being on a vegetarian diet and motivating people to consume more vegetarian dishes could be a powerful way to improve vegetable consumptions among US adults; 2) in contrast with directly promoting the increased consumption of vegetables by US consumers, encouraging the adoption of a vegetarian diet by highlighting its health and environmental benefits frames vegetarianism as a pro-social lifestyle choice, enabling one to present oneself in a favorable light when self-identifying as a vegetarian, or simply by publically choosing vegetarian dishes when dining out with family, friends, or colleagues. Since the study focuses on the influences of associating a healthy eating behavior with certain social groups on consumers' information communication behavior and intended health behavioral change, vegetarian consumption behavior was chosen as a topic with both healthy eating attributes and social identity signaling characteristics.

- **Successful Marketing Campaigns on Social Media**

Georgetown Cupcake

The emergence of social media has led to the creation of innovative marketing tools and channels that have come into being in a way that is completely different from traditional marketing strategies. For example, Georgetown Cupcake, a cupcake bakery in Washington, D.C., exploded on the market just five years after its grand opening. Unlike the traditional marketing tools which include in-store promotions, coupons, and even TV commercials, this company relied primarily on their fans' voluntarily posting, liking, and sharing of cupcake pictures on Instagram, Facebook, and Twitter etc. Because of this campaign, Georgetown Cupcake has been heralded as the best "Cupcake in town" and is now a popular tourist destination; its success has even given rise to a TLC TV show, two cookbooks, and a myriad of bakery shops across the US (Davison, 2016).

ALS Bucket Challenge

In addition to commercial marketing campaigns, social media also play an important role in publicizing health campaigns, charity and fundraising activities. In the summer of 2014, the ALS (also known as Lou Gehrig's disease, which is a motor neuron disease causing great financial burden on the family of patients and health care system according to National Institute of Neurological Disorders and Stroke, 2013) Ice Bucket Challenge became a big trending topic on Facebook. Over 17 million videos of people, including the celebrities Bill Gates, Mark Zuckerberg, Steven Spielberg, etc., dumping a bucket of ice water on their heads were posted to Facebook, liked and re-posted by people in their network (Sifferlin, 2014). Taking the Ice Bucket Challenge calls for individuals to dump ice water on themselves and then to nominate ("tag"

their name on Facebook to let them and others know) up to five people they know on Facebook to encourage them to do the same, or in lieu, make a donation of 100 dollars to the ALS foundation. The nomination rule, as well as the posting of videos on Facebook showing people dumping ice water on their heads contributed enormously to the broad impact of the game-like charity fundraising effort. In addition, I assume that the highly socially desirable characteristics of partaking in the challenge itself motivated people and made them more likely to get involved in the game and to take the challenge. This phenomenal fundraiser raised over $220 million to help people suffering from Lou Gehrig's disease. What's more, thanks to the broad impact of Facebook, the ALS Ice bucket challenge greatly improved public awareness of the disease and will definitely help more patients get more public attention and donations from society (Chowdhry, 2015).

- **Celebrity Role Models in Health Promotional Campaigns**

It is common for health campaigns to use celebrities to promote healthy behaviors. For example, one of the best-known advertising campaigns, "*got milk?"* has featured more than 200 celebrities in their ads since 1993. From Jennifer Aniston in 1994 to Taylor Swift in 2008, the ad campaign has featured entertainment stars, famous athletes, and political celebrities (Bali Sunset 2008). The active involvement of celebrities won the "*got milk?*" campaign an awareness level among consumers as high as 91% throughout the US (Kardashian, 2014). Yet, despite wide recognition among consumers, the "*got milk*?" did not appear to persuade consumers to drink more milk. In fact, the daily consumption of fluid milk actually dropped from 0.96 cups per person in 1970 to 0.59 cups per person in 2011, an almost 40% decrease (Kardashian, 2014). However, it is possible that the "*got milk?"* campaign prevented even greater decreases in fluid milk consumption than those that occurred.

Although role models have been employed extensively in a myriad of campaigns, the effectiveness of using role models in changing target audiences' behavior is indefinite. Role models in health campaigns are typically a small group of people that are widely seen to have excelled in a certain area. They typically have high public recognition and enjoy great fame, such as movie and sports stars, famous politicians, and other well-known persons who are often seen on the front pages of newspapers or on television. Celebrities have a magic called the "halo effect," which appears to attract people's attention and has the potential to influence the values, notions, and even behaviors of their followers (Erdogan, 1999). Although marketers and health educators often try to take advantage of halo effects to persuade the target audience to imitate the behaviors of role models, the great social distance between celebrities and public makes it difficult for common people to feel connected with or to identify with the shining role models featured in campaigns. A Meta-analysis of US health campaigns by Snyder and Hamilton (2002) showed that campaigns featuring role models have slightly less effect compared with campaigns without role models, and this contrast is even more significant among persuasive campaigns in particular.

In the age of Web 2.0, people's social networks have become flat and decentralized. Online users are themselves becoming the center of their own social networks composed of family, friends, and colleagues. As people's reliance on the "elite few" as the authority source of information is decreasing, experts speculate that the persuading effects of health campaigns featuring celebrity role models will diminish further (Smith, Coyle, & Scott, 2007). In comparison with a distant shining star on the screen, social connections people make in real life are more approachable and easier for one to feel identified with. A social group is a collection of people sharing a similar identity and set of values. People in the same social group are more

socially intimate and approachable to each other (Turner, 1982). It is highly probable that health campaigns featuring a social group with which the target audience feel more identified with would have stronger influence on people's behavioral change. Previous research suggested that there is a "contaminating effect" of associating risky health behaviors with a dissociative social group (a social group that the target audience would rather stay away from); the study showed that the association would discourage target audiences from getting involved in the same risky behaviors (Berger and Rand, 2008).

However, there is limited research examining the influence of associating other social groups (for example, a neutral out-group or an aspirational group people want to join) with a health behavior on the target audiences' information sharing behavior of the health message associating the health behavior with a particular social group and the target audiences' adoption of the health behavior. Recent data showed that more and more people start to use social media as their primary resource for health messages (Dosemagen and Aase, 2017). Social media, on the other hand, is becoming a major platform for news reading (Carroll, 2015). The importance of reading news article via social media is not negligible when it comes to the communication of health messages among general populations. There is a gap in research on the effect of associating social groups with health behaviors in news articles on the communication of the health messages preceding the actual health behavioral change. This study fills the two aforementioned research gaps by: 1) examining the influence of associated social reference groups (social groups that individuals use as a standard for evaluating themselves) on consumers' health communication behavior; 2) examining the effects of neutral and desirable social groups (rather than just social groups people from which people want to distance themselves).

This study uses Social Identity Signaling Theory (Berger, 2008) and the notion that "You are what you share" (Belk, 2013) to identify factors that motivate people's information communication processes. The study hypothesizes that social reference groups and group norms will strongly influence online users' news "sharing" behavior on Facebook, and adoption of the health behaviors themselves. To explore this, different reference groups were created and associated with a healthy eating behavior (eating vegetarian meals) in a news article; group norms were also manipulated as either descriptive norms (what the group is actually doing) or injunctive norms (what the group ought to do, but is not currently doing). The primary outcome variables are: intentions to share the news article on social media, intentions to share the news article in person, and intentions to eat a vegetarian meal.

The study bridges the concept of social reference group and Social Identity Theory (Tajfel & Turner, 1979) regarding healthy information communication behavior among different social reference groups. The findings of the study highlight the importance of social factors in motivating information sharing across different social groups on Social Networking Sites, can inform social group selection in marketing campaigns, and suggests management implications concerning how to leverage Social Networking Sites as a tool to promote innovative products. Nutrition educators, policy makers, and health communicators may also find the research informative in terms of using social media to facilitate nutrition and health information communication.

- **Research Questions**

The purpose of this study is to examine the influence of reference social group and group norms on Word-of-Mouth Communication behavior on social media and in person, and intended health behavioral change. The primary research questions for the study are:

1. How does associating a health behavior with a particular social reference group influence consumers' health message sharing behaviors and health behavioral change?

2. How does the group norm (descriptive or injunctive) in the message influence consumers' message sharing behaviors?

3. How do social reference groups and group norms interact when influencing consumers' health message sharing behaviors?

To address these questions, **Chapter 2** elaborates on Word-of-Mouth Communication via Social Networking Sites. The purpose of the chapter is to define Word-of-Mouth Communication and Viral Marketing and demonstrate the similarities and differences between the two concepts. The chapter reviews the previous research on Word-of-Mouth Communication and Viral Marketing. Current research gaps with respect to viral marketing are also discussed. **Chapter 3** discusses the notion of "extended self" in the digital world and information sharing behaviors on Social Networking Sites in the age of social media. The notion of "You are what you post" is discussed in the online context, informed by theories of self-presentation and impression management. **Chapter 4** lays out the theoretical foundation employed in the studies. The concept of reference social group, Social Identity Theory, and Social Identity Signaling Theory, which forms the theoretical framework to support hypotheses in the studies presented in this dissertation. **Chapter 5** presents the results of Study I. The aim of the study is to understand how associating vegetarian consumption behavior with different social reference groups (an in-

group or out-group) influences the participant's intentions to share (on Social Networking Sites and in person) a news article about eating vegetarian meals, and their own intended vegetarian consumption behaviors. The study also explores the interaction between social reference groups and group norms on these behaviors. **Chapter 6** reports the results of Study II, which focuses on the differences in influence of a social proximate group and social distant group on participant intentions to share the message about eating vegetarian meals and the participants' intentions to vegetarian consumption behaviors. The potential interaction between social reference groups and group norms on consumers' information sharing behavior (on Social Networking Sites and in person) and their intentions to consume a vegetarian meal is also considered. **Chapter 7** reports the results of Study III, investigating the influence of associating an aspirational group or an avoidance group on consumers' intention to share the message and their intended vegetarian consumption behavior. Interactions between reference groups and group norms on consumers' information sharing behavior (on Social Networking Sites and in person) and intended vegetarian meal eating behavior is also considered. **Chapter 8** summarizes the findings of all three studies, discusses the theoretical contributions, limitations, practical implications, and indicates future research.

CHAPTER TWO

Word-of-Mouth Communication in the Age of Social Media

1. Word-of-Mouth Communication and Viral Marketing: One Mode, Two Platforms

- **Face-to-Face Word-of-Mouth Communication**

"You know what, I was just told that …" a friend might begin, telling you something that he or she had heard from someone else. Such communication is referred to as Word-of-Mouth Communication**,** which is a specific type of information-sharing behavior among individuals: You tell me, I tell him, he tells her, and then they tell someone else. It happens spontaneously, and under the right conditions, a message can be transmitted throughout an entire social network within a short period.

- **Electronic Word-of-Mouth Communication, also known as Viral Marketing**

Electronic Word-of-mouth, also known as Viral Marketing, is the transmission of messages via text, email, online forum, or social media. In using this type of communication, the sender does not depend on corporations or marketers to be motivated to share the information. The strategy is to create informative messages that entice receivers to share the message with others, typically via social media by email, a phenomena similar to the spread of an epidemic (Trusov 2009).

Viral marketing has two advantages over traditional marketing strategies. One advantage is the rapid transmission of its messages facilitated by digital and Internet technology. In addition, Electronic Word-of-Mouth Communication based on Internet and digital devices have greater impact and can reach a much larger population than face-to-face Word-of-Mouth

Communications. (Kaplan 2011). What's more, recommendations transmitted via Word-of-Mouth Communication are perceived or regarded more credible. Communications initiated and transmitted through consumers are typically regarded as more reliable and trustworthy in comparison with commercial advertisements and promotions produced by corporations and marketers (Arndt, 1967). When Word-of-Mouth Communication occurs via social media, message receivers are more likely to trust the message sender over a marketing company because the message sender is more personally connect to them and is socially close. For example, let's suppose there were a registered dietitian named Jennifer with over 500 followers on Facebook, most of whom are very interested in nutrition and health and trust Jennifer as a reliable source for getting the most up to date nutrition information. Jennifer recently shared an article written by USDA, revealing the health risks of consuming Stevia (a zero-calorie sweetener) on her Facebook page. Within seconds, 50% of her followers viewed the post, and then proceeded to repost it. Altogether, I estimate that more than 2000 people read the Stevia article.

In addition to commercial marketing, electronic Word-of-Mouth Communication can also be employed in other situations where a large social impact is needed, but only limited resources are available to communicate with the public. Examples include the promotion of a health campaign with limited funding (Domingos 2005).

2. Word-of-Mouth Communication via Social Networking Sites

- **Definition of Social Networking Sites**

Social media is ''a group of Internet-based applications that build on the foundations of Web 2.0, defined as the creation and exchange of User Generated Content'' (Kaplan and Haenlein, 2010, p. 60). Different from Web 1.0, which only permits web users to passively view

webpages, Web 2.0 allows online users to create, share or edit content online. Social Networking Sites, including Facebook, Twitter, LinkedIn, and Instagram, represent one type of social media application, where users can connect with others to share personal information. There are also other types of social media applications, such as Wikipedia, which enables collaboration by multiple online users focused on a specific topic, and YouTube, which facilitates the online sharing of videos within a virtual community (Kaplan and Haenlein, 2009b). The common characteristic among all kinds of social media applications is that they are not created by corporate or government administrators; instead, the majority of content is created and distributed by independent individuals.

- **The Social and "Sharing" Characteristics of Social Networking Sites**

Social Networking Sites enable users to stay connected with old contacts as well as to develop new relationships (Flanagin and Metzger, 2001). In addition, Social Networking Sites allow people to contribute online content such as blogs, videos, or pictures, generate secondary-content through sharing news stories, and to have interactive discussions on topics of interest by commenting on others' stories and posts (Abedniya 2010).

Before the dawn of social media, research on motivations for exchanging online content through emails, text messages, and other bidirectional communication channels has shown that personality traits of being individualistic and altruistic are positively related to forwarding online content to others. In contrast, no significant effects have been found between the need to belong to a group and the forwarding behavior (Ho et al., 2010). However, in comparison to bidirectional communication channels, Social Networking Sites allows online communication to be multidirectional, broadcasting messages to multiple receivers by just clicking the "share"

button (Dellarocas 2003; Norman & Russell 2006). On one hand, the multidirectional feature of Social Networking Sites makes the information communication process much more efficient and users could deliver one piece of information to more than one message receivers (usually hundreds or even thousands of receivers on Social Networking Sites) at the same time; on the other hand, however, the broad and complex composition of the message receivers brought by the multidirectional communication channel vis Social Networking Sites makes information sharing on Social Networking Sites a more complicated and harder decision for Social Networking Sites users when thinking about the potential risk they might have if the message they shared would offend or even irritate some message receivers, or in another situation, they might think about whether or not the particular message they shared might contradict with the social image they have been building on Social Networking Sites.

- **Word-of-Mouth Communication via The Online Channel of Social Networking Sites**

Social Networking Sites are a great channel for viral marketing. Kaplan and Haenlein (2011) claim that the launch of a viral marketing campaign requires "giving the right message to the right messenger in the right environment." The message needs to be both interesting and memorable, initiated by "market mavens," who are "social hubs" with a large number of social connections, who have access to the newest marketplace information, and are usually the first to get the most up-to-date information.

The broad inter-connections and variety of information available online make it possible for any user to become a "market maven" in any field of their choice. For example, a college student who enjoys collecting music devices and digital speakers could become a "market maven" for new Bluetooth speakers because of his or her continual interest and investment in

this field. In addition, Social Networking Sites make it easier for an ordinary person to become a "social hub" by making hundreds of connections online. Furthermore, compared with forwarding electronic content through emails, posting on social media can reach a broader demographic via its multidirectional transmission process.

Yet, a disadvantage of sharing information via Social Networking Sites is that it is more complicated than via emails. For example, a user's social network is likely to consist of a collection of close friends and family members, acquaintances or co-workers, as well as near strangers. Due to the large size and complex composition of one's online network, when sharing a message on social media, the message sender could be targeting a certain group of audiences exclusively (e.g. setting a privacy on a post allowing only part of one's friends to be able to read the post) or sharing with the overall network like a broadcast.

Furthermore, the impact of information sharing via Social Networking Sites is much larger than via emails because the larger size of networks on Social Networking Sites make the transmission broader and more efficient than through emails. In addition, followers of the person who shares information on a Social Networking Site can "re-share" the message on their own webpage if they choose to do so. This means that a much larger audience may see the message than that comprised by the social network of original message sender.

Because of the potential further dissemination of the messages through Social Networking Sites, online users may be more cautious when making the decision to "share" something on Social Networking Sites vs. through in-person communication or through emails. From a social image perspective, users of Social Networking Sites might be particularly concerned with how the interpretations of the messages with which they are associated may

affect the image of themselves they wish to project. With Facebook, for example, a shared message can become part of the online users' profile and appear on the users' timeline for others to review. Based on this, I propose that the content of the messages that Facebook users share are likely to be regarded as a method of self-presentation.

3. Research on Word-of-Mouth Communication

- **Motivations and Affective Influences on Word-of-Mouth Communication**

Sundaram et.al (1998) found that consumers' motivations for generating positive Word-of-mouth communications of a product are multidimensional. These include: altruism, product involvement (purchase and consumption of product), self-enhancement (the motivation to pursue a positive self-image and manifestations of self-positivity (Judge et al. , 1998 ; Sedikides and Gregg, 2008; Caprara et al. , 2013; Sedikides et al. , 2015), as well as the intention of helping the company. In contrast, consumers' motivations for negative Word-of-Mouth Communications include altruism, anxiety reduction, vengeance (usually occurring after experiencing a disappointing product or service), and advice seeking. In fact, research by Richins (1983) showed that dissatisfied consumers are more likely to disseminate negative experiences through Word-of-Mouth Communication when the cause of the dissatisfaction is placed externally (e.g., the dissatisfaction is due to a malfunction of the product or because of its inferior quality) than when the fault is given internal attributions (e.g., the dissatisfaction is caused by consumers' inadequate inspection before making the purchase). Consistent with this, a study by Anderson et al. (1998) showed that very satisfied consumers engage in greater Word-of-Mouth Communication than moderately satisfied consumers do. This shows that both negative and

positive emotions towards a product or service drive consumers' Word-of-Mouth Communication behavior.

Regarding consumers' involvement with a particular product or service, it is suggested that long-term use of the product is more likely to motivate Word-of-Mouth Communication behavior than occasional use of the product (Richins 1983). Furthermore, studies have shown that the degree of a consumer's identification with a brand influences their motivation to communicate messages about the product or service by the company (Brown 2005). This suggests that the relationship between consumers and the products or services greatly affect consumers' Word-of-Mouth Communications with respect to the product or service.

The studies referenced above illustrate influences on Word-of-Mouth Communication in a post-consumption situation, meaning, consumers chat about their post-consumption experience with a product or service. However, it is not clear how consumers process information about a product or service online, or how that influence their decision to share with others (or not) when they have not actually purchased the product or experienced the service.

What's more, the decision of whether to share a message depends not only on the interaction between the messenger and its content, but on the messenger's perceptions of how the recipient of the message will interpret the message. As suggested by Belk (2010), "you are what you share" in the age of social media. What one talks about, shares, or recommends informs others of their interests and even the quality of their character. As such, this dissertation investigates how perceived social image and message sharing influences online Word-of-Mouth Communication behaviors.

- **Diffusion of Innovation Model**

In addition to the stream of research on affective influence on Word-of-Mouth Communication, some scholars have tried to explain the process of Word-of-Mouth Communication using theories and models of information communication. As defined by Rogers (1962), diffusion of innovation is "the process by which an innovation is communicated through certain channels over time among the members of a social system." Engel et al., (1969) tried to use Diffusion of Innovation Model to explain the information flow when Word-of-Mouth Communication takes place. Their studies showed that opinion leaders in a field usually have a greater chance of becoming innovators. They are often the very first group of users who adopt a new product or a new service in a relevant area, and it is very likely that they will initiate Word-of-Mouth Communications regarding the new product or service. It is also assumed that Word-of-Mouth Communication may lead more customers to adopt a new product or service that is superior in qualities or payoffs than average alternative (Ellison 1995).

Kozinet et al., (2010) suggest that online opinion leaders are regarded as the gatekeepers of marketing information. According to Engel et al. (1969), there is great overlap between opinion leaders and innovators who want to be the first to test out a new product or service (Kozinet 2010). Datta et al. (2005) confirmed that online content creators are typically highly engaged consumers with great access to product and marketplace information, and are likely to influence others in the field.

In similar fashion to the elevation of social media above mass media with respect to the changes on the power of various news resources and communication channels, Social Networking Sites have also provided a new platform for anyone to become an opinion leader in a

particular area. For example, a nutrition student could become an opinion leader in the area of healthy eating and wholesome recipes. Similarly, a knowledgeable fan of country music could rise to become a gatekeeper of current information on country music concerts, albums, or soundtracks within his social network. Word-of-Mouth Communication used to be dominated by the "elite few" who have rich resources and connections compared with the general population (Trusov et. al, 2009). Now in the age of social media, an opinion leader can be any individual with respected expertise or knowledge on a certain subject.

- **Social Network Analysis**

Social network analysis is the process of analyzing social structures through the use of networks and graph theory (Evelien and Rousseau, 2002). Some studies have investigated Word-of-Mouth Communications between messenger and recipients through the social network analysis method. Two key factors impacting consumers' decision-making and attitude formation regarding Word-of-Mouth Communication are tie strengths ("the strength of the dyadic interpersonal relationship in the context of social networks" Money, Gilly and Graham 1998, p.79), and homophily ("the extent to which pairs of individuals are similar in terms of certain attributes, such as age, gender, education, or lifestyle" Brown 2007, p.5)

Trusov et al. (2010) developed an approach to identify those who have a strong influence on the decisions of people within their social networks. For example, if an individual's Facebook friends log on to Facebook in a similar frequency to that of the aforementioned individual, it is assumed that the Facebook user has influence on his connected Facebook friends. Based on these assumptions, Trusov et al. tracked the daily Facebook login activities of a group of

interconnected users of Facebook and found that they influenced the login activities of 20% of their Facebook connections.

In contrast, research by Smith et al. (2007) contradicts the notion that Word-of-Mouth Communications rely heavily on the elite few because they are highly connected through social networks. Brown et.al. (1987) compared the influence of weak ties (social connections that are not very close, such as colleagues or acquaintances) and close ties (social connections that are closely related such as close friends, family members, etc.) regarding its influence on Word-of-Mouth Communication, and found that weak ties are at least similar in influence to close ties. Moreover, according to the research by Goldenberg et al. (2001), weak ties are even more influential when it comes to bridging the different information channels of distant social networks and they help to improve the cross-sectional communication among different social groups.

- **Factors that Cause a Message "Go Viral"**

Studies of online Word-of-Mouth Communication suggest that how entertaining the website is, users' participation (families, friends and community involvement), peer pressure, and perceived ease of use & usefulness of the website have great influence on the website participation and diffusion of online content (Abedniya 2010). Consistent with this, Chu et al. (2011) investigated the antecedents of Word-of-Mouth Communication via Social Networking Sites from a social perspective. They observed that tie strength, trust, normative and informational group norms impact one's engagement positively, while homophily (the tendency of individuals to associate themselves and bond with someone else that are similar to them) acts in the opposite way.

Concerning the message itself, Berger and his colleagues found that online users are more likely to share stories that are useful, practical, surprising, interesting, or novel. For example, they would be likely to share a news article about an innovative nutritional research finding regarding the benefits of consuming a cup of celery per day, because it provides practical news that may be useful to readers who care about their health and are willing to make improvements in their current eating behaviors and dietary choices. Such stories were more likely to be forwarded to one's family and friends online (Berger and Milkman 2012; Bakshy et al. 2011). Furthermore, messages inciting amusement or anger also drive Word-of-Mouth Communication, while depressing messages hinder it (Berger 2011; Berger and Schwartz 2011). Additionally, Chen and Berger's (2013) study showed that controversy can drive Word-of-Mouth Communication by increasing interest in the topic and also discomforting the feelings of readers, thus providing that an emotion-arousing element that is very useful in sparking Word-of-Mouth Communication.

- **Recent Work on Word-of-Mouth Communication**

Eisingerich et al. (2014) examined the differences between face-to-face Word-of-Mouth Communication and Word-of-Mouth Communication via Social Networking Sites. Compared to face-to-face Word-of-Mouth Communication, consumers were less likely to engage in Word-of-Mouth Communication through Social Networking Sites due to concerns about damaging their reputations or offending their audiences. Presumably, having access to a large, diverse audience, makes it more challenging to appropriately "tailor" the message than when sending to a more select audience. Their study also showed that a strong intention to enhance one's image mitigated the differences between the two communication modes. To demonstrate this, Eisingerich et al. manipulated participants' need for self-enhancement. In the "high self-

enhancement need group," participants were instructed to think back and describe in detail their poorest academic performance; while participants in the control group were asked to describe their most recent grocery store shopping experience. Consumers primed with higher self-enhancement were more likely to engage in Word-of-Mouth Communication on Social Networking Sites despite their concerns about social approval. This led to smaller differences between Word-of-Mouth Communications through Social Networking Sites and such communications in face-to-face situations.

4. Research Gap on Word-of-Mouth Communication

In summary, studies on Word-of-Mouth Communication predate the emergence of social media, so it is unclear how these earlier studies apply to Word-of-Mouth Communication on social media. Social Networking Sites enable individuals to attain a network of several thousand online friends, consisting of a mixture of both weak and strong ties. In addition, the timeline feature on each person's Facebook profile now makes it possible to trace and review past statements and events.

While much scholarly work has been done to examine factors driving Word-of-Mouth from a psychological perspective (Berger 2011; Berger and Milkman 2012; Berger and Schwartz 2011; Cheema and Kaikati 2010; Dubois, Rucker, and Tormala 2011; Packard and Wooten 2012), scant research has been conducted to investigate Word-of-Mouth Communication from a sociological perspective. In this dissertation, I posit that Word-of-Mouth Communication is not simply triggered by one's satisfactory or unsatisfactory experience with a product or service. Instead, Word-of-Mouth Communication is a means of communicating one's social identity, which then impacts the choices of their peers.

In this study, I propose that people decide whether to disseminate information, based upon their perception of their social image. Sharing information, whether about oneself or simply information one finds interesting reveals much about the person who is sharing the information. I propose that in the context of social media, people who receive a particular person's posts or messages would associate the content with that person and would make inferences about what kind of person he or she is from the post or the message. In sum, sharing a particular type of information with others is a calculated form of self-presentation that allows an individual to regulate how others perceive them.

CHAPTER THREE

Self-Presentation and Social Identity Signaling on Social Networking Sites

1. Self-Presentation - in Real Life and on Social Networking Sites

Self-presentation is a series of behaviors through which people behave in a certain way in order to create or enhance their social image. Leary and Kowalski (1990) claimed that there are several strategies commonly used when people build up their self-image. These include: verbal and non-verbal communications (the words people use to communicate with others, facial expressions, and body gestures, etc.), social connections (choosing to be friends with someone or with a certain social group, or not), appearance (how one dresses and behaves in a particular way), as well as material possessions (the car one is driving, the handbag one is bringing with her, for example) (Boyd 2007). Through looking at the items an individual owns, people develop a better understanding of the one's interests and tastes (Burroughs, Drews, and Hallman, 1991). Similarly, research by Brunswik (1952), and by Gigerenzer and Kurz (2001) found that both people's behaviors and the "artifacts" produced by individuals (for example, the travelling pictures or articles one "shares" on Facebook with online friends) are perceived as a reflection of one's personalities. Thus, both one's behavior and one's "artifacts" are used as lenses, through which one can partially get access to the personality of an individual. Belk (1988) noted that possessions not only help to build one's sense of extended self, but also help the audience to form impressions about the individual. Consistent with this, Halle (1996) indicates that the artwork displayed in one's living room is always selected by the owner to reflect his or her social class and taste, and that observers of this art, on the other side, usually make inferences about the owner's social class and taste based on the artwork displayed.

People naturally tend to present themselves to others in a positive way. Research suggests that individuals usually behave in a self-enhancing way when interacting with strangers in person (for example, people will make more donations in greater amount when there are others present in comparison with when no one is present) (Schlenker and Pontari 2000). Self-enhancement behavior also occurs on Social Network Sites. A study by Walther (2007) found that on Social Networking Sites where individuals rely on computer-mediated-communication, online users took advantage of selective self-presentation strategies to create appealing personal images and to modify their messages ways that would presumably bring more benefits. The technical characteristics of computer-mediated-communication including easy-to-edit, off-line composition, and time suspension during a conversation, which all lend online users greater flexibility with respect to self-enhancement.

Presumably, the diversity of one's Internet friends influences the way one portrays oneself. For example, Twitter users can be close friends with some followers, yet might be totally strangers to others. Therefore, the diversity of readership of one's tweets makes it unrealistic to vary self-presentation strategies designed to influence a particular audience (Boyd 2010). Due to this diversity, Twitter users typically feel less pressured to maintain consistency regarding the content of their tweets. In contrast, Facebook is most often used to connect people with others with whom they have established relationships in person. Therefore, Facebook users are inclined to present the side of themselves that they believe will be well approved by all of their peers online. One's friends on Facebook are not necessarily all close ties, but typically include people that they are already familiar with through offline occasions, such as classmates, coworkers, teammates, etc. (Lampe, Ellison, & Steinfield, 2007; Lenhart & Madden, 2007). Accordingly, audiences composed of both close and weak ties on Facebook make it trickier for

Facebook users to manage their online identities. In addition, the number of connections an individual can make on Social Networking Sites is typically much larger than the number with whom the user would communicate on a regular basis in the real world (Ellison, 2007; Donath, 2007). Therefore, users of Social Networking Site face the challenge of maintaining a particular personal image when presenting themselves to their large and mixed connections online.

The capacity to form broad connections via Social Networking Sites severs the division between different sets of audiences in real life (Boyd 2010). For instance, the physical boundaries that exist between the working place and home or between friends from high school and current acquaintances all collapse on Social Networking Sites because one can have all of one's possible social connections on the same social media platform together.

Interestingly, before the advent of the Internet, Joshua and Meyrowitz (1985) predicted that digital media would collapse the walls separating different social situations and would contribute to a further combination of audiences. Schau and Gilly (2003) showed that while personal website creators consider their websites open to the public, those creators actually tend to tailor the nature of their content to the interests of close friends and family members.

Realistically however, an online audience is potentially unlimited and undefined. Therefore, it is difficult, or perhaps impossible for Social Networking Site users to make an online post appeal to their entire potential audience base. Consequently, I speculate that rather than trying to separate online social settings through customized privacy settings, Social Networking Site users would rather choose a safer and more conservative strategy when presenting oneself online in order to avoid any possible social risks when posting or sharing something. Doing so may make good sense. Many employers now routinely check the LinkedIn

profiles and publicly available Facebook information of their current and potential employees (Protalinski, 2012). A job seeker might want to present a strong profile on the professional Social Network Site and avoid posting anything unprofessional like a birthday party picture.

In summary, Social Networking Sites (e.g. Facebook, Twitter, and Instagram, etc.) grant individuals the power to control one's self-presentation online. However, it is unknown how online sharing behaviors help establish individuals' sense of self, present one's true self or ideal self, or how such behaviors contribute to social identity. Specially, what are the primary concerns and motivations of individuals when they contemplate posting information on a Social Networking Site? For example, what are the possible obstacles prohibiting individuals from sharing something on a Social Networking Site?

A report by Eisingerich et al. (2014) demonstrated that higher perceived social risk associated with Word-of-Mouth Communication through Social Networking Sites could explain consumers' less willingness to engage in Word-of-Mouth Communications on social media compared with that in face-to-face scenarios. Therefore, as a way to improve one's identity, it is highly possible that self-disclosure through sharing behaviors on Social Network Sites would be influenced by reference group and the need to conform to social norms.

2. "We are What We Have" - Material Possessions and Extended Self

According to Sartre (1943), individuals can incorporate possessions into one's sense of extended self through appropriating or controlling an object for personal use. The objects that we possess from our identities (Jams 1890; Feirstein 1986). Echoing these claims, Belk (1988) stated, "Knowingly or unknowingly, intentionally or unintentionally, we regard our possessions as parts of ourselves." Essentially, possessions are extensively used to "extend, expand, and

strengthen" a consumers' identity, which explains many motivations underlying purchase behaviors (Ahuvia 2005).

"All the world's a stage, and all the men and women are merely players," Shakespeare wrote, as he described human activities as performances on the stage of life. We all play different roles, depending on the audience. "We put on a face to meet the faces we meet." (TS. Eliot 2009; Leary and Kowalski 1988). Goffman's (1956) dramaturgical approach claims that life is a stage for activities. In addition, other terms that have been used to describe human activates are "libraries" and "galleries" where people can present oneself in a different way as on the stage of life. Hogan (2010) noted that there are two styles of presentations of self: "performances" and "artifacts." "Performances" happened in a synchronous manner when both player and audience are present, while "artifacts" are on display in an exhibition where audiences can access the display after the curator constructs it.

3. "You Are What You Post" - Digital Possessions Online and Extended Self

In the age of Web 2.0, user-generated websites provide individuals a virtual "stage" for "performance" and "exhibition." Social Networking Sites evolve with ones' needs to construct a digital self and to connect with online friends, share information, obtain emotional support, seek entertainment, etc. (Belk 2013). According to Nadkarni and Hofmann (2012), use of Facebook is primarily driven by two internal needs: belongingness (desire to form relationships) and self-presentation (the behavior that intends to convey some information or self-image to others). Users seeking fame or popularity try to enhance personal images online (Utz et al., 2012). Compared with on-site exhibitions, online Social Networking Sites have no limits on time or space. Media tools, such as texts, photos, and videos permit an individual to enhance their self-

presentation online. A presentation of one's network on Social Networking Sites including Facebook, Twitter, and Instagram make it possible to display information about personal tastes, likes, dislikes, and other affiliations (Boyd and Elisson 2007; Donath and Boyd 2004; Papacharissi 2002 a&b; 2009). A study on "taste culture" on a Social Networking Site by Liu et al. (2007) showed that online users purposefully display their favorite collections of books, music, movies, and TV shows to create an image of aesthetic taste and preference.

People naturally try to present themselves in a positive way. Research has shown that self-presentation behavior is the most basic and important requirement to be part of the virtual world on social media (Tufekci 2008; Berger and Calabrese 1975; Goffman 1959). Studies have shown that individuals regard self-presentation as a leading reason for being on Facebook and 62.64% of users agree that posting and sharing photos with friends online using Facebook is a good way to express themselves (Pempek 2009). In doing this, college students and adolescent users tend to choose profile pictures that they perceive as more physically attractive (Siibak, 2009; Strano, 2008; Ong 2011; Zhao 2011). Additionally, individuals who create profiles on dating websites build their self-presentation very carefully and tend to show the sides of oneself that would be more attractive to others (Elisson, Heimo and Gibbs, 2006).

Since there is no physical interaction with another person on a Social Networking Site, this lends Social Networking Sites users greater control over self-disclosure compared with face-to-face communications. Social Networking Sites permit users to be strategic when presenting and building their self-image online (Bibby 2008; Buffardi and Campbell 2008; Kramer and Winter 2008; Walther 1996). People can govern what they publicize and conceal, and even to whom. For example, a Facebook user can select different privacy options when making a post about their personal life; choosing either "public," which everyone on Facebook can see, or

"friends," in which case, the post can only be seen by one's connections on Facebook. When it comes to the timing of presentation on a Social Networking Site, I am suggesting that Goffman's approach would work better through the metaphor of "exhibition" rather than "performance" because such sites allow users to post their personal collections of pictures, videos, or news stories on webpage and to share with friends. It is not a single "performance" but a constant "exhibition" that can be accessed by one's friends, anytime.

Roger Barker (1968) claimed that in most situations, an individual's behavior is not entirely determined by a single stimulus in a specific situation, but rather is influenced by other's expectations in a social environment. Consistent with this, Goffman (1959) also claimed that self-presentation is not simply dependent on the physical location and specific time where it takes place but rather on the physical location, time, and the person's specific social role. This suggests that one's self-presentation will not only be influenced by the social occasion but by the group of people they want to impress. Indeed, "situationism" asserts that people usually respond to different situations based on specific context rather than psychological traits (Bowers 1973).

4. "Sharing" Extended Self on Social Networking Sites

Sharing is a common behavior exhibited by humans because it builds rapport. People enjoy telling their friends about their dining experience at a newly opened restaurant down the street, showing off the brand-new tote bag they received as a birthday gift, or bragging about owning the newest iPhone. On social media, people frequently post pictures of recent travel experiences, inform others of their location or whereabouts by checking check in at local restaurants, and tag friends in pictures, etc. With just a few clicks, a large number of people can view a single picture or experience.

Individuals build up their aggregated self, which is the overall sense of self in the situation, ranging from family, school, neighborhood, and nation, through sharing cool styles, trending music, and popular movies with people with whom they shared similar social identity (Belk 2013). The ability to display one's possessions digitally or their whereabouts via social media liberates individuals from the limitations of time and location. For example, sharing one's collection of music albums or travel pictures with others in person is limited to interactions with families and close friends. In contrast, social media has made it possible to publicize playlists online (on Spotify, for example, people can see what albums online friends are listening to and their favorite play list) or share pictures from a trip on Facebook. Social media also provides great freedom and makes it feasible and comfortable to share immaterial "self-extensions" such as personal tastes, opinions, and social activities to a network of audiences online in a subtler way. The convenience of sharing on social media may cause some to subconsciously "over-share" information about their lives. People possess different perspectives of self and usually present a particular side of their self under various situations. Among these, "True" self refers to one's real individuality as the inner side of the self, whereas "ought" self represents the qualities one feel obligated to possess or show in front of others (Baumeister, 2010). When it comes to presenting "true" self or "ought" self on Social Networking Site, the lack of personal interaction in real word or shared social contacts might make it easier to express their true inner self online than in face-to-face situations (Bargh, McKenna, and Fitzsimons 2002; Ladkin and Taylor 2010; Tosun 2012).

Mckinlay and Starkey (1998) noted that individuals cultivate the sense of self partially with the help of others. In addition to building one's identity on social media through presentation of digital possessions, experiences and opinions, the contribution from online

friends in constructing each other's social images are via online interaction such as making a post with best friends, tagging classmates involved in an event, "liking" friends' post, and making "comments" on friends' posts. Larsen (2008) found that most messages between friends via social media are *phatic* communications, meaning the language itself is not used to convey meanings literally, but rather to send a social message (Malinowski 1923). In other words, whatever the content of the message posted on social media, for example, "Your pictures look awesome!" the real meaning is, "Hi, I am still your friend and I care about you!" What's more, the act of sharing messages on the same subject or topic (e.g., sharing a trending topic-related post on Facebook like the ALS ice bucket challenge) strengthen one's sense of belongingness and group identity (Brown and Sellen 2006; O'Hara and Brown 2006).

Moreover, the option to display past events chronologically or experience them on social media enables the user to tell a story about oneself. According to Giddens (1991), "Our identity is not to be found in behavior, nor in the reactions of others, but in the capacity to keep a particular narrative going." For example, a political enthusiast who exclusively posts about Donald Trump's political statements on his Facebook wall might be reluctant to post a funny video unrelated to politics from YouTube because it deviates from his established political image on social media. His followers might find it contradictory with his image on Facebook if he posts something about the trending summer fashion styles. Audiences on social media obviously have great influence on one's decision of sharing something.

CHAPTER FOUR

Social Identity, Social Reference Groups and Their influence on Information "Sharing"

Behavior on Facebook

1. Identities and Social Groups

According to Social Identity Theory, an individuals' sense of self is composed of both personal identity and group identity, the latter obtained through the feeling of belonging to a group and connection with other members in the group (Tajfel and Turner 1979). One's identity is balanced between the way a person defines oneself in an independent individual perspective and the way they define themselves with regard to connections to other individuals and social groups (Kleine, Kleine and Allen 1995). Social groups refer to a group of people (more than two) sharing the same social identity. Members of the same social group (an in-group) highly identify with each other and evaluate each other in the same way. They share similar attributes and values, and relate to members within the group. They also distinguish themselves from people not in the same group and from those in specific out-groups, (social groups that individual does not belong to or identify with) (Van Lange, Kruglanski, and Higgins 2011). In this way, people divide the world into "us" and "them." Personal identity helps people distinguish themselves from others and to establish their sense of uniqueness as "me," whereas the affiliated identity situates the person in the social world to establish their sense of belonging as "we." Being involved in different social contexts, individuals construct their social identity partially through associations with different social groups (Tajfel and Turner 1979). People are typically involved with different social groups and one's social identity is the consolidation of these multiple relationships.

2. Reference Group and Social Identity Signaling Theory

In addition to the presentation of one's personal life, individuals also use their social media to shape their social identities. Studies have shown that a person's reference group, the social group used as the standard for making comparisons of oneself versus others or as a benchmark for behavioral norms and attitudes has great impacts on a person's decisions. This is particularly true in cases involving the need to make multiple decisions (Bearden and Etzel 1982). The resulting impact could be accruement of information or knowledge when consumers ask for help from people with more expertise on certain subject. The impact could also be something like guidance of one's behavior rubrics, when consumers identify themselves with a particular reference group and conform to the norms of the group to gain approval or to enhance self-image (Bearden et al., 1989, Katz 1960). Nonetheless, McGuire (1968) suggests that individuals vary greatly regarding their susceptibility to the influence of reference groups. Based on this argument, I suggest that the "more influenceable individuals" with higher susceptibility to normative influence would be more likely to be impacted their own perceived reference group than by others. The hypothesis is tested in the studies.

Reference groups can be categorized as informational reference groups, utilitarian reference groups and value-expressive reference groups (Deutsch and Gerard, 1955; Kelman, 1961; Park and Lessig, 1977). Informational reference group is the group of people from which individuals will seek information to make informed decisions and the information from this group are perceived as credible and significant; utilitarian reference group is the group of people individuals try to comply with so that they could achieve rewards or avoid punishments; and value-expressive reference group is the group of people individuals feel emotional attached to or desire to be associated with; individuals will try to resemble or behave like this reference group

(Bearden and Etzel, 1982). That being said, individuals seek useful information from informational reference groups and learn the standards and norms of what they should do by observing the behaviors of members of an informational reference group. For example, a first year college student might determine whether they are drinking too much by comparing how much they drink with their roommates or friends. Since certain behaviors can communicate one's social identity, individuals may also behave in ways that are consistent with, or are associated with a value-expressive reference group. They might imitate what this group usually does or express their emotional attachment to the group through favors or compliments (Deutsch and Gerard 1955).

Though the three groups are technically distinguished from each other, Burnkrant and Cousineau (1975) suggested that individuals could hardly tell the differences between a utilitarian reference group and a value-expressive reference group. In the real world, a particular social group could function both as a utilitarian reference group and as a value-expressive reference group. Based on this notion, two new types of reference groups are suggested by Burnkrant and Consineau (1975): normative reference groups and comparative reference groups.

Individuals have direct social interactions with a normative reference group. This group provides individuals with standards for "right" behaviors, values, and attitudes; consumers feel socially proximal to the group since they share immediate social networks such as peers, families, and friends. In contrast, an individual has little or no social interactions with individuals in a comparative reference group. Instead, such groups usually serve as role models for that which an individual aspires to become.

Numerous studies have shown that it is common for individuals to imitate the behaviors of comparative group members (Asch 1956; Cocanougher and Bruce, 1971; Proshanky and Siedenberg 1965; Sherif 1936). Movie and sports stars are very typical comparative reference groups. The aforementioned influences of reference groups on individuals' behavior change may be explained by the notion of Bourne (1957) that an individual's behavior in a public situation can serve as a social signal, communicating one's social identity and belongingness to a social group (Bearden and Etzel 1982).

3. Distinguishing Oneself from a Social Group

Individuals in a particular social group are likely to distance themselves from another social group (Berger 2008; Berger and Heath, 2007, 2008). Referred to as "cultural tastes" by Escalas and Bettman (2005), particular attitudes, possessions, and behaviors communicate one's social identity through their association with certain social groups, or with particular types of individuals. It is common for people to adopt a particular cultural taste after it becomes associated with a desirable social group. For example, in certain social circles, dress signal one's wealth and social status. Constant divergence behavior explains why fashion changes so quickly among New York City socialite classes. Styles and designs change continuously because people want to differentiate themselves by dressing in ways that place them at the forefront of the latest trends (Kaufman, 2012). The type of food a person purchases or consumes also contributes to one's social and personal identity. For example, people may choose to buy organic meat and vegetables at Whole Foods Market to promote their health but also to make a public statement about their healthy lifestyle. In addition, individuals try to avoid signaling undesired social identities. They try to avoid the cultural tastes, attitudes, values, and consumption patterns of

identity-relevant products that are associated with a social group they do not desire to join (Cooper and Jones 1969; Holt 1997; Thompson and Haytko 1997; Veblen 1899).

According to Berger and Heath (2008), people diverge their behavior from a social group when they have a clearly defined identity that they want to communicate to others. Their studies showed that college students living in dorms stopped wearing a wristband after students living in the "geeky dorms" next door also started to adopt the practice. Similarly, people will drop a cultural taste after it is widely accepted by an undesirable or even stigmatized social group (Englis and Solomon 1995). Based on the aforementioned studies, I speculate that intention to diverge from a social group would also drive people to share something that signal a certain identity on Social Networking Sites.

On the other hand, a person's identity is malleable and is constantly influenced by new associations. The study by Berger and Heath (2008) also showed that undergraduates living in college dorms abandoned using LiveStrong wristbands, a one kind of cultural product, after the products were associated with "geeks" in academic dorms. The adoption and popularity of the wristbands among "geeks" made it a new identity signal that some wished to avoid. In the paper by Berger and Rand (2008), they took an identity-signaling approach to reduce risky health behaviors among undergraduate students by associating risky behaviors (e.g., eating junk food, getting drunk, ordering fattening food) with an avoidance group; graduate students in this case. Their research showed that undergraduates reported drinking less alcohol, ordering more low-fat foods, and eating less junk food after those behaviors were associated with graduate students; the effects were significant among participants with an intention to avoid the signal of being akin to graduate students while not significant among those who did not mind sending such signals. The identity signaling approach showed both strength and perseverance in terms of behavior

outcomes; for example, in the alcohol study (Berger and Rand 2008, p512) participants were required to report recent alcohol consumption two weeks after they have been exposed to the posters promoting responsible drinking and reductions in alcohol consumption remained significant even after two weeks.

4. Follow the Behavior of a Social Group

It is suggested that people tend to conform with the behaviors of those similar to them and to converge (lean toward) on attitudes by similar others (Harton and Bourgeois 2004). One study by Festinger (1954) showed that students reflect on their drinking behavior by comparing it to that of their peers to check on their attitudes, beliefs, and behaviors on drinking. Strengthening this finding, research by Yanovitzky, Stewart, and Lederman (2006) showed that when students reflected on how much alcohol they consume, they were largely influenced by comparisons to people who are socially close to them such as close friends than by comparisons to people who are socially distant, such as students in general. In addition, one study by Englis and Solomon (1995) showed that individuals mimic the behaviors of the social group they admire or aspire to join. As a result, marketing campaigns often use celebrity endorsements to promote health behaviors (e.g., celebrity endorsement of mammography for breast cancer screen) or commercial products. Identity Signaling Theory states that people adopt or abandon certain behaviors associated with a particular social identity either to signal or to avoid signaling others that they share that identity; individual are aware of the observations of their behaviors by others and so the intent to transmit particular impressions to others often shapes one's behaviors (Berger 2008).

5. Group Norms and Normative Influence

Norms are defined as "customs, traditions, standards, rules, values, fashions, and all other criteria of conduct which are standardized as a consequence of the contact of individuals" (Sherif, 1936, p. 3). According to Cialdini, Reno, & Kallgren (1990), norms could be conceptualized into two distinct ideas as descriptive norms and injunctive norms; descriptive norms provide information on what behaviors are prevalent among members of a group (what the group members are currently doing) whereas injunctive norms provide information on what behaviors members of a group are pressured to conform to (what the group members think they should do or ought to do). It is argued that other than functioning alone, group norms typically work together with an individual's group identity, i.e., one's sense of belongingness to a social group (Tajfel and Turner, 1986). Moreover, group norms' influence on people's behavioral change is contingent upon social interactions and intergroup relations which can only occur via communication among members of different social groups (Rimal and Real, 2003).

Previous research on intergroup relations has extensively focused on differentiation processes including prejudice and intergroup conflicts (e.g., White & Langer, 1999; Tajfel & Turner, 1979). The behavior measurements used to investigate the relations between different social groups are primarily resource allocation, general evaluations of other groups, and ratings of the traits of the other groups (Moghaddam & Stringer, 1988; Roccas & Schwartz, 1993; Brown & Abrams, 1986). Those studies investigated in what situation people would favor their own groups and the underlying reasons why people have such preferences.

On the other hand, a systematic review of marketing and social marketing campaigns using a social norm approach (SNA), an approach to change people's behavior by telling them

what the majority others do, suggested that selecting the appropriate reference group for the target audience is one of four key characteristics to make the campaign a success (Burchell, Rettie, and Patel, 2013). In the context of SNA, the most appropriate reference group is the social group with whom the target audience fee most identified with or associates with (Berkowitz, 2004; Lewis and Neighbors, 2004; McAlaney et al., 2010). For instance, previous social norm studies of campus alcohol consumption showed that one primary method to maximize target audiences' identification and association with the reference group is through the use of such terms as "same college", "your neighborhood" or the usage of photos of the appropriate demographic groups to afford the campaigns a strong sense of locale to the target audience (Perkins and Craig, 2002; National Social Norms Institute, 2012a; Harries et al., 2013). Based on the findings aforementioned, this study took the research on reference group one step further to investigate: 1) the key psychosocial factors (e.g., group belongingness, social distance, aspiration to join the group) influencing a reference social group's impact on changing target audiences' intended behavioral change; 2) the influence of associating a reference social group with a health behavior in a news article (or health message in another way) on target audiences' information sharing behaviors (either via Social Networking Sites or Face-to-Face communication); this will contribute to the understanding of inter-group relations in the scope of communication across different social groups, which serves as an important prerequisite of group norms' influence on people's behavioral change as a primary form of social interaction (Rimal and Real, 2003).

From the perspective of individuals, Susceptibility to Normative Influence (SNI) is defined as one's desire to connect oneself with others and the need to meet others' expectations; it is found to be positively correlated with one's concerns about others' opinions, conforming to others' expectations and emulation of others' behaviors (Bearden, Netemeyer and Teel 1989).

Normative influence is largely dependent on the presence of the audience such that an individual's behavior is shaped by the opinions or judgments of others (Burnkrant and Cousineau 1975). In other words, it is expected that Susceptibility to Normative Influence would not influence one's behavior when there are no "others" present. Consistent with this notion, the study by Wolfe et al. (1986) suggested that Susceptibility to Normative Influence (SNI) would predict one's consumption behavior only when the consumption is conspicuous (can be seen by others), such as purchasing a car or a handbag. In addition, a study suggested that a high Susceptibility to Normative Influence also reflected one's desire to fit in with a social group (Wolfe, Lennox, and Cutler 1986). In this dissertation, I investigate consumers' information sharing behavior on Facebook. Making a post or sharing a news article on Facebook is obviously also a conspicuous behavior which can be seen by one's connections online. A health behavior (vegetarian consumption behavior) is associated with a social group. It is hypothesized that one's Susceptibility to Normative Influence will also affect the sharing behavior of the news article because the normative influence from the social group with which they desire to fit in is largely dependent upon one's susceptibility to it.

6. **Current Research**

This study investigates the influence of social reference group and group norms on Word-of-Mouth Communication behavior on Social Networking Sites. The study examines the influence of consumers' cognitive processes both in terms of sharing a potentially useful news message regarding a specific healthy eating behavior with others, and in terms of the information sharing behavior itself, which serves to signal one's social identity. It is hypothesized that the desire to fit in with a social group will drive individuals to share a health message that associates the social group with a health behavior (vegetarian consumption behavior) on Facebook. The

information sharing behavior on Facebook is a way to conform to the norms or behaviors of the

social group, which would help individuals to feel more involved with the social group and

strengthen the group identification. It is also expected that individuals with high Susceptibility to

Normative Influence would be more likely to be influenced by a social group's values and norms

when it comes to Word-of-Mouth Communication behavior on Social Networking Sites. Using

the perspective of Social Identity Signaling Theory, the study also investigates whether or not

sharing behavior online could also help to signal one's social identity; how intention to diverge

or converge to the norms of a social group influences one's sharing of a news article describing

behaviors associated with certain social group. Information sharing has become an even stronger

signal in terms of social identity, when it comes to online sharing behavior through social media.

In all three studies, vegetarian consumption behavior is associated with different social

groups in a fabricated news article on the general benefits of a vegetarian diet and the reference

group's consumption behavior. Aside from reference group differences, the news article is

framed either in descriptive group norm or injunctive group norm. There are six outcome

variables in each study as follows:

1) Likelihood to share the news article on Facebook;

2) Likelihood to share the news article especially with close friend(s) on Facebook;

3) Likelihood to recommend the article to family and friends when meeting them in real life;

4) Likelihood to share a popular vegetarian recipe on Facebook;

5) Likelihood to order a vegetarian dish for next lunch or dinner;

6) Likelihood to take a photo of their next vegetarian meal and post it on Facebook.

CHAPTER FIVE

Impact of Reading a News Article Associating a Healthy Eating Behavior with an "In-group" or an "Out-group" on Consumers' Information Sharing Behavior and Intended Healthy Eating Behavioral Change

Introduction

Within the sociological perspective, in-group and out-group are social groups formed based on individuals' social interactions and their tendency to join a group because of those interactions. An in-group is a social group that individuals feel an identity with and have an attachment to; in contrast, an out-group is a group that individuals do not identify with and/or do not belong to (Moreland, Hogg & Hains, 1994). According to the Social Identity Theory proposed by Tajfel and Turner (1979), people tend to think more highly of an in-group than outgroups. Consistent with this, in-group favoritism, which means that members of a group tend to favor members from the in-group over members of an out-group, has been demonstrated by a myriad of studies (Allen & Wilder, 1975; Billig & Tajfel, 1973; Brwer 1979; Brewer & Campbell, 1976; Brewer & Silver, 1978; Howard & Rothbart, 1980; Levine & Campbell 1972, Locksley, Ortiz, & Hepburn, 1980; and Tajfel 1970).

Social scientists have long recognized the influence of group membership on changing people's behaviors (Merton and Rossi, 1949). In practice, marketers and advertisers also take advantage of reference groups in persuading consumers to purchase a particular product or brand, for example, using popular stars or attractive people to endorse products in advertisement to influence consumers' purchasing behaviors (Kotler, 1980). The success of using reference groups to market commercial products and brands reinforces the notion that reference groups

have a great impact on people's lifestyles and behaviors, values and attitudes, and their following of group norms (Bearden & Etzel, 1982).

However, a review of the literature suggests that no research has been conducted investigating the influence of using reference groups in a news message on people's dissemination of that news article describing the social group's behavior. This study fills that gap by investigating the influence of associating a healthy eating behavior (eating vegetarian meals) with an in-group or out-group on individuals' news article sharing behavior on Facebook; Word-of-Mouth Communication behavior in-person; as well as intentions to consume vegetarian meals. In addition to associating a reference group with the health behavior in the message, group norms (descriptive norms and injunctive norms) were also taken into consideration in terms of the way the messages were structured.

To test the hypothesis that different reference group relations would have different influences on participants' Word-of-Mouth Communication behavior, two reference group conditions were created: 1) Rutgers Undergraduate Students (in-group) and 2) Pennsylvania State University Students (out-group). The in-group/out-group construct is operationalized through participants' self-identification as a Rutgers Undergraduate Student (in-group), who would comparably regard Pennsylvania Undergraduate Students (who are academic and athletic rivals) as members of an out-group. Either a descriptive group norm or an injunctive group norm was applied in constructing the news article. Based on the notion that "You are what you share" on social media by Belk et al. (2013), it is hypothesized that participants will be more likely to share a news article associated with an in-group than if it were associated with an out-group. The study intends to establish the hypothesized connection between reference group and online Word-of-Mouth Communication behavior, that is, news "sharing" on Facebook.

Methods

1. Recruitment

275 participants were recruited from the Rutgers Business School undergraduate student's research pool via the Behavioral Lab at Rutgers Business School. Participating students received extra academic credits upon completion of the survey. All participants were Rutgers undergraduate students taking an introductory level course at Rutgers Business School. Students who would like to enroll the study were asked if they have a Facebook account. Only those with a Facebook account were qualified to procced with the study.

2. Experimental Design

A randomized controlled incomplete factorial (2 by 2 plus a control group) experimental design was used to examine the influence of reference group and group norms on individuals' Word-of-Mouth Communication behavior on Social Networking Sites, which was operationalized as the news article "sharing" behavior on Facebook, Word-of-Mouth Communication in person, which was operationalized as recommending the news article to family and friends when meeting them in person, and intention to eat vegetarian meals. A one-way Analysis of Covariance (ANCOVA) was conducted to analyze the main effects of the experimental factors and interactions between the two main factors on outcome variables, controlling for the influence of covariates. IBM SPSS Statistical Software (SPSS) 22.0 was employed to perform the analyses.

3. Measurements

2.1 Independent variables

Two independent factors were manipulated in the study: reference group and group norms. The factor of reference group contains two levels: in-group and out-group. Operationalization of participants' identification as in-group or out-group is based on the students' current affiliation with schools identified in the news article. Since all participants are Rutgers undergraduate students, it is assumed that participants will view the group of Rutgers Undergraduate Students as a relevant in-group whereas they will view the Pennsylvania Undergraduate Students as an out-group. All participants were randomly assigned to either the in-group or out-group condition and were directed to read a news article they were told to imagine had been originally printed in the New York Times and was then posted on Facebook.

Materials

The first part of the news article describes a vegetarian diet and the health and environmental benefits of being on a vegetarian diet; the second part of the news article reported (fabricated) survey data attributed to the American Health Association. In the second half of the news article, the percentage (60%) of a social group who reported that they have (descriptive group norms) or reported that they should have (injunctive group norms) consumed vegetarian meals at least twice per week was indicated. This was followed by the comment that his percentage (60%) is 50% higher than average consumption by general college students in the United States. The article continues with stating the reason why the particular social group chose a vegetarian dish: 70% for environmental concerns and 30% for both nutrition and environmental concerns. In the in-group condition, Rutgers University undergraduate students

are associated with the vegetarian consumption behavior; in the out-group condition, participants read a news article associating Pennsylvania State University undergraduate students with the vegetarian consumption behavior. As mentioned previously, group norms are manipulated as either descriptive norms or injunctive norms. Descriptive norms describe what the group members are currently doing, while injunctive group norms suggest what the group members ought to do or are expected to do (but not currently doing). In addition to the four experimental groups (1. in-group x descriptive group norms; in-group x injunctive group norms; out-group x descriptive group norms; out-group x injunctive group norms), a control group with neither reference group information nor group norms manipulation was also included in the study. See following as two examples of the full messages:

In-group (Rutgers Undergraduate Students) × Descriptive Group Norm

A vegetarian diet is a meal plan made up of foods that come mostly from plants including vegetables, fruits, whole grains, legumes, seeds, nuts and may also include eggs and milk. A vegetarian diet can be healthful and nutritionally sound if it is carefully planned to include essential nutrients such as folic acid, vitamins C and E, magnesium, unsaturated fat, fiber, and other nutrients. By going vegetarian, we can reduce the impact of climate change, rainforest destruction, and pollution, while saving water and other precious resources. In fact, raising animals for food produces more greenhouse gas emissions than all of the cars, planes, and other forms of transportation combined. There has never been a better time to go green by eating green.

A recent survey by American Health Association suggested that 60% of Rutgers undergraduate students have vegetarian meals at least twice per week. This is 50% higher than

the average consumption by general college students in the United States. About 70% of Rutgers students reported that they choose a vegetarian dish primarily because of environmental concerns and 30% Rutgers students expressed that both nutrition and environmental concerns are important to them.

Out-group (Pennsylvania State University Undergraduate Students) × Injunctive Group Norm

A vegetarian diet is a meal plan made up of foods that come mostly from plants including vegetables, fruits, whole grains, legumes, seeds, nuts and may also include eggs and milk. A vegetarian diet can be healthful and nutritionally sound if it is carefully planned to include essential nutrients such as folic acid, vitamins C and E, magnesium, unsaturated fat, fiber, and other nutrients. By going vegetarian, we can reduce the impact of climate change, rainforest destruction, and pollution, while saving water and other precious resources. In fact, raising animals for food produces more greenhouse gas emissions than all of the cars, planes, and other forms of transportation combined. There has never been a better time to go green by eating green.

A recent survey by American Health Association suggested that 60% of Pennsylvania State University undergraduate students agree that undergraduate students at Pennsylvania States University should choose vegetarian meals at least twice per week. About 70% of Pennsylvania State University students reported that they strongly support vegetarian dish primarily because of environmental concern and 30% of Pennsylvania State students also expressed that both nutrition and environmental concerns are important to them.

Outcome Variables Measurements

Six outcome variables were measured on a 7-point Likert Scale (1 indicating "Not at all likely" and 7 indicating "Very likely"). These were: 1) "How likely would you be to share this news article on your Facebook page?" 2) "How likely would you be to share this news article, especially with your close friend(s) on Facebook?" 3) "How likely would you be to recommend the article to your family and friends when you meet them in person?" 4) "How likely would you be to share a popular vegetarian recipe on Facebook if you read one online?" 5) "How likely would you be to order a vegetarian dish for your next lunch/ dinner?" and 6) "How likely would you be to take a photo of your next vegetarian meal and post it on Facebook?"

In addition, two new variables were created to indicate differences between key outcome variables: 1) Difference 1 (D1) = "How likely would you be to share this news article especially with your close friend(s) on Facebook?" − "How likely would you be to share this news article on your Facebook?" Difference 2 (D2) = "How likely would you be to recommend the article to your family and friends when you meet them in person?" − "How likely would you be to share this news article on your Facebook?" D1 is the differences between the likelihood of sharing the news article with all friends on Facebook and the likelihood to share the article with only close friend (s). D1 indicates online users' concern over privacy when sharing information on Facebook. D2 is the difference between the likelihood of sharing the article on social media and the likelihood of sharing the information in-person. It denotes the differences in consumers' sharing intentions on Social Networking Site as compared with doing so in real life.

Covariates

Eight covariates were included in the factorial model. There are three groups of the covariates:

1) Demographic information including age, gender (male or female), and ethnicity (Asian, Black/ African American, Hispanic/ Latino, White/ Caucasian, American Indian/ Native American, other);

2) Vegetarian measures including 1) Self-Report Vegetarian Identity, measured using the question "Do you consider yourself a vegetarian?" on a 7-point Likert Scale with 1 representing "Definitely Not" and 7 representing "Definitely Yes"; 2) Vegetarian Consumption Behaviors when eating out, asking participants "How difficult is it for you to order a vegetarian dish when you eat out?" on a 7-point Likert Scale with 1 representing "Not at all Difficult" and 7 representing "Very Difficult", and 3) Attitudes Towards Vegetarian Dishes which includes four items as "Vegetarian dishes are" on a 7-point Likert Scale with 1 representing "Unenjoyable" and 7 representing "Enjoyable", "Vegetarian dishes are more nutritious than non-vegetarian dishes." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarian dishes taste better than non-vegetarian dishes." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarian dishes are healthier than non-vegetarian dishes" on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree" ; 4) Attitudes Toward Vegetarian People which includes 5 items as "Vegetarians are more good looking than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are healthier than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are nicer and more friendly

than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7

representing "Very Agree", "Vegetarians are having happier lives than non-vegetarians." on a 7-

point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree",

"Vegetarians are more environmentally friendly than non-vegetarians." on a 7-point Likert Scale

with 1 representing "Not at all Agree" and 7 representing "Very Agree".

All measures about vegetarianism and vegetarian consumption behaviors were created

specifically for this study.

3) Social and psychological factors including self-monitoring skills using the validated Self-

Monitoring Scale (Snyder, 1974; see appendix A), and susceptibility to normative influence

using the validated Susceptibility to Normative Influence Scale (Bearden et al., 1989; see

appendix B).

4. Procedure

The data was collected via online questionnaires. Participants who did not have Facebook

accounts were screened out and exited the study. Participants who did meet the criteria were then

directed to read a short paragraph of instructions before beginning the survey. Several questions

followed to capture the participants' self-reports of vegetarian identity, their regular vegetarian

consumption behaviors, and their attitudes towards vegetarian dishes and vegetarians. After

finishing the questions, participants were then randomly assigned to read a news article

describing the benefits of consuming vegetarian foods with or without stating a social group's

actual (descriptive group norms) or ought (injunctive group norms) vegetarian meal consumption

frequency and their reasons for eating vegetarian meals. Outcome variable questions

immediately followed the news story. Standard Self-Monitoring Scale (Snyder, 1974),

Susceptibility to Normative Influence Scale (Bearden et al., 1989), together with demographic questions composed the last part of the questionnaire.

Results

Of the total sample of 275 participants recruited in the study, 269 (97.8%) participants completed the experiment. Participants were composed of 149 male undergraduate students and 120 female undergraduate students from the Rutgers Business School. The mean age of the sample was 21.1, ranging from 17 to 50, with a median age of 20. The participants self-reported ethnicities were: Asian (43.7%), White (27.8%), Hispanic/ Latino (15.9%), Black (6.3 %), and other (5.6%). In the study, there are six outcome variables including: SHARE_OVERALL; SHARE_FRIENDS; RECOMMEND_IN PERSON; SHARE_RECIPE; ORDER_VEGETARIAN DISH; and PHOTO_VEGETARIAN DISH. All six outcome variables are measured using 7-point Likert scales ranging from 1 as "Not at all likely" to 7 as "Very likely."

It can be seen from **Table 1** that the overall likelihoods of the intended information sharing behaviors on vegetarian consumption behaviors are low, ranging from 2.19 to 3.21 on a 7-point Likert scale (1-not at all likely, 7- completely likely). These relatively low scores suggest that participants are not very likely to conduct Word-of-Mouth Communication (to share the news article on Facebook, to recommend it to family and friends in person, or to share a vegetarian recipe on Facebook) after reading a news article, and are unlikely to change their intended vegetarian meal consumption behaviours. However, with millions of online users on Social Networking Sites, even a small increase in the "likelihood to share" online or in-person could make big differences in the quantity of a news articles or health messages being shared

online, resulting in significant increases in readership and potential impacts on people's

knowledge and changes in behaviour al intentions.

Among all seven responses, the mean likelihood of ordering vegetarian dishes for the

next lunch or dinner is the highest (M= 3.21) and the mean likelihood of sharing the news article

on Facebook is the lowest (M= 2.19).

To test for any systematic bias that might compromise randomized group assignments,

the relationships between the independent variables (reference social group and group norms)

and the covariates were examined. Chi-square analyses were used to test categorical variables

including gender and ethnicity. Results showed that there is no statistically significant

relationship between reference social group (or group norms) and gender or between reference

social group (or group norms) and ethnicity. One-way ANOVAs were employed to test

continuous covariates. Results indicated that there is no statistically significant relationship

between social group (or group norms) and age, vegetarian consumption behaviour, attitudes

towards vegetarian dishes, or attitudes towards vegetarians. Both tests demonstrated the

independence of the covariates and treatment effect, which means covariates were roughly equal

across the two levels of independent variables. This suggest that it is appropriate to include all of

these covariates in the following MANCOVA models.

In addition, Pearson correlations were conducted between the outcome variables to test

the assumption for Multivariate Analysis of Covariance (MANCOVA) that outcome variables in

the model are moderately correlated, with Pearson correlations ranging between 0.20 and 0.60

(Meyers, Gampst and Guarino 2006). Analyses showed that outcome variables including 1)

SHARE_OVERALL, 2) SHARE_FRIENDS, and 3) RECOMMEND_IN PERSON are strongly

correlated with each other: SHARE_OVERALL and SHARE_FRIENDS are positively

correlated, r (269) = 0.86, p < 0.000; SHARE_OVERALL and RECOMMEND_IN PERSON are

positively correlated, r (268) = 0.73, p < 0.000; and SHARE_FRIENDS and RECOMMEND_IN

PERSON are positively correlated, r (269) = 0.79, p < 0.000. (See **Table 2.1**). Although the three

outcome variables are strongly correlated, it would still be appropriate to conduct a MANCOVA

though there should not be much differences among the three outcome variables.

Additionally, the three outcome variables SHARE_RECIPE, ORDER_VEGETARIAN

DISH, and PHOTO_VEGETARIAN DISH are moderately correlated with each other:

SHARE_RECIPE and ORDER_VEGETARIAN are moderately positively correlated, r (265)

=0.51, p< 0.000. DISHSHARE_RECIPE and PHOTO_VEGETARIAN DISH are strongly

positively correlated, r (265) = 0.68, p < 0.001; ORDER_VEGETARIAN DISH and

PHOTO_VEGETARIAN DISH are moderately positively correlated, r (266) =0.52, p < 0.000.

(See **Table 2.2**). This suggests that it is appropriate to perform MANCOVAs.

Planned contrasts comparing the four experimental groups against control group revealed

that no statistical significant differences among these groups on any of the six outcome variables

(p> 0.01; see **Table 3**).

Based on the theoretical constructs of the measurements, the six outcome variables were

divided into two groups: 1) intended news article sharing behaviour : SHARE_OVERALL

("How likely would you be to share the news article on Facebook?"); SHARE_FRIENDS ("How

likely would you be to share the news article especially with your close friends?");

RECOMMEND_IN PERSON ("How likely would you be to recommend the news article to your

family and friends when meeting them in real life"); and 2) intended vegetarian meal eating

behaviour and vegetarian meal sharing behaviour : SHARE_RECIPE ("How likely would you be to share a vegetarian recipe on Facebook if you read one online?"); ORDER_VEGETARIAN DISH ("How likely would you be to order a vegetarian dish for your next lunch or dinner?"); and PHOTO_VEGETARIAN DISH ("How likely would you be to take a photo of your next vegetarian dish and post it on Facebook?").

The dependent variables in MANCOVA **Model I** include all three outcome variables in Group 1. The dependent variables of MANCOVA **Model II** include all three outcome variables in Group 2. Both Model I and Model II tested the influence of the fixed factors including reference social group (in-group vs. out-group), group norms (descriptive group norms vs. injunctive group norms), and the two-way interaction between the two fixed factors on the outcome variables, controlling for six covariates including age, gender, ethnicity, vegetarian consumption behavior , attitudes towards vegetarian dishes, attitudes towards vegetarians, susceptibility to normative influence, and self-monitoring. Two-way MANCOVA was conducted to avoid the inflated Type 1 error rate in the multiple analyses of covariance (ANCOVAs).

The Box's test of equality of covariance showed that the M value for Model I was 47.94, $p < 0.001$. This suggests that the covariance matrices between the groups were unequal. However, according to Gasperik (2010), a sample size larger than 30 improves the robustness of the MANCOVA to violations of the assumption of equal covariance. All the cell sizes of the study are larger than 90, suggesting the robustness of the MANCOVA model. In addition, Pillai's trace test is regarded as a more conservative option since it is considered as the most powerful and robust one compared with other three statistical tests (Carey 1998). Thus, Pillai's trace test was used in the following multivariate analyses.

MANCOVA Model I suggested that there was no statistically significant main effect on the outcome variables. However, there was a statistically significant interaction between reference group and group norms on the outcome variables with *Pillai's trace* = 2.96, *p* = 0.03. The multivariate effect size (partial eta square) was estimated at .05, which implied that 5.0% of the variance in the canonically derived dependent variable was accounted for by the interaction between reference social group and group norms, controlling for covariates such as age, gender, ethnicity, vegetarian consumption behaviours, attitudes towards vegetarian dishes, attitudes towards vegetarians, susceptibility to normative influence, and self-monitoring (See **Table 4**).

Prior to conducting the follow-up ANCOVAs, the homogeneity of variance assumption was tested for three outcome variables in **Model I**. Levene's Test of Equality of Error Variances showed that the homogeneity of variance assumptions was satisfied regarding that all three Levene's *F* tests were statistically non-significant with *p-value* larger than .05 (See **Table 5**). A series of one-way ANCOVAs on each of the three dependent variables was conducted as follow-up tests to MANCOVA. The results of ANCOVA showed that there were no statistically significant main effects, after controlling for covariates including age, gender, ethnicity, vegetarian consumption behaviour, attitudes towards vegetarian dishes, attitudes towards vegetarians, susceptibility to normative influence, and self-monitoring.

However, as can be seen in **Table 6**, there was a statistically significant interaction between reference social group and group norms on the likelihood of recommending the news article to family and friends when meeting them in person, *F* (1, 196) = 6.29, *p* = .01. Participants reading a message describing the benefits of being on a vegetarian diet and highlighting that Rutgers Undergraduate Students (in-group) are consuming more vegetarian dishes compared with other college students (*M*= 3.00, *SD* = 0.23) were more likely to

recommend the news article to family and friends when meeting them in person than participants reading the same news article describing the benefits of being on vegetarian diet and then stating that Rutgers Undergraduate Students think they should consume more vegetarian meals but are currently not doing so (*M*= 2.52, *SD* = .23). In contrast, when the reference social group was replaced with an out-group (Penn State undergraduate students), participants who read the news article describing Penn State undergraduate students thinking they should consume more vegetarian dishes but are not currently doing so (*M*= 3.04, *SD*= .26) were more likely to recommended the news article to family and friends when meeting them in person than if the article described Penn State undergraduate students as consuming more vegetarian dishes than general college students (*M*= 2.33, *SD*= .23). (See **Table 7** & **Figure 1)**.

Main factors were recoded into one variable as group condition (either control group or one of the four experimental groups). Post hoc analysis (LSD) following the one-way ANOVA was conducted to make multiple comparisons across different groups. The results showed that participants who read the news article describing that Rutgers undergraduate students (in-group) are consuming more vegetarian dishes than other college students would be significantly more likely to recommend the news article to family and friends in person (Mean Difference= 0.78; *p* = 0.03) than control group; participants who read the news article describing that Rutgers undergraduate students (in-group) are consuming more vegetarian dishes than other college students would be significantly more likely to recommend the news article to family and friends in person (Mean Difference= 0.83; *p* = 0.02) than participants who read the news article describing that Penn State undergraduate students (out-group) are consuming more vegetarian dishes than other college students.

In addition to the significant two-way interaction, two covariates were also significant predictors. These were: ethnicity (*Pillai's trace* = .06, F (3, 181) = 3.55, p = 0.02, multivariate ηp^2 = .06) and attitudes towards vegetarian dishes (*Pillai's trace* = .09, F (3, 181) = 6.25, p <0.000, multivariate ηp^2 = .09) (see **Table 4**).

MANCOVA Model II:

Box's test of equality of covariance showed that M value is 35.47 (p = 0.01), which is non-significant according to the p < 0.005 criteria (Huberty and Petoskey, 2000). This indicates that no significant differences were found between the covariance matrices. The assumption of homogeneity of covariance across the groups is not violated, thus *Wilk's Lambda* test was used in the following analyses. Multivariate tests showed that no significant main effects or interactions between the two main factors were found on the outcome variables (See **Table 9**). Prior to conducting the follow-up ANCOVAs, the homogeneity of variance assumption was tested for three outcome variables in **Model II**. Levene's Test of Equality of Error Variances showed that the homogeneity of variance assumptions was satisfied regarding that all three Levene's F tests were statistically non-significant with *p-value* larger than .05 (See **Table 10**).

Follow-up ANCOVAs showed that group norm is a statistically significant predictor on one outcome variable, "How likely would you be to order a vegetarian dish for your next lunch or dinner?" (F (1, 187) = 4.430, p = 0.037, ηp^2 = .024). Participants who read the news article framed using injunctive norms (M = 3.33, SD = 0.12) (describing what the social group ought to do but are currently not doing) were more willing to order a vegetarian dish compared with participants who read the news article framed using descriptive norms (M = 2.98, SD = 0.13) (describing what the social group are currently doing) (See **Table 11**).

In addition, five covariates are statistically significant predictors: age (*Wilk's Lambda*= .927 , F (3, 177) = 4.629, *p* =0.004., multivariate ηp²= .073), ethnicity (*Wilk's Lambda*= .949 , F (3, 177) = 3.161, *p* =0.03, multivariate ηp²= .05), vegetarian consumption behavior (*Wilk's Lambda*= .676 , F (3, 177) = 28.2, *p* <0.000, multivariate ηp²= .32), attitudes towards vegetarian dishes (*Wilk's Lambda*= .84, F (3, 177) = 11.395, *p* < 0.000, multivariate ηp²= .16), and self-monitoring (*Wilk's Lambda*= .93, F (3, 177) = 4.399, *p* = 0.005, multivariate ηp²= .07) (see **Table 9**)

ANOVAs Looking at Covariates' Effects on Outcome Variables

1.1.Age

Participants were split into two groups based on the median age of 20 as: senior group (Age> 20) and junior group (Age <= 20). ANOVA was conducted to make comparisons on outcome variables between senior and junior groups. As can be seen in **Table 12 & 14**, age is a statistically significant factor in predicting the likelihood of sharing the news article on Facebook (*F* (1,222) = 9.192; *p*= .003) and the likelihood of sharing a popular vegetarian recipe on Facebook (*F* (1,223) = 10.032; *p*= .002). Age also proved significant in predicting the likelihood of the participant's taking a photo of their next vegetarian meal and posting it on Facebook (*F* (1, 218) = 19.927; *p*= .000). In comparison, age had no significant association with the likelihood of sharing the news article with close friends, the likelihood of recommending the article to family and friends when meeting them in person, or the likelihood of ordering a vegetarian meal for their next lunch or dinner.

Significant positive correlations were found between age and likelihood of sharing a vegetarian recipe on Facebook (*r* = 0.147, p= 0.02) and between age and taking a photo of their

next vegetarian meal and posting it on Facebook, $r = 0.197$, $p = 0.001$). Moreover, age is negatively correlated with the difference between the likelihood of sharing the news article on Facebook and the likelihood of sharing the news article especially with close friends ($r = -0.136$, $p = 0.03$), which means older participants' sharing intentions are less likely to be influenced by their concern over whether or not their post will be seen by only a group of close friends or anyone online than those who are younger.

1.2 Gender

As can be seen in **Table 12 & 15**, gender is a significant predictor of the likelihood of sharing a vegetarian recipe on Facebook (F $(1, 218) = 5.208$, $p = 0.02$), with a Pearson correlation of 0.235 ($p < 0.000$) with males coded as "1" and females coded as "2". This suggests that females are more likely to share vegetarian recipes on Facebook than males. However, gender has no influence on the likelihood of sharing the news article on Facebook either overall, or especially with close friends, recommending the article to family and friends when meeting them in person, ordering a vegetarian dish for next lunch/ dinner, or posting photos of vegetarian meals.

1.3 Ethnicity

As can be seen in **Table 12 & 16**, ethnicity is a significant predictor of the likelihood of sharing the news article especially with close friends ($F (1, 223) = 6.489$, $p = 0.01$) and of posting photos of vegetarian meals on Facebook (F $(1, 219) = 6.621$, $p = 0.01$). An ANOVA was conducted to compare the means of the outcome variables by different ethnic groups to compare their differences. Post hoc analyses were performed to make comparisons between the groups. As can be seen in **Table 16**, Asians were significantly more likely to share the news article

especially with close friends as compared with Whites (*p*= 0.000) or Blacks (*p*= 0.004) and Hispanics were significantly more likely to share than Whites (p= 0.04) or Blacks (p= 0.048). No significant differences were found between Whites and Blacks with regard to their likelihood of sharing. Similarly, there is no differences between Asians and Hispanics with respect to their likelihood of sharing the news article especially with close friends. As shown in **Table 16**, Asians are more likely to take a photo of their next vegetarian meal and post it on Facebook as compared with Whites (*p*= 0.000); Hispanics are also more likely to post the photo than Whites (*p*= 0.046). No significant differences were found between the other ethnic groups.

1.4 Vegetarian Eating Behaviors

Vegetarian eating behaviors include three items "Do you consider yourself as a vegetarian?" "How many vegetarian meals do you usually consume per week?" and "How difficult is it for you to order a vegetarian dish when you eat out?" It can be seen from **Table 17** that vegetarian eating behaviors are significant factors in the factorial models predicting the likelihood of sharing the news article on Facebook (F (1, 222) = 5.302; *p*= 0.02), recommending the news article to family and friends when meeting them in person (F (1, 223) = 4.551, *p*= 0.03), and ordering a vegetarian meal for their next lunch/ dinner (F (1, 222) = 83.318, *p*= 0.000). Positive correlations were found between vegetarian eating behaviors and the likelihood of sharing the news article (*r*= 0.348, *p*= 0.000), recommending the article to family and friends when meeting them in person (*r*= 0.361, *p*= 0.000), and ordering a vegetarian meal for their next lunch/ dinner (*r*= 0.697, *p*= 0.000). This suggests that participants' personal perceptions of vegetarian identity, frequency of vegetarian consumption, and vegetarian ordering choices when eating out have a positive influence not only on their intent to order a vegetarian meal but also on

their sharing behaviors both online and offline. However, vegetarian eating behaviors have no influence on one's vegetarian sharing behavior on Facebook.

1.5 Attitudes Towards Vegetarian Dishes and Attitudes Toward Vegetarian People

Attitudes towards vegetarian dishes include three 7-point Likert items: "vegetarian dishes are more nutritious than non-vegetarian dishes", "vegetarian dishes taste better than non-vegetarian dishes", and "vegetarian dishes are healthier than non-vegetarian dishes." It can be seen from **Table 18** that attitudes towards vegetarian dishes have significant influences on all outcome variables including news article sharing behavior on Facebook (F (1, 222) = 13.674, p= 0.000, r= 0.445, p= 0.000), sharing the news article especially with close friends (F (1, 223) = 14.055, p= 0.000, r= 0.449, p= 0.000), recommending the article to family and friends in real life (F (1, 223) =15.291, p= 0.000, r= 0.462, p= 0.000), sharing a vegetarian recipe online (F (1, 218) = 10.184, p= 0.002, r= 0.436, p= 0.000), ordering a vegetarian dish for next lunch/ dinner (F (1, 219) =30.734, p= 0.000, r= 0.681, p= 0.000), as well as posting photo of vegetarian meals on Facebook (F (1, 219) =15.850, p= 0.000, r= 0.430, p= 0.000). This suggests that participants' perceptions of vegetarian dishes' healthfulness, tastiness, and nutrition have a significant positive influence on one's sharing behavior of a vegetarian news article on social media and in real life, vegetarian recipe sharing behavior on Facebook, intent to order vegetarian dishes, and posting vegetarian photos on Facebook. Participants' attitudes toward vegetarian people (whether they were perceived as more good-looking, nicer and more friendly, or more environmentally friendly) had no significant influence on either one's sharing intentions or on vegetarian consumption behaviors.

1.6 Self-Monitoring and Susceptibility to Normative Influence

Both self-monitoring (F (1, 219) =9.912, p= 0.002, r= 0.131, p= 0.03) and susceptibility to normative influence (F (1, 219) = 4.473, p= 0.03, r= 0.214, p= 0.001) have a significant influence on the participants' likelihood of posting a photo of their next vegetarian meal on Facebook. Participants with higher self-monitoring skills or who are more susceptible to normative influence are more likely to post a photo of their vegetarian dishes onto Facebook.

Discussion

As mentioned in earlier chapters, previous research on intergroup relations has extensively focused on differentiation processes and in what situation people would favor their own groups and the underlying reasons why people have such preferences (e.g., White & Langer, 1999; Tajfel & Turner, 1979). This study was built upon previous theories on inter-group relations and preferences but focus on the question of how intergroup differentiation processes and group favor would influence consumers' information sharing behaviors and intended changes in health behaviors. In the situation when inter-group differentiation would discourage one's motivation to share the news article with their connections, what other factors could reduce this barrier and thus make information flow more fluidly across different social groups? According to the Berger and Heath's (2008) identity-signaling perspective on people' distinguishing behavior from other groups, people diverge from a dissimilar group to make sure that others do not misunderstand their identities, and so they avoid signaling an undesired identity to others. The current study assumed that people make the decision to share a news article associated with a social group on Facebook or in person based on their identification with the social group (either in-group or out-group) and their intention to signal the social identity to others or not.

The results of Study I suggest that reference social group and group norms work together when influencing consumers' Word-of-Mouth Communication behaviors in person. It showed that a news article describing an in-group' actual vegetarian meal consumption behavior (what the in-group members are currently doing) is more effective than a similar news article emphasizing that an in-group that thinks they *should* consume more vegetarian meals but are not currently doing so in persuading consumers to recommend the news article with their family and friends when meeting them in person.

In contrast, a news article that associates vegetarian meal consumption behavior with an out-group and describes that the out-group as thinking they should consume more vegetarian dishes is more effective than a news article that describe an out-group's current vegetarian meal consumption as higher than general US college student population in persuading consumers to share the news article with their family and friends when meeting them in person. Although no significant main effects of either reference social group or group norms were found, the interaction between the two main factors is consistent with what social identity signaling theory has suggested: people are more willing to signal their in-group identity by sharing the news article when the group was associated as behaving in a socially desirable way (consuming more vegetarian meals than general others), whereas they are less willing to do so when it is an out-group that is associated with the behavior in the news article. However, if the out-group was described as stating that they should really consume more vegetarian meals (but are currently not doing so), people will be more likely to share the news article since the social group was less relevant to and they are not actually behaving in a socially desirable way.

Moreover, group norms were shown to be a significant predictor of participants' likelihood of ordering a vegetarian dish for their next lunch or dinner. This gives a useful

practical implication on what content should be included in the message to make it more persuasive in changing target audience's health behaviors. On the other hand, the influence of social group (in-group or out-group) is not significant, which means the reference social group information in the news article does not make a difference on consumers' information sharing behavior or intended health behavioral change. Combining together, it can be inferred that a "should do" message is more influential when a "neutral" social group is associated with a health behavior compared with a "doing" message.

What's more, comparisons on outcome variables showed that individuals are less willing to share information on Facebook than making recommendations to family and friends or ordering vegetarian food in real life. This is consistent with the research by Eisingerich (2014), which showed that the social risk associated with sharing information on a Social Networking Site (Facebook) is perceived to be higher than sharing the same information via Face-to-Face communication since in person information sharing means you would have more control over who would receive the particular message you would like to convey, for example. The perceived higher social risk also explains the relatively low mean scores of the likelihoods of sharing the news article or a vegetarian recipe on Facebook (mean ranges from 2.19 to 3.21).

Among all the covariates, "attitudes towards vegetarian dishes" is the strongest factor, significantly predicting all six-outcome variables ($p < 0.01$). Self-reported "Vegetarian self-identity" and "Vegetarian meal eating behavior" are also strong predictors influencing participants' intended news article sharing behavior on Facebook, likelihood of recommending the news article to family and friends in real life, and the likelihood of ordering a vegetarian meal for the next lunch or dinner. However, "attitudes toward vegetarian people" is not a significant predictor of any of the outcome variables, which suggests that this did not serve as a confound in

the study. Age is a significant factor positively predicting participants' sharing likelihood of the news article on Facebook, the likelihood of sharing a vegetarian recipe on Facebook, and the likelihood of posting a photo of the next vegetarian dish on Facebook. This suggests older participants are more likely to share than younger participants. Given the median age of the sample is as young as 20, it thus can be seen that 20+ adults are more likely to share on social media than those who are younger. Gender is a strong predictor of sharing vegetarian recipes on Facebook. Females are more likely to share the recipes, not limited to vegetarian recipes, than males. Ethnicity is a significant predictor of the likelihood of sharing the news article especially with close friends on Facebook and the likelihood of posting a photo of participants' next vegetarian dish on Facebook. Both self-monitoring and susceptibility to normative influence are strong predictors of the likelihood of posting a photo of the next vegetarian dish on Facebook. Participants who are high in self-monitoring skills or more susceptible to normative influence are shown to be more likely to share a photo of a vegetarian dish on Facebook. This suggests that sharing behavior on Facebook is not only about sharing useful information with others; people who are highly skilled at self-monitoring or more susceptible (sensitive) to normative influences might feel more comfortable with online self-presentation and are thus more likely to make a sharing decision.

Limitations and future research

The arbitrary judgment of participants' group identification is a primary limitation of the study. Since all participants are Rutgers undergraduates, in the study it is assumed that participants will perceive Rutgers University undergraduate students as an in-group whereas Pennsylvania University undergraduate students as an out-group. However, the concept of the perceived "in-group" or "out-group" was not specifically measured in the questionnaire. It

cannot be ruled out that some participants will not conceptualize Rutgers University undergraduate students as an in-group. Rather, they might just treat the story about Rutgers undergraduates as news related to the school they are attending, which makes the news article specifically relevant to them. On the other hand, some participants in the "out-group" condition might treat Pennsylvania State University undergraduate students as a social group that is similar to them because of the physical proximity of the university and similar identity as the state university in a neighboring state. The manipulation on in-group or out-group condition may not have been strong enough and thus lead to the non-significant differences. Future research should include a manipulation check to confirm that participants actually identify themselves as a member of the in-group and/or not a member of the out-group. Using a smaller social group like a sports club on campus or a student organization might also serve as a way to more reliably categorize participants as in or out of a particular social group.

CHAPTER SIX

Impact of Reading a News Article Associating a Healthy Eating Behavior with a Socially Proximate or a Socially Distant Out-Group on Consumers' Information Sharing Behavior and Intended Healthy Eating Behavioral Change

Introduction

Social distance is a mathematical quantification of the degree of the closeness or acceptance which an individual (or a social group) feels about another individual (or a social group) (Boguñá, Pastor-Satorras, Díaz-Guilera, & Arenas, 2004). There are a several factors that can determine perceived social distances, including nationality, occupation, race, religion, etc. It has been shown that social distance can be found even in an experimental laboratory setting. Studies by Charness and Gneezy (2008) showed that participants (dictators) would allocate a significantly larger portion of their pie to their counterparts when no family name (representing different social distances in the study) information was provided than when they were told the family names of their counterparts when playing dictator games in an experimental setting. People usually act more friendly towards an individual or a group of people who are similar to them. Furthermore, a study by Tajfel, Billig, Bundy, and Flament (1970) showed that participants strongly favor participants who are within the same experimental group (in-group) as compared with participants in a different experimental group (out-group).

While in-groups can be influential in impacting attitudes and behaviors, out-groups may also play a significant influential role. For example, an out-group could serve as a source of a variety of different information since members of an out-group are typically different from members of an in-group in some aspects. In addition, the number of out-groups is relatively

larger than the number of in-groups for an individual, which makes the role of out-groups prominent as potential sources of useful information. However, among all those out-groups, perceived social distance varies from group by group.

It is unknown whether differences in perceived social distances are an influencing factor when online users make the decision whether or not to accept the information from a particular out-group. This dissertation takes one step further to investigate the influence of perceived social distance between different social groups on online users' information sharing behavior after reading a news article about a particular out-group. It is assumed that the social group highlighted in the news article serves as a social indicator and makes sharing of the news article not only informative but also serves as a way to signal one's social identity or their intended desire to associate with or diverge from the social group in the news article.

Methods

1. Recruitment

286 participants were recruited from Rutgers Business School undergraduate students' pool via the Behavioral Lab of Rutgers Business School. Participating students received academic credits upon completion of the survey. Participants were undergraduate students taking introductory courses at Rutgers Business School.

2. Experimental Design

A controlled randomized incomplete factorial (2 by 2 plus a control group) between-subjects experimental design was used to examine the influence of reference group and group norms on people' news article "sharing" behavior on Facebook, Word-of-Mouth Communication

behavior in person, and intended vegetarian meal consumption behavior, which was associated with a social group in the news article. A one-way Analysis of Covariance (ANCOVA) was conducted to analyze main effects of two experimental factors and interactions between the two main factors on outcome variables, controlling for covariates.

3. Measurements

Independent variables

Two independent factors were manipulated in the study: reference social group and group norms. Reference group conditions in this study include two levels as a socially distant out-group and a socially proximate out-group. Participants were asked whether their career plan after graduation is going to graduate school or becoming a working professional. Participants were then randomly assigned to read a news article either associating vegetarian meal consumption behavior with graduate students or working professionals.

Participants who responded that their career plan after graduation is going to graduate school and were assigned to read the news article associated with graduate students are regarded in the socially proximate out-group condition; likewise, participants who responded that their plan after graduation is becoming a working professional and were assigned to read the news article associated with working professional are also regarded in the socially proximate out-group condition. Participants who responded that their career plan after graduation is going to graduate school and were assigned to read the news article associating vegetarian meal eating behavior with working professionals were regarded in the socially distant out-group condition; likewise, participants who responded that their career plan after graduation is becoming a working professional and were assigned to read the news article associating vegetarian meal

consumption behavior with graduate students were regarded in the socially distant out-group condition.

Group norms were manipulated in the same way as in Study I. It included two levels: descriptive group norms and injunctive group norms. Descriptive norms described what the group members are currently doing and injunctive group norms indicate what the group members ought to do but are not currently doing.

Materials

The first part of the news article describes a vegetarian diet and the health and environmental benefits of being on a vegetarian diet; the second part of the news article reported (fabricated) survey data attributed to the American Health Association. In the second half of the news article, the percentage (60%) of a social group who reported that they *have* (descriptive group norms) or reported that they should have (injunctive group norms) consumed vegetarian meals at least twice per week was indicated. This was followed by the comment that this percentage (60%) is 50% higher than average consumption by general college students in the United States. The article continues with stating the reason why the particular social group chose a vegetarian dish: 70% for environmental concerns and 30% for both nutrition and environmental concerns. As mentioned earlier, group norms are manipulated as either descriptive norms or injunctive norms. Descriptive norms describe what the group members are currently doing, while injunctive group norms suggest what the group members ought to do or are expected to do (but not currently doing). In addition to the four experimental groups (1. social proximate out-group x descriptive group norms; social proximate out-group x injunctive group norms; social distant out-group x descriptive group norms; social distant out-group x injunctive

group norms), a control group with neither reference group information nor group norms manipulation was also included in the study. See following as two examples of the full messages:

Social Proximate Out-Group (working professionals/ graduate students) × Descriptive Group Norm

A vegetarian diet is a meal plan made up of foods that come mostly from plants including vegetables, fruits, whole grains, legumes, seeds, nuts and may also include eggs and milk. A vegetarian diet can be healthful and nutritionally sound if it is carefully planned to include essential nutrients such as folic acid, vitamins C and E, magnesium, unsaturated fat, fiber, and other nutrients. By going vegetarian, we can reduce the impact of climate change, rainforest destruction, and pollution, while saving water and other precious resources. In fact, raising animals for food produces more greenhouse gas emissions than all of the cars, planes, and other forms of transportation combined. There has never been a better time to go green by eating green.

A recent survey by American Health Association suggested that 60% of working professionals/ graduate students have vegetarian meals at least twice per week. This is 50% higher than average consumption by general college students in the United States. About 70% of working professionals/ graduate students reported that they choose a vegetarian dish primarily because of environmental concern and 30% of working professionals/ graduate students expressed that both nutrition and environmental concerns are important to them.

Social Distant Out-Group (working professionals/ graduate students) × Descriptive Group Norm

A vegetarian diet is a meal plan made up of foods that come mostly from plants including vegetables, fruits, whole grains, legumes, seeds, nuts and may also include eggs and milk. A vegetarian diet can be healthful and nutritionally sound if it is carefully planned to include essential nutrients such as folic acid, vitamins C and E, magnesium, unsaturated fat, fiber, and other nutrients. By going vegetarian, we can reduce the impact of climate change, rainforest destruction, and pollution, while saving water and other precious resources. In fact, raising animals for food produces more greenhouse gas emissions than all of the cars, planes, and other forms of transportation combined. There has never been a better time to go green by eating green.

A recent survey by American Health Association suggested that 60% of working professionals/ graduate students have vegetarian meals at least twice per week. This is 50% higher than average consumption by general college students in the United States. About 70% of working professionals/ graduate students reported that they choose a vegetarian dish primarily because of environmental concern and 30% of working professionals/ graduate students expressed that both nutrition and environmental concerns are important to them.

Outcome variables

Similar to Study I, the outcome measurements include six questions on a 7-point Likert scale asking participants' likelihood of sharing the news article on Facebook, likelihood of sharing the news article on Facebook especially with close friends, likelihood of recommending the news article to family and friends when meeting them in person, likelihood of sharing a

vegetarian recipe on Facebook, likelihood of ordering a vegetarian dish for next lunch or dinner, and likelihood of taking a photo of their next vegetarian dish and posting it on Facebook.

Covariates

Same as in Study I, eight covariates were included in the factorial model. There are three groups of the covariates:

1) Demographic information including age, gender (male or female), and ethnicity (Asian, Black/ African American, Hispanic/ Latino, White/ Caucasian, American Indian/ Native American, other);

2) Vegetarian measures including Self-Report Vegetarian Identity, measured using the question "Do you consider yourself a vegetarian?" on a 7-point Likert Scale with 1 representing "Definitely Not" and 7 representing "Definitely Yes"; Vegetarian Consumption Behaviors when eating out, asking participants "How difficult is it for you to order a vegetarian dish when you eat out?" on a 7-point Likert Scale with 1representing "Not at all Difficult" and 7 representing "Very Difficult", and Attitudes Towards Vegetarian Dishes which includes four items as "Vegetarian dishes are" on a 7-point Likert Scale with 1 representing "Unenjoyable" and 7 representing "Enjoyable", "Vegetarian dishes are more nutritious than non-vegetarian dishes." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarian dishes taste better than non-vegetarian dishes." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarian dishes are healthier than non-vegetarian dishes" on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree" ; Attitudes Toward Vegetarian People which includes 5 items as "Vegetarians are more good looking than non-vegetarians." on a 7-point Likert Scale

with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are healthier than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are nicer and more friendly than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are having happier lives than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are more environmentally friendly than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree".

3) Social and psychological factors including self-monitoring skills using the validated Self-Monitoring Scale (Snyder, 1974; see appendix A), and susceptibility to normative influence using the validated Susceptibility to Normative Influence Scale (Bearden et al., 1989; see appendix B).

4. Procedure

After reading a brief instruction paragraph, participants were directed to answer a few questions asking about their career plan immediately after graduation from Rutgers (either to go to graduate school or to become a working professional). If they chose "go to graduate school," they were directed to answer the follow-up manipulation check question, "How important it is to you to be seen as someone who aspires to pursue an advanced degree (Masters, PhD, or JD, etc.)?" If they chose "become a working professional," they were directed to answer the follow-up manipulation check question, "How important it is to you to be seen as someone who aspires to pursue a successful professional career." Three questions followed that were designed to check: 1) How easily they can picture themselves becoming a graduate student/ working professional; 2) How similar they think they are compared with graduate students/ working

professionals in general; 3) In what way they think they are similar to graduate students/ working professionals. Participants were then asked to report their vegetarian identity, vegetarian consumption behaviors, attitudes towards vegetarian dishes, and attitudes towards vegetarians. Participants were then randomly assigned to read a news article on the nutritional and environmental benefits of being on vegetarian diet and a social group's vegetarian consumption behavior (either graduate students or working professionals) as compared with the general American population. The social group's vegetarian consumption behavior was framed in either descriptive or injunctive group norms. This makes four experimental groups (1. Socially proximate out-group x descriptive group norms; 2. Socially proximate out-group x injunctive group norms; 3. Socially distant out-group x descriptive group norms; 4. Socially distant out-group x injunctive group norms) plus a control group without reference group information nor manipulation on group norms.

After the participants finished reading the news article, they answered questions measuring their likelihood of sharing the news article on Facebook in general, likelihood of sharing the news article on Facebook especially with close friends, likelihood of recommending the news article with family and friends when meeting them in person, likelihood of sharing a vegetarian recipe on Facebook, likelihood of ordering a vegetarian dish for their next lunch or dinner, and likelihood of posting a photo of their next vegetarian dish on Facebook were followed. The last part of the questionnaire was composed of the standard Susceptibility to Normative Influence scale (SNI; Bearden et al. 1989) and demographic questions including age, gender, and ethnicity.

5. Results

Of the total sample of 286 recruited to participate in the study, 246 (86.0%) participants completed the experiment. Participants were (139 males and 107 females) undergraduates at Rutgers University. The mean age of the sample was 21.1, ranging from 18 to 50, with a median age of 20. Participants self-reported their race/ethnicity as Asian (43.7%), White (35.5%), Hispanic/ Latino (12.2%), Black (4.9%), and other (3.7%).

There are six outcome variables in Study II; these are SHARE_OVERALL ("How likely would you be to share the news article on Facebook?"); SHARE_FRIENDS ("How likely would you be to share the news article especially with your close friends?"); RECOMMEND_IN PERSON ("How likely would you be to recommend the news article to your family and friends when meeting them in real life"); SHARE_RECIPE ("How likely would you be to share a vegetarian recipe on Facebook if you read one online?"); ORDER_VEGETARIAN DISH ("How likely would you be to order a vegetarian dish for your next lunch or dinner?"); and PHOTO_VEGETARIAN DISH ("How likely would you be to take a photo of your next vegetarian dish and post it on Facebook?"). All six outcome variables are measured using 7-point Likert scales ranging from 1 as "Not at all likely" to 7 as "Very likely."

Participants' mean response on the six dependent variables varied from 2.09 to 3.07 on the 7-point Likert Scale with 1 as "Not at All Likely" and 7 as "Completely Likely" (See **Table 19**). Consistent with Study I, this suggests that one's likelihood of sharing the news article on Social Networking Sites or likelihood of vegetarian meal consumption related behaviors are relatively low. Among all six outcome variables, the mean of likelihood of ordering a vegetarian

meal for the next lunch or dinner is the highest ($M = 3.07$) and the mean of likelihood of posting a photo of their next vegetarian meal on Facebook is the lowest ($M= 2.09$).

To test the potential systematic bias that could compromise randomized group assignments, the relationships between the independent variables (reference social groups and group norms) and the covariates were examined. Chi-square analyses showed that there were no statistically significant relationships between group assignment (experimental groups or control group) and gender or ethnicity. What's more, one-way ANOVAs showed no statistically significant relationships between group assignment and age, vegetarian self-identity, self-reported vegetarian consumption behaviours, attitudes towards vegetarian dishes, or attitudes towards vegetarians.

Pearson correlations were employed to test the assumption for Multivariate Analysis of Covariance (MANCOVA) that outcome variables should be moderately correlated, with Pearson correlations ranging between 0.20 and 0.60 (Meyers, Gampst and Guarino 2006). It showed that SHARE_OVERALL, SHARE_FRIENDS, and RECOMMEND_IN PERSON were strongly correlated with each other: SHARE_OVERALL and SHARE_FRIENDS were strongly positively correlated, r (247) = 0.79, $p < 0.000$; SHARE_OVERALL and RECOMMEND_IN PERSON were strongly positively correlated, r (247) = 0.83, $p < 0.000$; and SHARE_FRIENDS and RECOMMEND_IN PERSON were strongly positively correlated, r (247) = 0.81, $p < 0.000$ (See **Table 20**)

Additionally, SHARE_RECIPE, ORDER_VEGETARIAN DISH, and PHOTO_VEGETARIAN DISH are moderately correlated with each other: SHARE_RECIPE and ORDER_VEGETARIAN are moderately positively correlated, r (246) =0.60, $p< 0.000$.

DISHSHARE_RECIPE and PHOTO_VEGETARIAN DISH were strongly positively correlated, r (246) = 0.57, p < 0.000; ORDER_VEGETARIAN DISH and PHOTO_VEGETARIAN DISH were moderately positively correlated, r (247) =0.57, p < 0.000 (See **Table 21**). This suggests that it is appropriate to perform MANCOVAs.

Before conducting MANCOVA, planned contrasts comparing the four experimental groups against control group revealed that:

1) Participants who read the news article that described working professionals as consuming more vegetarian dishes than the general population are significantly more likely to share the news article especially with close friends on Facebook, p = .01, 95% CI (0.18, 1.36) than those in the control group; and are significantly more likely to order a vegetarian dish for their next lunch or dinner, p = .02, 95% CI (0.09, 1.09) than the control group.

2) Participants reading the news article indicating that graduate students should consume more vegetarian dishes are significantly more likely to share the news article especially with close friends on Facebook, p = .02, 95% CI (0.13, 1.38) in comparison with the control group. They are also more likely to order a vegetarian dish for their next lunch or dinner, p = .047, 95% CI (0.01, 1.06) compared with the control group.

3) Participants who read the news article indicating that working professionals should consume more vegetarian dishes are significantly more likely to share the news article with close friends on Facebook, p = .02, 95% CI (0.18, 1.36), and more likely to order a vegetarian dish for their next lunch or dinner, p = .03, 95% CI (0.07, 1.10) compared with the control group.

4) No statistically significant differences were found between the group reading the news article describing graduate students as consuming more vegetarian dishes than general population and the control group (p> 0.01). (see **Table 22)**

The same as in Study I, the outcome variables were divided into two groups: 1) News article sharing behaviour (including SHARE_OVERALL, SHARE_FRIENDS, and RECOMMEND_IN PERSON); 2) Vegetarian related behaviour (including SHARE_RECIPE, ORDER_VEGETARIAN DISH, and PHOTO_VEGETARIAN DISH). The dependent variables in MANCOVA **Model I** include the three outcome variables in Group 1 and the dependent variables of MANCOVA **Model II** include the three outcome variables in Group 2. Both Model I and Model II tested the influence of two fixed factors: reference social group (two levels: socially proximate group vs. socially distant group) and group norms (two levels: descriptive group norms vs. injunctive group norms), and the two-way interaction between reference social group and group norms on the outcome variables, controlling for six covariates: age, gender, ethnicity, vegetarian self-identity, self-reported vegetarian consumption behaviour , attitudes towards vegetarian dishes, attitudes towards vegetarian behaviour , susceptibility to normative influence, and self-monitoring. Two-way MANCOVAs were conducted to avoid the inflated Type 1 error rate of multiple analyses of covariance (ANCOVAs) and to test the hypothesis that there would be one or multiple mean differences among different groups defined by different associated reference social groups and group norms.

MANCOVA Model I:

The Box's test of equality of covariance showed that the M value for Model I was 38.86, $p = 0.004$. This suggests that the covariance matrices between the groups were equal and the p-value larger than 0.001 is assumed to be non-significant. Thus, *Wilks' Lambda* was adopted in the following analyses.

MANCOVA showed that there were no statistically significant main effects of either reference social group or group norms on the outcome variables. However, there was a statistically significant interaction between reference social group and group norm on the outcome variables with *Wilks' Lambda* = 0.94, F (3, 175) = 3.68, p = 0.01. The multivariate effect size (partial eta square) was estimated at .06, which implies that 6.0% of the variance in the canonically derived dependent variable was accounted for by the interaction between reference social group and group norms, controlling for covariates such as age, gender, ethnicity, vegetarian consumption behavior, attitudes towards vegetarian dishes, attitudes towards vegetarians, and susceptibility to normative influence (See **Table 23**).

Prior to conducting follow-up ANCOVAs, the homogeneity of variance assumption was tested for three outcome variables in **Model I**. Levene's F tests showed that the homogeneities of variance assumption were satisfied since all three Levene's F tests were statistically non-significant with *p-value*s larger than .05 (See **Table 24**). One-way ANCOVAs on each of the three outcome variables were conducted as follow-up tests to MANCOVA.

As suggested by the MANCOVA model, there were no statistically significant main effects after controlling for covariates including age, gender, ethnicity, vegetarian consumption behaviour, attitudes towards vegetarian dishes, attitudes towards vegetarians, and susceptibility to normative influence. However, as can be seen in **Table 25**, there are statistically significant interactions between reference social group and group norms on likelihood of sharing the news article on Facebook, F (1, 188) = 7.07, p = .009, likelihood of sharing the news article especially with close friends on Facebook, F (1, 188) = 10.81, p = .001, and likelihood of recommending the news article to family and friends when meeting them in person, F (1, 188) = 5.89, p = .02.

Results showed that participants reading news articles describing a socially proximate group that is consuming more vegetarian dishes than the general US population (M= 2.44, SD= 0.20) are more likely to share that news article on Facebook than participants reading the news article describing a socially proximate group that thinks they should consume more vegetarian dishes but are not currently doing so (M= 1.83, SD= .23). In comparison, participants reading a news article describing a socially distant group that is consuming more vegetarian dishes than the general US population (M= 2.08, SD= .23) are less likely to share that news article on Facebook than participants reading a news article describing a socially distant group that thinks they ought to consume more vegetarian dishes but are currently not doing so (M= 2.66, SD= .23), (See **Table 26** & **Figure 2)**.

What's more, participants reading a news article describing a socially distant group as consuming more vegetarian dishes than the average US population ($M = 2.64$, $SD = 0.21$) are more likely to share that news article on Facebook especially with close friends than are participants reading news articles associating vegetarian consumption behavior with a socially proximate reference group stating that they should consume more vegetarian dishes but are not currently doing so ($M = 2.28$, $SD = .24$).

With respect to descriptive vs. injunctive group norms, participants reading the news article associating vegetarian consumption behavior with a socially distant reference group framed in terms of descriptive group norms ($M = 2.05$, $SD = .23$) are less likely to share the news article on Facebook especially with close friends than are participants reading the same story framed in terms of injunctive group norms ($M = 3.16$, $SD = .23$), (See **Table 26** & **Table 3)**.

Participants reading a news article describing a socially proximate group as consuming more vegetarian dishes than the general US population ($M = 2.74$, $SD = 0.22$) are more likely to recommend the news article to family and friends when meeting them in person than participants reading a news article describing a socially proximate group that thinks they should consume more vegetarian dishes but are not currently doing so ($M = 2.23$, $SD = 0.25$). In comparison, participants reading the news article describing a socially distant group that is consuming more vegetarian dishes than the average US population ($M = 2.58$, $SD = .24$) are less likely to recommend the news article to family and friends when meeting them in person than participants reading the news article describing a socially distant group that thinks they should consume more vegetarian dishes but are not currently doing so ($M = 3.24$, $SD = .25$), (See **Table 26** & **Figure 3**).

However, no significant two-way interactions were found between reference social group and group norms on participants' likelihood of sharing a vegetarian recipe on Facebook, likelihood of ordering a vegetarian meal for their next lunch or dinner, or likelihood of taking a photo of their next vegetarian meal and posting it on Facebook. Moreover, no covariates are significant predictors in Model I ($p > 0.05$).

Same as Study I, main factors were recoded into one variable as group condition (either control group or one of the four experimental groups). Post hoc analysis (LSD) following the one-way ANOVA was conducted to make multiple comparisons across different groups. The results showed that 1) participants who read the news article describing that a socially proximate group are consuming more vegetarian dishes than the general US population would be significantly more likely to share the news article on Facebook (Mean Difference = 0.67; $p = 0.04$) and significantly more likely to share the news article on Facebook especially with close

friends (Mean Difference = 0.86; p = 0.10) than control group; 2) participants who read the news article describing that a socially distant group should consume more vegetarian dishes (but not currently doing so) would be significantly more likely to share the news article on Facebook (Mean Difference = 0.73; p = 0.04) and significantly more likely to share the news article on Facebook especially with close friends (Mean Difference = 1.04; p = 0.01), and significantly more likely to recommend the news article to family and friends in person (Mean Difference = 0.86; p = 0.10) than control group; 3) participants who read the news article describing that a socially distant group should consume more vegetarian dishes (but are not currently doing so) would be significantly more likely to share the news article on Facebook (Mean Difference = 0.73; p = 0.04) and significantly more likely to share the news article on Facebook especially with close friends (Mean Difference = 0.90; p = 0.01), and significantly more likely to recommend the news article to family and friends in person (Mean Difference = 0.99; p = 0.01) than participants who read the news article describing that a socially proximate group should consume more vegetarian dishes (but are not currently doing so); 4) participants who read the news article describing that a socially distant group should consume more vegetarian dishes (but are not currently doing so) would be significantly more likely to share the news article on Facebook especially with close friends (Mean Difference = 1.02; p = 0.01) than participants who read the news article describing that a socially distant group are consuming more vegetarian dishes than general US population.

MANCOVA Model II:

Box's test of equality of covariance showed that M value is 22.13 with a *p-value* of 0.26, which is non-significant according to the p < 0.005 criteria (Huberty and Petoskey's 2000). This indicates that no significant differences were found between the covariance matrices and so the

assumption of homogeneity of covariance across the groups is not violated. Thus, *Wilk's Lambda* test was used in the following analyses. Multivariate tests showed that no significant main effects or interaction between main factors were found on the two outcome variables. However, two covariates are significant predictors in the model: gender (*Wilk's lambda*= .920, F (3, 174) =5.02, $p = 0.002$, multivariate $\eta p^2 = 0.080$) and vegetarian consumption behavior (*Wilk's lambda*= .343, F (3, 174) = 30.30, $p < 0.000$, multivariate $\eta p^2 = 0.343$). This suggests that there 42.3% of the total variance in Model II can be explained by gender and participant's self-reported vegetarian consumption behavior (See **Table 27**)

Prior to conducting follow-up **NCOVAs**, the homogeneity of variance assumption was tested for three outcome variables in **Model II**. Levene's F tests showed that the homogeneities of variance assumption were satisfied since all three Levene's F tests were statistically non-significant, with *p-value*s larger than .05 (See **Table 28**). One-way ANCOVAs on each of the three outcome variables were conducted as follow-up tests after MANCOVA.

Although no significant effects of group norms were found on outcome variables in MANCOVA Model II, one-way ANCOVA showed that group norms turned out to be a significant predictor of consumers' likelihood of sharing a vegetarian recipe on Facebook (F (1, 235) = 4.159; $p = 0.043$) (See **Table 29**).

The Influence of Covariates on Outcome Variables

Gender

It can be seen from **Table 32.** that gender is a statistically significant predictor of participants' likelihood of sharing a vegetarian recipe online (F (1, 235) = 12.429, $p = 0.001$) and likelihood of ordering a vegetarian meal for the next lunch or dinner (F (1, 236) = 6.642, $p =$

0.01). A strong positive correlation was found between age and likelihood of sharing a vegetarian recipe on Facebook ($r = 0.287$, $p < 0.000$). This suggests that females are more likely to share a vegetarian recipe than males after reading the news article about vegetarian benefits with/without associations with a reference group. A significant positive correlation was also found between gender and likelihood of the participant's ordering a vegetarian dish for their next lunch or dinner ($r = 0.235$, $p < 0.000$). In comparison to males, after reading the vegetarian news article, females reported that they were more likely to order a vegetarian dish the next time they eat out.

Vegetarian Consumption Behavior

As can be seen from **Table 33**, vegetarian consumption behavior is a significant predictor of "likelihood of sharing the news article especially with close friends" ($F (1, 236) = 5.657$, $p = 0.02$), "likelihood of sharing a vegetarian recipe on Facebook" ($F (1, 235) = 11.104$, $p = 0.001$), "likelihood of ordering a vegetarian dish for their next lunch or dinner" ($F (1, 236) = 106.970$, $p < 0.000$), and "likelihood of posting a photo of their next vegetarian meal on Facebook" ($F (1, 236) = 8.956$, $p = 0.003$). Significant positive correlations were found between vegetarian consumption behavior and the four outcome variables ($p < 0.000$). This suggests that participants who identified themselves as more like a vegetarian, consumed more vegetarian dishes per week, and feel it less difficult to order a vegetarian dish when eating out are more likely to share the news article on Facebook especially with close friends, share a vegetarian recipe on Facebook, order a vegetarian dish for their next lunch or dinner, and post a photo of their next vegetarian meal on Facebook.

Discussion

The study showed that people are more willing to share a news article describing what a socially proximate out-group is currently doing (consuming more vegetarian dishes than average Americans do) than they are willing to sharing what the socially proximate group thinks they should do but are not actually doing (consuming more vegetarian dishes). In contrast, people are more willing to share a news article describing what a socially distant group thinks they ought to do but are currently not doing than they are to share a news article is describing what a socially distant group is currently doing. This pattern is similar to the interaction observed in study I as between reference group (in-group vs. out-group) and group norms (descriptive group norms vs. injunctive group norms) on participants' information sharing behavior on Facebook.

Based on these results, it appears that it is social distance rather than group belongingness that influences participants' information sharing behavior on Facebook. So, an in-group could be regarded as a special kind of socially proximate group where one's social distance with an in-group is 0, which means they are already a member of the group. There are a couple of points to account for the difference in participants' information sharing behavior among different groups: 1) According to Social Identity Signaling Theory (Berger and Rand, 2008), intentionally or accidently, individuals are trying to signal their social identity to others when sharing the news article about a social group's behavior. For a socially proximate reference group, people tend to converge with the typical behaviors of the group and associate themselves with the group members; for a socially distant group, on the other hand, people will try to diverge from the typical behaviors of the group and disassociate themselves with the group members. 2) The news article. In the first part of the news article, a whole paragraph was used to explain what a vegetarian diet is and to highlight both the healthy and environmental benefits of being on

vegetarian diet. The function of the first paragraph is to strengthen the socially desirable image of being on vegetarian diet or having a vegetarian lifestyle, which is a very popular dietary style in the US (Nordqvist, 2017). 3) combining point 1) and 2), when a news article associates a socially proximate group with a socially desirable behavior (vegetarian consumption behavior) in a way that describes the group as excelling beyond others in the society (caring more about personal health and being more environmentally friendly), people who are members of the group (in-group) or who feel socially proximate to the group will be more likely to share the news article with their social networks online via a Social Networking Site (Facebook in the study). This is a way individuals signal their social identities, and the pride they feel to others. On the other hand, if a news article describes the health and environmental benefits of a socially desirable behavior (vegetarian consumption behavior), and reports that a social group says that they should somehow improve upon their current practices of that behavior, individuals who are not part of the social group (out-group) or who perceive the group as socially distant will be more likely to share the news article than if the news article is saying the same social group is currently doing it. This is as way an individual can distinguish themselves from a social group with which they do not feel an identity.

Limitations and Future Research

There is a limitation of the study when it comes to uncovering participants' intention to be associated with the social group. Since most of the outcome questions measured participants' intended behavior to share the news article online or in person, it is unknown what the participants' attitudes towards the article are, or whether they approve or disapprove of what the news article is trying to convey. Future research would benefit by measuring participant's attitudes towards the news article.

In addition, participants self-reported ethnicity as Asian (43.7%), White (35.5%), Hispanic/ Latino (12.2%), Black (4.9%), and other (3.7%). The much higher percentage of Asian participants in the study might diminish the generalizability of the study results to other populations in the US. On the other hand, studies suggest that Asians are typically rooted in a culture of collectivism and care more about group identity and belongingness than whites (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). This may skew the research findings since the theoretical foundation of the study designs is based on participants' connections with different social groups. However, Chi-square test showed that there were no significant differences in ethnicity distribution among the experimental or control groups. This ruled out the possibility that ethnicity differences potentially biased the influence of reference groups on outcome variables.

CHAPTER SEVEN

Impact of Reading a News Article Associating a Healthy Eating Behavior with an Aspirational group or a Non-aspirational group on Consumers' Information Sharing Behavior and Intended Healthy Eating Behavioral Change

Introduction

As already discussed, people use social reference groups as a standard to evaluate themselves in terms of their values and beliefs about the world (Escalas & Bettman, 2003). An aspirational group is an out-group that individuals find themselves having shared aspirations with, desiring their life styles, and to which, they aspire to belong. In contrast, a non-aspirational group is an out-group that individuals do not feel identified with or desire to be associated with (Escalas & Bettman, 2003).

An aspirational group is typically an out-group that is socially distant from one's life. However, research by Cocanongher and Bruce (1971) showed that a socially distant reference group can influence the purchase behavior of consumers in situations where those consumers have a positive attitude towards the group members or the activities of the group. In a study of college students, Englis and Solomon (1995) demonstrated that the desire to emulate an aspirational group influences "anticipatory consumption." That is, college students' anticipation of engaging in consumption activities that will help them to make transition to a new role after graduation. A study by Sirgy (1982) showed that the anticipated transition of roles after graduation can also influence college students' evaluation of products. This is due to their intent to become associated with a desired self-image and/or the social roles via simulation of a particular lifestyle, in which material consumption plays a significant part.

This dissertation was conducted to further understanding beyond the influence of aspirational groups on people' consumption behavior and product evaluations. It investigates how consumers' intended desire to be associated with or to diverge from a particular out-group influences their intent to disseminate a message on social media when the reference group is associated with a health behavior in the message. To accomplish this, two socially distant reference groups (an aspirational group and a non-aspirational group) were operationalized in the study.

Methods

1. Recruitment

Participants in the study were 316 students in two undergraduate introductory classes in the Department of Human Ecology at Rutgers University intended for first-year and second-year students. Students participated in the study voluntarily, as no extra class credits were provided for participation.

2. Experimental design

A randomized controlled incomplete factorial (2 by 2 plus a control group) experimental design was used to examine the influence of reference social group (aspirational group vs. non-aspirational group) and group norms (descriptive group norms vs. injunctive group norms) on individuals' news article "sharing" behavior on Facebook, Word-of-Mouth Communication behavior in person, and intended vegetarian consumption behaviors. A one-way Analysis of Covariance (ANCOVA) was conducted to analyze influence of two main factors and interaction between the two main factors on outcome variables, controlling for covariates.

3. Measurements

Independent variables

There are two independent variables in Study III: reference social group and group norms. Reference social group consisted of two levels, aspirational reference group (scientists) and non-aspirational reference group (politicians). A pretest was conducted to test participants' interest in different future careers, including: 1) Professional Politician; 2) Life Science Professional; 3) Health Professional; 4) Business Professional; 5) Social Science Professional; 6) Legal Professional; and 7) Other. Interest in these careers was measured on a 10-point Likert scale with 1 representing "Not at all Interested" and 10 representing "Extremely interested." Based on Participants' evaluations of all those questions, Professional Politician received the lowest rating on the scale and Life Science Professional was rated as the most desirable career. Because of these rating, "Life Science Professional" was used as the "aspirational group" (simplified as "scientists" in the study) and "Professional Politicians" (simplified as "politicians" in the study) was used as the "non-aspirational group". Manipulations on group norms were similar to those in Study I and Study II. There are two levels of group norms employed; descriptive norm and injunctive norm.

Materials

The first part of the news article describes a vegetarian diet and the health and environmental benefits of being on a vegetarian diet; the second part of the news article reported (fabricated) survey data attributed to the American Health Association. In the second half of the news article, the percentage (60%) of a social group who reported that they have (descriptive group norms) or reported that they should have (injunctive group norms) consumed vegetarian meals at least twice per week was indicated. This was followed by the comment that this

percentage (60%) is 50% higher than average consumption by general college students in the United States. The article continues with stating the reason why the particular social group chose a vegetarian dish: 70% for environmental concerns and 30% for both nutrition and environmental concerns. As mentioned earlier, group norms are manipulated as either descriptive norms or injunctive norms. Descriptive norms describe what the group members are currently doing, while injunctive group norms suggest what the group members ought to do or are expected to do (but not currently doing). In addition to the four experimental groups (1. social proximate out-group x descriptive group norms; social proximate out-group x injunctive group norms; social distant out-group x descriptive group norms; social distant out-group x injunctive group norms), a control group with neither reference group information nor group norms manipulation was also included in the study. See following as two examples of the full messages:

Aspirational Group (Scientist) × Descriptive Group Norm

A vegetarian diet is a meal plan made up of foods that come mostly from plants including vegetables, fruits, whole grains, legumes, seeds, nuts and may also include eggs and milk. A vegetarian diet can be healthful and nutritionally sound if it iscarefully planned to include essential nutrients such as folic acid, vitamins C and E, magnesium, unsaturated fat, fiber, and other nutrients. By going vegetarian, we can reduce the impact of climate change, rainforest destruction, and pollution, while saving water and other precious resources. In fact, raising animals for food produces more greenhouse gas emissions than all of the cars, planes, and other forms of transportation combined. There has never been a better time to go green by eating green.

A recent survey by American Health Association suggested that 60% of <u>Scientists</u> have vegetarian meals at least twice per week. This is 50% higher than average consumption by general college students in the United States. About 70% of <u>Scientists</u> reported that they choose a vegetarian dish primarily because of environmental concern and 30% of <u>Scientists</u> expressed that both nutrition and environmental concerns are important to them.

Non-aspirational Group (Politicians) × Descriptive Group Norm

A vegetarian diet is a meal plan made up of foods that come mostly from plants including vegetables, fruits, whole grains, legumes, seeds, nuts and may also include eggs and milk. A vegetarian diet can be healthful and nutritionally sound if it is carefully planned to include essential nutrients such as folic acid, vitamins C and E, magnesium, unsaturated fat, fiber, and other nutrients. By going vegetarian, we can reduce the impact of climate change, rainforest destruction, and pollution, while saving water and other precious resources. In fact, raising animals for food produces more greenhouse gas emissions than all of the cars, planes, and other forms of transportation combined. There has never been a better time to go green by eating green.

A recent survey by American Health Association suggested that 60% of <u>Politicians</u> have vegetarian meals at least twice per week. This is 50% higher than average consumption by general college students in the United States. About 70% of <u>Politicians</u> reported that they choose a vegetarian dish primarily because of environmental concern and 30% of <u>Politicians</u> expressed that both nutrition and environmental concerns are important to them.

Control Group: No reference group × No group norm

A vegetarian diet is a meal plan made up of foods that come mostly from plants including vegetables, fruits, whole grains, legumes, seeds, nuts and may also include eggs and milk. A vegetarian diet can be healthful and nutritionally sound if it is carefully planned to include essential nutrients such as folic acid, vitamins C and E, magnesium, unsaturated fat, fiber, and other nutrients. By going vegetarian, we can reduce the impact of climate change, rainforest destruction, and pollution, while saving water and other precious resources. In fact, raising animals for food produces more greenhouse gas emissions than all of the cars, planes, and other forms of transportation combined. There has never been a better time to go green by eating green.

A recent survey by American Health Association suggested that 60% of US adults have vegetarian meals at least twice per week. About 70% of participants reported that they choose a vegetarian dish primarily because of environmental concern and 30% expressed that both nutrition and environmental concerns are important to them.

Outcome variables

Similar to Study I and Study II, the outcome variables are six questions including "How likely would you be to share this news article on your Facebook? ", "How likely would you be to share this news article especially with your close friend(s) on Facebook? ", "How likely would you be to recommend the article to your family and friends when you meet them in real life? ", "How likely would you be to share a popular vegetarian recipe on Facebook if you read one online? ", "How likely would you be to order a vegetarian dish for your next lunch/ dinner? ", and "How likely would you be to take a photo of your next vegetarian meal and post it on

Facebook?" All the six outcome questions were measured on a 7-point Likert scale, with 1 as "Not at all likely" and 7 as "Very likely."

Covariates

Same as previous studies, eight covariates were included in the factorial model. There are three groups of the covariates:

1) Demographic information including age, gender (male or female), and ethnicity (Asian, Black/ African American, Hispanic/ Latino, White/ Caucasian, American Indian/ Native American, other);

2) Vegetarian measures including Self-Report Vegetarian Identity, measured using the question "Do you consider yourself a vegetarian?" on a 7-point Likert Scale with 1 representing "Definitely Not" and 7 representing "Definitely Yes"; Vegetarian Consumption Behaviors when eating out, asking participants "How difficult is it for you to order a vegetarian dish when you eat out?" on a 7-point Likert Scale with 1representing "Not at all Difficult" and 7 representing "Very Difficult", and Attitudes Towards Vegetarian Dishes which includes four items as "Vegetarian dishes are" on a 7-point Likert Scale with 1 representing "Unenjoyable" and 7 representing "Enjoyable", "Vegetarian dishes are more nutritious than non-vegetarian dishes." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarian dishes taste better than non-vegetarian dishes." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarian dishes are healthier than non-vegetarian dishes" on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree" ; Attitudes Toward Vegetarian People which includes 5 items as "Vegetarians are more good looking than non-vegetarians." on a 7-point Likert Scale

with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are healthier than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are nicer and more friendly than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are having happier lives than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree", "Vegetarians are more environmentally friendly than non-vegetarians." on a 7-point Likert Scale with 1 representing "Not at all Agree" and 7 representing "Very Agree".

3) Social and psychological factors including self-monitoring skills using the validated Self-Monitoring Scale (Snyder, 1974; see appendix A), and susceptibility to normative influence using the validated Susceptibility to Normative Influence Scale (Bearden et al., 1989; see appendix B).

Procedure

After reading a brief set of instructions about the study, participants were asked to indicate to what degree they identify themselves as a vegetarian using a 7-point Likert scale (1 as "Definitely Not" and 7 as "Definitely Yes"). They were then asked to answer questions concerning their personal vegetarian consumption behaviors, attitudes towards vegetarian dishes, and attitudes towards vegetarians. After answering these questions, participants were randomly assigned into one of five conditions (four experimental groups plus one control group). They were asked to imagine that they read a news article from The New York Times posted on Facebook. After finishing reading the news article, the participants answered the outcome variable questions. Then participants were directed to answer questions from the standard Self-

Monitoring scale (Snyder, 1974) and demographic questions asking about participants' age, gender, and ethnicity.

Results

Of the total sample of 316 recruited to participate in the study, 254 (80.4%) participants completed the experiment. Participants were (107 males and 147 females) undergraduate students at Rutgers University. The mean age of the sample was 19.9, ranging from 18 to 43, with a median age of 19. The participants self-reported their race/ethnicity as Asian (21.3%), White (55.9%), Hispanic/ Latino (13.4%), Black (4.7%), and other (4.7%).

As in the previous studies, there are six outcome variables in this Study. They are: SHARE_OVERALL ("How likely would you be to share the news article on Facebook?"); SHARE_FRIENDS ("How likely would you be to share the news article especially with your close friends?"); RECOMMEND_IN PERSON ("How likely would you be to recommend the news article to your family and friends when meeting them in real life"); SHARE_RECIPE ("How likely would you be to share a vegetarian recipe on Facebook if you read one online?"); ORDER_VEGETARIAN DISH ("How likely would you be to order a vegetarian dish for your next lunch or dinner?"); and PHOTO_VEGETARIAN DISH ("How likely would you be to take a photo of your next vegetarian dish and post it on Facebook?"). All six outcome variables are measured using 7-point Likert scales ranging from 1 representing "Not at all likely" to 7 representing "Very likely."

Participants' mean responses to the six dependent variables varied from 2.30 to 3.72 on the 7-point Likert Scale. Among all six outcome variables, the mean of likelihood of ordering a vegetarian meal for your next lunch or dinner was the highest (*M*= 3.72) and the mean of

likelihood of posting the photo of your next vegetarian meal on Facebook was the lowest ($M =$ 2.30) (See **Table 34**).

To test the potential systematic bias that could compromise randomized group assignments, the relationships between the independent variables (reference social group and group norms) and the covariates were examined. Chi-square analyses showed that there were no statistically significant relationships between group assignment and gender or ethnicity. Similarly, one-way ANOVAs showed no statistically significant relationships were found between group assignment and age, vegetarian consumption behavior, attitudes towards vegetarian foods, or attitudes towards vegetarians.

Pearson correlations were conducted to test the assumption for Multivariate Analysis of Covariance (MANCOVA) that outcome variables should be moderately correlated, with Pearson correlations ranging between 0.20 and 0.60 (Meyers, Gampst and Guarino 2006). The results showed that SHARE_OVERALL, SHARE_FRIENDS, and RECOMMEND_IN PERSON are strongly correlated with each other: SHARE_OVERALL and SHARE_FRIENDS were strongly positively correlated, r (253) = 0.84, $p <$ 0.000; SHARE_OVERALL and RECOMMEND_IN PERSON were strongly positively correlated, r (253) = 0.68, $p <$ 0.000; and SHARE_FRIENDS and RECOMMEND_IN PERSON were strongly positively correlated, r (253) = 0.77, $p <$ 0.000 (See **Table 35**).

Additionally, SHARE_RECIPE, ORDER_VEGETARIAN DISH, and PHOTO_VEGETARIAN DISH are moderately correlated with each other: SHARE_RECIPE and ORDER_VEGETARIAN are also moderately positively correlated, r (250) = 0.54, $p <$ 0.000. DISHSHARE_RECIPE and PHOTO_VEGETARIAN DISH were strongly positively

correlated, r (250) = 0.57, p < 0.000; ORDER_VEGETARIAN DISH and

PHOTO_VEGETARIAN DISH were moderately positively correlated, r (250) = 0.53, p < 0.000

(See **Table 36**). This suggests that it is appropriate to perform MANCOVAs.

Before conducting MANCOVA, planned contrasts comparing the four experimental

group against control group showed that no statistical significant differences were found on any

of the six outcome variables (p > 0.01). (See **Table 37**).

As in the previous studies, the outcome variables were divided into two groups: 1) News

article sharing behavior (including SHARE_OVERALL, SHARE_FRIENDS, and

RECOMMEND_IN PERSON); 2) vegetarian related behavior (including SHARE_RECIPE,

ORDER_VEGETARIAN DISH, and PHOTO_VEGETARIAN DISH). The dependent variables

in MANCOVA **Model I** include the three outcome variables in Group 1 and the dependent

variables of MANCOVA **Model II** include the three outcome variables in Group 2. Both Model

I and Model II tested the influence of two fixed factors: reference social group (aspirational

social group vs. non-aspirational social group) and group norms (descriptive group norms vs.

injunctive group norms), and their interactions on the outcome variables, controlling for five

covariates: age, gender, ethnicity, vegetarian consumption behaviour, attitudes towards

vegetarian dishes, and attitudes towards vegetarian behaviour, and self-monitoring. Two-way

MANCOVAs were conducted to avoid the inflated Type 1 error rate in the multiple analyses of

covariance (ANCOVAs) and to test the hypothesis that there would be one or multiple mean

differences between groups with different reference group conditions and group norms.

MANCOVA Model I

The Box's test of equality of covariance showed that the M value for Model I was 25.64, $p = 0.13$. This suggests that the covariance matrices between the groups were equal since the *p-value* is non-significant. Thus *Wilks' Lambda* was adopted in the following analyses.

MANCOVA showed that there was a statistically significant main effect of reference social group on the outcome variables with *Wilks' Lambda* = 0.95, $F(3, 166) = 2.884$, $p = 0.037$. The multivariate effect size (partial eta square) was estimated to be .05, which implies that 5.0% of the variance in the canonically derived dependent variable was accounted for by reference social group, controlling for group norms and covariates such as age, gender, ethnicity, vegetarian consumption behavior, attitudes towards vegetarian dishes, attitudes towards vegetarians, and susceptibility to normative influence (See **Table 38**). What's more, attitudes towards vegetarian dishes was also found to be a significant predictor in the model on outcome variables with *Wilks' Lambda* = 0.87, $F(3, 166) = 2.884$, $p = 0.000$. The multivariate effect size (partial eta square) was estimated at .127, which implies that 12.7% of the variance in the canonically derived dependent variable was accounted for by participants' attitudes towards vegetarian dishes.

Prior to conducting follow-up ANCOVAs, the homogeneity of variance assumption was tested for three outcome variables in **Model I**. Levene's *F* tests showed that the homogeneities of variance assumptions were satisfied since all three Levene's *F* tests were statistically non-significant, with *p-value*s larger than .05 (See **Table 39**). One-way ANCOVAs on each of the three outcome variables were conducted as follow-up tests to MANCOVA.

MANCOVA Model II

The Box's test of equality of covariance showed that the M value for Model II was 25.64, $p = 0.13$. This suggests that the covariance matrices between the groups were equal since the *p-value* is non-significant. Thus *Wilks' Lambda* is adopted in the following analyses. As can be seen in **Table 43**, no significant main effects or interaction were found on outcome variables in MANCOVA Model II and significant influence of covariates including gender, vegetarian consumption behavior, and attitudes towards vegetarian dishes were found instead.

Prior to conducting follow-up ANCOVAs, the homogeneity of variance assumption was tested for three outcome variables in **Model II**. Levene's *F* tests showed that the homogeneities of variance assumption were satisfied regarding that all three Levene's *F* tests were statistically non-significant with a *p-value* larger than .05 (See **Table 44**). Therefore, one-way ANCOVAs were conducted on each of the three outcome variables as follow-up tests to MANCOVA.

1. **Main Effects of Reference Social Group On Outcome Variables**

As suggested by MANCOVA Model I and Model II, there was a statistically significant main effect of reference social group on the outcome variables after controlling for group norms and covariates. It can be seen from **Table 40 & Table 45**, the one-way ANCOVA models suggest that reference social group has a statistically significant main effects on participants' *likelihood of sharing the news article on Facebook* (F $(1, 243) = 4.282$, $p = 0.04$), likelihood of recommending the news article to family and friends when meeting them in person (F $(1, 243) = 7.877$, $p = 0.005$), and likelihood of sharing a vegetarian recipe on Facebook (F $(1, 240) = 4.154$, $p = 0.04$). Participants assigned to read the news articles associating vegetarian consumption behavior with scientists (aspirational group, M=2.80, SD =1.77) are significantly more likely to

share the news article on Facebook than participants who read the news articles associating vegetarian consumption behavior with politicians (non-aspirational group, M = 2.51, SD =1.79), the likelihood of sharing the news article by control group with no information on reference social group are much lower than both experimental groups (M = 2.17, SD =1.59). Similarly, participants who read the news article associating vegetarian consumption behavior with scientists (aspirational group, M = 3.36, SD = 1.84) were significantly more likely to recommend the news article to family and friends when meeting them in person than participants who read the news article associating vegetarian consumption behavior with politicians (non-aspirational group (M = 2.81, SD = 1.89), with the likelihood of recommending the news article to family and friends when meeting them in person for control group lower than both experimental groups as (M = 2.59, SD = 1.64). Likewise, participants who read the news article associating vegetarian consumption behavior with scientists (aspirational group, M = 3.22, SD = 1.94) were significantly more likely to share a vegetarian recipe on Facebook than the participants who read the news article associating vegetarian consumption behavior with politicians (Non-aspirational group, M = 2.85, SD = 1.88), with the likelihood of sharing a vegetarian recipe on Facebook for control group as (M = 2.86, SD = 1.91). Summarizing the aforementioned findings, it is suggested that associating a social reference group that people aspire to join would significantly motivate individuals to share the news article on Facebook ($p = 0.04$), to recommend the news article to family and friends when meeting them in person ($p = 0.005$), and to share a vegetarian recipe on Facebook ($p = 0.04$). No statistically significant two-way interactions were found between reference social group and group norms on outcome variables. (See **Table 41**)

2. **Significant Influence of Covariates on Outcome Variables**

Gender

As can be seen in **Table 46**, gender is a significant predictor of the *likelihood of sharing a vegetarian recipe on Facebook* (F (1, 240) = 20.164, *p* <0.000). The two variables are positively correlated, with a Pearson correlation of 0.378 (*p* <0.000). This suggests that females (coded as 2 in the model) are significantly more likely to share a vegetarian recipe than males (coded as 1 in the model). Gender also has a significant predictive effect on likelihood of ordering a vegetarian meal for the next lunch or dinner (F (1, 240) = 8.304, *p* < 0.01); the two variables are moderately correlated with each other, with a Pearson correlation of 0.334 (*p* < 0.000). This suggests that after reading the news article females are more likely to order a vegetarian dish for their next meal compared with males.

Vegetarian Consumption Behaviors

Vegetarian consumption behaviors include three items. These are "Do you consider yourself as a vegetarian?" "How many vegetarian meals do you usually consume per week?" and "How difficult is it for you to order a vegetarian dish when you eat out?" (7-point Likert scale with 1 as "Not at all Difficult" and 7 as "Very Difficult"). It can be seen from **Table 43 & 53** that "vegetarian consumption behaviors" is a significant factor in the MANCOVA Model II (*F*= 13.708, *p* < 0.000). Follow-up ANOVAs showed that vegetarian consumption behavior is a significant predictor of "likelihood of ordering a vegetarian dish for the next lunch or dinner" and "likelihood of posting a photo of their next vegetarian dish on Facebook."

Positive correlations were found between vegetarian consumption behaviors and likelihood of ordering a vegetarian meal for the next lunch/ dinner (*r* = 0.611, *p* < 0.000). This

suggests that participants' self-perception of their vegetarian identity, frequency of vegetarian consumption, and their vegetarian ordering choices when eating out have positive influences on choosing a vegetarian dish for their next meal after reading the news article, but they have no influence on their information sharing behavior on Facebook.

Attitudes Towards Vegetarian Dishes

Attitudes towards vegetarian dishes include three 7-point Likert scale items as 1) "Vegetarian dishes are more nutritious than non-vegetarian dishes." 2) "Vegetarian dishes taste better than non-vegetarian dishes." 3) "Vegetarian dishes are healthier than non-vegetarian dishes." (1 = "Not at all Agree" and 7 = "Completely Agree"). It can be seen from **Table 38, 46 & 54** that attitudes towards vegetarian dishes have statistically significant predictive effects on all six outcome variables and are positively correlated with all the six outcome variables, including likelihood of sharing the news article on Facebook ($F(1, 243) = 22.283$, $p < 0.000$, $r = 0.481$, $p < 0.000$), likelihood of sharing the news article especially with close friends on Facebook ($F(1, 243)= 15.739$, $p < 0.000$, $r = 0.457$, $p < 0.000$), likelihood of recommending the news story to family and friends when meeting them in person ($F(1, 243)=15.341$, $p < 0.000$, $r = 0.425$, $p < 0.000$), likelihood of sharing a vegetarian recipe on Facebook ($F(1, 240)= 19.808$, $p < 0.002$, $r = 0.443$, $p < 0.000$), likelihood of ordering a vegetarian dish for the next lunch or dinner ($F(1, 240) = 42.875$, $p < 0.000$, $r = 0.652$, $p < 0.000$), and likelihood of posting a photo of their next vegetarian meal on Facebook ($F(1, 240) = 20.426$, $p < 0.000$, $r = 0.425$, $p < 0.000$). This suggests that participants' evaluations of vegetarian dishes' healthiness, tastiness, and nutritiousness have significant positive influence on their information-sharing behavior of a vegetarian news article on Facebook and in real life, vegetarian recipe sharing behavior on Facebook, vegetarian dish-ordering behavior, and posting of vegetarian photos on Facebook.

Attitudes Towards Vegetarians

The measurement of one's "attitudes towards vegetarians" included four 7-point Likert scale items 1) "Vegetarians are better-looking than non-vegetarians.", 2) "Vegetarians are healthier than non-vegetarians.", 3) "Vegetarians are nicer and more friendly than non-vegetarians.", 4) "Vegetarians are more environmentally friendly than non-vegetarians." (1 = "Not at all Agree" and 7 = "Completely Agree").

It can be seen from **Table 42 & 55** that participants' attitudes towards vegetarians have statistically significant influence on their likelihood of sharing the news article especially with close friends (F $(1, 243) = 12.814$, $p < 0.000$), and likelihood of recommending the news article to family and friends when meeting them in person (F $(1, 243) = 8.368$, $p = 0.004$). Attitudes towards vegetarians is strongly correlated with the three outcome variables mentioned above ($p < 0.000$ for all). This suggests that participants who think that vegetarians are better-looking, nicer and more friendly, or more environmentally friendly than non-vegetarians are significantly more likely to share the news article on Facebook, significantly more likely to share the news article on Facebook especially with close friends, and significantly more likely to recommend the news article to family and friends when meeting them in person. In comparison, attitudes towards vegetarians have no significant influence on one's sharing likelihood of a vegetarian recipe on Facebook, likelihood of ordering a vegetarian meal for next lunch or dinner, or likelihood of posting a photo of their next vegetarian meal on Facebook.

Compared with attitudes towards vegetarian dishes, which significantly motivates both consumers' news article sharing behavior on Facebook and in real life and intended vegetarian consumption-related behaviors (sharing a vegetarian recipe, ordering a vegetarian meal, and

posting a photo of their next vegetarian meal), attitudes towards vegetarian people are less

influential in terms of consumers' intended vegetarian consumption-related behaviors. Since all

six questions are about the topic of vegetarian meals, it is foreseeable that people's perception

and attitudes about vegetarian meals would be a key factor influencing their vegetarian

information sharing behavior both on social media and in person as well as their vegetarian

consumption-related behaviors. In comparison, vegetarian people are present only in the news

articles associating vegetarian consumption behaviors with a particular social group, it could

potentially explain the reason why attitudes towards vegetarian people only have statistical

significant influence on one's news article (containing vegetarian people) sharing behavior on

Facebook and in person but have no effects on vegetarian consumption-related behaviors since

no information on vegetarian people would involve in those behaviors. The contrast of the

different influences between attitudes towards vegetarian dishes and attitudes towards

vegetarians suggests that the presence of a particular group, either perceived as a reference social

group or a group of people on vegetarian diet, would have great influence on consumers'

information sharing behavior after reading the news article. This further confirms the importance

of selecting the right reference social group when promoting a health behavior among different

group of consumers.

Discussion

Results showed that the news article describing the health and environmental benefits of

being on vegetarian diet and associating vegetarian consumption behavior with an aspirational

reference group is more likely to be shared on Facebook and more likely to be recommended to

family and friends when meeting them in person than the same news article associating

vegetarian consumption behavior with a non-aspirational reference group, after controlling for

covariates. What's more, participants would be more willing to share a vegetarian recipe on Facebook after they read the news article about an aspirational group compared with a news article about a non-aspirational group's vegetarian consumption behavior. This suggests that associating a health behavior with an aspirational reference group could not only motivate consumers to conform to the behavior indirectly (sharing a vegetarian recipe on Facebook to show one's interests in being on a vegetarian diet) but also make consumers more likely to share the news article on Facebook. It is assumed that sharing the news article centered on a social group's behavior is a way consumers use to signal their desired identity or their intention to conform to the behavior by the social group. In comparison, participants' likelihood of sharing the news article with only close friends on Facebook, ordering a vegetarian meal for the next lunch or dinner, and posting a photo of their next vegetarian meal on Facebook were not influenced by reference social group information because those behaviors are either essentially lack of reference social group information or not a behavior that is conducted in a public context, which is the prerequisite of Social Identity Signaling Theory (Berger, 2008).

The role of signaling or avoid signaling a social identity via the association with a social group demonstrated in the study is consistent with the research conducted by Berger and Heath (2008). In their study, they associated the behavior of wearing a wristband with two social groups on campus to look at the influence of reference group on students' wristband-wearing behavior after the wristband was adopted by another group. It showed that college students in a dorm stopped wearing the wristband after the wristband started to be worn by more "geeky" students in another dorm. The "geeky" students were students who were more focused on academics and who took more curricular coursework and extra credits. They did a pretest and showed that participants from the target dorm did not dislike the "geeky" students, but they felt

they were different compared with the "geeky" students and wanted to distinguish themselves from the "geeky" students. Their behavior of abandoning the wristbands was because they wanted to avoid signaling the wrong identity that would lead others to see them as one of the students from the "geeky" dorms. In the study by Berger and Heath (2008), participants tried to diverge from an out-group they did not feel identified with or aspired to join. In contrast, the current study looked at consumers' convergence behavior to a social group they aspire to join, in other words, consumers should conform to the vegetarian consumption behavior associated with the aspirational group. Although no significant main effects of reference social group were found on participants' likelihood of ordering a vegetarian meal for the next lunch or dinner, reference social group was found to be a significant positive predictor of consumers' information sharing behavior on Social Networking Sites. It is assumed that individuals intend to signal their social identity to others via sharing the news article that is associated with the social group that they aspire to become a part of. What's more, reference social group also has a significant influence on participants' vegetarian recipe sharing behavior on Facebook. Participants who read the news article describing the benefits of being on vegetarian diet and which associated vegetarian consumption behaviors with an aspirational reference group were more likely to share a vegetarian recipe on Facebook than those who read the news article associated with a non-aspirational social reference group. It is assumed that by sharing a vegetarian recipe, individuals are establishing a connection between themselves and the aspirational group that was associated with vegetarian consumption in the news article. Participants' intention to signal the desirable social identity of the aspirational social group through the vegetarian recipe sharing behavior motivated participants to share the news article on Facebook.

However, no significant main effects of group norms were found on any of the six outcome variables. This suggests that whether the news article describes what the reference group is *already* doing or denoting what the reference group members think they *should* do makes no difference when it comes to influencing participants' news article sharing behavior on Facebook and in person, or vegetarian consumption-related behaviors. This is consistent across all three studies with different reference groups. It can be inferred that group norms, either describing what a reference social group is doing or think they ought to do but are not actually doing, is not an independent significant factor influencing consumers' information sharing behavior (either on Facebook or in person), or the intention to change their own behaviors.

 Interestingly, there is no significant interaction between reference social group and group norms on the outcome variables, which is different compared with Study I and Study II. The potential explanation for this could be that if solely the reference social group (in-group vs. out-group or socially proximate group vs. socially distant group) is not a strong enough factor in influencing consumers' information sharing behavior of the news article or intended behavioral change, reference social group will be contingent on group norms to exert their influence on consumers.

For example, the news article describing what an in-group or socially proximate group is doing is more influencing than the same news article describing what an in-group or socially proximate group thinks they ought to do. The news article describing what an out-group thinks they *ought* to do is more likely to be shared by consumers than the same news article describing what an out-group or socially distant group *are* doing. In comparison, if the reference group is a strong factor in influencing consumers' information sharing behavior or intended health behavioral change, reference social group would not hinge on groups norms. This means

regardless of whether the news article is describing what the social group is doing or ought to do, an aspirational group would have greater influence on consumers' information sharing behavior than a non-aspirational group. This suggest that compared with in-group or a socially proximate group, an aspirational group may be a stronger reference social group and have greater influence.

As previously discussed in Chapter Six, an in-group could be treated as a special kind of socially proximate group with a perceived social distance of 0. The results of Study III suggest that compared with proximate social distance, one's internal motivation or aspiration to join an out-group has greater influence on consumers' news article sharing behavior and intended behavioral change. Further research is needed to test this assumption.

Follow-up studies should be conducted to test the influence of individuals' "aspiration/ motivation to join" under different perceived social distances between the aspirational group and the participants. It is anticipated that consumers would be least likely to share information signaling their aspirational social identity to others when that information is related to an aspirational group with an extremely large social distance from them. Under this situation, the aspirational group is much like the celebrity role models commonly used in commercials. They are brilliant and shining stars, however, they are just too far away (socially and psychologically) from the target consumers. On the other hand, it is assumed that an aspirational group that is within approachable social distance could also be a barrier for consumers to share relevant information associated with the aspirational group. There are two tentative explanations for this: 1) the proximate social distance will weaken one's desire to join the aspirational group, i.e., the aspirational group has some sort of characteristics attracting the target population, however, there is not much differences between the aspirational group and the target population. The marginal utility (a microeconomic term used to describe the additional utility that a consumer could derive

from purchasing an additional unit of product or service; Samuelson, 1937) is too small to be worth any efforts to be associated with or to converge with the aspirational group. In this case, not even sharing a news article about the aspirational group on Facebook may be seen as worth the effort. 2) The need to diverge from an out-group will dilute one's motivation to conform to the aspiration group they would like to join. Take the two different social groups in the study by Berger and Heath (2008), Stanford undergraduate students from the target dorm stopped wearing the wristband after students from "geeky" dorms started to wear the same wristbands. There are a couple of points worth noting in the study: 1) Students in the target dorms did not dislike students from the "geeky" dorms but just did not want to be mistaken as a member of the social group they do not belong to; 2) The two dorms are physically close on the same campus of Stanford University and the pretest on the perceived social distances for different social groups (e.g. Princeton Students, Blue Collar Workers, Inner City Teens, Stanford Faculty, etc.) showed that participating students in the target dorm perceived Stanford University undergraduate students in general as a very socially close group, which means students from "geeky" dorms are indeed a socially proximate out-group for them. It is the intention to diverge from a dissimilar out-group that made participants discard their wristbands.

So, the question is, would participants behave differently when it comes to a socially proximate aspirational group? If so, how would they deal with potentially conflicting motivations, such as the natural tendency to diverge from a dissimilar group and the desire to join the aspirational group? Future research should examine these questions to identity the key drivers that motivate consumers to share relevant information and the potential barriers that discourage consumers to do so.

Limitations and Future Research

In the study, two reference social groups were included in the news article as an aspirational group and a non-aspirational group. Based on the pretest on participants' career orientations (mostly undergraduate students taking entry-level classes in School of Environmental and Biological Sciences, a strong science-oriented school), "scientists" was selected as a representative aspirational group most students aspire to become, whereas "politicians" was selected as a representative non-aspirational group. Perceived social distance between the two out-groups were not controlled in the experiments. And it was assumed that professional "scientists" and "politicians" are comparable regarding the perceived social distance (e.g. how similar do they think they are as compared with a social group, etc.) for an undergraduate student. In addition, results from study I and study II also showed that perceived social distance is not a significant factor in driving one's information sharing behavior on Social Networking Site or in person, or intended behavioral change associated with the reference social group.

However, it is highly probable that since most of the students in the study were being trained to become scientists, they might view themselves as "thinking like a scientist" even though they are not yet professionals. In this case, they might view themselves as belonging to the broader in-group of "scientists" even though they aspire to join the smaller group of "professional scientist". Another potential issue would be "scientists" are just seen as more credible. It may be that the participants assume that if "scientists" adopt a behavior with purported health and environmental benefits, those benefits must be real (otherwise, scientists wouldn't adopt them).

Another thing making the participants of Study III different from Study I & II: participants for Study III are primarily from School of Environmental and Biological Sciences at Rutgers University while participants of Study I & II are attending Rutgers Business School. The difference in students' majors implied their different socio-economic and family background, career interests and even personalities. However, since participating students are all from entry-level classes as relatively junior students, it is assumed that most first year or second year students are generally similar, considering they are attending the same university.

CHAPTER EIGHT

General Discussion

The dissertation is composed of three major studies with different experimental group conditions. The primary difference in the experimental design of the three studies lie in the reference social groups associated with the healthy eating behavior (vegetarian meal consumption behavior) in the news article. Here is a brief review on the use of reference social groups in all three studies: Study I investigated the influence of an individual's identification with a reference social group and compared the difference between a reference social group one belongs to or identifies with (in-group) and a reference social group one does not belong to or does not identify with (out-group). Study II investigated the influence of perceived social distance between an individual and different out-group; comparing a socially proximate group with a socially distant group. Study III focused on one's aspiration or desire to join a reference social group; comparing the difference between an aspirational group one desires to join and a non-aspirational group that one does not have a strong desire to join.

A very important aspect of conducting the three studies with the three different reference social groups is to make comparisons among the potential impacts of the different reference social groups on consumers' information sharing behavior and intended healthy eating behavioral change. As shown from the results, there was no significant difference between in-group and out-group or between socially proximate group and socially distant group in motivating consumers' information sharing behavior or healthy eating behavioral change, In contrast, an aspirational reference group is significantly more effective than a non-aspirational reference group in compelling consumers to share the news article on Facebook, to recommend

the news article to family and friends when meeting them in person, and to share a vegetarian

recipe on Facebook after reading the news article. This suggests that the perceived similarity

between an individual and the associated reference social group is not really a determining factor

when consumers make the decision of whether or not they are going to share the news article or

change their health behaviors according to the behaviors of the reference social group. Yet, the

motivation to join the associated reference social group or to become similar to a particular

group of people appears powerful enough to influence sharing the news article describing the

reference social group's behavior and intended behavior norms, and also to make intended

changes in their own health behavior (vegetarian meal consumption behavior in the studies).

The research findings are consistent with previous research on consumers' convergence

& divergence behavior and adoption of cultural tastes. Studies by Englis and Solomon (1995)

showed that people would continue using a product that is being used by an aspirational group

(or other social groups that they would like to look like) since it will help them to signal a

desirable social identity. On the other hand, people will abandon a product after it is adopted by a

stigmatized group or by an out-group that they would like to distinguish themselves from

because the continuing use of the product would likely lead to misidentification with that out-

group (Berger and Rand, 2008).

As suggested by Berger (2008), previous research has primarily focused on how people

would react after the cultural taste of a social group is "poached" by others. For example,

Shanghai residents stopped driving Volkswagen Santanas after "nouveau riche suburbanites"

(another social group) started purchasing it (Wonacott, 2004). However, little research has been

done to look at "outsiders" motivations to "poach" other social groups' cultural tastes or to

follow others' identity-signaling behaviors, such as the cars they drive, the style of clothing they

typically wear, or the kinds of food they usually consume, especially in public environments like restaurants or cafes.

The current study partially fills the research gap on identity signaling and convergence behaviors. In Study II and Study III, participants are placed in the situation of being asked to answer how likely they would be to share the news article either on Facebook or in person and the likelihood of "poaching" the particular behavior of the other social group after reading a news article highlighting a particular behavior by a different social group.

Another interesting finding is the influence of group norms (descriptive group norms or injunctive group norms) on consumers' intended vegetarian meal consumption behavioral change. The first part of the news article was intended to highlight the health and environmental benefits of eating vegetarian meals and making the consumption of vegetarian meals a highly socially desirable behavior. The second part of the news article associated the vegetarian consumption behavior with a reference social group by describing their current vegetarian meal consumption behavior (descriptive group norms) or their ought vegetarian meal consumption behavior (injunctive group norms).

In Study I and Study II, reference social group had no significant impact on the outcome variables. In comparison, group norms employed to structure the reference social group message in the news article exert significant influence on consumers intended vegetarian consumption behavioral change. Participants who read the news article describing the health and environmental benefits of being on a vegetarian diet and that a reference social group that thinks they should consume more vegetarian meals are more likely to order a vegetarian dish for their next lunch or dinner than participants who read the news article describing the health and

environmental benefits of being on vegetarian diet and that a social reference group *is consuming* more vegetarian dishes than the general population. This provides an important implication for health communication and education: using a "should do/ ought to do" message may be more influential than using an "are doing" message when trying to persuade consumers to make changes in their current behavior.

The interactions between reference social group and group norms are also noteworthy. The interaction between reference social group and group norms have statistically significant influence on the outcome variables in both Study I and Study II. The pattern of the interaction is also similar between the two studies:

In Study I, participants who read the news article describing an in-group (Rutgers University Undergraduate Students) is consuming more vegetarian meals than the general US college student are consuming were more likely to recommend the news article to family and friends when meeting them in person compared with participants who read a similar news article denoting that the same in-group thinks they should consume more vegetarian meals but are actually not doing so. However, participants who read the news article describing an out-group (Pennsylvanian State University Undergraduate Students) that thinks they should consume more vegetarian meals were more likely to recommend the news article to family and friends when meeting them in person than participants who read the similar news article describing the same out-group as consuming more vegetarian meals than general US college students.

In study II, participants who read the news article describing a Socially Proximate Group (graduate students or working professionals) that is consuming more vegetarian meals than the general US population are more likely to share the news article on Facebook either in public or

especially with close friends and to recommend the news article to family and friends when meeting them in person in comparison with participants reading a similar news article denoting that the same Socially Proximate Group thinks they should consume more vegetarian meals but are actually not doing so. At the same time, participants who read the news article describing a Socially Distant Group (graduate students or working professionals) that thinks they should consume more vegetarian meals are more likely to share the news article on Facebook either in public or especially with close friends and to recommend the news article to family and friends when meeting them in person than participants who read the similar news article describing that the same Socially Proximate Group is consuming more vegetarian meals than the general US population.

As previously discussed, an In-Group could be treated as a special kind of Socially Proximate Group with perceived social distance as 0 while a Socially Distant Group is just like a kind of Out-Group. So, regardless of an individual's identification as a member of the group or not, the essential difference between an In-Group and an Out-Group or between a Socially Proximate Group and a Socially Distant Group is actually perceived social distance. This explains the similar interaction pattern between reference social group and group norms with respect to the outcome variables in Study I and Study II. Based on these results, it can be inferred that it is the interaction between perceived social distance and group norms that may be influencing consumers' information sharing behavior online and in person. In this way, it could be argued that people feel more comfortable and more likely to share a message about a reference social group's current behaviors when they feel the social group is more similar and socially proximate to themselves, whereas, people feel more comfortable and are more likely to

share a message about a reference social group's ought behaviors when they feel the social group is less similar and socially distant to them.

Research by Neighbors et al., (2008) investigated the influence of participants' perceived drinking behaviors of different social reference groups (including typical students, typical same-sex students, friends and parents; with order as from "socially distal" to "socially close") on their own drinking behaviors. The study showed that injunctive group norms (perceived approval) of perceived drinking behavior for socially proximate reference groups were positively correlated with the participants' own drinking behavior. In comparison, injunctive group norms (perceived approval) of perceived drinking behavior for more socially distal reference groups (typical students or same-sex students) were negatively correlated with participants' personal drinking behaviors while descriptive norms (perceived prevalence) for distal social reference groups were still positively related with participants' drinking behavior.

These findings by Neighbors et al., (2008) are contrary to the current research findings, which suggest that a socially distal group's injunctive norms have greater influence on changing consumers' information sharing behavior (conforming to the behavior of the reference social group). Two explanations may account for the difference: 1) Drinking behavior vs. vegetarian consumption behavior. It can be argued that vegetarian consumption behavior is more pro-social than drinking behavior (especially with respect to alcohol abuse, which is the focus of the Neighbors, et al. 2008 studies). The opposite attributes of the two health behaviors could explain the contradictory results regarding interactions between reference social group and group norms; 2) Different outcome variables. The current studies focus on participants' health information sharing behavior and intended behavioral change (vegetarian meal consumption behaviors, i.e. "How likely would you be to order a vegetarian meal for your next lunch or dinner?"), whereas

in the Neighbors, et al. studies, the outcome variable is participants' actual drinking behavior. It is likely that one's intention to share relevant information and/ or intention to change health behaviors is different than their actual health behavioral change. Further research is needed to investigate the influence of reference social group and group norms on consumers' actual vegetarian consumption behavioral change. Please see Table 53 for reference and comparison across all three studies.

One primary limitation of the study is the relatively small effect sizes associated with the experimental manipulations. However, although the effect sizes are generally small across all three studies (See Table 53), considering the large number of Social Networking Sites users and the heavy information traffic via social media, it is expected that even a minor increase in online users' willingness to share a piece of news or behave in a healthier way could potentially lead to millions of "re-sharing" behaviors. In addition, it is highly probable that the social desirability of being on vegetarian diet or sharing a news article about vegetarian dishes or recipes could influence participants' information sharing behavior and intended health behavioral change. However, social desirability was not the focus of the study. It is assumed that the effect of social desirability would be similar across all three studies since both reference group and group norms were manipulated in a similar way in all studies. Future research should address the aforementioned issues. In future studies, I expect to use more narrowly defined and more exclusive social groups to see if that would improve the effect size of the manipulations. I also would like to do another study with a highly socially undesirable message topic (e.g. alcohol overconsumption) to investigate the possible effects of social desirability on online users' information sharing behavior and intended health behavioral change.

To summarize, the objective of this study is to bring the social reference group and group norms to the wider attention of nutrition educators, health communicators, policy makers, and marketers in the hope that the psychosocial approach will receive more practical and theoretical attention when implementing health education programs and marketing campaigns. In doing so, the study has provided two primary practical implications on: 1) the most powerful approach would be associating the health behavior with an aspirational group which people aspire to become or belong to. The study showed that aspirational group will likely have a significant influence on people's health message sharing behavior and also intended health behavioral change; 2) the content of the health message or the news article serving as the source of health information: the selection of reference social group is largely contingent upon its social relationship with the target audience. Individuals' strong motivation to join the reference social group or aspiration to become similar to it play a significant role in influencing the target audiences' convergence health behavioral change; social distance, in comparison, is not a strong factor by itself, but could exert its influence on people's intended health behavioral change together with group norms; and 3) the structure of the health message/ news article serving as the source of health information: across different situations of reference social group, a universal pattern suggested that a message describing the current prevalent behavior (descriptive norms) among a reference social group that is more socially proximate or makes the target audience aspire to join would be more influential whereas a message denoting the approved behaviors of a reference social group that is more socially distant or does not motivate the target audience aspire to join would be more influential.

Tables and Figures

Table 1. Means and Standard Deviations on The Measures of Outcome Variables (Study I)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
Mean	2.19	2.50	2.67	2.66	3.21	2.27
(SD)	(1.67)	(1.85)	(1.90)	(1.88)	(2.01)	(1.79)
N	269	270	269	265	266	266

Table 2.1. Pearson Correlations Between Outcome Variables in Model I (Study I, Model I)

		Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)
Share Article (Y1)	Pearson Correlation	1	.859**	.726**
	Sig. (2-tailed)		.000	.000
	N	269	269	268
Share article with close friends (Y2)	Pearson Correlation	.859**	1	.793**
	Sig. (2-tailed)	.000		.000
	N	269	270	269
Recommend when meet in person (Y3)	Pearson Correlation	.726**	.793**	1
	Sig. (2-tailed)	.000	.000	
	N	268	269	269

**Correlation is significant at the 0.01 level (2-tailed)

Table 2.2. Pearson Correlations Between Outcome Variables (Study I, Model II)

		Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
Share vegetarian recipe online (Y4)	Pearson Correlation	.571**	.578**	.470**
	Sig. (2-tailed)	.000	.000	.000
	N	264	265	265
Order vegetarian Meal (Y5)	Pearson Correlation	.561**	1	.520**
	Sig. (2-tailed)	.000		.000
	N	265	266	266
Post photo of vegetarian meals (Y6)	Pearson Correlation	.680**	.520**	1
	Sig. (2-tailed)	.000	.000	
	N	265	266	266

**Correlation is significant at the 0.01 level (2-tailed)

Table 3. Planned Contrast Comparing Experimental Groups Against Control Group (Study I)

	Simple Contrast [a]		Dependent Variable					
			Y1	Y2	Y3	Y4	Y5	Y6
Level 2[c] vs. Level 1[b]	Contrast Estimate		.076	.130	.372	-.293	-.331	.200
	Sig.		.788	.681	.259	.364	.174	.495
	95% Confidence Interval for Difference	Lower Bound	-.477	-.493	-.275	-.927	-.809	-.376
		Upper Bound	.628	.754	1.019	.341	.147	.776
Level 3[d] vs. Level 1	Contrast Estimate		.118	.033	-.274	-.171	-.446	-.391
	Sig.		.677	.917	.409	.599	.070	.186
	95% Confidence Interval for Difference	Lower Bound	-.439	-.596	-.927	-.810	-.928	-.972
		Upper Bound	.676	.662	.379	.469	.036	.190
Level 4[e] vs. Level 1	Contrast Estimate		.241	.175	-.069	-.100	-.023	.178
	Sig.		.402	.590	.838	.762	.926	.552
	95% Confidence Interval for Difference	Lower Bound	-.324	-.463	-.731	-.748	-.512	-.411
		Upper Bound	.806	.812	.593	.548	.466	.767
Level 5[f] vs. Level 1	Contrast Estimate		.393	.535	.443	.269	-.016	.186
	Sig.		.193	.117	.210	.437	.951	.555
	95% Confidence Interval for Difference	Lower Bound	-.201	-.135	-.252	-.412	-.530	-.433
		Upper Bound	.987	1.205	1.139	.950	.498	.804

a. Reference category = 1
b. Control Group
c. Graduate student (social group) and descriptive norm
d. Working professional (social group) and descriptive norm
e. Graduate student (social group) and injunctive norm
f. Working professional (social group) and injunctive norm

Table 4. Two-Way Multivariate Analysis of Covariance (MANCOVA) of Outcome Variables by Reference Social Group and Group Norms (Study I, Model I)

Variables	Pillai's Trace	F	df	Error df	p	Partial Eta Squared
Age	.039	2.425	3	181	.067	.039
Gender	.008	.474	3	181	.701	.008
Ethnicity	.056	3.547	3	181	**.016**	.056
Vegetarian Consumption Behavior	.026	1.622	3	181	.186	.026
Attitudes towards Vegetarian Dishes	.094	6.254	3	181	**.000**	.094
Attitudes towards Vegetarians	.006	.372	3	181	.773	.006
SNI[a]	.015	.946	3	181	.420	.015
SM[b]	.021	1.29	3	181	.277	.021
Reference Social Group	.006	.387	3	181	.762	.006
Group Norms	.009	.521	3	181	.668	.009
Reference Social Group* Group Norms	.047	2.963	3	181	**.034**	.047

[a] Susceptibility to Normative Influence
[b] Self-Monitoring

Table 5. Levene's Test of Equality of Error Variances for Model I (Study I, Model I)

	Share Article (Y1)	**Share article with close friends (Y2)**	**Recommend when meet in person (Y3)**
F (df1, df2)	0.76 (3, 191)	0.05 (3, 191)	1.42 (3, 191)
p	0.519	0.986	0.239

Table 6. Two-Way ANCOVA Looking at Interaction on Outcome Variables (Study I, Model I)

		Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)
Reference Social Group x Group Norms	F	0.278 (1)	1.842 (1)	6.176 (1)
	p	0.598	0.176	**0.014**
	ηp²	0.002	0.010	0.033

Table 7. Means and Standard Deviations by Reference Social Group and Group Norms (Y3)

	Descriptive Norms	Injunctive Norms
In-Group	3.00 (0.23)	2.52 (0.24)
Out-Group	2.32 (0.23)	3.03 (0.26)

Table 8. One-Way ANCOVAs Looking at the Influence of Covariates on Outcome Variables (Study I, Model I)

		Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)
Ethnicity	F	3.290 (1, 196)	6.091 (1, 196)	0.054 (1, 196)
	p	0.071	**0.015**	0.817
	ηp²	0.018	0.032	0.000
Attitudes towards Vegetarian Dishes	F	14.285 (1, 196)	16.665 (1, 196)	15.468 (1, 196)
	p	**0.000**	**0.000**	**0.000**
	ηp²	0.072	0.083	0.078

Table 9. Two-Way Multivariate Analysis of Covariance (MANCOVA) of Outcome Variables by Reference Social Group and Group Norms (Study I, Model II)

Variables	Pillai's Trace	F	df	Error df	p	Partial Eta Squared
Age	.073	4.629	3	177	**.004**	.073
Gender	.021	1.250	3	177	.293	.021
Ethnicity	.051	3.161	3	177	**.026**	.051
Vegetarian Consumption Behavior	.324	28.237	3	177	**.000**	.324
Attitudes towards Vegetarian Dishes	.162	11.395	3	177	**.000**	.162
Attitudes towards Vegetarians	.042	2.570	3	177	.056	.042
SNI[a]	.028	1.707	3	177	.167	.028
SM[b]	.069	4.399	3	177	**.005**	.069
Reference Social Group	.034	2.085	3	177	.104	.034
Group Norms	.026	1.566	3	177	.199	.026
Reference Social Group* Group Norms	.011	.674	3	177	.569	.011

[a] *Susceptibility to Normative Influence*
[b] *Self-Monitoring*

Table 10. Levene's Test of Equality of Error Variances for Model I (Study I, Model II)

	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F (df1, df2)	1.69 (3, 187)	1.73 (3, 187)	1.98 (3, 187)
p	0.171	0.163	0.119

Table 11. One-Way ANCOVA Looking at Group Norms on Outcome Variables (Study I, Model II)

		Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
Group Norms	F	1.489 (1)	4.430 (1)	1.586 (1)
	p	0.224	**0.037**	0.210
	ηp^2	0.008	0.024	0.009

Table 12. One-Way ANCOVAs Looking at the Influence of Covariates on Outcome Variables (Study I, Model II)

		Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
Age	F	6.229	0.070	10.463
	p	**0.013**	0.791	**0.001**
	ηp^2	0.034	0.000	0.055
Ethnicity	F	0.064	0.086	6.851
	p	0.801	0.769	**0.010**
	ηp^2	0.000	0.000	0.037
Vegetarian Consumption Behavior	F	0.734	76.981	0.863
	p	0.393	**0.000**	0.354
	ηp^2	0.004	0.301	0.005
Attitudes towards Vegetarian Dishes	F	11.924	31.288	13.125
	p	**0.001**	**0.000**	**0.000**
	ηp^2	0.062	0.149	0.068
Attitudes towards Vegetarians	F	0.054	4.260	0.991
	p	0.817	**0.040**	0.321
	ηp^2	0.000	0.023	0.006
SM[a]	F	0.070	0.000	7.491
	p	0.791	0.983	**0.007**
	ηp^2	0.000	0.000	0.040

[a]*Self-Monitoring*

Table 13. The Influence of Age on Outcome Variables (Study I)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)	*D1
F	8.812	2.285	1.805	10.032	0.273	19.927	4.511
p	**.003**	0.13	0.18	**0.002**	0.60	**0.000**	**0.04**
Pearson Correlation	0.111			0.147		0.197	-0.136
p	**0.07**			**0.02**		**0.001**	**0.03**

Outcome variables differences:

D1=Y2 (Share article overall) – Y1 (share especially with close friends)

Table 14. The Influence of Gender On Outcome Variables (Study I)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meeting in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F	1.090	0.508	0.385	5.208	0.021	3.141
P	0.30	0.48	0.54	**0.02**	0.89	**0.08**
Person Correlation (N=269)				0.235		0.214
P				**0.000**		**0.000**

Table 15. The Influence of Ethnicity On Outcome Variables (Study I)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)	*D1	*D2
Mean (SD)								
F	1.832	6.489	0.035	0.178	2.165	6.621	4.751	1.315
p	0.18	**0.01**	0.85	0.67	0.14	0.01	**0.03**	0.25
Person Correlation (N=269)		-0.233					-0.230	-0.152
p		**0.000**					0.000	**0.01**

Outcome variables differences:

D1=Y2 (Share article overall) – Y1(share especially with close friends)

D2=Y3 (Recommend in person) – Y1 (share article overall)

Table 16. Means and Standard Deviations of the Likelihood of Sharing the News Article Especially with Close Friends by Ethnicity (Study I)

	Asian (N= 118)	Black/ African American (N= 17)	White/ Caucasian (N= 75)	Hispanic/ Latino (N= 43)
Mean	3.00^a	1.65^b	1.97^b	$2.67^{a,c}$
SD	1.99	0.93	1.50	1.97
F (3, 249)		6.515		
p		0.000		

a vs. b, p < 0.01; b vs. a,c, p< 0.05; a vs. a,c, p> 0.05

Table 17. The Influence of Vegetarian Consumption Behaviors On Outcome Variables

(Study I)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F	5.302	2.276	4.551	2.738	83.318	1.157
p	**0.02**	0.13	**0.03**	0.10	**0.000**	0.28
Person Correlation (N=269)	0.348		0.361		0.697	
p	**0.000**		**0.000**		**0.000**	

Table 18. The Influence of Attitudes towards Vegetarian Dishes on Outcome Variables (Study I)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F	13.674	14.055	15.291	10.184	30.734	15.850
p	0.000	0.000	0.000	0.002	0.000	0.000
Person Correlation (N=269)	0.445	0.449	0.462	0.436	0.681	0.430
p	0.000	0.000	0.000	0.000	0.000	0.000

Table 19. Means and Standard Deviations on the Measures of Outcome Variables (Study I)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
Mean	2.20	2.40	2.59	2.65	3.07	2.09
(SD)	(1.71)	(1.78)	(1.85)	(1.86)	(1.99)	(1.69)
N	284	284	283	283	284	282

Table 20. Pearson Correlations Between Outcome Variables (Study II, Model I)

		Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)
Share Article (Y1)	Pearson Correlation	1	.793**	.827**
	Sig. (2-tailed)		.000	.000
	N	247	247	247
Share article with close friends (Y2)	Pearson Correlation	.793**	1	.809**
	Sig. (2-tailed)	.000		.000
	N	247	247	247
Recommend when meet in person (Y3)	Pearson Correlation	.827**	.809**	1
	Sig. (2-tailed)	.000	.000	
	N	247	247	247

**Correlation is significant at the 0.01 level (2-tailed)

Table 21. Pearson Correlations Between Outcome Variables (Study II, Model II)

		Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
Share vegetarian recipe online (Y4)	Pearson Correlation	1	.596**	.568**
	Sig. (2-tailed)		.000	.000
	N	246	246	246
Order vegetarian Meal (Y5)	Pearson Correlation	.596**	1	.572**
	Sig. (2-tailed)	.000		.000
	N	246	247	247
Post photo of vegetarian meals (Y6)	Pearson Correlation	.568**	.572**	1
	Sig. (2-tailed)	.000	.000	
	N	246	247	247

**Correlation is significant at the 0.01 level (2-tailed)*

Table 22. Planned Contrast Comparing Experimental Groups against Control Group (Study II)

Planned Condition	Simple Contrast a		Y1	Y2	Y3	Y4	Y5	Y6
Level 2^c vs.	Contrast Estimate		.034	.012	.284	-.353	.276	-.230
Level 1^b	Std. Error		.307	.304	.333	.331	.257	.290
	Sig.		.911	.969	.394	.287	.284	.428
	95% Confidence Interval for Difference	Lower Bound	-.571	-.588	-.372	-1.004	-.230	-.802
		Upper Bound	.640	.612	.940	.299	.783	.341
Level 3^d vs.	Contrast Estimate		.538	.767	.458	-.293	.592	.064
Level 1	Std. Error		.303	.300	.328	.326	.253	.286
	Sig.		.077	.011	.164	.370	.020	.823
	95% Confidence Interval for Difference	Lower Bound	-.059	.175	-.188	-.935	.093	-.499
		Upper Bound	1.135	1.358	1.105	.349	1.092	.628
Level 4^e vs.	Contrast Estimate		.228	.752	.550	.434	.536	-.067
Level 1	Std. Error		.320	.317	.347	.345	.268	.302
	Sig.		.477	.019	.114	.209	.047	.826
	95% Confidence Interval for Difference	Lower Bound	-.403	.127	-.133	-.245	.008	-.662
		Upper Bound	.859	1.377	1.234	1.113	1.064	.529
Level 5^f vs.	Contrast Estimate		.259	.738	.340	-.056	.585	.144
Level 1	Std. Error		.311	.308	.337	.335	.260	.294
	Sig.		.406	.017	.315	.868	.026	.625
	95% Confidence Interval for Difference	Lower Bound	-.355	.131	-.325	-.716	.072	-.435
		Upper Bound	.873	1.346	1.004	.604	1.098	.723

a. *Reference category = 1*
b. *Control Group*
c. *Graduate student (social group) and descriptive norm*
d. *Working professional (social group) and descriptive norm*
e. *Graduate student (social group) and injunctive norm*
f. *Working professional (social group) and injunctive norm*

Table 23. Two-Way Multivariate Analysis of Covariance (MANCOVA) of Outcome Variables by Reference Social Group and Group Norms (Study II, Model I)

Variables	Wilks' Lambda	F	df	Error df	*p*	Partial Eta Squared
Age	.990	.592	3	175	.621	.010
Gender	.975	1.496	3	175	.217	.025
Ethnicity	.983	1.013	3	175	.388	.017
Vegetarian Consumption Behavior	.968	1.947	3	175	.124	.032
Attitudes towards Vegetarian Dishes	.957	2.608	3	175	.053	.043
Attitudes towards Vegetarians	.962	2.329	3	175	.076	.038
SNI[a]	.989	.655	3	175	.581	.011
Group Norm	.969	1.838	3	175	.142	.031
Reference Group	.979	1.243	3	175	.296	.021
Norm * Reference Group	.941	3.680	3	175	**.013**	.059

a. *Susceptibility to Normative Influence*

Table 24. Levene's Test of Equality of Error Variances for Model I (Study II, Model I)

	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F (df1, df2)	1.066 (3, 184)	1.251 (3, 184)	2.004 (3, 184)
p	0.365	0.293	0.115

Table 25. ANCOVAs Looking at the Influence of Covariates on Outcome Variables (Study II, Model II)

		Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)
Reference Social Group x Group Norms	F (df)	7.071 (1)	10.807 (1)	5.892 (1)
	p	0.009	0.001	**0.016**
	ηp²	0.038	0.058	0.032

Table 26. Two-Way ANCOVA looking at Interaction Between Reference Social Group and Group Norms (Study II)

		Share the news Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe Online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
Descriptive Norm $M(SD)$	Socially Proximate Group	2.48 (1.70)	2.68 (1.73)	2.79 (1.78)	2.38 (1.69)	3.27 (1.94)	1.95 (1.58)
	Social Distant Group	2.16 (1.82)	2.11 (1.63)	2.64 (2.06)	2.67 (1.80)	3.13 (2.18)	2.11 (1.84)
Injunctive Norm $M(SD)$	Socially Proximate Group	1.70 (1.34)	2.14 (1.73)	2.14 (1.56)	2.61 (2.00)	3.02 (1.96)	1.73 (1.37)
	Social Distant Group	2.64 (1.99)	3.18 (2.00)	3.18 (2.07)	3.23 (2.04)	3.36 (2.06)	2.41 (1.74)
Control		1.89 (1.48)	1.89 (1.40)	2.17 (1.62)	2.79 (1.76)	2.64 (1.75)	2.00 (1.69)
Two-way Interaction		F= 7.087 *P=* **0.008**	F= 11.770 *P=* **0.001**	F=5.640 *P=* **0.02**	F= 0.019 *P=* 0.89	F= 0.474 *P=* 0.49	F= 0.751 *P=* 0.39

Table 27. Two-Way Multivariate Analysis of Covariance (MANCOVA) of Outcome Variables by Reference Social Group and Group Norms (Study II, Model II)

Variables	Wilks' Lambda	F	df	Error df	*p*	Partial Eta Squared
Age	.988	.684b	3	174	.563	.012
Gender	.920	5.024b	3	174	**.002**	.080
Ethnicity	.961	2.363b	3	174	.073	.039
Vegetarian Consumption Behavior	.657	30.296b	3	174	**.000**	.343
Attitudes towards Vegetarian Dishes	.959	2.503b	3	174	.061	.041
Attitudes towards Vegetarians	.977	1.347b	3	174	.261	.023
SNIª	.999	.063b	3	174	.979	.001
Group Norms	.976	1.406b	3	174	.243	.024
Social Reference Group	.974	1.551b	3	174	.203	.026
Social Group* Norm	.995	.312b	3	174	.817	.005

a. *Susceptibility to Normative Influence*

Table 28. Levene's Test of Equality of Error Variances for Model I (Study II, Model II)

	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F (df1, df2)	1.480 (3, 183)	1.799 (3, 183)	3.360 (3, 183)
p	0.221	0.149	0.020

Table 29. ANCOVAs Looking at the Influence of Group Norms on Outcome Variables (Study II, Model II)

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	ηp²
	Y4	10.486	1	10.486	4.159	**.043**	.023
Group	Y5	.765	1	.765	.503	.479	.003
Norms	Y6	.479	1	.479	.267	.606	.002

Table 30. One-Way ANCOVAs Looking at the Influence of Covariates on Outcome

Variables (Study II, Model I)

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Vegetarian	Y1	3.251	1	3.251	1.437	.232	.008
Consumption	Y2	10.213	1	10.213	4.468	**.036**	.025
Behavior	Y3	1.300	1	1.300	.495	.483	.003
Attitudes towards	Y1	13.066	1	13.066	5.775	**.017**	.032
Vegetarian Dishes	Y2	6.564	1	6.564	2.872	.092	.016
	Y3	19.473	1	19.473	7.410	**.007**	.040
Attitudes towards	Y1	11.415	1	11.415	5.045	**.026**	.028
Vegetarians	Y2	15.030	1	15.030	6.576	**.011**	.036
	Y3	12.811	1	12.811	4.875	**.029**	.027

Table 31. ANCOVAs Looking at the Influence of Covariates on Outcome Variables (Study II, Model II)

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	ηp^2
Gender	Y4	27.591	1	27.591	10.942	**.001**	.059
	Y5	13.498	1	13.498	8.870	**.003**	.048
	Y6	10.284	1	10.284	5.737	**.018**	.032
Vegetarian Consumption	Y4	48.048	1	48.048	19.056	**.000**	.098
Behavior	Y5	133.127	1	133.127	87.483	**.000**	.332
	Y6	34.079	1	34.079	19.010	**.000**	.097
Attitudes	Y4	.452	1	.452	.179	.673	.001
towards Vegetarian	Y5	10.715	1	10.715	7.041	**.009**	.038
Dishes	Y6	.957	1	.957	.534	.466	.003

Table 32. The Influence of Gender of on Outcome Variables (Study II)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F	0.073	1.022	0.006	12.429	6.642	3.571
p	0.79	0.31	0.94	**0.001**	**0.01**	0.06
Pearson Correlation (N=245)				0.287	0.235	
p				0.000	0.000	

Table 33. The Influence of Vegetarian Consumption Behaviors on Outcome Variables

(Study II)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order a vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F	2.413	5.657	2.310	11.104	106.970	8.956
p	0.12	**0.02**	0.13	**0.001**	**0.000**	**0.003**
Pearson Correlation (N= 244)		0.424		0.431	0.746	0.463
p		0.000		0.000	0.000	0.000

Table 34. Means and Standard Deviations on The Measures of Outcome Variables (Study III)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
Mean	2.59	2.85	3.00	2.99	3.72	2.30
(SD)	(1.80)	(1.90)	(1.87)	(1.91)	(1.97)	(1.80)
N	281	281	281	281	281	281

Table 35 Pearson Correlations Between Outcome Variables (Study III, Model I)

		Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)
Share Article (Y1)	Pearson Correlation	1	.844**	.679**
	Sig. (2-tailed)		.000	.000
	N	253	253	253
Share article with close friends (Y2)	Pearson Correlation	.844**	1	.773**
	Sig. (2-tailed)	.000		.000
	N	253	253	253
Recommend when meet in person (Y3)	Pearson Correlation	.679**	.773**	1
	Sig. (2-tailed)	.000	.000	
	N	253	253	253

**Correlation is significant at the 0.01 level (2-tailed)

Table 36. Pearson Correlations Between Outcome Variables (Study III, Model II)

		Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
Share vegetarian recipe online (Y4)	Pearson Correlation	1	.544**	.565**
	Sig. (2-tailed)		.000	.000
	N	250	250	250
Order vegetarian Meal (Y5)	Pearson Correlation	.544**	1	.525**
	Sig. (2-tailed)	.000		.000
	N	250	250	250
Post photo of vegetarian meals (Y6)	Pearson Correlation	.565**	.525**	1
	Sig. (2-tailed)	.000	.000	
	N	250	250	250

**. *Correlation is significant at the 0.01 level (2-tailed).*

Table 37. Planned Contrast Comparing Experimental Group Against Control Group (Study III)

Planned Condition	Simple Contrast [a]		Dependent Variable					
			Y1	Y2	Y3	Y4	Y5	Y6
Level 2[c] vs. Level 1[b]	Contrast Estimate		.450	.290	.470	.432	.297	.252
	Std. Error		.300	.320	.322	.326	.264	.310
	Sig.		.135	.366	.146	.187	.262	.418
	95% Confidence Interval for Difference	Lower Bound	-.140	-.341	-.165	-.211	-.223	-.359
		Upper Bound	1.040	.921	1.104	1.075	.817	.862
Level 3[d] vs. Level 1	Contrast Estimate		.182	.215	-.050	.078	.281	-.240
	Std. Error		.281	.300	.302	.305	.247	.290
	Sig.		.518	.473	.868	.799	.257	.409
	95% Confidence Interval for Difference	Lower Bound	-.371	-.375	-.644	-.524	-.206	-.812
		Upper Bound	.735	.806	.544	.680	.767	.332
Level 4[e] vs. Level 1	Contrast Estimate		.420	.508	.664	.368	.394	-.306
	Std. Error		.317	.339	.341	.346	.279	.328
	Sig.		.187	.135	.053	.288	.160	.352
	95% Confidence Interval for Difference	Lower Bound	-.206	-.160	-.008	-.313	-.157	-.953
		Upper Bound	1.045	1.177	1.336	1.049	.944	.341
Level 5[f] vs. Level 1	Contrast Estimate		-.132	-.113	-.068	-.306	.017	-.422
	Std. Error		.317	.339	.341	.346	.279	.328
	Sig.		.678	.738	.843	.377	.951	.200
	95% Confidence Interval for Difference	Lower Bound	-.757	-.782	-.740	-.987	-.534	-1.069
		Upper Bound	.494	.555	.605	.375	.568	.225

a. *Reference category = 1*

a. *Control Group*

b. *Graduate student (social group) and descriptive norm*

c.   *Working professional (social group) and descriptive norm*
d.   *Graduate student (social group) and injunctive norm*
e.   *Working professional (social group) and injunctive norm*

Table 38. Two-Way Multivariate Analysis of Covariance (MANCOVA) of Outcome Variables by Reference Social Group and Group Norms (Study III, Model I)

Variables	Wilks' Lambda	F	df	Error df	p	ηp²
Age	.999	.077	3	166	.972	.001
Gender	.987	.712	3	166	.546	.013
Ethnicity	.993	.362	3	166	.780	.007
Vegetarian Consumption Behavior	.992	.460	3	166	.711	.008
Attitudes towards Vegetarian Dishes	.873	8.082	3	166	**.000**	.127
Attitudes towards Vegetarians	.957	2.507	3	166	.061	.043
SNI[a]	.987	.756	3	166	.520	.013
Reference Group	.950	2.884	3	166	**.037**	.050
Group Norm	.994	.325	3	166	.807	.006
Reference Group* Group Norm	.991	.482	3	166	.695	.009

a. *Susceptibility to Normative Influence*

Table 39. Levene's Test of Equality of Error Variances for Model I (Study III, Model I)

	Share Article (Y1)	**Share article with close friends (Y2)**	**Recommend when meet in person (Y3)**
F (df1, df2)	0.76 (3, 175)	0.05 (3, 175)	1.42 (3, 175)
p	0.809	0.509	0.351

Table 40. One-Way ANCOVA Looking at the Influence of Rreference Social Group on Outcome Variables (Study III, Model I)

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	ηp²
Reference	Y1	10.205	1	10.205	4.240	**.041**	.025
Social	Y2	8.336	1	8.336	3.053	.082	.018
Group	Y3	21.600	1	21.600	7.515	**.007**	.043

Table 41. Means and Standard Deviations by Reference Social Groups (Y1, Y3)

	Y1	Y3	Y4
Aspirational Group	2.89 (0.17)	3.45 (0.19)	3.27 (0.18)
Non-aspirational Group	2.40 (0.16)	2.74 (0.18)	2.77 (0.17)

Table 42. One-Way ANCOVAs Looking at the Influence of Covariates on Outcome

Variables (Study III, Model I)

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	ηp²
Attitudes towards Vegetarian Dishes	Y1	55.940	1	55.940	23.241	**.000**	.122
	Y2	46.117	1	46.117	16.891	**.000**	.091
	Y3	38.004	1	38.004	13.223	**.000**	.073
Attitudes towards Vegetarians	Y1	7.363	1	7.363	3.059	.082	.018
	Y2	18.823	1	18.823	6.894	**.009**	.039
	Y3	13.309	1	13.309	4.631	**.033**	.027

Table 43. Two-Way Multivariate Analysis of Covariance (MANCOVA) of Outcome

Variables by Reference Social Group and Group Norms (Study III, Model II)

Effect	Wilks' Lambda	F	Hypothesis df	Error df	Sig.	ηp²
Age	.994	.322	3	164	.810	.006
Gender	.912	5.293	3	164	**.002**	.088
Ethnicity	.972	1.572	3	164	.198	.028
Vegetarian Consumption Behavior	.800	13.708	3	164	**.000**	.200
Attitudes towards Vegetarian Dishes	.802	13.512	3	164	**.000**	.198
Attitudes towards Vegetarians	.969	1.775	3	164	.154	.031
SNI[a]	.999	.038	3	164	.990	.001
Reference Group	.974	1.434	3	164	.235	.026
Group Norm	.986	.749	3	164	.525	.014
Norm * Reference Group	.982	1.005	3	164	.392	.018

a. *Susceptibility to Normative Influence*

Table 44. Levene's Test of Equality of Error Variances for Model I (Study III, Model II)

	Share Article (Y1)	**Share article with close friends (Y2)**	**Recommend when meet in person (Y3)**
F (df1, df2)	0.76 (3, 175)	0.05 (3, 175)	1.42 (3, 175)
p	0.809	0.509	0.351

Table 45. One-Way ANCOVA Looking at the Influence of Reference Social Group on

Outcome Variables (Study III, Model II)

Variables	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	ηp^2
Reference	Y4	10.560	1	10.560	3.896	**.050**	.023
Social	Y5	1.414	1	1.414	.770	.382	.005
Group	Y6	4.552	1	4.552	2.134	.146	.013

Table 46. One-Way ANCOVAs Looking at the Influence of Covariates on Outcome Variables (Study III, Model II)

Variables	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	ηp²
Gender	Y4	35.347	1	35.347	13.041	**.000**	.073
	Y5	11.502	1	11.502	6.259	**.013**	.036
	Y6	1.684	1	1.684	.790	.376	.005
Ethnicity	Y4	1.540	1	1.540	.568	.452	.003
	Y5	.797	1	.797	.434	.511	.003
	Y6	10.081	1	10.081	4.727	**.031**	.028
Vegetarian Consumption Behavior	Y4	3.034	1	3.034	1.119	.292	.007
	Y5	52.965	1	52.965	28.819	**.000**	.148
	Y6	11.965	1	11.965	5.610	**.019**	.033
Attitudes towards Vegetarian Dishes	Y4	53.478	1	53.478	19.730	**.000**	.106
	Y5	56.544	1	56.544	30.766	**.000**	.156
	Y6	37.289	1	37.289	17.485	**.000**	.095

Table 47. One-Way ANOVA looking at the Influence of Gender On Outcome Variables

(Study III)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meeting in person (Y3)	Share vegetarian recipe Online (Y4)	Order a vegetarian Dish (Y5)	Post photo of vegetarian meals (Y6)
$F_{(1, 242)}$	0.004	0.118	0.009	20.164	8.304	3.864
P	0.95	0.73	0.93	**0.000**	**0.004**	0.051
Pearson Correlation (N=250)				0.378	0.334	
P				0.000	0.000	

Table 48. ANOVA looking at the Influence of Ethnicity On Outcome Variables (Study III)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F (1, 242)	0.011	0.052	0.037	0.299	1.679	4.498
p	0.92	0.82	0.85	0.59	0.20	0.04
Person Correlation (N=250)						-0.159
p		0.01				0.01

Table 49 Likelihood of Posting a Photo of the Next Vegetarian Dish On Facebook by

Ethnicity (Study III)

	Asian (N= 54)	Black/ African American (N= 12)	White/ Caucasian (N= 138)	Hispanic/ Latino (N= 34)
Mean	3.02[a]	1.67[b,c]	1.82[b]	2.59[a,c]
SD	1.91	0.89	1.42	2.16
F (3, 234)		8.013		
p		0.000		

a vs. b,c, p< 0.05; a vs. b, p< 0.05; b vs. a,c, p< 0.05

Table 50. The Influence of Vegetarian Consumption Behaviors On Outcome Variables

(Study III)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F (1, 242)	0.711	0.696	0.162	0.234	47.186	1.573
p	0.40	0.41	0.69	0.63	**0.000**	0.21
Person Correlation (N=250)					0.611	
p					0.000	

Table 51. The Influence of Attitudes Towards Vegetarian Dishes on Outcome Variables

(Study III)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post a photo of next vegetarian meal (Y6)
F	22.283	15.739	15.341	19.808	42.875	20.426
p	0.000	0.000	0.000	0.000	0.000	0.000
Person Correlation (N=250)	0.481	0.457	0.425	0.443	0.652	0.425
p	0.000	0.000	0.000	0.000	0.000	0.000

Table 52. The Influence of Attitudes Towards Vegetarians on Outcome Variables (Study III)

	Share Article (Y1)	Share article with close friends (Y2)	Recommend when meet in person (Y3)	Share vegetarian recipe online (Y4)	Order vegetarian Meal (Y5)	Post photo of vegetarian meals (Y6)
F	8.191	12.814	8.368	1.774	2.084	0.124
p	0.005	0.000	0.004	0.18	0.15	0.73
Person Correlation (N=253)	0.370	0.400	0.365			
p	0.000	0.000	0.000			

Table 53. Summary of the Influence of Main Factors and Interactions on Outcome Variables (Study III)

Outcome Variables	Factors								
	Study I			Study II			Study III		
	Reference Group (In-Group vs. Out-Group)	Group Norms	Reference Group* Group Norms	Reference Group (Socially Distant vs. Social Proximate Group)	Group Norms	Reference Group* Group Norms	Reference Group (Aspirational Group vs. Non-Aspirational Group)	Group Norms	Reference Group* Group Norms
Y1	ns	ns	ns	ns	ns	$F= 7.087$; $P< 0.01$; $\eta p^2 = 0.04$	$F=4.282$ $P < 0.05$; $\eta p^2 = 0.03$	ns	ns
Y2	ns	ns	ns	ns	ns	$F = 11.770$; $P = 0.001$; $\eta p^2 = 0.06$		ns	ns
Y3	ns	ns	$F= 7.087$; $P< 0.01$; $\eta p^2= 0.05$	ns	ns	$F= 5.640$; $P < 0.05$; $\eta p^2 = 0.03$	$F=7.877$ $P < 0.01$; $\eta p^2 = 0.04$	ns	ns
Y4	ns	ns	ns	ns	$F=4.159$ $P < 0.05$; $\eta p^2= 0.02$	ns	$F=4.154$ $P = 0.05$; $\eta p^2 = 0.02$	ns	ns
Y5	ns	$F=4.430$ $P < 0.05$; $\eta p^2= 0.02$	ns	ns	ns	ns	ns	ns	ns
Y6	ns	ns	ns	ns	ns	ns	ns	ns	ns

*ns: non-significant statistical differences were found.

Y1: How likely would you be to share this news article on your Facebook page?

Y2: How likely would you be to share this news article, especially with your close friend(s) on Facebook?

Y3: How likely would you be to recommend the article to your family and friends when you meet them in person?

Y4: How likely would you be to share a popular vegetarian recipe on Facebook if you read one online?

Y5: How likely would you be to order a vegetarian dish for your next lunch/ dinner?

Y6: How likely would you be to take a photo of your next vegetarian meal and post it on Facebook?

Figure 1. Interaction Between Reference Group Conditions (In-group vs. Out-group) and Group Norms On Likelihood to Recommend the News Article to Family and Friends in Person (Study I, Model I)
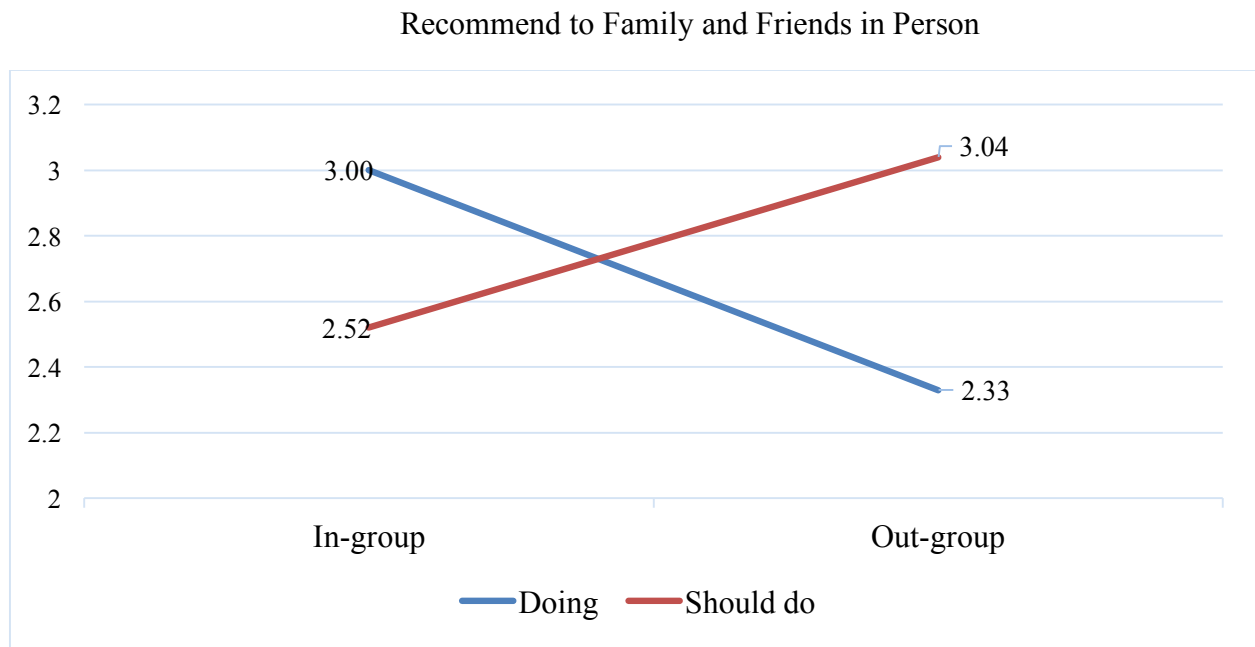
Recommend to Family and Friends in Person

Figure 2. Interaction between reference social group (Social Proximate Group vs. Social Distant Group) and group norms on likelihood to share the news article on Facebook
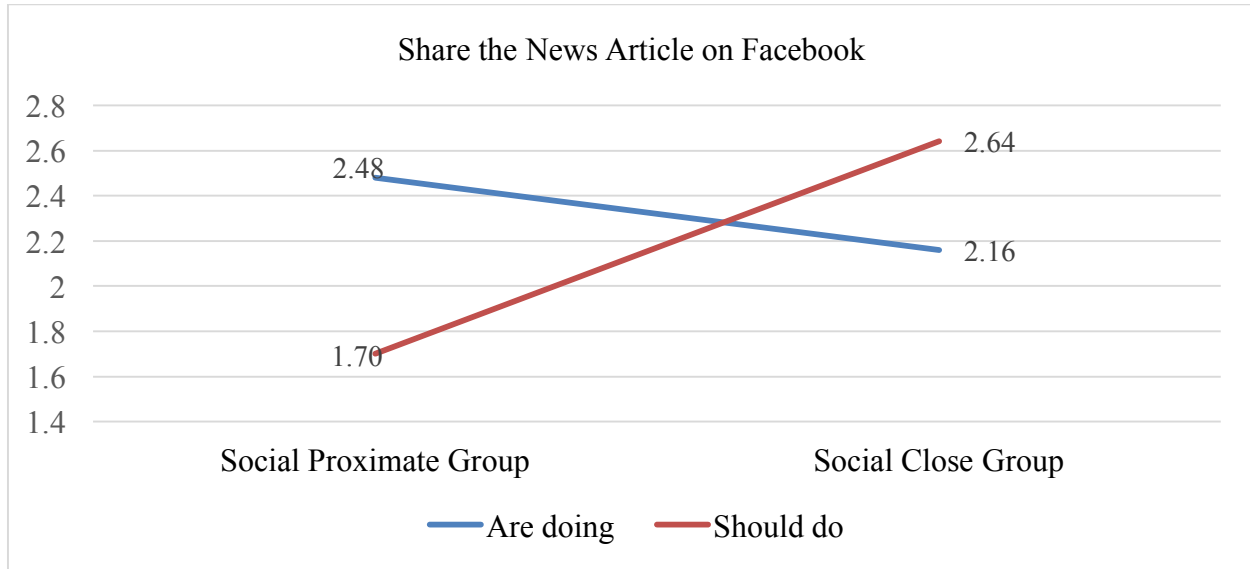

Share the News Article on Facebook

Figure 3. Interaction between reference social group (Social Proximate Group vs. Social Distant Group) and group norms on likelihood to share the news article on Facebook especially with close friends

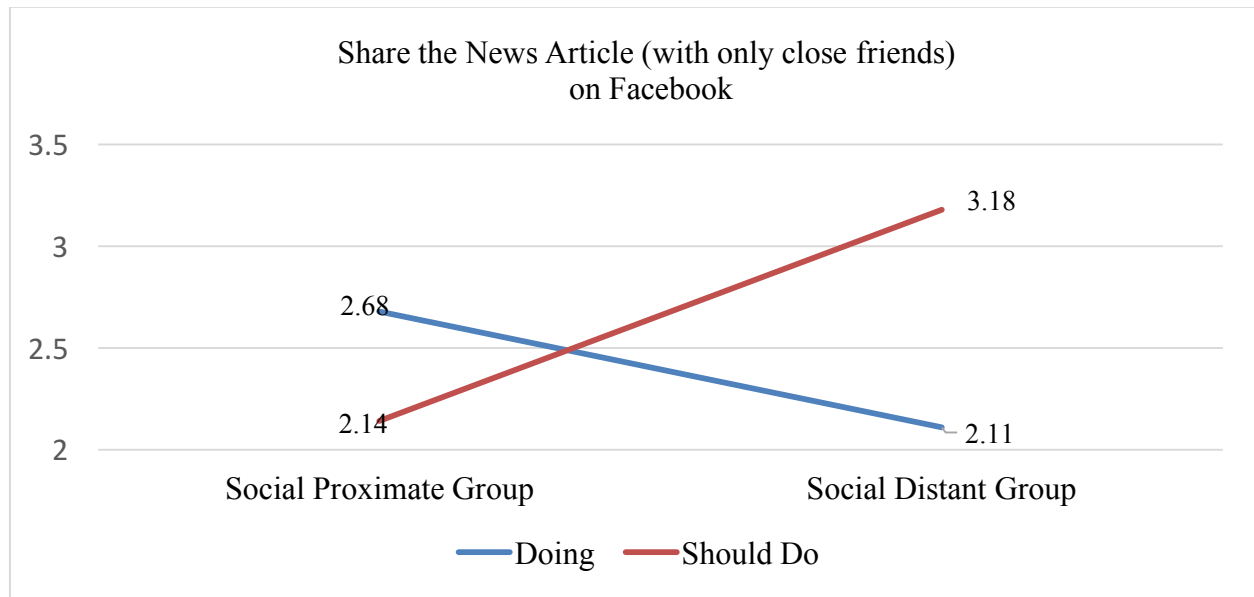Share the News Article (with only close friends) on Facebook

Figure 4. Interaction between reference social group (Social Proximate Group vs. Social Distant Group) and group norms on likelihood to recommend the news article to family and friend in person

Word-of-Mouth Communication In-Person

4.30 / 2.50 / 4.40 / 2.40

Social Proximate Group — Social Distant Group

Doing — Should do
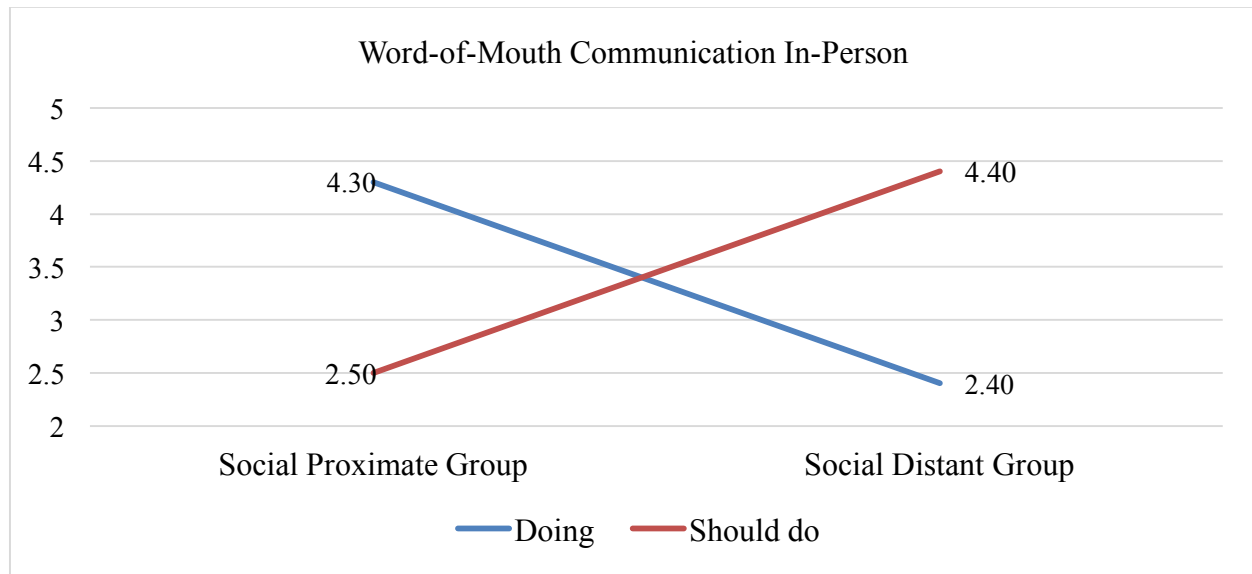
References

Abedniya, A., & Mahmouei, S. S. (2010). The impact of social networking websites to facilitate the effectiveness of viral marketing. *International Journal of Advanced Computer Science and Applications, 1*(6)

Aguiar, M., & Hurst, E. (2009). A summary of trends in american time allocation: 1965–2005. *Social Indicators Research, 93*(1), 57-64.

Ahuvia, A. C. (2005). Beyond the extended self: Loved objects and consumers' identity narratives. *Journal of Consumer Research, 32*(1), 171-184.

Allsop, D. T., Bassett, B. R., & Hoskins, J. A. (2007). Word-of-mouth research: Principles and applications. *Journal of Advertising Research, 47*(4), 398.

Anderson, A. A., Brossard, D., Scheufele, D. A., Xenos, M. A., & Ladwig, P. (2014). The "nasty effect:" Online incivility and risk perceptions of emerging technologies. *Journal of Computer-Mediated Communication*, 19(3), 373-387.

Anderson, E. W. (1998). Customer satisfaction and word of mouth. *Journal of Service Research, 1*(1), 5-17.

Arkin, R. M. (1981). Self-presentation styles. *Impression Management Theory and Social Psychological Research, 311*, 333.

Arkin, R. M., Lake, E. A., & Baumgardner, A. H. (1986). Shyness and self-presentation. *Shyness* (pp. 189-203) Springer.

Arndt, J. (1967). Role of product-related conversations in the diffusion of a new product. *Journal of Marketing Research, ,* 291-295.

Bakshy, E., Hofman, J. M., Mason, W. A., & Watts, D. J. (2011). Everyone's an influencer: Quantifying influence on twitter. *Proceedings of the Fourth ACM International Conference on Web Search and Data Mining,* 65-74.

Bakshy E, Messing S, Adamic LA. Exposure to ideologically diverse news and opinion on Facebook. *Science.* 2015 Jun 5;348(6239):1130-2.

Bandura, A. (1977). Social learning theory.

Banerjee, D. N., & Dutta, R. (2005). *Method for Syndicating Online Content,*

Banning, S. A., & Sweetser, K. D. (2007). How much do they think it affects them and whom do they believe?: Comparing the third-person effect and credibility of blogs and traditional media. *Communication Quarterly, 55*(4), 451-466.

Bargh, J. A., McKenna, K. Y., & Fitzsimons, G. M. (2002). Can you see the real me? activation and expression of the "true self" on the Internet. *Journal of Social Issues, 58*(1), 33-48.

Baumeister, R. F. (2010). The self. *Advanced social psychology: The state of the science*, 139-175.

Barker, R. G. (1968). *Ecological psychology: Concepts and methods for studying the environment of human behavior* Stanford University Press.

Bearden, W. O., & Etzel, M. J. (1982). Reference group influence on product and brand purchase decisions. *Journal of Consumer Research, 9*(2), 183-194.

Bearden, W. O., Netemeyer, R. G., & Teel, J. E. (1989). Measurement of consumer susceptibility to interpersonal influence. *Journal of Consumer Research,* 473-481.

Belk, R. (1988). *Possessions and self.* Wiley Online Library.

Belk, R. W. (2013). Extended self in a digital world. *Journal of Consumer Research, 40*(3), 477-500.

Berger, C. R., & Calabrese, R. J. (1975). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Research, 1*(2), 99-112.

Berger, J. (2008). Identity signaling, social influence, and social contagion. *Understanding Peer Influence in Children and Adolescents, ,* 181-199.

Berger, J. (2013). *Contagious: Why things catch on* Simon and Schuster.

Berger, J., & Heath, C. (2007). Where consumers diverge from others: Identity signaling and product domains. *Journal of Consumer Research*, 34(2), 121-134.

Berger, J., & Heath, C. (2008). Who drives divergence? Identity signaling, outgroup dissimilarity, and the abandonment of cultural tastes. *Journal of personality and social psychology*, 95(3), 593.

Berger, J., & Milkman, K. L. (2012). What makes online content viral? *Journal of Marketing Research, 49*(2), 192-205.

Berger, J., & Rand, L. (2008). Shifting signals to help health: Using identity signaling to reduce risky health behaviors. *Journal of Consumer Research*, *35*(3), 509-518.

Berger, J., & Schwartz, E. M. (2011). What drives immediate and ongoing word of mouth? *Journal of Marketing Research, 48*(5), 869-880.

Berger, J. (2011). Arousal increases social transmission of information. *Psychological Science, 22*(7), 891-893. doi:10.1177/0956797611413294 [doi]

Berkowitz, A. D. (2004). The social norms approach: Theory, research, and annotated bibliography.

Bibby, P. A. (2008). Dispositional factors in the use of social networking sites: Findings and implications for social computing research. *Intelligence and security informatics* (pp. 392-400) Springer.

Boguñá, M., Pastor-Satorras, R., Díaz-Guilera, A., & Arenas, A. (2004). Models of social networks based on social distance attachment. *Physical Review E, 70*(5), 056122.

Bone, P. F. (1995). Word-of-mouth effects on short-term and long-term product judgments. *Journal of Business Research, 32*(3), 213-223.

Bowers, K. S. (1973). Situationism in psychology: An analysis and a critique. *Psychological Review, 80*(5), 307.

Boyd, D. (2007). Why youth (heart) social network sites: The role of networked publics in teenage social life. *MacArthur Foundation Series on Digital learning–Youth, Identity, and Digital Media Volume,* , 119-142.

Boyd, D., Golder, S., & Lotan, G. (2010). Tweet, tweet, retweet: Conversational aspects of retweeting on twitter. *System Sciences (HICSS), 2010 43rd Hawaii International Conference on,* 1-10.

Brewer, M. B. (2003). Optimal distinctiveness, social identity, and the self. *Handbook of Self and Identity,* , 480-491.

Brown, B., & Sellen, A. (2006). Sharing and listening to music. *Consuming music together* (pp. 37-56) Springer.

Brown, J. J., & Reingen, P. H. (1987). Social ties and word-of-mouth referral behavior. *Journal of Consumer Research,* , 350-362.

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.

Brown, R., & Abrams, D. (1986). The effects of intergroup similarity and goal interdependence on intergroup attitudes and task performance. *Journal of Experimental Social Psychology, 22*(1), 78-92.

Brown, T. J., Barry, T. E., Dacin, P. A., & Gunst, R. F. (2005). Spreading the word: Investigating antecedents of consumers' positive word-of-mouth intentions and behaviors in a retailing context. *Journal of the Academy of Marketing Science, 33*(2), 123-138.

Brunswik, E. (1952). *The conceptual framework of psychology* Univ of Chicago Pr.

Buffardi, L. E., & Campbell, W. K. (2008). Narcissism and social networking web sites. *Personality & Social Psychology Bulletin, 34*(10), 1303-1314. doi:10.1177/0146167208320061 [doi]

Burbules, N. C. (1998). Rhetorics of the web: Hyperreading and critical literacy. *Page to Screen: Taking Literacy into the Electronic Era, 102*, 122.

Burchell, K., Rettie, R., & Patel, K. (2013). Marketing social norms: social marketing and the 'social norm approach'. *Journal of Consumer Behaviour*, 12(1), 1-9.

Burnkrant, R. E., & Cousineau, A. (1975). Informational and normative social influence in buyer behavior. *Journal of Consumer Research,* , 206-215.

Buttle, F. A. (1998). Word of mouth: Understanding and managing referral marketing. *Journal of Strategic Marketing, 6*(3), 241-254.

Carroll, M. (2015). How social media platforms are changing the business of news. *Media Shift*. Retrieved from http://mediashift.org/2015/09/how-social-media-platforms-are-changing-the-business-of-news/

Cheema, A., & Kaikati, A. M. (2010). The effect of need for uniqueness on word of mouth. *Journal of Marketing Research, 47*(3), 553-563.

Chen, Y., & Xie, J. (2008). Online consumer review: Word-of-mouth as a new element of marketing communication mix. *Management Science, 54*(3), 477-491.

Chen, Z., & Berger, J. (2013). When, why, and how controversy causes conversation. *Journal of Consumer Research, 40*(3), 580-593.

Chevalier, J. A., & Mayzlin, D. (2006). The effect of word of mouth on sales: Online book reviews. *Journal of Marketing Research, 43*(3), 345-354.

Chowdhry, A. (2015). Remember the Ice Bucket Challenge? Donations from the $220 million campaign enhanced ALS research. *Forbes*. Retrieved from https://www.forbes.com/sites/amitchowdhry/2015/08/26/remember-the-ice-bucket-challenge-donations-from-the-220-million-campaign-advanced-als-research/#261b3a1b3c6d

Chu, S., & Kim, Y. (2011). Determinants of consumer engagement in electronic word-of-mouth (eWOM) in social networking sites. *International Journal of Advertising, 30*(1), 47-75.

Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal Of Personality And Social Psychology*, 58(6), 1015.

Cohen, T., & Clemens, B. (2005). Social networks for creative collaboration. *Proceedings of the 5th Conference on Creativity & Cognition,* 252-255.

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*(4), 349.

Datta, P. R., Chowdhury, D. N., & Chakraborty, B. R. (2005). Viral marketing: New form of word-of-mouth through Internet. *The Business Review, 3*(2), 69-75.

Davison, C.B. (2016). Georgetown Cupcake's seven secrets to making unbelievably good treats. *Delish*. Retrieved from: http://www.delish.com/restaurants/videos/a47163/georgetown-cupcake-decorating-ideas/

Dellarocas, C. (2003). The digitization of word of mouth: Promise and challenges of online feedback mechanisms. *Management Science, 49*(10), 1407-1424.

Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *The Journal of Abnormal And Social Psychology*, 51(3), 629.

Derlaga, V. J., & Berg, J. H. (1987). *Self-disclosure: Theory, research and therapy* Springer.

Dodds, P. S., Harris, K. D., Kloumann, I. M., Bliss, C. A., & Danforth, C. M. (2011). Temporal patterns of happiness and information in a global social network: Hedonometrics and twitter. *PloS One, 6*(12), e26752.

Domingos, P. (2005). Mining social networks for viral marketing. *IEEE Intelligent Systems, 20*(1), 80-82.

Donath, J. (2007). Signals in social supernets. *Journal of Computer-Mediated Communication, 13*(1), 231-251.

Donath, J., & Boyd, D. (2004). Public displays of connection. *Bt Technology Journal, 22*(4), 71-82.

Dubois, D., Rucker, D. D., & Tormala, Z. L. (2011). From rumors to facts, and facts to rumors: The role of certainty decay in consumer communications. *Journal of Marketing Research, 48*(6), 1020-1032.

Eisingerich, A. B., Chun, H. H., Liu, Y., He, J. M., & Bell, S. J. (2014). Why recommend a brand face-to-face but not on facebook? how word-of-mouth on online social sites differs from traditional word-of-mouth. *Journal of Consumer Psychology,*

Eliot, T. S. (2009). *Collected poems 1909-1962* Faber & Faber.

Ellison, G., & Fudenberg, D. (1995). Word-of-mouth communication and social learning. *The Quarterly Journal of Economics, ,* 93-125.

Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*(1), 210-230.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of facebook "friends:" social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143-1168.

Ellison, N., Heino, R., & Gibbs, J. (2006). Managing impressions online: Self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication, 11*(2), 415-441.

Engel, J. F., Kegerreis, R. J., & Blackwell, R. D. (1969). Word-of-mouth communication by the innovator. *The Journal of Marketing, ,* 15-19.

Englis, B. G., & Solomon, M. R. (1995). To be and not to be: Lifestyle imagery, reference groups, and the clustering of america. *Journal of Advertising, 24*(1), 13-28.

Escalas, J. E., & Bettman, J. R. (2003). You are what they eat: The influence of reference groups on consumers' connections to brands. *Journal of Consumer Psychology, 13*(3), 339-348.

Feirstein, B. (1986, Me, my things and I. *New York Times Magazine, 8*, 24.

Flanagin, A. J., & Metzger, M. J. (2001). Internet use in the contemporary media environment. *Human Communication Research, 27*(1), 153-181.

Flanagin, A. J., & Metzger, M. J. (2007). The role of site features, user attributes, and information verification behaviors on the perceived credibility of web-based information. *New Media & Society, 9*(2), 319-342.

Fogg, B. (2003). Prominence-interpretation theory: Explaining how people assess credibility online. *CHI'03 Extended Abstracts on Human Factors in Computing Systems,* 722-723.

Freeman, K. S., & Spyridakis, J. H. (2004). An examination of factors that affect the credibility of online health information. *Technical Communication, 51*(2), 239-263.

Giddens, A. (1991). Modernity and self-identity, cambridge. *Polity, ,* 109.

Gigerenzer, G., & Kurz, E. (2001). Vicarious functioning reconsidered: A fast and frugal lens model. *The Essential Brunswik: Beginnings, Explications, Applications, ,* 342-347.

Gigerenzer, G., & Todd, P. M. (1999). *Simple heuristics that make us smart* Oxford University Press.

Goffman, E. (1956). The nature of deference and demeanor. *American Anthropologist, 58*(3), 473-502.

Goldenberg, J., Libai, B., & Muller, E. (2001). Talk of the network: A complex systems look at the underlying process of word-of-mouth. *Marketing Letters, 12*(3), 211-223.

Gregg, A. P., Sedikides, C., & Gebauer, J. E. (2011). Dynamics of identity: Between self-enhancement and self-assessment. *Handbook of identity theory and research* (pp. 305-327) Springer.

Halle, D. (1996). *Inside culture: Art and class in the american home* University of Chicago Press.

Harries, T., Rettie, R., Studley, M., Burchell, K., & Chambers, S. (2013). Is social norms marketing effective? A case study in domestic electricity consumption. *European Journal of Marketing*, 47(9), 1458-1475.

Hilligoss, B., & Rieh, S. Y. (2008). Developing a unifying framework of credibility assessment: Construct, heuristics, and interaction in context. *Information Processing & Management, 44*(4), 1467-1484.

Ho, J. Y., & Dempsey, M. (2010). Viral marketing: Motivations to forward online content. *Journal of Business Research, 63*(9), 1000-1006.

Hogan, B. (2010). The presentation of self in the age of social media: Distinguishing performances and exhibitions online. *Bulletin of Science, Technology & Society, ,* 0270467610385893.

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). Communication and persuasion; psychological studies of opinion change.

James, W. (1890). The consciousness of self. *The Principles of Psychology, 8*

Jansen, B. J., Zhang, M., Sobel, K., & Chowdury, A. (2009). Twitter power: Tweets as electronic word of mouth. *Journal of the American Society for Information Science and Technology, 60*(11), 2169-2188.

Johnson, T. J., & Kaye, B. K. (2004). Wag the blog: How reliance on traditional media and the Internet influence credibility perceptions of weblogs among blog users. *Journalism & Mass Communication Quarterly, 81*(3), 622-642.

Jones, E. E. (1990). *Interpersonal perception.* WH Freeman/Times Books/Henry Holt & Co.

Joshua, M. (1985). No sense of place: The impact of electronic media on social behavior.

Kaplan, A. M., & Haenlein, M. (2009). The fairyland of second life: Virtual social worlds and how to use them. *Business Horizons, 52*(6), 563-572.

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

Kaplan, A. M., & Haenlein, M. (2011). Two hearts in three-quarter time: How to waltz the social media/viral marketing dance. *Business Horizons, 54*(3), 253-263.

Kardashian, K. (2014, February). The end of got milk. *The New Yorker.* Retrieved from http://www.newyorker.com/business/currency/the-end-of-got-milk

Kaufman, Josh. The personal MBA: Master the art of business. Portfolio. 2012

Kelly, A. E., & McKillop, K. J. (1996). Consequences of revealing personal secrets. *Psychological Bulletin, 120*(3), 450.

Kelman, H. C. (1961). Processes of opinion change. *Public opinion quarterly*, *25*(1), 57-78.

Kleine, S. S., Kleine III, R. E., & Allen, C. T. (1995). How is a possession" me" or" not me"? characterizing types and an antecedent of material possession attachment. *Journal of Consumer Research, ,* 327-343.

Kozinets, R. V., De Valck, K., Wojnicki, A. C., & Wilner, S. J. (2010). Networked narratives: Understanding word-of-mouth marketing in online communities. *Journal of Marketing, 74*(2), 71-89.

Krämer, N. C., & Winter, S. (2008). Impression management 2.0: The relationship of self-esteem, extraversion, self-efficacy, and self-presentation within social networking sites. *Journal of Media Psychology: Theories, Methods, and Applications, 20*(3), 106.

Kuznets, S. (1955). Economic growth and income inequality. *The American Economic Review, ,* 1-28.

Ladkin, D., & Taylor, S. S. (2010). Enacting the 'true self': Towards a theory of embodied authentic leadership. *The Leadership Quarterly, 21*(1), 64-74.

Lang, A. (2000). The limited capacity model of mediated message processing. *Journal of Communication, 50*(1), 46-70.

Larsen, A. (2008). *Utah woman wins national commercial competition during Oscars.* ABC4 News. Retrieved from: http://www.abc4.com

Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin, 107*(1), 34.

Leary, M. R., Kowalski, R. M., & Campbell, C. D. (1988). Self-presentational concerns and social anxiety: The role of generalized impression expectancies. *Journal of Research in Personality, 22*(3), 308-321.

Lenhart, A., & Madden, M. (2007). *Teens, privacy & online social networks: How teens manage their online identities and personal information in the age of MySpace* Pew Internet & American Life Project.

Lewis, M. A., & Neighbors, C. (2004). Gender-specific misperceptions of college student drinking norms. *Psychology of Addictive Behaviors*, *18*(4), 334.

Litvin, S. W., Goldsmith, R. E., & Pan, B. (2008). Electronic word-of-mouth in hospitality and tourism management. *Tourism Management, 29*(3), 458-468.

Liu, H. (2007). Social network profiles as taste performances. *Journal of Computer-Mediated Communication, 13*(1), 252-275.

Liu, Y. (2006). Word of mouth for movies: Its dynamics and impact on box office revenue. *Journal of Marketing, 70*(3), 74-89.

Mahajan, V., Muller, E., & Kerin, R. A. (1984). Introduction strategy for new products with positive and negative word-of-mouth. *Management Science, 30*(12), 1389-1404.

Malinowski, B. (1994). The problem of meaning in primitive languages. *Supplementary in the Meaning of Meaning, *, 1-84.

Manago, A. M., Graham, M. B., Greenfield, P. M., & Salimkhan, G. (2008). Self-presentation and gender on MySpace. *Journal of Applied Developmental Psychology, 29*(6), 446-458.

Marlow, D., & Crowne, D. P. (1961). Social desirability and response to perceived situational demands. *Journal of Consulting Psychology, 25*(2), 109.

McAlaney, J., Bewick, B. M., & Bauerle, J. (2010). Social norms guidebook: a guide to implementing the social norms approach in the UK. University of Bradford, University of Leeds, Department of Health: West Yorkshire, UK.

McKinlay, A., & Starkey, K. (1998). *Foucault, management and organization theory: From panopticon to technologies of self*. Sage.

Merton, R. K., & Kitt, A. S. (1950). Contributions to the theory of reference group behavior. *Continuities in Social Research: Studies in the Scope and Method of "The American Soldier, *, 40-105.

Metzger, M. J. (2007). Making sense of credibility on the web: Models for evaluating online information and recommendations for future research. *Journal of the American Society for Information Science and Technology, 58*(13), 2078-2091.

Metzger, M. J., Flanagin, A. J., & Medders, R. B. (2010). Social and heuristic approaches to credibility evaluation online. *Journal of Communication, 60*(3), 413-439.

Metzger, M. J., Flanagin, A. J., & Zwarun, L. (2003). College student web use, perceptions of information credibility, and verification behavior. *Computers & Education, 41*(3), 271-290.

Meyrowitz, J. (1985). No sense of place: The impact of electronic media on human behavior.

Moghaddam, F. M., & Stringer, P. (1988). Out-group similarity and intergroup bias. *The Journal of Social Psychology, 128*(1), 105-115.

Nadkarni, A., & Hofmann, S. G. (2012). Why do people use Facebook? *Personality and Individual Differences, 52*(3), 243-249.

National Institute of Neurological Disorders and Stroke. (2013). *Amyotrophic Lateral Sclerosis (ALS) Fact Sheet*. Retrieved from https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Amyotrophic-Lateral-Sclerosis-ALS-Fact-Sheet

National Social Norms Institute. (2012). You Don't Know Jack Campaign, Georgetown University. Retrieved from http://www.socialnorm.org/CaseStudies/georgetown.php

Noelle-Neumann, E. (1974). The spiral of silence a theory of public opinion. *Journal of Communication, 24*(2), 43-51.

Nordqvist, C. (2017). Nine most popular diets rated by experts 2017. *Medical News Today*. Retrieved from http://www.medicalnewstoday.com/articles/5847.php

Norman, A. T., & Russell, C. A. (2006). The Pass-Along effect: Investigating Word-of-Mouth effects on online survey procedures. *Journal of Computer-Mediated Communication, 11*(4), 1085-1103.

"News Use Across Social Media Platforms 2016" Pew Research Center, Washington, D.C. (2016). Available at: http://www.journalism.org/2016/05/26/news-use-across-social-media-platforms-2016/

O'Hara, K., & Brown, B. (2006). *Consuming music together: Social and collaborative aspects of music consumption technologies* Springer.

Ong, E. Y., Ang, R. P., Ho, J., Lim, J. C., Goh, D. H., Lee, C. S., & Chua, A. Y. (2011). Narcissism, extraversion and adolescents' self-presentation on Facebook. *Personality and Individual Differences, 50*(2), 180-185.

Packard, G. M., & Wooten, D. B. (2013). Compensatory knowledge signaling in consumer word-of-mouth. *Journal of Consumer Psychology, October,*

Papacharissi, Z. (2002). The virtual sphere the Internet as a public sphere. *New Media & Society, 4*(1), 9-27.

Papacharissi, Z., & Mendelson, A. (2010). 12 toward a new (er) sociability: Uses, gratifications and social capital on facebook. *Media Perspectives for the 21st Century,* , 212.

Park, C. W., & Lessig, V. P. (1977). Students and housewives: Differences in susceptibility to reference group influence. *Journal of consumer Research*, *4*(2), 102-110.

Pempek, T. A., Yermolayeva, Y. A., & Calvert, S. L. (2009). College students' social networking experiences on Facebook. *Journal of Applied Developmental Psychology, 30*(3), 227-238.

Perkins, H., & Craig, D. W. (2002). A Multifaceted Social Norms Approach To Reduce High-Risk Drinking: Lessons from Hobart and Williams Smith Colleges.

Petty, R. E., & Cacioppo, J. T. (1986). Communication and persuasion: Central and peripheral routes to attitude change.

Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981). Personal involvement as a determinant of argument-based persuasion. *Journal of Personality and Social Psychology, 41*(5), 847.

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*(04), 333-348.

Pirolli, P., & Card, S. (2005). The sensemaking process and leverage points for analyst technology as identified through cognitive task analysis. *Proceedings of International Conference on Intelligence Analysis, , 5* 2-4.

Protalinski. E. (2012). 56% of employers check applicants' Facebook, LinkedIn, Twitter. *ZDNet*. Retrieved from http://www.zdnet.com/article/56-of-employers-check-applicants-facebook-linkedin-twitter/

Richins, M. L. (1983). Negative word-of-mouth by dissatisfied consumers: A pilot study. *The Journal of Marketing,* , 68-78.

Richins, M. L., & Root-Shaffer, T. (1988). The role of evolvement and opinion leadership in consumer word-of-mouth: An implicit model made explicit. *Advances in Consumer Research, 15*(1), 32-36.

Rieh, S. Y., & Hilligoss, B. (2008). College students' credibility judgments in the information-seeking process. *Digital Media, Youth, and Credibility,* , 49-72.

Rimal, R. N., & Real, K. (2003). Understanding the influence of perceived norms on behaviors. *Communication Theory*, 13(2), 184-203.

Robinson, J. D., James, L. R., Thomas, A. C. I., & Blandford, K. (2007). *System and Method to Configure and Provide a Network-Enabled Three-Dimensional Computing Environment,*

Roccas, S., & Schwartz, S. H. (1993). Effects of intergroup similarity on intergroup relations. *European Journal of Social Psychology, 23*(6), 581-595.

Samuelson, P. A. (1937). A note on measurement of utility. *The Review of Economic Studies*, 4(2), 155-161.

Sartre, J. (1966). Being and nothingness. 1943. *Trans.Hazel E.Barnes).New York: Washington Square,*

Schau, H. J., & Gilly, M. C. (2003). We are what we post? Self-presentation in personal web space. *Journal of Consumer Research, 30*(3), 385-404.

Schlenker, B. R., & Pontari, B. A. (2000). The strategic control of information: Impression management and self-presentation in daily life.

Schwarz, O. (2010). On friendship, boobs and the logic of the catalogue online self-portraits as a means for the exchange of capital. *Convergence: The International Journal of Research into New Media Technologies, 16*(2), 163-183.

Shannon, D. & Aase, L. (2017). How social media is shaking up public health and healthcare. *The Huffington Post*. Retrieved from http://www.huffingtonpost.com/shannon-dosemagen-/how-social-media-is-shaki_b_9090102.html

Sherif, M. (1936). The psychology of social norms.

Sifferlin, A. (2014). Here's how the ALS Ice Bucket Challenge actually started. *Time*. Retrieved from http://time.com/3136507/als-ice-bucket-challenge-started/

Siibak, A. (2009). Constructing the self through the photo selection-visual impression management on social networking websites. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 3*(1), 1.

Smith, T., Coyle, J. R., Lightfoot, E., & Scott, A. (2007). Reconsidering models of influence: The relationship between consumer social networks and word-of-mouth effectiveness. *Journal of Advertising Research, 47*(4), 387.

Snyder, L. B., & Hamilton, M. A. (2002). A meta-analysis of US health campaign effects on behavior: Emphasize enforcement, exposure, and new information, and beware the secular trend. *Public Health Communication: Evidence for Behavior Change, ,* 357-383.

Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of personality and social psychology*, 30(4), 526.

Statistic Brain. (2016). *Vegetarian Statistics*. Retrieved from: http://www.statisticbrain.com/vegetarian-statistics/

Strano, M. M. (2008). User descriptions and interpretations of self-presentation through facebook profile images. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 2*(2), 5.

Sundar, S. S. (2008). The MAIN model: A heuristic approach to understanding technology effects on credibility. *Digital Media, Youth, and Credibility, ,* 73-100.

Sundaram, D. S., Mitra, K., & Webster, C. (1998). Word-of-mouth communications: A motivational analysis. *Advances in Consumer Research, 25*(1), 527-531.

Sundén, J. (2003). Material virtualities. *New York: Peter Lang,*

Taraborelli, D. (2008). How the web is changing the way we trust. *Current Issues in Computing and Philosophy, ,* 194-204.

Thackeray, R., Neiger, B. L., Hanson, C. L., & McKenzie, J. F. (2008). Enhancing promotional strategies within social marketing programs: Use of web 2.0 social media. *Health Promotion Practice, 9*(4), 338-343. doi:10.1177/1524839908325335 [doi]

Tosun, L. P. (2012). Motives for facebook use and expressing "true self" on the Internet. *Computers in Human Behavior, 28*(4), 1510-1517.

Triandis, H. C., Bontempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and collectivism: Cross-cultural perspectives on self-ingroup relationships. *Journal of personality and social psychology*, 54(2), 323.

Trusov, M., Bucklin, R. E., & Pauwels, K. (2009). Effects of word-of-mouth versus traditional marketing: Findings from an Internet social networking site. *Journal of Marketing, 73*(5), 90-102.

Tufekci, Z. (2008). Can you see me now? audience and disclosure regulation in online social network sites. *Bulletin of Science, Technology & Society, 28*(1), 20-36.

U.S. Department of Health and Human Services and U.S. Department of Agriculture. (2015). *Dietary Guidelines for Americans*. 8th Edition. 2015 – 2020. Available at http://health.gov/dietaryguidelines/2015/guidelines/.

Utz, S. (2010). Show me your friends and I will tell you what type of person you are: How one's profile, number of friends, and type of friends influence impression formation on social network sites. *Journal of Computer-Mediated Communication, 15*(2), 314-335.

Utz, S., Tanis, M., & Vermeulen, I. (2012). It is all about being popular: The effects of need for popularity on social network site use. *Cyberpsychology, Behavior, and Social Networking, 15*(1), 37-42.

Walther, J. B. (1996). Computer-mediated communication impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23*(1), 3-43.

Walther, J. B. (2007). Selective self-presentation in computer-mediated communication: Hyperpersonal dimensions of technology, language, and cognition. *Computers in Human Behavior, 23*(5), 2538-2557.

Wathen, C. N., & Burkell, J. (2002). Believe it or not: Factors influencing credibility on the web. *Journal of the American Society for Information Science and Technology, 53*(2), 134-144.

Watts, D. J., Peretti, J., & Frumin, M. (2007). *Viral marketing for the real world* Harvard Business School Pub.

White, J. B., & Langer, E. J. (1999). Horizontal hostility; relations between similar minority groups. *Journal of Social Issues, 55*(3), 537-559.

Whitehead, C. (2001). Social mirrors and shared experiential worlds. *Journal of Consciousness Studies, 8*(4), 3-36.

Wiley, N. (1994). *The semiotic self.* University of Chicago Press.

Wolfe, R. N., Lennox, R. D., & Cutler, B. L. (1986). Getting along and getting ahead: Empirical support for a theory of protective and acquisitive self-presentation. *Journal of Personality and Social Psychology, 50*(2), 356.

Wooten, D. B., & Reed II, A. (2004). Playing it safe: Susceptibility to normative influence and protective Self-Presentation. *Journal of Consumer Research, 31*(3), 551-556.

Zhao, C., & Jiang, G. (2011). Cultural differences on visual self-presentation through social networking site profile images. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems,* 1129-1132.

Zhao, D., & Rosson, M. B. (2009). How and why people twitter: The role that micro-blogging plays in informal communication at work. *Proceedings of the ACM 2009 International Conference on Supporting Group Work,* 243-252.

Appendix A

Self-Monitoring Scale, shorter version (Synder, 1974)

7-Point Likert Scale; 1- Not at all Agree, 7- Completely Agree

1. My behavior is usually an expression of my true inner feelings, attitudes, and beliefs.

2. I can only argue for ideas which I already believe.

3. At parties and social gatherings, I do not attempt to do or say things that others will like.

4. I have trouble changing my behavior to suit different people and different situations.

5. When I am uncertain how to act in a social situation, I look to the behavior of others for cues.

6. In order to get along and be liked, I tend to be what people expect me to be rather than anything else.

7. I guess I put on as how to impress or entertain people.

8. I am not particularly good at making other people like me.

Appendix B

Susceptibility to Normative Influence Scale (Bearden et al., 1989)

7-Point Likert Scale; 1- Not at all Agree, 7- Completely Agree

1. When buying products, I generally purchase those brands that I think others will approve of.

2. If other people can see me using a product, I often purchase the brand they expect me to buy.

3. I achieve a sense of belonging by purchasing the same product and brands that others purchase.

4. I often identify with other people by purchasing the same products and brands they purchase.

5. If I want to be like someone, I often try to buy the same brands that they buy.

6. I like to know what brands and products make good impressions on others.

7. I rarely purchase the latest fashion styles until I am sure my friends approve of them.

8. It is important that others like the products and brands I buy.