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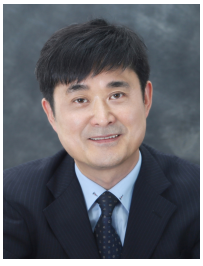
장 소 | 숭실대학교 숭덕관 316, 317호

주 최 | KAS 한국광고학회 Korea Advertising Society

후 원 | HS Ad

학회장 인사말

The Direction of Strategic Communication Research



Dear Distinguished members of the KAS (Korea Advertising Society), and participants! Thank you for attending 'the 2019 Global Colloquium for Academic Subsequent Generation.' Today seminar is the third special one of the 24th KAS, which is aimed at the value of 'CHANGE.' In this seminar entitled "Global Insights of Strategic Communications Research," five completed research papers, four research proposals, and two book chapters will be presented. Some presenters focus on the mobile business environment in virtual reality after YouTube, and apply analysis level theory based on psychological gaps to the study of anti-smoking campaigns. Others investigate the public's desire for health from a perception level perspective.

The completed five research papers include: "Slow Versus Fast: How Speed-Induced Construal Affects Perceptions of Advertising Messages" by 윤석기, 방혜진, 최동원, and 김경옥 at Bryant University, "A Study of Mobile Payment Service Usage: U.S. Consumers' Motivations and Intentions" by 정종혁 at Texas Christian University and 김동후 at Inha University, "Message Fatigue Caused by Message Framing of Anti-Smoking Campaigns: Focus on Psychological Distance in Construal Level Theory" by 윤기범, 박영은, and 손현상 at Colorado State University, "Effects of Weight Status: Misperception on Desire and Trials of Weight Control among Overweight and Obese Individuals" by 배범준 at Georgia Southern University, and "Brand-Related UGC and Its Implication for Global Business: A Cross-Cultural Study of Differences in eWOM Production & Effects on U.S and South Korean Customers" by 정혁준 at University of Scranton.

Four research proposals are also presented such as "The Interaction of Form Design and Function Innovativeness on Product and Advertising Evaluation" by 이상원 at Ball State University, "Interactive Advertising in

Virtual Reality" by 안선주, 김주영 at University of Georgia, "How Anthropomorphic Naming Increases Purchase Intentions for Irregular Produce" by 김경옥 at Bryant University, and "Negative Word of Mouth on Youtube: Evidence from a Longitudinal Study Using Social Network Analysis" by 최진아 at William Paterson University and 박세정 at John Carroll University. Finally, Two book chapters are "Contingency and Inevitability of Advertising Target" by 김주영 at University of Georgia and "When, Why, and How Machine Learning and Reinforcement Learning Affects Advertising Research?" by 손현상 at Colorado State University.

This seminar will provide great opportunities that international scholars and members of the KAS meet one another to exchange academic interests. As the media environment changes, research trends on strategic communication are also rapidly changing. I am looking forward to finding the future direction of strategic communication research throughout this seminar. I would like to express my heartfelt gratitude to S.S. Jeong , the CEO of advertising agency HSAd who sponsored this seminar, and to business associate. Since HSAd sponsors this seminar, scholars from both countries are able to come this place to make academic exchanges. I would also like to thank the two moderators and nine discussants.

The Korea Advertising Society and HSAd will select one of the best papers from each seminar section and 'the 2019 KAS·HSAd Global Research Award' will be given. I would like to congratulate the two winners. It is hard to make a difference, and the papers have been fiercely competitive. I report that I have fairly managed the evaluation process of the reviewers. Members of the KAS and attendees! Please keep in stayed this seminar from start to finish today. I hope you will gain a lot of global insights into strategic communication research. Thank you.

July 19, 2019

Byoung Hee Kim

President of Korea Advertising Society

2019 학자/학문후속세대 글로벌 콜로키움[A]

일　　시 : 2019년 7월 19일(금) 오후 2시 30분~6시

장　　소 : 숭실대학교 숭덕관 316호

주　　최 : (사)한국광고학회

후　　원 : HS Ad

시 간	내 용	비 고
14:30-14:40	개　　회	김병희 학회장
14:40-15:10 (30')	**Slow Versus Fast : How Speed-Induced Construal Affects Perceptions of Advertising Messages** • 발표 : 윤석기, 방혜진, 최동원, 김경옥(Bryant University) • 토론 : 김유정(건국대학교)	• 사회 : 최영균 (동국대학교)
15:10-15:40 (30')	**A Study of Mobile Payment Service Usage : U.S. Consumers' Motivations and Intentions** • 발표 : 정종혁(Texas Christian University) 김동후(인하대학교) • 토론 : 김유승(중앙대학교)	
15:40-15:50	Coffee Break	
15:50-16:20 (30')	**Message Fatigue Caused by Message Framing of Anti-Smoking Campaigns : Focus on Psychological Distance in Construal Level Theory** • 발표 : 윤기범, 박영은, 손현상(Colorado State University) • 토론 : 장정헌(차의과대학)	
16:20-16:50 (30')	**Effects of Weight Status : Misperception on Desire and Trials of Weight Control among Overweight and Obese Individuals** • 발표 : 배범준(Georgia Southern University) • 토론 : 이형민(성신여자대학교)	
16:50-17:00	Coffee Break	
17:00-17:30 (30')	**Brand-Related UGC and Its Implication for Global Business : A Cross-Cultural Study of Differences in eWOM Production and Effects on the U.S and South Korean Customers** • 발표 : 정혁준 (University of Scranton) • 토론 : 조승호(숭실대학교)	

01

Slow Versus Fast : How Speed-Induced Construal Affects Perceptions of Advertising Messages

발표 : 윤석기, 방혜진, 최동원, 김경옥(Bryant University)
토론 : 김유정(건국대학교)

Slow versus Fast :
How Speed-Induced Construal Affects Perceptions of Advertising Messages

Sukki Yoon (Bryant University)

Marketing communications often feature objects that move slowly or rapidly, or images appearing in slow or rapid succession. This article provides a report of results of five studies investigating consumer perceptions and construals arising from the pace of commercials, which then affects consumer decision making. Studies 1, 2, and 3 provide empirical evidence showing that slow-moving (fast-moving) objects generate high-level (low-level) construals. Studies 2 and 3 demonstrate that TV commercials featuring slow-moving (fast-moving) objects will prompt high level (low-level) construals, and cause consumer preferences for desirability (feasibility) advertising appeals that emphasize product benefits (attributes) and quality (price). Studies 4 and 5 demonstrate the same results when the same commercial is run slowly (rapidly). Theoretical and practical implications for the effects of speed perceptions in the marketplace are discussed.

Keywords: construal level theory, information processing, consumer behavior, advertising.

02

A Study of Mobile Payment Service Usage : U.S. Consumers' Motivations and Intentions

발표 : 정종혁(Texas Christian University)
김동후(인하대학교)
토론 : 김유승(중앙대학교)

A Study of Mobile Payment Service Usage: U.S. Consumers' Motivations and Intentions

ABSTRACT

Mobile payment services are expected to be one of the fastest growing segments of mobile marketing. However, mobile payment services in the U.S. are less popular compared to other parts of the world such as Western Europe and Asia. By applying the Unified Theory of Acceptance and Use of Technology (UTAUT), this research explores motivations and obstacles of accepting mobile payment services in the U.S. An online survey (n = 327) was conducted and the data were analyzed by multiple-regression and descriptive statistics. Results from this study demonstrate that U.S. consumers' intention to use mobile payment services is largely determined by their perceptions of performance expectancy, social influence, compatibility, knowledge, and trust. Especially, performance expectancy of mobile payment services was found to be the most important factor to predict U.S. consumers' intention to use mobile payment service. These findings provide important theoretical and practical implications for the better understanding of consumer behavior and mobile payment services.

The fast growth of smartphone adoption and technological advances in mobile devices enable individuals to use their mobile devices to pay for goods and services and transfer money between friends. Mobile payment services, often referred as a mobile wallet, mobile money transfer, contactless payment, or proximity payment are the fastest growing segments of mobile marketing. Since the first mobile payment service became available to individuals in the U.S. by Google Wallet. in 2011, many smartphone manufacturers and financials service providers are embracing this innovative technology not only providing benefits to their customers but also increasing its business into the new realm. One of the main benefits of mobile payment services for advertisers and marketers is to help them to reach their target more effectively. Massive amount of customer related big data (e.g. expense amounts, consumption patterns, life styles, and preferences) collected from mobile payment services help advertisers and marketers to better understand their target consumer behavior. Further, incorporating the mobile payment services into any mobile advertising campaigns help advertisers to measure return on investment of its mobile advertising campaign better. In summary, the ultimate benefit of mobile payment services is not simply limited to making its users' life better by providing value-added services, but also by acquiring big data about users' consumption on mobile platforms for many advertisers and marketers. With this big data acquired from mobile payment services, advertisers not only predict consumer behaviors on mobile platform more accurately but also develop more effective advertising campaigns.

Mobile shopping and purchasing have become the norm among individuals across the U.S. with its estimated penetration rate around 20.2% of U.S. population in 2018 (Kats 2018). With the aforementioned benefits, users of mobile payment services in the U.S. are forecasted to grow up to 74.9% of U.S. population by 2022 (eMarketer 2018a). The adoption rate of the

mobile payment is expected to differ by age groups as younger groups are less apprehensive to adopt mobile payment services compared to older groups (eMarketer, 2019; O'Malley 2016). According to eMarketer (2016), 38.4 million Americans aged 14 and over have used their mobile phones to pay at the point of sales in the past six months. In addition, O'Malley (2016) asserted that Generation Z (18-24) is twice as likely to make a purchase on mobile devices than the other age groups.

Despite their benefits and fast growth, mobile payment services in the U.S. are still in their infancy compared to other parts of the world, such as Western Europe or Asia where the penetration rate of these services is larger than the U.S. (eMarkter 2018b). In addition, previous studies on mobile payment services in the U.S. are scant or limited. It is the authors' best knowledge that currently there is no up-to-date study examined the motivations of using mobile payment services among U.S. consumers. Previous studies of mobile payment in the U.S. are either focused on the non-users of mobile payment services (Dewan and Chen 2005) or based on outdated data when most of contemporary mobile payment services did not yet exist (Garrett 2014; Shin 2010). Therefore, it is challenging for practitioners to develop better advertising strategies that are customized to the contemporary mobile payment service users in the U.S. Therefore, this study intends to explore motivations and hindrances of accepting mobile payment services among users of mobile payment services in the U.S. In addition, this study intends to explore the current status of mobile payment services by exploring how it is used among U.S. consumers.

Literature Review

Defining Mobile Payment

It is important to review the validity of the current definition of mobile payment service because the definitions from previous studies are broad. Mobile payment is broadly defined as a service to provide users with the ability to initiate, authorize, and complete financial transactions in which money is transferred over mobile network or wireless communication technologies through the use of a mobile device (Dahlberg, Mallat, and Öörni 2003; Liébana-Cabanillas, Sanchez-Fernandez, and Munoz-Leiva 2014; Slade et al. 2015). Specifically, mobile payment services that are currently available in the U.S. can be further categorized by three different types: mobile proximity payment, mobile peer-to-peer payment, and mobile in-app payment. Therefore, following section will review these three different types of mobile payment services currently available in the U.S. to understand their differences and benefits.

First, as a relatively newer mobile payment technology that has not been used previously in the U.S., Mobile Proximity Payment (MPP) services use novel technologies such as Bluetooth and Near Field Communication to exchange payment information between mobile devices and credit card terminals to complete offline transactions (Chandra, Srivastava, and Theng 2010). MPP services are usually offered by smartphone manufactures (e.g. Apple, Samsung) or financial institutions (e.g. Visa, Master Card, Bank of America) to their customers. With this, individuals can use their mobile payment devices as a form of payment to pay for goods and services by simply waving it near a credit card machine in retail stores. The biggest benefits of the MPP services are the convenience of removing the needs to carry cash, credit cards, or a wallet.

Second, Mobile Peer-to-Peer (MP2P) payment services refers to mobile apps such as Venmo or Square Cash that have been more widely adopted by young individuals than other types of mobile payment services. MP2P payment is defined as a transaction made between two

individuals using a mobile phone as a payment method via mobile browsers and mobile apps (Karnouskos and Fokus 2004; Varshney 2002). These services enable individuals to send and received money through mobile apps. For example, individuals can split their restaurant bills, group ticket purchases for events, or trip costs by transferring money via MP2P services.

Lastly, Mobile In-app Payment (MIP) services refer to the mobile payment services that enables individuals to pay for goods and services from pre-paid card information stored on individuals' mobile applications. MIP service uses barcode technology that stores prepaid card information of proprietary stores/brands (e.g. Starbuck mobile app) on individuals' mobile devices. They not only enable individuals to collect, track, and use loyalty points of brands or stores they frequently visit, but also enables individuals to pay for merchandise from the balance of their pre-paid store cards on mobile devices (Pinola 2017). More details about each of these mobile payment services are summarized in Table 1. As various types of mobile payment services become available in the U.S., they will become a mainstream payment method among individuals. They will also become a newer advertising platform where advertising effectiveness can be measured better. Therefore, it is important to understand the current status of mobile payment service among individuals in the U.S.

RQ1: What is the current status of individuals' mobile payment service usages in the U.S.?

PLACE TABLE 1 ABOUT HERE

Theoretical Background

The Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh, Morris, Davis, and Davis (2003) has been widely adopted as a primary theoretical framework to understand individuals' technology and new media adoptions. The UTAUT was developed as a comprehensive synthesis of prior theories (e.g. Theory of Reasoned Action, Technology

Acceptance Model, Innovation Diffusion Theory) of predicting individuals' acceptance of new media technologies or innovations. In the context of the advertising research, the UTAUT has mainly been used to predict and assess the advertising effectiveness in the new media environments (He and Lu 2007; He, Chen, and Lv 2015; Wong et al. 2015). For example, UTAUT hypothesized that an individual's intention to accept a technology can be predicted by four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions). Although UTAUT was proven as a valid theoretical framework to predict individuals' uses of mobile payment services, previous studies identified the need for adding more constructs to the UTAUT to increase the explanatory power of the theory (Koenig-Lewis et al. 2015; Musa, Khan, and Alshare 2015; Slade et al. 2015; Teo et al. 2015).

Performance Expectancy

As a relatively new technology with low penetration rate in the U.S., individuals' perceptions of mobile payment as a useful tool in their lives will be the important factor in predicting their use of mobile payment services. Individuals' perceptions of usefulness can be explained by the performance expectancy construct in the UTAUT. Performance expectancy is defined as the degree to which an individual believes that using the system will help them attain gains in job performance (Venkatesh et al. 2003). Previous studies on individual's adoption of mobile payment identified performance expectancy as a major determinant of individual's intention to use mobile payment services (Musa et al. 2015; Kim, Mirusmonov, and Lee 2010; Koenig-Lewis et al. 2015; Liebana-Cabanillas et al. 2014; Slade et al. 2015; Tan et al. 2014; Teo et al. 2015). For example, in their studies of mobile payment service users in France, Koenig-Lewis et al. (2015) found that perceived usefulness is a salient factor in explaining intention to use mobile payment services among young French individuals. In addition, Slade and colleagues

(2015) found performance expectancy to be one of the strongest predictors of U.K. individuals' intentions to use mobile payment service. Therefore, following hypothesis can be developed.

H1: Performance expectancy will positively influence intention to use mobile payment services.

Effort expectancy

Ease of use has been considered an important predictor of individual's adoption of new media technologies. In the Technology Acceptance Model (TAM) (Davis 1985) and Innovation Diffusion Theory (IDT) (Rogers 2003), perceived ease of use or complexity is one of the major constructs that influences individuals' intentions to adopt technologies. Similarly, effort expectancy is defined as the degree of ease associated with the use of technology in UTAUT. Although previous studies suggested that the effort expectancy is as an important construct to predict individuals' acceptance of technologies, there are conflicting results in its role of predicting individuals' uses of mobile payment services. For example, Koenig-Lewis et al. (2015) and Teo et al. (2015) found a significant influence of the effort expectancy on individuals' uses of mobile payment services. However, Slade et al. (2015), Liébana-Cabanillas et al. (2014), Dastan (2016), Musa et al. (2015) failed to find significant influence of effort expectancy or perceived ease of use on intention to use mobile payment services. Drawing from the previous literature, we expect that efforts expectancy will positively influence the individuals' intention to use mobile payment service.

H2: Effort expectancy positively influences intention to use mobile payment services.

Social Influence

Generally, when individuals decide to adopt an innovation, they may feel uncomfortable with the uncertainty created by the innovation. To reduce the feeling of uncertainty, individuals

tend to rely on their social networks to consult on their decisions by informative and normative social influence (Burkhardt and Brass 1990; Karahanna, Straub, and Chervany 1999). Social influence is defined as a person's perception that most people who are important to them think they should or should not perform the behavior in question (Fishbein and Ajzen 1975). The concept of social influence has been investigated by numerous technology acceptance studies and the results of those studies shows that social influence positively affects individuals' technology acceptances (Hsu and Lu 2004; Lucas and Spitler 2000; Taylor and Tood 1995; Yang 2012; Venkantesh and Morris 2000). For example, Hsu and Lu (2004) suggest that social influence has a positive and direct impact on individuals' adoption of on-line game.

In the context of mobile payment services, individuals may be influenced by their peers to use mobile payment services. According to the Network Effect Theory (Liebowitz and Margolis 1994) an increase in usage of mobile payment services may lead to a direct increase in the value of using mobile payment service for other users. That being said, once a few people in a social circle adopt a mobile payment service, it is only a matter of time before the entire circle is on board to use it. For example, peer-to-peer mobile payment services such as Venmo wisely take this concept of social influence and offers social features like a payment stream reminiscent of Facebook's newsfeed where Venmo users can see how other users are sharing their money with their friends. Similarly, previous studies in mobile payment or UTAUT have been investigated how social influence can have an impact on individuals' adoptions of mobile payment services (Gu, Lee, and Suh 2009; Lu, Yao, and Yu 2005; Tan et al. 2014; Yang et al. 2012). For example, Slade et al. (2015) demonstrate that social influence has a positive impact on individuals' intentions to use mobile payment. Similarly, the research conducted by Yang and his colleagues (2012) shows that social influence has a positive impact on perceived advantage

of mobile payment service but has a negative impact on perceived risk of the service in the initial adoption stage.

H3: Social Influence positively influences intention to use mobile payment services.

Compatibility/Facilitating Condition

In previous studies on technology adoption, the construct of compatibility is frequently used to explain individuals' adoptions of technologies (Agarwal and Parasad 1998; Chan and Hu 2001; Vijayasarathy 2004; Wu and Wang 2005). In the previous IDT literature, compatibility is defined as degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters (Rogers 2003). Similarly, in the UTAUT literature, Venkatesh et al. (2003) asserted that 'facilitating conditions' are important to predicting individuals' technology acceptances, which is rooted in a concept of compatibility in IDT. Previous studies show that when individuals feel an innovative technology fits their lifestyles, existing values, and needs, they tend to adopt the innovation more easily (Pham and Ho 2015; Wu and Wang 2005). Notably, Agarwal and Prasad (1998) suggest that compatibility is positively related to perceived ease of use the innovation. Furthermore, Wu and Wang (2005) indicate that compatibility also has direct and positive impact on perceived usefulness and behavioral intention to use of the innovation. In the context of mobile payment service, individuals' perceptions about mobile payment service as a mean of improving their lifestyle or fitting with their life style may positively influence their decisions to use the services.

H4: Compatibility positively influences intention to use mobile payment services.

Knowledge

Individuals' knowledge about product or service affect their behaviors and choices (Alba and Hutchinson 1987; Lee and Ro 2016). In the context of technology acceptance, knowledge or

experience of the technology has been considered an important construct that would contribute to predict individuals' acceptance of technology (Garrett et al. 2014; Venkatesh, Thong, and Xu 2012; Kim, Mirusmonov, and Lee, 2010; Mallat 2007; Kim, Park, and Morrison 2008; Slade et al. 2015; Yang et al. 2015). In the context of the mobile payment services, individuals' knowledge about how and where to use mobile payment services predicts intention to use them because the individuals may lose their financial assets or risk identity fraud due to unauthorized use or transaction error of mobile payment services (Dahlberg et al. 2003; Mallat 2007). Particularly, as a relatively new technology in the U.S. with low penetration rate among individuals, it is plausible to think that most individuals may not fully understand how and where to use mobile payments services. Previous studies suggest that individuals with prior knowledge of or experience with technology are more likely to adopt it (Garrett et al. 2014; Venkatesh et al. 2012) and have a lower level of risk perception about mobile payment services (Slade et al. 2015). Therefore, following hypothesis can be put forth.

H5: Perceived knowledge positively influences intention to use mobile payment services.

Trust and Risk

Trust and risk are demonstrated to be important predictors of individuals' technology acceptances in the previous literature (Dahlberg et al 2003; Mallat 2007; Pavlou 2003; Shin 2010; Slade et al. 2015). In the context of mobile payment services, trust is an important construct that influences individuals' willingness to accept mobile payment services due to the personal nature of the mobile devices. Particularly, individuals may have concerns about privacy issues related to mobile payment services such as the fear that their purchases might be tracked by unwanted advertisers, their banking information could be compromised due to lack of transaction records, or they might encounter unreliable network qualities of mobile payment

services (Dahlberg et al. 2003; Mallat 2007; Xin, Techatassanasoontorn, and Tan 2015; Zhou 2013). In addition, previous studies on mobile payment services asserted that individuals' level of knowledge about mobile payment services could moderate their intentions to use mobile payment services. Such uncertainties or lack of knowledge of mobile payment services can decrease individuals' level of trust about the services or increase perceived risk of mobile payment services (Slade et al. 2015). Previous studies also suggest that individuals' intentions to accept mobile payment services are largely dependent on their assessments of trustworthiness of mobile payment service providers, functional reliability of the service, and the general disposition to trust (Dahlberg et al. 2003; Xin et al. 2015). That being said, if individuals perceive that a mobile payment service provider is not trustworthy or is risky, they are less likely to use those mobile payment services. Especially, at the early stages of mobile payment adoption, individuals may have uncertainties regarding the stability and security of mobile payment service due to their lack of understanding.

H6a: Perceived trust positively influences intention to use mobile payment services.

H6b: Perceived risk negatively influences intention to use mobile payment services.

Relative Advantage

In the previous IDT studies, relative advantage is defined as the degree to which using an innovation is perceived as being better than using its precursor (Moore and Benbasat 1991). In addition to its increasing popularity among individuals, the adoption of mobile payment services in the U.S. is accelerated by its relative advantage over the cumbersome procedure of processing traditional credit card payments (Malmad 2016). Since October 2015, U.S. federal law calls for all banks in the U.S. to reimburse customers after fraud if merchants are not using the latest credit card terminals that requires credit card chip to be inserted into the terminal to make any

credit card transactions (Figlolia 2016). While credit card chip technology provides an enhanced security for credit card transactions, it slows down the entire credit card transaction process as compared to its predecessor (i.e. swiping the magnetic strip of credit card). Such mobile payment services as Starbucks mobile apps pay and Walmart mobile apps pay does not require those extra steps to complete transactions because they scan the barcode from mobile devices. That being said, as more individuals think mobile payment services are relatively more convenient or advantageous than traditional credit card payments or cumbersome credit card chip technology, more individuals may adopt mobile payment services. Previous studies asserted that mobile payment service users think of mobile payment services as more ubiquitous and convenient than credit cards (Mallat 2007; Yang et al. 2012). Therefore, following hypothesis can be developed.

H7: Relative advantage positively influences intention to use mobile payment services.

Method

Sample and Procedure

An online survey was used to test the hypotheses of this study. A sample of undergraduate students from two major universities in the U.S. were conveniently chosen for survey data collection. Participants for this study were recruited by an email invitation including a URL of an online survey and a consent form to participate in the study sent by researchers. College students were chosen as a sampling population due to higher penetration rate of mobile payment service usage among young individuals than others in the U.S. (eMarketer 2019). All participants were given extra credit as an incentive for participating in the study.

Measurement

Regarding the operationalization of each construct, multi-item scales for the nine constructs were primarily adopted from previous studies (Gürhan-Canli 2003; Pham and Ho

2015; Slade et al. 2015; Yang et al 2012). All items were measured with five-point Likert scale ranging from strongly disagree to strongly agree or with a semantic differential scale (Appendix A). A pilot study was conducted with 30 U.S. young adults in order to check the validity of each survey instrument and the layout of the survey prior to data collection. Measurement items used in this study were checked for reliability through Cronbach's alpha. As shown in the Table 3, all measurement items were found to be reliable with Cronbach Alphas ranging from .77 to .90.

PLACE TABLE 2 & 3 ABOUT HERE

Results

Descriptive Analysis

A total of 327 survey responses were obtained from the total of 907 students who were invited to participate in the survey. Among them a total of 23 incomplete responses were removed. As a result, a final sample size of 304 was used to test the hypotheses. Therefore, the survey response rate was 33.5%. Among 304 responses, 238 (78.3%) were female and 66 (21.7%) were male students and most of them (98%) were in their ages between 18 to 24. Anglo Americans comprised of most of the sample with 254 participants (83.6%), followed by Asian Americans (5.6%), African Americans (5.3%), Hispanics (4.9%), American Indian or Alaska native (0.6%; Table 3).

To answer the RQ1, basic descriptive statistics (e.g. frequency analysis) was used. As shown in the Table 4, among 304 survey respondents, 283 (93.1%) used mobile payment services previously and they use it on average of 9.3 times per month. The most frequently used mobile payment service among respondents was Venmo (83.6%) followed by the Starbucks mobile app payment (31.9%), Apple Pay (11.2%), Google or Samsung Pay (2.7%), and others (8.9%). Among the total of 283 mobile payment service users, 37.8% said that they started to use

their first mobile payment service in the last 4-6 months followed by more than 1 year (28.6%), 7 months to 1 year (17.5%), 1 to 3 months (7.6%), and less than 1 month (1.6%).

PLACE TABLE 4 ABOUT HERE

Hypotheses Testing

The current study employed multiple regression to test the relative importance of independent variables on the dependent variable. As shown in the table 6. The regression model was found to be significant for predicting intention to use mobile payment services (R^2 = .52, F (8, 295) = 40.45, P < .001). Several tests were performed to test the assumptions for multiple regression. Durbin-Watson statistics test (d = 1.94) confirms that no first-order linear autocorrelation exists. The plot analysis suggests a normal distribution and linear relations between dependent variable and independent variables. Lastly, multicollinearity was not found because the variance inflation factors are below 2.6 for all independent variables. Positive and significant relationships were found between performance expectancy and behavioral intention (H1 supported), social influence and behavioral intention (H3 supported), compatibility and behavioral intention (H4 supported), knowledge and behavioral intention (H5 supported), trust and behavioral intention (H6a supported). Among different predictors of intention to use mobile payment services, performance expectancy was found to be the strongest predictor of behavioral intention (*beta* = .34, P < .001), followed by knowledge (*beta* = .25, P < .001), trust (*beta* = .17, P < .01), compatibility (*beta* = .15, P < .05), and social influence (*beta* = .09, P < .05). However, effort expectancy (H2 not supported), risk (H4b not supported), and relative advantage (H7 not supported) were not found to be significant predictors of intention to use mobile payment services.

PLACE TABLE 5 ABOUT HERE

Discussion

This study intended to explore consumer acceptance and the current status of mobile payment service in the U.S. Based on previous literature, research hypotheses were developed and tested via samples collected from U.S. college students who are active users of mobile payment services. Interestingly, MP2P services (e.g. Venmo) was revealed as the most popular mobile payment service among young individuals followed by MIP services (e.g. Starbucks app) and MPP (e.g. Apple Pay). This indicates that mobile payment services that utilize individuals' social networks are more frequently used by young individuals than other types of mobile payment services. Concurrent with previous studies, the empirical findings from this study suggested that individuals' intentions to adopt mobile payment services are largely determined by their perceptions of effort expectancy, social influence, compatibility, knowledge, and trust of mobile payment services. Especially, performance expectancy of mobile payment services was proven as the most important factor to predict individuals' adoption of mobile payment services (Musa et al. 2015; Koenig-Lewis et al. 2015; Liébana-Cabanillas et al. 2014; Slade et al. 2015; Tan et al. 2014; Teo et al. 2015). That being said, marketers and advertisers of mobile payment services should focus more on highlighting the usefulness of the service to its users and prospects to increase mobile payment services usage. For example, MP2P services like Venmo have already gained popularity among young individuals in the U.S. by providing useful ways of transferring money among friends. Additional analyses of our survey data also provide support for this result. Independent sample t-tests of MP2P service users and non-users showed that MP2P users showed higher level of performance expectancy ($M = 3.55$, $t = 2.10$, $P < .001$) and relative advantage ($M = 3.34$, $t = 3.32$, $P < .001$) of the mobile payment service than non-users of MP2P services ($M_{\text{performance expectancy}} = 3.48$, $M_{\text{Relative advantage}} = 3.04$). That being said, advertising

campaign of the mobile payment services should highlight the usefulness of the mobile payment service using social media where they can utilize individuals' words of mouth.

Individuals' knowledge about how and where to use mobile payment services was found to be the second strongest predictors of intention to adopt mobile payment services. As there are different types of mobile payment service available, individuals' understandings of the different types of mobile payment services and its usage is important predictors of individuals' adoption of mobile payment services. Specifically, mobile payment services require a certain level of technology efficacy. For example, individuals must understand how to install mobile payment service apps, where to use it, or input their credit card information on mobile devices before its first usage. Therefore, individuals' knowledge about how to and where to use mobile payment services are detrimental to the success of mobile payment services. Marketers and advertisers can utilize the importance of knowledge on individuals' intentions to use mobile payments services to develop better marketing and advertising strategies. For example, many mobile proximity payment service providers (e.g. Apple Pay) are placing a sign at the entrance of retail stores or on the credit card machines to increase individuals' knowledge about mobile payment services is accepted in the retail stores. In addition, providing incentives to mobile payment service users may increase motivation to try the mobile payment services and gain better knowledge about the service. For example, marketers can provide exclusive discount offer to mobile payment service users or provide exclusive promotional offers to users who refer mobile payment service to their peers.

Concurrent with previous studies (Slade et al. 2015; Yang et al., 2012), this study confirms the effect of trust, social influence, and compatibility on behavioral intention of mobile payment services. Individuals' perception of mobile payment services as a trustworthy payment

method is an important predictor of intentions to adopt the service. In addition, individuals' perceptions of mobile payment as compatible means of their lives and social influence was found to increase individuals' chances to adopt mobile payment services. Specifically, marketers and advertisers can utilize the importance of social influence to increase the level of trust and compatibility of mobile payment services while decreeing its risk concerns among young adults. As suggested by previous studies (Koenig-Lewis et al. 2015; Liebowitz and Margolis 1994; Slade et al. 2015), peer influence is particularly important for young individuals in their decision-making process. Use of mobile payment services are often visible by others because it is often used in public or social context where individuals observe each other's behaviors and try to adopt their behaviors (Koenig-Lewis et al. 2015). Marketers and advertisers should identify the opinion leaders or innovators who help spread the positive buzz about the benefits of mobile payment services. Increased social influence among individuals also help them to reduce the feeling of uncertainty while increasing their feeling of mobile payment services as a more trustworthy and fitting with their life styles.

Interestingly, the results from this study failed to confirm the role of efforts expectancy on predicting individuals' adoption of mobile payment services. One possible reason for this result is likely to be related to the young individuals' overall high level of technology self-efficacy ($M_{\text{Effort Expectancy}} = 3.95$ SD = .56). The majority of respondents in this study are already users of mobile payment services who possesses high level of knowledge about the mobile payment services through their own experiences. Regardless of its usefulness and advantages compare to the conventional payment forms, the relative advantage of mobile payment is still not regarded as an important factor influencing individuals' behavioral intentions. This might be caused from the cumbersome requirement of inserting credit card for payment due to security

requirement of the current mobile proximity payment service users. Specifically, retailers using credit card chip technology still require MPP service users (e.g., Apply Pay users, Samsung Pay users) to sign and confirm their transactions on credit card machine instead of finishing their transactions by simply waiving their mobile devices at credit card machines. This cumbersome requirement for mobile proximity payment service users deprives the relative advantages of MPP service (i.e. easier and faster than using credit card) over its precursors (e.g. credit card or cash). This also implies that advertising campaigns of the mobile payment services should highlight some benefits or usefulness of mobile payment services that will overcome this cumbersome extra requirement of mobile payment services in the U.S.

Finally, this study has some theoretical contributions. Results from this study confirm the validity of UTAUT in the context of young U.S. adults who are regarded as innovators or early adopters of mobile payment services. Regardless of its usefulness of understanding consumer behavior in technology mediated persuasion, the UTAUT has not been widely used in advertising research compare to its predecessors (e.g. Theory of Planned Behavior, Technology Acceptance Model, Diffusion of Innovations). Although mobile payment service itself is not an advertising medium, it is an important technology to help marketers and advertisers to measure the effectiveness of cross media advertising campaigns by providing various consumer payment related big data. Therefore, the findings from this study will help marketers and advertisers to predict and assess the advertising effectiveness in the new media environments. In addition, results from this study suggest the need for extending the UTAUT by finding the important roles of two additional variables (i.e. trust and knowledge) to predict individuals' behavioral intentions.

Limitations and Future Research

As with all research, this study has several limitations. Given the fact that adoption rate of mobile payment services is still higher among younger individuals than older counterpart in the U.S. (eMarketer 2018a & 2019; O'Malley 2016), using student samples for this research was appropriate. However, use of homogeneous group (e.g. student samples) may limits the generalizability of the result from this study to the entire U.S. population. In addition, the high popularity of mobile peer-to-peer payment (e.g. Venmo) in this research might be caused by characteristics of young generations who are more sensitive about their peer relationships. Considering the various types of mobile payment services available in the U.S., future research should collect the sample from more diverse groups of the U.S. population to enhance the generalizability and external validity. Such improvement will help future research to explore the influence of demographic factors on behavioral intention to adopt mobile payment services.

Regardless of its increasing popularity and importance among marketers and advertisers, there has been only limited attempts to investigate the adoption of mobile payment services among the U.S. users (Dewan & Chen 2005; Garrett et al. 2014; Shin 2010). With this aspect, the findings from this research provides some important insights about current users of mobile payment services in the U.S. to academic researcher and practitioners. However, since the majority of respondents in this study are the current users of mobile payment services (93.1%), this study is limited to provide a comparative analysis of nonusers and users' perceptions of mobile payments services. Therefore, future research needs to collect the data from more diverse samples to explore the differences among users and nonusers of mobile payment service.

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TABLE 1

TYPES OF MOBILE PAYMENT SERVICES AVAILABLE IN THE U.S.

Types	How it works	Examples	Usages and Benefits	Limitations
Mobile Proximity Payments (MPP)	Use credit or debit card information stored on mobile devices to make transaction wirelessly, often using Bluetooth or NFC technology	Apple Pay Samsung Pay	To pay for shopping both online and offline purchases. No need to swipe or insert card to the credit card terminal	Only available on the credit card terminals accept contactless payment Risk of losing credit card information when mobile device is hacked
Mobile peer to peer payments service (MP2P)	Send and receive money via mobile application or messenger services between users. MP2P service provider is a middle between financial institution and users	Venmo, Square cash, Facebook payment	To send, request, and receive money among friends. Enable to split payment among friends and coworkers	Only works when both parties (sender and receiver) installed the mobile apps. Must have bank account or credit card to use
Mobile In-App Payments (MIP)	Use a mobile app barcode that stores prepaid card information to pay for products and services in a specific retail chain	Starbucks mobile card app Chick-Fil-A mobile app	To pay for shopping both online and off line Less risk of losing personal financial information Ability to track loyalty points	Can be used in Proprietary stores (e.g. Starbucks store) only Merchant need a separate barcode reader to read the prepaid card information

TABLE 2

DESCRIPTIVE STATISTICS OF KEY VARIABLES (N=304)

Variables	Mean	SD	Alpha	Measurement scale	# of items
Performance Expectancy	3.78	.71	.81	5-pt Likert	3
Effort Expectancy	3.95	.56	.90	5-pt Likert	4
Social Influence	3.13	.71	.85	5-pt Likert	3
Compatibility	3.68	.71	.77	5-pt Likert	3
Knowledge	3.49	1.02	.95	5-pt S.D.	3
Perceived Risk	2.56	.82	.84	5-pt Likert	3
Trust	3.20	.78	.84	5-pt Likert	3
Relative Advantage	3.34	.67	.86	5-pt Likert	3
Behavioral Intention	3.30	1.01	.87	5-pt Likert	3
Mobile Monthly Payment Usage	9.31	8.41	N/A	Open-ended	1

TABLE 3

DEMOGRAPHIC PROFILE OF THE SAMPLE (N=304)

Demographic	Group	Frequency	Percent
Gender	Male	66	21.7
	Female	238	78.3
Age	18-24	299	98.4
	25-34	3	1.0
	Over 35	2	0.7
Income Level	Less than $24,999	62	20.4
	$25,000-$49,999	22	7.2
	$50,000-$74,999	23	7.6
	$75,000-$99,999	39	12.8
	$100,000-$149,999	58	19.1
	Over $ 150,000	100	32.9
Ethnicity	Anglo American	254	83.6
	African American	16	5.3
	Asian American	17	5.6
	Hispanic	12	4.9
	American Indian or Alaska Native	2	0.6

TABLE 4

DESCRIPTIVE STATS OF KEY VARIABLES

	Frequency	Percentage
Mobile Payment Service Experience		
Yes	283	93.1
No	21	6.9
Length of mobile payment service usage		
Less than 1-moths	5	1.6
1-3 months	23	7.6
4-6 months	115	37.8
7mo – 1yrs	53	17.5
More than 1 year	87	28.6
Never used	21	6.9
Type of Mobile Payment Service Used (check all that applies)		
Venmo	254	83.6
Starbucks App	97	31.9
Apple Pay	34	11.2
Google Pay	6	2.0
Samsung Pay	2	0.7
Others (Panera, Chick-Fil-A, Visa mobile)	27	8.9

TABLE 5

MULTIPLE REGRESSION ANALYSIS FOR PREDICTING INTENTION TO USE MOBILE PAYMENT SERVICE (N =304)

	Regression Coefficient (b)	**Standardized regression coefficient (β)**	***t***
Constant	-.99		
Performance Expectancy	.48	.34	**4.68*** **
Knowledge	.24	.25	**4.65*** **
Trust	.23	.17	**3.09** **
Compatibility	.21	.15	**2.18***
Social Influence	.13	.09	**2.15***
Effort Expectancy	-.05	-.03	-.76
Relative Advantage	-.05	-.04	-.69
Perceived Risk	.03	.02	.37
R^2	**.52**		
F	**40.45*** **		

*Significant at the .05 level. ** Significant at the .01 level. ***Significant at the .001 level.

APPENDIX A
MEASUREMENT ITEMS

Performance Expectancy (adapted from Slade et al. 2015)

- PE1: I would find mobile payment service useful in my daily life
- PE2: Using mobile payment service would help me accomplish things more quickly
- PE3: Using mobile payment service might increase my productivity

Effort Expectancy (adapted from Slade et al. 2015)

- EE1: Learning how to use mobile payment service would be easy for me
- EE2: My interaction with mobile payment service would be clear and understandable
- EE3: I would find mobile payment service easy to use
- EE4: It would be easy for me to become skillful at using mobile payment service

Social Influence (adapted from Yang et al. 2012)

- SI1: People who are important to me think I should use mobile payment service
- SI2: People who influence my behavior think that I should use mobile payment service
- SI3: People whose opinion I value prefer that I should use mobile payment service

Compatibility (adapted from Pham and Ho 2015)

- Comp1: Using mobile payment service would be compatible with my lifestyle
- Comp2: Using mobile payment service would be fit well with the way I like to purchase products and services
- Comp3: I would appreciate using mobile payment service instead of alternative modes of payments (credit/debit card, cash)

Knowledge (adapted from Gurhan-Canli 2003)

- Know1: My knowledge of where to use mobile payment service is… (Poor-----Good)
- Know2: My knowledge of how to use mobile payment is (Inferior ----- Superior)
- Know3: My knowledge of how to use mobile payment is (Weak-----Strong)

Trust (adapted from Slade et al. 2015)

- Trust1: I feel mobile payment service to be reliable
- Trust2: I feel mobile payment service to be secure
- Trust3: I believe mobile payment service are trustworthy

Risk (adapted from Slade et al. 2015)

- Risk1: I feel totally safe providing personal private information over mobile payment service
- Risk2: I am worried about using mobile payment service because other people may be able to access my account (R)
- Risk3: I feel secure sending sensitive information across mobile payment service

Relative Advantage (adapted from Yang et al. 2012)

- RA1: Mobile payment service is more convenient than alternative modes of payments (e.g. credit/debit card, cash)
- RA2: Mobile payment service is more efficient than alternative modes of payments (e.g. credit/debit card, cash)
- RA3: Mobile payment service is more effective than alternative modes of payments (e.g. credit/debit card, cash)

Behavioral Intention (adapted from Slade et al. 2015)

- BI1: I intend to use/try mobile payment service in the near future (3-6 months from now on)
- BI2: I will always try to use mobile payment service in my daily life
- BI3: I plan to use mobile payment service frequently

03

Message Fatigue Caused by Message Framing of Anti-Smoking Campaigns : Focus on Psychological Distance in Construal Level Theory

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Running Head: Anti-smoking Campaign Message Fatigue

Message fatigue caused by message framing of anti-smoking campaigns: Focus on psychological distance in construal level theory

Abstract

This study examines the effects of temporal distance and social distance on message fatigue. Using a 2 × 2 between-subjects experiment, findings showed that with distant temporal distance (i.e., 10 years), anti-smoking message focusing on a near social distance (i.e., me) significantly reduced tedium message fatigue than a distant social distance (i.e., others). However, with near temporal distance (i.e., 1 year), anti-smoking message focusing on a distant social distance (i.e., others) significantly reduced tedium message fatigue than a near social distance (i.e., me). Also, mediating role of susceptibility in the relationship between message fatigue and intentions to quit was tested. Tedium message fatigue led to increased susceptibility to a disease and subsequently perceived susceptibility led to increased intentions to quit smoking.

Keywords: anti-smoking, message fatigue, social distance, temporal distance, susceptibility

Message Fatigue Caused by Message Framing of Anti-smoking Campaigns: Focus on psychological distance in construal level theory

Introduction

Many public health experts have been studied the dangers of cigarette smoking, since the Surgeon General's report (SGR) first published that cigarette smoking led to the deleterious influence on public health in 1964 (Alberg, Shopland, & Cummings, 2014). Specifically, in terms of health communication field, educational efforts made by scholars and practitioners have enabled anti-smoking campaigns to be more effective via message types and communication channels. Throughout efforts of interventions and preventions of various smoking tobacco control efforts, such as anti-smoking campaigns, the smoking rate has gradually decreased over the past decades (Alberg at al., 2014; So & Popova, 2018). Given the importance of anti-smoking campaigns for public health, it is continuously noteworthy to investigate how to make better campaigns.

The core message of anti-smoking campaigns is to make people quit smoking, having continuously been exposed to individuals over the prolong period. Anti-smoking campaigns continued exposure for a long time has negative features as well, such as the unintended effects, especially message fatigue which is one of the backfire effects caused by excessive exposure. Many researchers, however, have more focused on how to make positive ways to communicate on their messages in anti-smoking campaigns, but they have focused less attention to what features have a negative impact on the campaigns.

Specifically, message fatigue is not the new concept in health communication, but it has been overlooked in campaign fields for years. Considering of the fact that some smokers, who

even recognized the drawbacks of smoking by anti-smoking campaigns, continued smoking (Pechmann & Knight 2002), it is important to know that why the persuasion effects of anti-smoking campaigns were ignored and less effective than those campaigners thought. That is, the understanding of the negative impact, such as message fatigue plays a pivotal role in making better campaigns. Therefore, the aim of this current study is empirically to investigate what the best combination of message types is to reduce message fatigue based on psychological distance stemmed from Construal Level Theory (CLT) developed by Trope and Liberman (2010). Moreover, this study is to further examine the relationship between message fatigue and practical behavior intention to quit smoking and the mediation effect of perceived susceptibility.

Literature Review

Psychological distance in Construal Level Theory (CLT)

Construal Level Theory (CLT) inquiries into the abstractness of individuals' mental processes depending on psychological distance (Fiedler, 2007; Park & Park, 2016). According to CLT, individuals regard an event with a distant person, in a distant future time or place as a more abstract one as a higher-level construal process, whereas considering an event with a near person, in a near future time or place to be a more concrete one as a lower-level construal process (Trope and Liberman, 2010).

Psychological distance is regarded as the significant explanation factor of how people activate the level of construal of what they consider (Trope and Liberman, 2010). Its concept has been used in a lot of academic fields, including Marketing (e.g., Dow, 2000), Psychology (e.g., Trope & Liberman, 2003; Trope, Liberman, & Wakslak, 2007; Trope & Liberman, 2010), Public Relation (e.g., Park & Park, 2016), Health communication (e.g., Kim & Kim, 2018) and so on.

The concept of temporal distance referred to the factor influencing on people's decisions based on the event time (Liberman &Trope, 1998). Before using the concept of the extended psychological distance in CLT, temporal distance employed only dimension for psychological distance, and early model of psychological distance in CLT was also focused more on temporal distance (Nan, 2007; Liberman &Trope, 1998). Follow-up studies (e.g., Trope & Liberman, 2003; Trope & Liberman, 2010; Trope, Liberman, & Wakslak, 2007) extended the temporal distance to psychological distance via including the concepts of the spatial distance, social distance, and hypotheticality.

Trope and Liberman (2010, p. 4) mentioned that psychological distance is the recognition of when and where an event occurred as well as to whom it occurs and whether it occurs. That is, based on CLT, events with larger psychological distance are less attractive to people (Park & Park, 2016; Trope & Liberman, 2010). This is because the level of value people assigned to events was decreased over time, which explained the lack of positive responses toward distant campaigns (Park & Park, 2016, p.79). In other words, people did not regard an event with large psychological distance as an important one, but irrelevant one, which is likely to be considered meaninglessness when it exposed continuously.

Message fatigue

Message fatigue on anti-smoking campaigns plays a significant role in hampering of effects on anti-smoking campaigns since decades of health messages on anti-smoking have been delivered. However, few researchers studied message fatigue in health message domains (e.g., anti-smoking campaigns) due to the ambiguous definition of message fatigue. So et al. (2017) defined message fatigue which is one of the unintentional effects as an aversive motivational state of exhaustion and boredom beyond the reference point.

Message fatigue includes four sub-dimensions: perceived overexposure, perceived redundancy, exhaustion, and tedium. First, perceived overexposure is defined that a series of similar messages exceeds the desired level. Second, perceived redundancy is that a series of related messages are duplicated. Third, exhaustion is defined as an integrated status of the feeling both mentally burned-out and worn-out due to the message repetition. Lastly, tedium is defined as a lack of interest or enthusiasm status toward messages provided by a given topic (So et al., 2017, p. 8).

So and Popova (2018) examined message fatigue on anti-smoking depending on a profile of individuals. Specifically, they categorized participants as a smoking status, and finding the smoking status influence message fatigue. That is, smokers showed the highest message fatigue in this study. Based on this study, this study more focuses on current smokers.

Temporal distance on message fatigue

As a basic concept of psychological distance in CLT, temporal distance has been studied in health campaigns (e.g., anti-smoking campaigns) to examine how temporal distance influences on persuasiveness powers of campaigns (e.g., Chandran & Menon, 2004; Kim & Kim, 2018; Nan, Zhao, Yang & Iles, 2015; Zhao, Nan Iles, & Yang, 2015). One of the methods to delay message fatigue is message variation which plays a pivotal role in health communication context, such as anti-smoking campaigns (So et al., 2017). According to Chandran and Menon (2004), the psychological effects of temporal distance could be translated to temporal frames, and temporal framing influenced on the message perceptions and persuasiveness. That is, people who were exposed a near temporal distance frame showed higher risk perceptions and concern than those who were exposed a distant temporal distance frame.

In the same vein, message fatigue had a negatively correlations with persuasiveness powers (e.g., behavioral intention (Kim & So, 2018) and attention (So et al., 2017)) and have a positive influence on unintended effects (e.g., psychological reactance (Kim & So, 2018; So et al., 2017), desensitization (So et al., 2017), and inattention (Kim & So, 2018; So et al., 2017)). For instance, Kim & So (2018) analyzed how message fatigue toward health messages led to persuasive outcomes. The result showed message fatigue had negatively corelated with intentions to adopt four recommended messages on weight-management.

The present study on anti-smoking campaigns reflects the findings based on the streams of previous studies that a near temporal distance frame had a higher persuasiveness power than a distant temporal distance frame, and low message fatigue had a higher persuasiveness power than high message fatigue. Considering of both relationships between temporal distance and persuasiveness power, and between message fatigue and persuasiveness power, near temporal distance frame will show low message fatigue on anti-smoking campaigns. Therefore, the current study examines the relationship between temporal distance and message fatigue on anti-smoking campaigns by setting the following hypothesis in a practical setting.

H1: Near temporal distance will lead to decreased message fatigue on anti-smoking campaigns than distant temporal distance.

Social distance on message fatigue

The concept of the social distance as one of the psychological distances affects the process that people internally interpret the same information or event (Nan, 2007). CLT has still more focused on temporal distance, but many researchers mentioned that social distance also gave rise to distinct psychological interpretation to the same event differently (Chandran & Menon, 2004; Nan, 2007; Trope & Liberman, 2010). Social distance came from previous

research on self-other differences, which reflected differences in knowledge. For instance, people are more familiar with themselves than others when encountering a certain situation and experiencing behavioral changes. In an aspect of CLT, a third-person perspective was regarded as more distance than a first-person perspective (Trope & Liberman, 2010, p.12).

Social distance influences on evaluation and preferences of objects (Trope & Liberman, 2010). In other words, people make their own judgments differently depending on the difference of the social distance: in-group vs. out-group and selves vs. others (Ebert, 2005; Nan, 2007). For instance, Nan (2007) found the empirical effect of social distance on issue judgment of health-related campaigns. That is, participants who were exposed to the distant condition (an average of undergraduate students) more considered that the students needed hepatitis C test than those who were exposed to the near condition (their best friend).

In anti-smoking campaigns, the campaign plot is made up of smoker-centered or others-centered messages. In other words, some messages are concentrated on smokers' direct health issues, on the other hand, others are concentrated on second-hand smokers' indirect health issues. Based on social distance in CLT, different interpretations should be elicited depending on how messages are concentrated on (selves vs. others).

In the present study, we predict, alike temporal distance, social distance also has the same stream relationship between social distance and persuasiveness power, and between message fatigue and persuasiveness powers based on previous studies. Thus, near social distance frame will show low message fatigue on anti-smoking campaigns. The current study, therefore, examines the relationship between social distance and message fatigue on anti-smoking campaigns by setting the following hypothesis in a practical setting.

H2: Near social distance will lead to decreased message fatigue on anti-smoking campaigns than distant social distance.

Interaction effect on message fatigue

According to CLT, each perceived distance affects other perceived distances on other subdimensions (Trope, Liberman, 2010). In the same vein, Chandran and Menon (2004) mentioned the significance of interaction between different dimensions of psychological distance, finding the moderation effect between temporal and social distance on self-risk perception. Moreover, Park and Park (2016) found the interaction effects between temporal and spatial distance on their CSR campaigns study, and Han and Gershoff (2018) found the interaction effects between temporal and spatial distance in their study as well.

According to Kim, Zhang, & Li (2008), interaction effects between temporal and social distance was found in their consumer evaluation research. Specifically, participants who were exposed to both near temporal and social distance condition had the closest perceived distance than those who were exposed to other conditions. That is, when the combination of other dimensions of psychological distance has the same direction, the total perceived distance increases.

The current paper predicts, the interaction effect between two dimensions of psychological distance also has the same stream relationship alike each distance of psychological distance. Considering the both relationships between distance and persuasiveness powers, and between message fatigue and persuasiveness powers, the combination between near temporal distance frame and near social distance frame will show low message fatigue on anti-smoking campaigns. Therefore, the current study examines the relationship by setting the following hypothesis in a practical setting.

H3: There will be an interaction effect of temporal distance (near vs. distant) and social distance (me vs. others) on message fatigue on anti-smoking campaigns. With near temporal distance, near social distance will lead to decreased message fatigue than distant social distance.

Message fatigue and perceived susceptibility

The relationship between message fatigue and perceived susceptibility was rarely discussed in the literature. The finding of previous studies was that message fatigue was related to negative factors influencing on behavioral intention. The conceptual definition of message fatigue developed by So et al. (2017) more focused on excessive exposure. They analyzed the relationship between external factors, such as health locus of control and health literacy, not showing significant association with them in their study 1. In their study 2, they analyzed the association with attention and message elaboration, showing the significant relationship with them. The follow-up study (Kim & So, 2018) analyzed the mediation effect of reactance and inattention between message fatigue and behavioral intention.

The current study adds the concepts of perceived susceptibility. Perceived susceptibility is beliefs on the possibility of getting a disease or a condition (Champion & Skinner, 2008). According to Dai and Hao (2016), exposure to e-cigarette advertisements was positively related to susceptibility on e-cigarette use, which means that the positively relationship between the two factors in this study was likely to show because of exposure within the reference point, not because of exposure beyond the reference point. However, message fatigue is caused by excessive exposure.

Considering the streams of both the negative relationship between message fatigue and persuasiveness powers, and the positive relationship between perceived susceptibility and persuasiveness powers, the current study predicts the negative relationship between message

fatigue and perceived susceptibility. Therefore, the current study assumes the relationship between two factors by setting the following hypothesis in a practical setting.

H4: Message fatigue on anti-smoking campaigns will lead to decreased perceived susceptibility to a disease.

Perceived susceptibility and behavioral intention

Perceived susceptibility employed various theoretical concepts, such as Health Belief Model (HBM), the Extended Parallel Process Model (EPPM), and so on. Champion and Skinner (2008) mentioned perceived susceptibility was regarded as the strongest predictor of the health behavior prevention and the highest internal consistency reliability on preventive behavior on HBM. In other words, perceived susceptibility has a positive impact on preventive behavior.

According to Kim and Kim (2018), Perceived susceptibility to the health risk mentioned in the campaign messages enabled recipients to conform to the targeted message in anti-smoking campaigns. They also found that perceived susceptibility was positively related to a behavioral intention.

The current paper predicts the positive relationship between perceived susceptibility and the behavioral intention based on previous studies. Therefore, the current study examines the relationship by setting the following hypothesis in a practical setting.

H5: Perceived susceptibility to a disease will lead to increased intentions to quit smoking.

Message fatigue, Perceived susceptibility, and behavioral intention

In the study of Kim and So (2018), the mediation effect of reactance and inattention between message fatigue and behavioral intention was found. Specifically, the study analyzed the positive relationship between message fatigue and the negative relationship reactance and between reactance and a behavioral intention. Through these two results, they found the indirect

effect of reactance between two factors. Through the same process, the indirect effect of inattention also found.

Based on the same logic, the current study predicts the relationships between message fatigue and perceived susceptibility and between perceived susceptibility and a behavioral intention. That is, perceived susceptibility is likely to play a significant role in the association between message fatigue and a behavioral intention. Therefore, the current study examines the relationship by setting the following hypothesis in a practical setting.

H6: Perceived susceptibility to a disease will significantly mediate the relationship between message fatigue and intentions to quit smoking.

Methods

Participants

This study was conducted online-experiment with 608 participants who had with privacy agreement via Amazon Mechanical Turk (Mturk). Participants were residents of the United States over the age of 18 and only smokers. Participants received a monetary reward for their participation. 113 participants were excluded from the sample for the survey because they were not able to pass the test which was for screening out random clicking. In all, 495 Participants (245 males (49.5%) with mean age = 36.34, 248 females (50.0%) with mean age = 40.12, and 2 others (.4%) (e.g., Non-binary) with mean age = 32) were employed. A majority was White (77.6%, N = 384), followed by Black (9.9%, N =49), Asian (8.3%, N = 41), Others (e.g., mixed; 3.4%, N = 17), American Indian or Alaska Native (.6%, N = 3), and Native Hawaiian or Pacific Islander (.2%, N = 1).

Design and procedure

A 2 (temporal distance: near/distant) x 2 (social distance: me/others) factorial design was used to examine the effects of psychological distance within message frames on message fatigue on anti-smoking campaigns, and the effects of message fatigue on the intention to quit smoking. First, participants were asked answers the questions for pre-existing knowledge of the heart attack which smoking-related disease is. And then, participants were randomly assigned one of four conditions, watching the anti-smoking poster over more than 10 seconds. Finally, questions regarding message fatigue, perceived susceptibility, intention, demographic information were asked participants to answer.

Manipulation of temporal distance and social distance

For the near temporal message, 'in a year' and "imminently" were emphasized. Conversely, the distant temporal message was emphasized 'in ten years' and "gradually." For the socially near (me) message, "yourself" and "smoking" were described, whereas the socially distant message (others) was emphasized "other people" and "second-hand smoking." Each condition has the same words and the same visualization, excluding emphasized words (see figure 1 and 2).

Measures

Message fatigue on anti-smoking campaigns. 17 items from Message Fatigue Scale developed by So et al., (2017) were measured for message fatigue on anti-smoking campaigns. Message fatigue has four sub-dimensions: perceived overexposure, redundancy, exhaustion, and tedium. Items included: "I have heard enough about how important it is to stay away from cigarette" (overexposure); "After hearing smoking cessation campaigns for years, messages on anti-smoking seem repetitive" (redundancy); "I am burned out from hearing that cigarette smoking is a serious problem" (exhaustion); and "Health messages on anti-smoking are boring"

(tedium). 17 questions were measured with a seven-point Likert-type scale with endpoints ranging from “Strongly Disagree” to “Strongly Agree.” Scale reliability was assessed using Cronbach's alpha (M = 4.45, SD = 1.33, and α = .95).

Perceived susceptibility. Perceived susceptibility was measured using three items, adopted from Kim & Kim (2018) modified from The Risk Behavior Diagnosis Scale developed by Witte, Cameron, McKeon, and Berkowitz (1996). Three items included: “I think I am at risk for a heart attack,” “I think it is possible that I will have a heart attack,” and “I think I am susceptible to a heart attack.” All items were measured with a seven-point Likert-type scale with endpoints ranging from “Strongly Disagree” to “Strongly Agree.” Scale reliability was assessed using Cronbach's alpha (M = 3.86 ,SD = 1.65, and α = .93).

Intention to Quit Smoking. Three items developed by Madden, Ellen, and Ajzen (1992) were measured for intention to quit smoking, modified for this study. Three Items included: “I intend to quit smoking,” “I will make an effort to quit smoking,) and “I will try to quit smoking.” All items were measured with a seven-point Likert-type scale with endpoints ranging from “Strongly Disagree” to “Strongly Agree.” Scale reliability was assessed using Cronbach's alpha (M = 5.08, SD = 1.64, α = .98).

Manipulation Check

A pretest was conducted using 83 participants who did not participate in the main experiment. Participants received a monetary reward for their participation. 21 participants were excluded from the sample for the survey because they were not able to pass the test which was for screening out random clicking. In all, 62 subjects participated in the pretest. Temporal distance was measured by asking, “How imminent or distant do you think the likelihood is of the health problem occurring to current smokers?” (1 = very imminent vs. 7 = very distant) and

social distance was measured by asking, “based on the anti-smoking campaign message you read, who will be influenced by the disease?” (1 = me vs. 7 = other people), respectively.

T-tests were conducted for temporal distance (near vs. distant) and social distance (me vs. others) respectively. First, temporal distance was statistically significant ($t(60) = -2.86$, $p < .01$: 1. $M_{near} = 3.07$ and $SD = 1.52$ and 2. $M_{distant} = 4.20$, $SD = 1.55$). Second, social distance was statistically significant ($t(50.35) = -2.94$, $p < .01$: $M_{me} = 3.96$ and $SD = 2.47$ and $M_{others} = 5.65$, $SD = 1.92$). Thus, the results of the t-test were manipulated clearly as we intended (see Table1).

[Insert Table 1 Here]

Result

This study used IBM SPSS and AMOS for testing hypotheses. First, to test the main effects of temporal distance and social distance and the interaction effect on message fatigue on the anti-smoking campaign for **H1**, **H2**, and **H3**, we used two-way analyses of variance (ANOVAs; temporal distance × social distance). Table 2 described for the descriptive statistics for dependent variables. A two-way ANOVA reveal that neither main effect of temporal distance ($F(1, 491) = .08$, $p > .05$ nor social distance ($F(1, 491) = .00$, $p > .05$) had a significant main effect on message fatigue toward the anti-smoking. There was not a significant interaction effect ($F(1, 491) = 2.12$, $p > .05$) (see Figure 1). **H1**, **H2**, and **H3** was not supported (see Table 3).

[Insert Table 2, 3 Here]

[Insert Figure 3 Here]

For a more detailed analysis, we analyzed the main effects of temporal distance and social distance and the interaction effect on four sub-dimensions of message fatigue toward the anti-smoking campaign. In perceived overexposure of message fatigue, the result show neither main effect of temporal distance ($F(1, 491) = .01$, $p > .05$ nor social distance ($F(1, 491) = .00$, p

> .05) had a significant main effect on message fatigue toward the anti-smoking. There was not a significant interaction effect ($F(1, 491) = .38$, $p > .05$) (see Table 3).

In perceived redundancy of message fatigue, the result show neither main effect of temporal distance ($F(1, 491) = .03$, $p > .05$ nor social distance ($F(1, 491) = .06$, $p > .05$) had a significant main effect on message fatigue toward the anti-smoking. There was not a significant interaction effect ($F(1, 491) = .75$, $p > .05$) (see Table 3).

In exhaustion of message fatigue, the result show neither main effect of temporal distance ($F(1, 491) = .21$, $p > .05$ nor social distance ($F(1, 491) = .06$, $p > .05$) had a significant main effect on message fatigue toward the anti-smoking. There was not a significant interaction effect ($F(1, 491) = 1.25$, $p > .05$) (see Table 3).

In tedium of message fatigue, the result show neither main effect of temporal distance ($F(1, 491) = .10$, $p > .05$ nor social distance ($F(1, 491) = .01$, $p > .05$) had a significant main effect on message fatigue toward the anti-smoking (see Table 6). There was a significant interaction effect ($F(1, 491) = 4.82$, $p < .05$: 1. $M_{\text{near and me}} = 4.22$ and $SD = 1.7$, 2. $M_{\text{near and others}} = 3.87$ and $SD = 1.77$, 3. $M_{\text{distant and me}} = 3.93$ and $SD = 1.74$, and 4. $M_{\text{distant and others}} = 4.25$ and $SD = 1.62$) (see Table 3 and Figure 4).

[Insert Figure 4 Here]

To test mediation effects for H4, H5 and H6, structural equation modeling (SEM) using IBM SPSS AMOS was conducted in a path model. Table 4 and figure 5 show significant pathways in the structural model and we confirmed the statistical significance using Maximum likelihood (ML) and bias-corrected bootstrapping with 5,000 subsamples for each path in the model. We particularly utilized the tedium dimension of message fatigue in our mediation model based on the results of H1, H2, and H3.

[Insert Table 4 Here]

[Insert Figure 5 Here]

Overall, the proposed model fit was satisfying based on several fit indices: $\chi 2(59, N = 495) = 94.548$, $p < .01$, root mean square error approximation (RMSEA) = .035 (90% confidence interval [CI]: .021, .048), comparative fit index (CFI) = .994, Non Normed-Fit Index (NFI) = .985 (see Hair, Black, Babin, Jr., & Anderson, 2010; Hu & Bentler, 1999).

Consistent with ANOVAs, the results from AMOS indicated that we fail to capture main effects of social distance and temporal distance on tedium message fatigue. **H1** and **H2** were not supported. Following the results reported earlier, we confirmed significant interactions between social distance and temporal distance on tedium message fatigue ($b = .665$, $SE = .299$, $p = .026$). Thus, **H3** confirmed.

Participants reported increased susceptibility when they perceived greater message fatigue ($b = .212$, $SE = .047$, $p < .001$). This was opposite direction from **H4**. Thus, **H4** was not supported although the path was significant. The study found that there was a significant effect of tedium message fatigue on perceived susceptibility to a heart attack.

Participants reported increased intention to quit smoking when they perceived greater susceptibility to a heart attack ($b = .193$, $SE = .046$, $p < .001$), supporting **H5**.

More importantly, the researcher also found that there were significant mediation effects of perceived susceptibility between the message fatigue and intention to quit smoking (see Table 5), supporting **H6**.

[Insert Table 5 Here]

Perceived susceptibility to a heart attack significantly mediated the effect of interactions of temporal and social distances on intention to quick smoking, $b = .041$, $SE = .015$, 95% CI [.017, .076], $p < .001$ (see Table 5).

Also, this study found significant mediation between interactions of temporal and social distances on susceptibility through tedium message fatigue $b = .141$, $SE = .074$, 95% CI [.023, .320], $p < .05$ (see Table 5).

Discussions

Even though anti-smoking campaigns have played a positive role in the public health, their continued exposure of the campaigns over the prolong time has negative features as well, such as message fatigue caused by excessive exposure. Many researchers have focused less attention to what features have a negative impact on the campaigns. The aim of the current study was to examine how to reduce message fatigue to have better persuasiveness powers of anti-smoking campaigns via message framing based on psychological distance.

First, unlike we predicted, we did not find the differences of message framing based on psychological distance on message fatigue toward anti-smoking campaigns: temporal and social distance. As a previous study with psychological distance mentioned (Nan, 2007), the effect of the message itself may not be shown in a loss frame focusing on a negative consequence. Future study needs to replicate the same study in a gain frame.

One of critical findings in this study was that the interaction effect between temporal and social distance on the tedium dimension of message fatigue toward anti-smoking campaigns was found. That is, when participants who were exposed to the temporally and socially distant message, they showed the highest message fatigue in terms of the tedium dimension.

So et al. (2017) mentioned that perceived overexposure and perceived redundancy are related to the message environment in message fatigue, whereas exhaustion and tedium are related to an audience perceptive response in message fatigue. In the current study, we did not consider differences of media environment influencing on the message environment, and more focused on perceived responses after exposure to the campaigns' message. Thus, tedium dimension in message fatigue might be better fit for this study. Moreover, in the conceptual paper of message fatigue, authors indicated that the tedium dimension showed relatively lower relationships with perceived overexposure and perceived redundancy as well (So et al., 2017). The current finding that the moderation effect between temporal distance and social distance showed only in tedium dimensions unlike of other sub-dimensions in message fatigue might have been likely to reflect this previous finding.

The positive relationship between message and fatigue and perceived susceptibility was found in this paper. Exposure caused better perceived susceptibility and higher intention, but excessive exposure elicit message fatigue. However, even if the message fatigue toward anti-smoking campaigns occur, the absolute amount of exposure is likely to increase equally as much as the message fatigue is raised, which might increase the susceptibility to the campaign. Thus, the positive relationship between message fatigue and perceived susceptibility might occur in this study. This result explains that anti-smoking campaigns over prolong decades have still played a significant role in smoking cessation and the increase in people's perceived susceptibility despite inclining of message fatigue. Thus, anti-smoking campaigns still need for public health. In future studies, finding a reference point at the boundary between overexposure and effective exposure would be an important key strategy for increasing both perceived susceptibility and behavioral intention and eliminating the negative effect.

Another critical finding is the mediation effect of perceived susceptibility between message fatigue on the anti-smoking campaign and the intention to quit smoking. With the mediation roles of reactance and inattention between message fatigue and behavioral intentions (Kim & So, 2018), the finding not only extend earlier studies on message fatigue, but also provide practical suggestions to campaigners and practitioners. To increase intention to quit smoking, they should make people, especially who having message fatigue on anti-smoking campaigns increase their perceived susceptibility to a disease or an event.

This study has several limitations that should be noted. First, the participants in this study was used only smokers who are over 18 years, not non-smokers and quitters. It is not representative of the general population. Also, this study did not deal with adolescences. Future research should need to consider adolescents' message fatigue on anti-smoking campaigns as well as e-cigarette smoking cessation campaigns since the e-cigarette smoking rate have been increasing rapidly to adolescents.

Second, this study only considered temporal distance and social distance in psychological distance. In anti-smoking campaigns, people might have different hypotheticality on smoking-related diseases and possibility on smoking-related diseases. Future study should consider other dimensions of psychological distance and interaction roles.

Third, our online experiment is not the same as the reality because participants could not avoid the anti-smoking campaign provided. However, people even ignore the campaigns and choice a zapping, which could be one of the ways to express their behavioral message fatigue. Future study should add the notion of zapping to make the more similar environment as a reality.

In spite of several limitations, this study provides the theoretical development of message fatigue studies and also fills in the gap of previous studies related to anti-smoking campaigns and

psychological distance based on CLT. Few studies have been attempted to investigate the side effect of campaigns. This study provides that why health campaigns (e.g., anti-smoking campaigns) fail to persuade, suggests a theoretical guideline that researchers studying health campaigns should consider message fatigue, moreover, this study also gives a significant explanation and insight why anti-smoking campaigns need for our society.

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Tables

Table1. T-test results for the manipulation check (temporal distance and social distance).

	Near		Distant			
	M	SD	M	SD	t	*p*
Temporal distance	3.07	.1.52	4.20	1.55	-2.86	.006**
Social distance	3.96	2.47	5.65	1.92	-2.94	.005**

** = p<0.1

Table 2. Descriptive Statistics for Dependent Variables.

Variables	Temporal	Social	*M*	*SD*	*N*
Message fatigue	Near	Me	4.53	1.31	117
		Others	4.35	1.36	124
		Total	4.43	1.34	241
	Distant	Me	4.39	1.37	127
		Others	4.56	1.27	127
		Total	4.47	1.32	254
	Total	Me	4.45	1.34	244
		Others	4.45	1.32	251
Tedium	Near	Me	4.22	1.7	117
		Others	3.87	1.77	124
		Total	4.04	1.74	241
	Distant	Me	3.93	1.74	127
		Others	4.25	1.62	127
		Total	4.09	1.68	254
	Total	Me	4.07	1.72	244
		Others	4.06	1.7	251

Table 3. Two-way ANOVA Summary Table for Four Dimensions of Message Fatigue.

Variables	Source	*df*	*MS*	*F*	*p* value
Composite message fatigue (N = 495, R^2 = .004, adj. R^2 = -.002)	Temporal	1	0.14	0.08	0.78
	Social	1	0.00	0.00	0.97
	Temporal × Social	1	3.73	2.12	0.15
Overexposure (N = 495, R^2 = .001, adj. R^2 = -.005)	Temporal	1	0.01	0.01	0.94
	Social	1	2.69	0.00	1.00
	Temporal × Social	1	0.59	0.38	0.54
Redundancy (N = 495, R^2 = .002, adj. R^2 = -.004)	Temporal	1	0.06	0.03	0.86
	Social	1	0.12	0.06	0.80
	Temporal × Social	1	1.41	0.75	0.39
Exhaustion (N = 495, R^2 = .003, adj. R^2 = -.003)	Temporal	1	0.68	0.21	0.65
	Social	1	0.18	0.06	0.81
	Temporal × Social	1	4.10	1.25	0.26
Tedium (N = 495, R^2 = .010, adj. R^2 = .004)	Temporal	1	0.29	0.10	0.75
	Social	1	0.02	0.01	0.94
	Temporal × Social	1	14.03	4.82	.03*

Note. ANOVA = analysis of variance.
*p < .05

Table 4. Summary of Direct Effects.

IV	DV	*b*	*SE*	C.R.	*p* value
Temporal distance	Perceived fatigue (tedium)	-.293	.213	-1.377	.169
Social distance	Perceived fatigue (tedium)	-.338	.214	-1.158	.115
Temporal x Social distance	Message fatigue	.665	.299	2.221	*
Perceived message fatigue (tedium)	Susceptibility	.212	.047	4.529	***
Perceived message fatigue (tedium)	Quit intention	-.070	.045	-1.547	.122
Susceptibility	Quit intention	.193	.046	4.205	***

Note. Bootstrapping (N=5000) was performed for this analysis. IV = independent variable; DV = dependent variable.
$\chi 2(59, N = 399) = 94.548$, $p < .01$, SRMR = .090, RMSEA = .035 (90% CI: .021, .048), CFI = .994.
***p < .001, * p < .05

Table 5. Summary of Mediation Effects.

IV	M	DV	*b*	*SE*	Lower CI (95%)	Upper CI (95%)	*p* value
Message fatigue (tedium)	Susceptibility	Intention to quit	.041	.015	.017	.076	***
Temporal X Social distance	Message fatigue (tedium)	Susceptibility	.141	.074	.023	.320	.019

Note. Bootstrapping (N=5000) was performed for this analysis. IV = independent variable; DV = dependent variable; M = mediator.
$\chi 2(59, N = 399) = 94.548$, $p < .05$, SRMR = .090, RMSEA = .035 (90% CI: .021, .048), CFI = .994. ***$p < .001$.

Figures

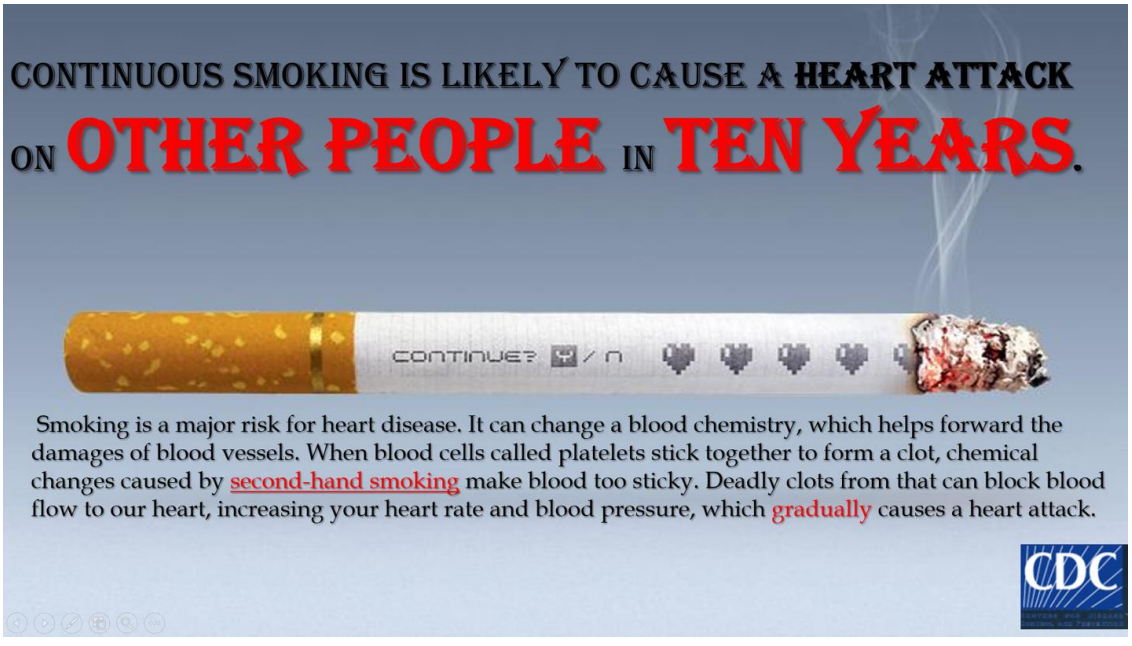

Figure 1. High temporal distance and high social distance condition

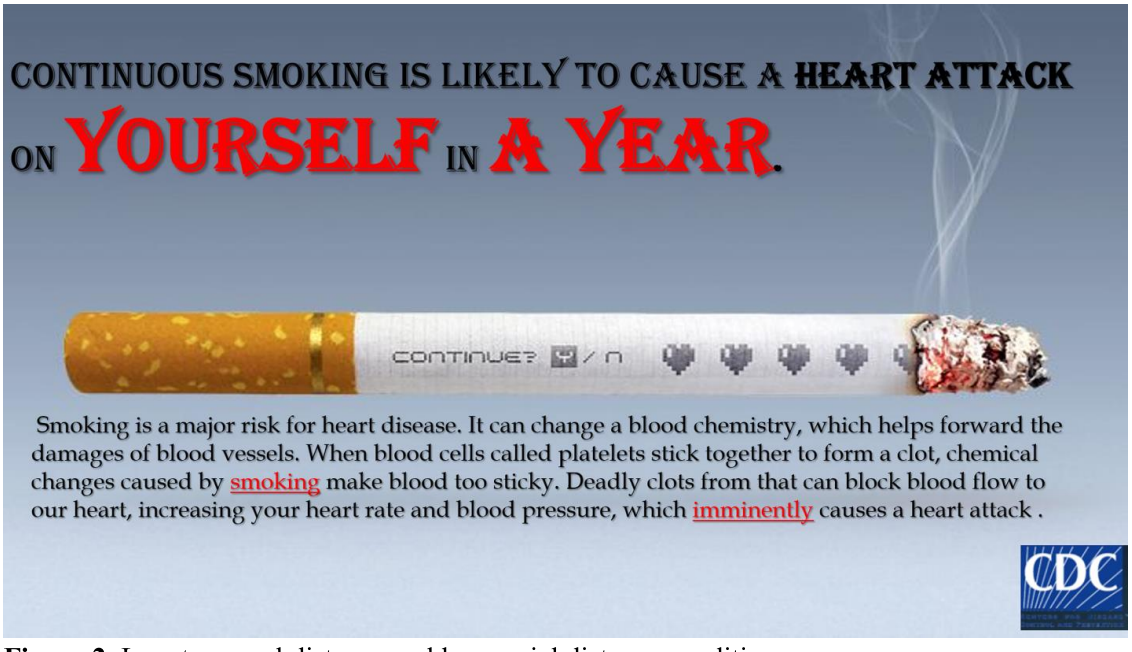

Figure 2. Low temporal distance and low social distance condition.

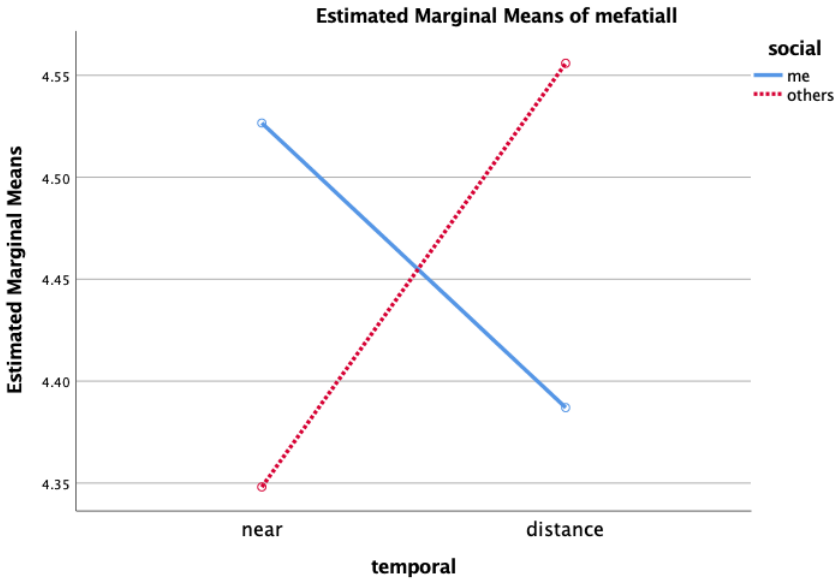

Figure 3. Temporal distance × Social distance on message fatigue.

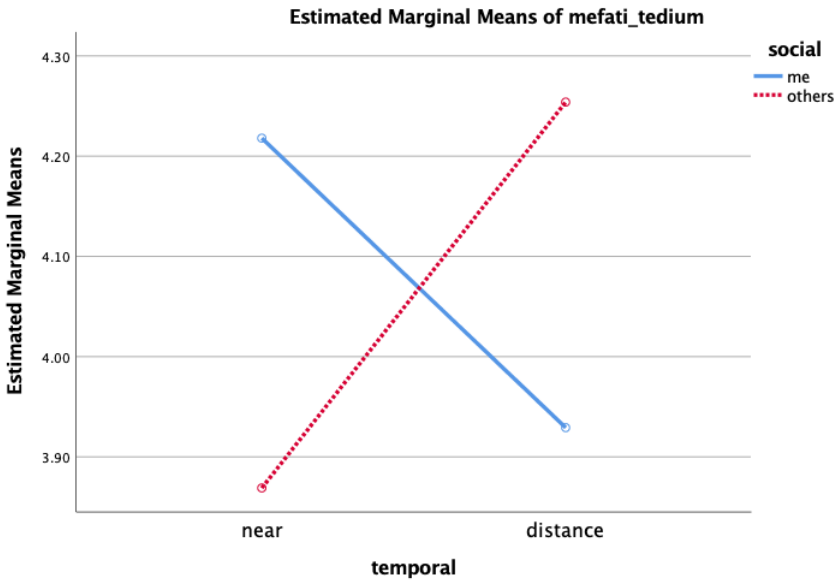

Figure 4. Temporal distance × Social distance on tedium message fatigue.

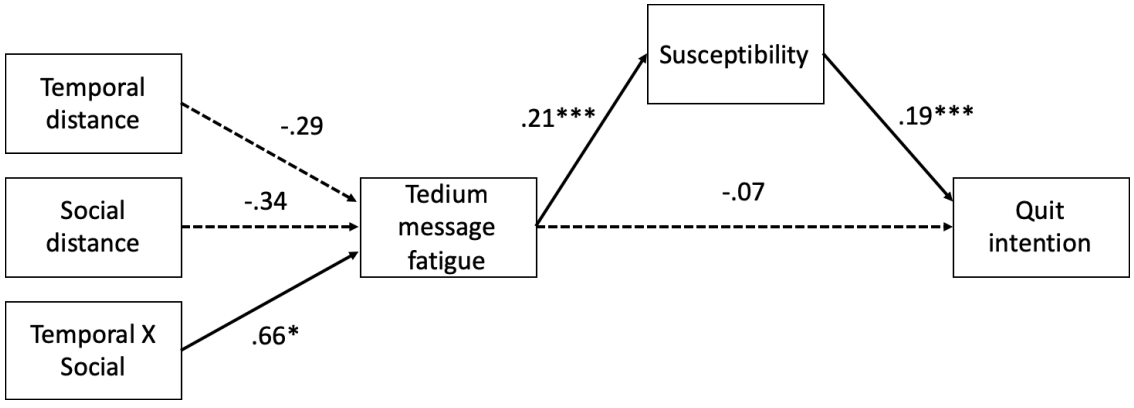

Figure 5. Path model of direct effects.
***$p < .001$; *$p < .05$.

04

Effects of Weight Status : Misperception on Desire and Trials of Weight Control among Overweight and Obese Individuals

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Effects of weight status misperception on desire and trial of weight control among overweight and obese individuals

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Introduction

Overweight/obesity is considered a risk factor for cardiovascular disease, work disability, impaired quality of life and a contributor to decreases in life expectancy and the development of other diseases such as diabetes and gallbladder disease (Bray, 2008; Flegal et al., 2007; Peeters et al., 2003). Although many public health campaigns have been conducted, the prevalence of obesity is continuously increasing. The prevalence of obesity in adults has consistently increased over the past 40 years: from 15.1% in 1976-1980 to 23.3% in 1988-1994, 31.1% in 1999-2002, to 35.3% in 2009-2012 (National Center for Health Statistics, 2014; Wyatt, Winters & Dubbert, 2006). Currently in 2015-2016, the prevalence of obesity in the U.S. among adults was 39.8% in and it was 18.5% among children and adolescents aged 2 – 19 years (Hales, Carroll, Fryar, and Ogden, 2017).

In addition, there were more adults (age ≥ 20) who were overweight or obese (68.7%) than there were adults with normal weight (29.6%) (National Center for Health Statistics, 2014). In this environment, overweight or obese individuals may misunderstand their weight status because the majority of the population does not look much different from them. They may consider their weight as normal, and may not pay attention to weight control campaigns. They may think the campaigns are intended for someone else.

People have different levels of understanding of certain information, which will lead to different levels of attitudes changes and behaviors (Fishbein & Middlestadt, 1989) and different reactions to media portrayals of health issues (Pearl, Dovidio and Puhl 2015). The Transtheoretical Model, a process approach to behavior change, suggests that individuals

modify their health behaviors through a series of stages: precontemplation, contemplation, preparation, action and maintenance (Prochaska & Velicer, 1997). Awareness is crucially required for the contemplation, the second stage of change, and individuals may not move through the subsequent stages without recognition of their weight problem. Misperception of individuals' weight status, which refers to overweight and obese individuals' inaccurate perception (underestimation) on their weight as normal or right, works as a barrier to attitudes and behavior changes. By educating overweight and obese individuals about their accurate weight status, they can realize they are at risk of obesity or are already in a dangerous health situation, which leads to their consideration of behavior changes.

For some time, studies have documented the difference between self-reported weight and measured weight (Duncan et al., 2011; Elgar et al., 2005; Jeffery, 1996). People tend to underreport their body weights, and self-report bias has a significant impact on the accuracy of screening for overweight and obesity. With this reason, body measurement to detect overweight or obesity was suggested as one of the steps to implement a weight control strategy (Bonsergent et al., 2013).

Whereas there have been many studies about predictors of misperception, only a few studies examined the effects of misperception. The present study emphasizes the importance of misperception of individuals' weight status as a barrier to their attitude toward and behavior of weight control. It examines prevalence of misperception of weight status among overweight and obese individuals by using their accurate, not perceived, weights and heights measured by technicians. Then, it investigates how perception (misperception or accurate perception of weight status) and demographic variables such as age, gender, income, education, marital status and ethnicity as well as individuals' weight status (overweight or obese) are associated with individuals' desire and trial to control their weight as these variables are often related with prevalence of obesity. In addition, it tests more specific

effects of perception of weight status by exploring how they differ in different groups or levels of demographics.

Transtheoretical Model

The Transtheoretical Model suggests that individuals modify their health behaviors through a series of stages: precontemplation, contemplation, preparation, action, and maintenance (Prochaska & DiClemente, 1983). Precontemplation is the stage at which there is no intention to change behavior in the near future because individuals do not even think about the issue. Contemplation is the stage in which people are aware that a problem exists and are seriously thinking about overcoming it. Decision (preparation) is the stage that combines intention and behavioral criteria. People in this stage are intending to take action in the next month, and have started to make some changes. Action is the stage in which individuals modify their behavior or environment to overcome their problems and reach certain goals. Maintenance is the stage in which people maintain behavior changes for at least six months.

Awareness is required for the contemplation stage, and individuals hardly move through the subsequent stages without recognition of their weight problem. Studies have emphasized importance of awareness of health issues to change people's behaviors such as salt intake (Zandstra, Lion, and Newson, 2016), sunbathing (Kristjansson, Bränström, Ullen, and Helgason, 2003), breast cancer (Park et al., 2011), and physical activities (Mettler, Stone, Herrick and Klein, 2000). By knowing their accurate weight status, individuals can realize that they are at risk of obesity or are already in a dangerous health situation, which leads them to the contemplation and the decision stages of behavior change.

Misperception of Weight Status

Past studies have shown the tendency for individuals to underestimate their weight statuses rather than overestimate them, and self-report bias had a significant impact on the accuracy of screening for overweight and obesity (Duncan, et al., 2011; Elgar et al., 2005;

Jerrery, 1996). Thus, it is critical to measure individuals' weight and height rather than to use the reported weight and height for studies of misperception, especially for underestimation. When overweight and obese individuals underestimated their weight status, it worked as a barrier and decreased their attempts to lose weight (Duncan et al., 2011).

Demographics haven been found to predict individuals' misperception. From national surveys such as the 1991 National Health Interview Survey (NHIS)/Health Promotion and Disease Prevention (HPDP) and National Health and Nutrition Examination Survey in 1988-1994, sex, age, race, education, income and occupation were associated with the misclassification of weight status (Chang & Christakis, 2001; Kuchler & Variyam, 2003). Men were more likely to underassess their weight than women, and underassessors were more likely to be individuals who had lower education levels, lower income levels, aged 65 or more, and African-American. Demographic variables have been associated with obesity prevalence. According to the data from the 1985 to 2011 California Behavioral Risk Factor Survey, obesity was more prevalent in lower education, income, unemployment levels (Wong, Chou & Ahmed, 2014; Worthy et al., 2010). Also, the prevalence of obesity differed in different ethnic groups; it was highest in Hispanics (47.0%) and non-Hispanic blacks (46.8%) followed by non-Hispanic white (37.9 %), and it was lowest in Asians (12.7 %) (Hales, et al., 2017).

A few studies demonstrated the effects of misperception. Duncan, et al. (2011) showed that overweight and obese individuals who misperceived their weight status were less likely to desire and try to lose weight compared to those who properly perceived their weight status. The misperception issue was also examined among adolescents with type 2 diabetes and their parents (Skinner, Weinberger, Mulvaney, Schlundt, and Rothman, 2008). The dyads tended to underestimate their adolescents weight and underestimation was positively associated with poorer diet and negatively associated with exercise behaviors. On the

contrary, Jiang, Kempner, and Loucks (2014) demonstrated that underestimation of weight status was positively associated with attempts to lose weight; those who underestimated their weight status were 1.43 times more likely to try to lose weight than those who accurately perceived their weight.

The previous studies examined overall effects of misperception or accuracy of perception on individuals' attitude and behavior of weight control and the effects of perceptions were not always consistent. The present study tests the effects of perception of weight status and demographics with a nationally representative sample and extends the discussion of misperception or accuracy of perception effects by exploring different effects of the perception of weight status for people at different demographics and weight statuses. The research questions of this study follow:

RQ 1: How do individuals' perception of weight status, demographics and their weight status influence their desire and trial to lose weight?

RQ 2: How does individuals' perception of weight status interact with demographics and weight status to influence their desire and trial to lose weight?

Method

Sample

The current study used the National Health and Nutrition Examination Survey (NHANES) 2015-2016. To overcome the limitations of previous studies on misperception of weight status that only used self-reported weight and height, the NHANES 2015-2016 dataset included respondents' heights and weights measured by technicians, as well as the measurements reported by the respondents. The present study drew only overweight and obese participants who are 20 years old or older from the dataset after removing pregnant women. The final dataset included 3,438 participants who were overweight or obese.

Measures

Demographics were measured as predictors of individuals' attitude and behavior of weight control along with weight status and perception of weight status. The sample consisted of 50.7% of males and 49.3% of females. Participants were categorized into two age groups of 20-49 (46.7%) and 50 or older (53.3%), three education levels of low (less than high school graduates, 25.3%), medium (high school graduates, 22.5%), and high (some college or more, 52.1%), three income levels of low (less than $25,000, 29.3%), medium (between $25,000 and $74,999, 43.0%), and high ($75,000 or more), and two groups of marital status (married, 52.4% and not married, 47.6%). The sample consisted of 20.8% of Mexican Hispanics, 15.3% of non-Mexican Hispanics, 33.6% of non-Hispanic whites, 22.1% non-Hispanic blacks, 8.2% of non-Hispanic Asians.

Individuals' self-reported heights and weights as well as the heights and weights measured by technicians were used to calculate the individuals' technician-measured BMIs and perceived BMIs. The measured BMIs were compared with their perceived BMIs to test accuracy of perception among the participants.

The perception variable divided participants into two groups: misperceived group and accurately perceived group. Those who considered they were underweight or right weight categorized as the misperceived group, and those who considered they were overweight were categorized as the accurately perceived group.

The sample included 49.8% of overweight ($25 \leq BMI < 30$) and 50.2% of obese ($30 \leq BMI < 40$) individuals and 36.5% of them misperceived (underestimated) their weight as underweight or right weight and 63.5% properly perceived their weight status. The individuals who have BMIs of 40 or higher were removed from the dataset. It was considered that if individuals with 40 or higher BMI, who appear much more overweight in general, think they are at the right weight;this may be based on their own philosophy or belief rather than perception, which is beyond the scope of this study.

Participants' attitude and behavior were measured by desire and trial to lose weight. The desire question asked if they would like to weigh more, less or the same. While 74.8% showed their desire to lose weight (weigh less), 25.2% had no desire (weigh the same or more). The trial question asked whether or not they actually tried to lose weight in the past year. Although 46.4% tried to lose weight, 53.6% did not try in the past year.

Results

Presence of misperception

Participants' self-reported heights and weights were compared with the ones that were measured by technicians. The results were consistent with the previous studies. They reported their heights as larger than they were, $t(3,334)= -27.75$, $p <.001$, and reported their weights as lighter than they were, $t(3,382) = 15.83$, $p < .001$. About two thirds (62.0%) of the overweight or obese individuals underestimated their weight and about three quarters (74.6%) overestimated their height.

Out of 1,704 overweight adult participants, more than half (54.5%) underestimated their weights as underweight or right weight while 45.5% of overweight individuals correctly estimated their weight status as overweight. Among 1,722 obese participants, 18.8% underestimated their weights as underweight/right weight while 81.2% correctly estimated their weight status.

Desire and trial to lose weight

Logistic regression analysis was conducted on individuals' desire (RQ 1) and trial (RQ 2) to lose weight as dependent variables. In both tests on desire and trial, predictors included misperception, weight status, and demographics such as gender, age, education, income, marital status, and ethnicity. In addition, interactions between perception of weight status and demographics as well as real weight status were tested to examine whether or not the demographics and weight status moderates the effects of perception of weight status on

desire and trial to lose weight. The interaction terms included in the analyses were gender* perception, age*perception, education*perception, income*perception,marital status*perception, ethnicity*perception, and weight status*perception.

Desire to lose weight. Table 2 shows the variables associated with overweight and obese individuals' desire to lose weight. The variables that were not statistically significant was ethnicity and all interaction terms between perception of weight status and demographics such as age, gender, income, education, marital status and real weight status were removed from the model.

Table 2. Logistic Regression on Overweight and Obese Individuals' Desire to Lose Weight

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Female (vs. Male)	.907	.123	54.594	1	.000	2.477
Age 50+ (vs. Age 20-49)	-.399	.121	10.940	1	.001	.671
Education: Ref. Below High School Grads			21.670	2	.000	
High School Grads	.467	.164	8.095	1	.004	1.595
Some College or More	.681	.147	21.518	1	.000	1.976
Income: Ref. Less than $25,000			8.529	2	.014	
Income $25,000-$74,999	.075	.143	.277	1	.598	1.078
Income $75,000 or More	.469	.175	7.212	1	.007	1.599
Not Married (vs. Married)	.336	.124	7.322	1	.007	1.399
Obese (vs. Overweight)	.866	.128	45.462	1	.000	2.376
Accurately Perceived (vs. Misperceived)	3.407	.141	588.004	1	.000	30.175
Constant	-1.600	.178	80.996	1	.000	.202

The data indicates that perception, real weight status and demographics such as gender, age, education, income, and marital status were statistically significant in predicting individuals' desire to lose weight. More specifically, females were 2.48 times more likely to have desire to lose weight than men were (B=.91, SE=.12, Wald=54.59, P<.001). The old age group (60 or older) was .67 times less likely to have desire than the young age group (aged 20-39) was (B=-.399, SE=.12, Wald=10.94, P<.01). Education has a positive relationship with desire. High school graduates (B=.47, SE=.16, Wald=8.10, P<.01). and participants with some college or more education (B=.68, SE=.15, Wald=21.52, P<.001) were 1.60 and 1.98

times more likely to have desire to lose weight than those with less than high school diploma were. Regarding the household income, the high income group of $75,000 or more were 1.60 times more likely to have desire than those with low income of less than $25,000 (B=.47, SE=.18, Wald=7.21, P<.01). while the medium income group of $25,000-$74,999 was not statistically significantly different from the low income group in terms of desire (B=.08, SE=.14 Wald=.28, P>.05). In marital status, those who were not married were 1.40 times more likely to have desire than married participants (B=.34, SE=.12, Wald=7.32, P<.01). Also, the obese were 2.38 times more likely to have desire than the overweight (B=.87, SE=.13, Wald=45.46, P<.001). Perception had the strongest relationship with desire; those who properly perceived their weight status were 30.18 times more likely to have the desire to lose weight that those who misperceived (underestimated) their weight status were (B=3.41, SE=.14, Wald=588.00, P<.001).

Trial to lose weight. Table 3 shows the variables associated with overweight and obese individuals' trial to lose weight. Income, marital status and the interactions between perception and gender, ethnicity, education were not statistically significant in the association with trial and they were removed from the model.

Table 3. Logistic Regression on Overweight and Obese Individuals' Trial to Lose Weight

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Female (vs. Male)	.473	.084	31.823	1	.000	1.606
Age 50 or more (vs. Age 20-49)	-.662	.149	19.632	1	.000	.516
Education: Ref. Below High School Grad			42.099	2	.000	
High School Grad	.331	.124	7.104	1	.008	1.393
Some College or More	.700	.111	39.898	1	.000	2.013
Ethnicity: Ref. Asian			19.046	4	.001	
Mexican Hispanic	-.261	.173	2.291	1	.130	.770
Other Hispanic	-.475	.178	7.092	1	.008	.622
Non-Hispanic White	-.607	.159	14.661	1	.000	.545
Non-Hispanic Black	-.515	.169	9.316	1	.002	.597
Obese (vs. Overweight)	.569	.192	8.813	1	.003	2.296

Accurately Perceived (vs. Misperceived)	1.087	.148	53.935	1	.000	2.966
Perception*Weight Status						
Perception at Obese	-.569	.192	8.813	1	.003	1.679 [a]
Perception at Overweight	.569	.192	8.813	1	.003	4.166 [a]
Perception*Age Group						
Perception in Age 20-49	-.550	.179	9.438	1	.002	1.711 [a]
Perception in Age 50+	.550	.179	9.438	1	.002	5.140 [a]
Constant	-1.127	.193	34.218	1	.000	.324

[a] The odds ratio was calculated based on coefficients of variables and interactions.

The data shows that demographics such as gender, age, education, income, and marital status as well as weight status and perception were statistically significant in predicting trial to lose weight. Females were 1.61 times more likely to try to lose weight than men were (B=.47, SE=.08, Wald=31.83, P<.001).. The old age group of 50 or older were .52 times less likely to try to lose weight than the age group of 20-49 was (B=-.66, SE=.15, Wald=19.63, P<.001). In education, high school graduates (B=.33, SE=.12, Wald=7.10, P<.01) and those with some college or more education (B=.70, SE=.11, Wald=39.90, P<.001) were 1.40 and 2.01 times more likely to try to lose weight in the past year than those with less than high school diploma. Ethnicity, unlike in the test on desire, was statistically significant. More specifically, non-Mexican Hispanics (B=-.48, SE=.18, Wald=7.09, P<.01), non-Hispanic whites (B=-.61, SE=.16, Wald=14.66, P<.001), non-Hispanic blacks (B=-.52, SE=.17, Wald=9.32, P<.01) were .62, .55, and .60 times less likely to try to lose weight than Asians were, respectively, while Mexican Hispanics (B=-.26, SE=.17, Wald=2.29, P>.05) were not statistically different from Asians. Obese individuals were 2.30 times more likely to try to lose weight than overweight individuals were (B=.57, SE=.19, Wald=8.81, P<.01). Individuals with accurate perception of weight status were 2.97 times more likely to try to lose weight than the misperceived group (B=1.09, SE=.15, Wald=53.94, P<.001)..

In the test on trial, the results indicate significant interactions between perception of weight status (right/underweight or overweight) and real weight status (overweight or obese)

and age; the effect of perception of weight status varies at different levels of weight status and age. When perception interacts with real weight status, the effect of accurate perception was stronger for the overweight than the obese. The overall odds ratio of perception was 2.97. However, for obese individuals, the odds ratio of perception was 1.68, which means that obese individuals with accurate perception were only 1.68 times more likely to try to lose weight than the obese individuals with misperception. In contrast, odds ratio of perception among overweight individuals was 4.17, which means that overweight individuals with accurate perception were 4.17 times more likely to try to lose weight than overweight individuals with misperception.

Regarding the interaction between perception and age groups, there were also differences in the effect of perception between the young (age 20-49) and the old (60 or older) age groups. Within the old age group, the individuals with accurate perception were 5.14 times more likely to try to lose weight than those with misperception, which is much higher than the overall odds ratio of perception (OR = 2.97), while individuals with accurate perception in the young age group (20-39) were only 1.71 times more likely to try to lose weight than those with misperception. The effect of perception was greater for the old age group than the young age group.

Discussion

The data demonstrated that demographics were associated with both desire and trial. More specifically, gender, age, education, and weight status were associated with both desire and trial while household income and marital status were associated only with desire, and ethnicity was associated only with trial.

The present study showed that misperception worked as a barrier to individuals' having desire and trial to lose weight and accurate perception of weight status was the strongest predictor for the attitude and behavior of weight control. Individuals with accurate

perception of weight status were more likely to think about losing weight than those with misperception. More than half (54.5%) of the overweight participants and 18.8% of the obese participants underestimated their weight status. Considering the size of the misperceived overweight and obese group, education about overweight and obese individuals' proper understanding of their weight status is necessary. When they realize they are actually at risk, they will be much more likely to advance from the precontemplation stage to the contemplation stage than those who do not accurately understand their weight status, and move through the subsequent stages with strategically targeted messages for each stage.

One of the interesting findings of this study was interaction effects of perception of weight status with real weight status and age on trial to lose weight although no statistically significant interaction effects of perception of weight status was found on desire. On trial, the effect of perception was stronger for the overweight than the obese, and greater for the older age group than the younger age group.

This study analyzed effects of individuals' perception of weight status on individuals' desire and trial of weight control and extended the discussion of the effect of perception of weight status to its interaction effects at different levels of age and individuals' real weight status. Obesity campaign practitioners may utilize the findings of this study to identify efficient and effective target audiences for their campaigns, which normally have limited time and budget. Future research may find specific effects of misperception or accurate perception on individuals' attitudes and behaviors in relation to different lifestyles as these variables play significant roles in health behaviors.

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05

Brand-Related UGC and Its Implication for Global Business : A Cross-Cultural Study of Differences in eWOM Production and Effects on the U.S and South Korean Customers

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Brand-Related UGC and Its Implication for Global Business: A Cross-Cultural Study of Differences in eWOM Production and Effects on the U.S. and South Korean Customers

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Abstract

This study replicates Fong and Burton's 2008 study, which evaluated differences between Chinese and American consumers by exploring cross-cultural differences in their use of brand-related user-generated content (UGC) between the U.S. and Korean consumers. The authors conducted a content analysis of 1871 online postings on discussion boards of six different digital camera review websites in both the countries. By tapping into Hofstede's (1980; 1991) individualistic/collectivistic dimension and Hall's (1981; 1990) cultural contexts, the authors found some cross-cultural differences and similarities between the U.S. and Korean consumers. The authors examined willingness to engage in product information-seeking and giving, and tendencies to use implicit versus explicit communication styles of the consumers from both the countries. Implications and agendas for future research are also suggested.

Keywords: Cross-cultural study, South Korea, Hofstede's cultural dimensions, Cultural contexts, User-generated content, Information-seeking

Research background

Fong and Burton (2008) conducted a cross-cultural study that compared the U.S. and Chinese Internet users in terms of their willingness to engage in information-seeking and information-giving by utilizing Hofstede's (1980; 1991) individualistic/collectivistic cultural dimension. This study partially replicates Fong and Burton's study by comparing the U.S. and South Korean consumers on similar dimensions. Fong and Burton (2008) found some differences between collectivistic (e.g., China) and individualistic cultures (e.g., the U.S.); Chinese Internet users engaged more in information-seeking, whereas U.S. Internet users engaged more in information-giving (Fong & Burton, 2008).

This study content-analyzed 1871 online postings on six different discussion boards on the U.S. and Korean product review websites. The study also used Hofstede's (1980; 1991) individualistic/collectivistic cultural dimension and Hall's (1981; 1990) cultural contexts (high-context & low-context cultures) as its theoretical background to study U.S. and South Korean users' willingness to engage in information-seeking, willingness to engage in information-giving, tendency to use implicit communication styles, and tendency to use explicit communication styles.

With the rapid growth of the Internet, user-generated content (UGC), and social media, marketers are increasingly seeking strategies to win over customers in an environment of content democracy and fierce competition. The big decision for global marketers and online advertisers is whether and to what extent should they modify their digital strategies and campaigns on owned versus earned and purchased digital media (M. Miller, 2013; Lipschultz, 2017).

Modifying company websites to accommodate for different languages, cultural dimensions, etc. is almost standard practice for many global marketers as they realize that people

react differently to commercial messages and follow different decision-making processes (Lipschultz, 2017; Chen-Yu, Hong, & Lee, 2001). In fact, many online marketers have modified their corporate websites for global consumers by offering either language options (e.g., www.toyota.com, www.hyundai-motors.com) or hyperlinks that lead to localized websites (e.g., www.canon.com, www.samsung.com).

Most global organizations have done well in adapting their websites to have localized appeals. However, many of those companies have not yet fully understood the marketing implications and processes in an environment of significant production and consumption of business-related UGC. Internet users regularly search brand- or product-related UGC to get other users' opinions to help with their own purchase decisions (Khang, Ki, & Ye, 2012). Internet users are more likely to trust peer recommendations found in UGC than marketer-generated product information found on manufacturers' Websites or in online advertising (Cheong and Morrison, 2008). According to Cheong and Morrison (2008), many customers believe that brand recommendations and product information in UGC are based on direct experiences with the products or brands. Internet users trust these first-hand experience-based comments more than online advertising because they believe the consumers who post UGC have nothing to gain and, thus, are not likely to post untruthful comments.

Although some previous researchers (Riegner, 2007; Cheong & Morrison, 2008; Shu-Chuan & Kamal, 2008; Lu & Keng, 2014) have shown that UGC is crucial for global companies, marketers have not fully realized its role in global marketing because most UGC websites target social networks within a country, and are mostly in local languages. In order to give some insight into the decision-making of global marketers, a few cross-cultural studies on electronic Word of Mouth (eWOM) have been conducted (Cheung, Anitsal, & Anitsal, 2007; Fong & Burton, 2006;

Fong & Burton, 2008; P. Miller, 2013). Studies on eWOM are closely related to brand-related UGC because peer recommendations and product-related opinions posted by Internet users tend to be conveyed through eWOM communications (P. Miller, 2013).

Cheung et al. (2007) found a few motivational factors in posting online reviews: three dimensions of altruism (i.e., altruism toward people with close social ties, altruism toward fellow consumers, altruism toward business organizations), seeking retaliation, seeking compensation, and seeking bargaining. The researchers also found that several motivational factors, such as the strength of social ties, expressing a sense of achievement, altruism, and seeking a therapeutic effect, were common between U.S. and Chinese customers, while a few factors were not common to both the groups. The factors uncommon between the two groups were seeking confirmation of one's own judgment, seeking retaliation, seeking advice, seeking correction/compensation, and seeking bargaining power. The first three factors were found only among Chinese consumers, and the last two factors were found from only among their U.S. counterparts.

Cross-cultural studies by Fong and Burton

Fong and Burton (2006; 2008) conducted two cross-cultural studies that compared Chinese and the U.S. customers. Using online surveys and content analysis, Fong and Burton (2006) examined whether Chinese and the U.S. customers behave differently online relative to eWOM. They found that both Chinese and the U.S. consumers deem information from discussion boards to be important, and that there were slight difference between the U.S. and Chinese consumers in terms of information-seeking. A number of research participants from both the countries indicated that they had requested recommendations (US: 84.2%; China: 81.5%). However, the balance of information-seeking and -giving behaviors was different.

Nearly 73% of the U.S. participants reported that they had given a recommendation online, while only 33.3% of the Chinese counterparts reported that they had offered a recommendation online (Fong & Burton, 2006).

Fong and Burton (2008) extended their 2006 study by conducting another set of content analysis. They content-analyzed 5993 online postings in six discussion boards they had used in 2006. The researchers found that Chinese discussion board participants engaged in higher levels of information-seeking than did participants on the U.S. discussion boards, while the Chinese engaged less in information-giving than their U.S. counterparts.

South Korea, and customers in South Korea

South Korea was selected for the current cross-national study for several reasons. With almost $120 Billion in trade with the U.S., South Korea is the sixth-largest U.S. trading partner and one of the biggest markets for the U.S. (Gray, 2018). In fact, South Korea trades more with the U.S. than do the U.K., France, India, Taiwan, Brazil, etc. In addition, many U.S. companies are trying very hard to succeed in the South Korean market, and compete in the U.S. market against many South Korean competition (Noland, 2014). South Korea is one of the most digitalized countries in the world, and remains the leader in the Asian-Pacific region in terms of its Internet infrastructure and broadband penetration rate as well (Akamai, 2017).

South Korea is a typical Asian country, which is culturally different from Western countries such as the U.S., and culture is actually the single most critical factor that influences international marketing on the Internet (Samiee, 2001). In international marketing, comparative cross-cultural studies are often needed by marketers to assess the cultural differences of foreign countries. This cross-cultural study will offer marketers useful information about consumer motivations in collectivistic cultures which are different from individualistic cultures in terms of

brand-related information-giving and -seeking, and how high-context cultures are different from low-context cultures in terms of opinion-giving styles (such as language styles used to write online consumer reviews).

Brand-related UGC

UGC, also known as consumer-generated media (CGM), refers to "media content created or produced by the general public rather than by paid professionals and primarily distributed on the Internet" (Daughrty, Eastin, & Bright, 2008, p. 16), and has become a core part of businesses in the U.S. According to Austen (2018), approximately 86% of U.S. businesses utilize UGC as part of their marketing strategy, and UGC-based advertisements have four times higher click-through rates and cost half as much. Currently in the U.S., 84% millennials admit to being influenced by UGC, and 70% of all online customers claim to read UGC before making purchase decisions (Austen, 2018).

UGC is also tremendously influential in marketing contexts because Internet users are not "bound by standards of objectivity," and "most have strong views that they express openly" (Johnson & Kaye, 2004, p.624). UGC, therefore, involves both positive and negative information about products. As the literature has shown, consumers tend to engage in product-related WOM communications when they are either very satisfied or very dissatisfied (Anderson, 1998). Anderson (1998) proposed a utility-based model with a U-shaped function that shows the tendency for very satisfied and very dissatisfied consumers to engage in WOM communications. This influences marketers critically because consumers tend to perceive brand images through WOM conversations (Arndt, 1968; Bearden & Etzel, 1982; Anderson, 1998).

Review websites, especially product-related review websites, are one of the most influential types of UGC websites influencing purchase decisions. On product review websites,

consumers share brand-related opinions and purchase experiences, and, thus, they help other site users make informed purchase decisions. Most of these review websites are grouped by product categories such as automobiles, digital cameras, notebooks, and tourism (Interactive Advertising Bureau, 2007). These product review websites have become increasingly important due to their perceived credibility and hence, tremendous influence on consumer decision-making process.

The U.S. and South Korea's cultural differences and hypotheses

Hofstede's cultural dimensions

Hofstede's (1980; 1991) cultural dimensions are the most widely used dimensions of cultures (Taylor, Miracle, & Wilson, 1997; Jarvenpaa & Tractinsky, 1999; Singh, Hongxin, & Xiaorui, 2005; Laroche, Kalamas, & Cleveland, 2005; Ko, Roberts, & Cho, 2006; Cheung et al., 2007). He suggested that different nations may have different cultural values, and, thus, each country can be classified in terms of six underlying dimensions. These six dimensions include power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance, long-term/short-term orientation, and indulgence (Hofstede, 1980).

Hofstede Insights (2019), a website that compares countries based on the cultural dimensions, classifies South Korea as having a low degree of individualism (Score: 18/100), while the US scores 91 on the same dimension. South Koreans are less independent and rely more on others' opinions, while Americans place more value on self-reliance and independence. In terms of power distance, South Korea scores higher (60) than the US (40); South Koreans are more likely to accept and expect that power is distributed unequally. Hofstede Insights (2019) also describes South Korea as having a low degree of masculinity (39) and the U.S. with a high degree of masculinity (62). The difference in masculinity suggests that Americans are more

assertive and competitive than South Koreans. In terms of uncertainty avoidance, South Korea scores much higher (85) than the U.S. (46). This suggests that South Koreans do not make decisions if they are not certain about the entire situation. In contrast, Americans tend to make a decision even though they are not sure about their situation. South Korea scored 100 on long-term orientation and 29 on indulgence, whereas the U.S. scored 26 on long-term orientation and 68 on indulgence. These scores mean that South Korea is a very pragmatic and long-term oriented society, whereas the U.S. highly values leisure time and gratification of desires (Hofstede Insights, 2019).

Individualism and Collectivism

Individualism/collectivism dimension is one of the most important dimensions in analyzing social behaviors (Taylor, Wilson, & Miracle, 1994). The dimension fits this study well, since South Korea is a typical Asian country, with a low level of individualism (indicating a high degree of collectivism), and the U.S. in contrast, ranked the highest among the 53 countries which Hofstede analyzed in terms of their individualistic behavior (Hofstede, 1991).

The degrees of individualism and collectivism influence consumers critically when they search information before a product purchase (Ordóñez de Pablos, 2005). According to Ordóñez de Pablos (2005), collectivistic countries such as South Korea and China (Individualism score: 20) rely more on reference groups for their information sources, whereas individualistic cultures such as the U.S. (91) and the U.K. (89) rely less on others' opinions and make individual decisions because they place greater value on independence and self-reliance. People from individualistic cultures also tend to express their opinions more than do the people from collectivistic cultures (Fong & Burton, 2006; 2008).

The notion that South Korea is characterized as a collectivistic country (Hofstede, 1980;

1991) is further supported by a number of research studies (Hoare & Pares, 1988; Triandis, 1990; Laroche et al., 2005; Ordóñez de Pablos, 2005; Kim & Lee, 2006). South Korean consumers, as members of a collectivistic culture, highly value dependency on the opinions of group members from their reference groups (Hoare & Pares, 1988). Supposedly, South Korean consumers are more likely to search others' opinions from their reference groups before they make a product purchase decision. Hence, the following hypothesis was posed:

> H1: South Korean consumers engage more in information-seeking in online discussion boards to gain others' opinions and product recommendations than the U.S. consumers.

The literature also suggests that there are differences between collectivistic and individualistic cultures in terms of opinion-giving (Fong & Burton, 2006; 2008). Laroche et al. (2005) explained the differences using an "I" versus "we" concept. People from different cultures behave differently because they value different social units. In collectivistic cultures, people place high value on groups (we), so they are more likely to follow group norms and maintain hierarchies. This is partially correlated with the degree of power distance. Many North-East Asian countries (e.g., Korea, Japan, and China) have high degrees of power distance (Eng & Kim, 2006). In order to maintain hierarchies, group members are often required to hide their opinions. People in individualistic cultures, in contrast, are more encouraged to speak their opinions in public than are the people in collectivistic cultures, because individualistic cultures highly value self-reliance, independence, and freedom of speech (Hofstede, 1980). They are less dedicated to maintaining a hierarchy than are collectivistic cultures (Laroche et al., 2005).

Therefore, it is reasonable to expect that group members in collectivistic cultures are less likely to engage in opinion-giving, and individuals in individualistic cultures are more likely to engage in opinion-giving. With that in mind, the following hypothesis is posed:

H2: The U.S. consumers engage more in information-giving in online discussion boards to express their opinions and product recommendations than Korean consumers.

Cultural contexts: High- versus low- context cultures

Hall's (1981; 1990) cultural context is another cultural dimension used in this cross-national study. Even though Fong and Burton (2008) utilized cultural context only to explain individualism and collectivism, this study utilized cultural contexts to examine the communication styles of U.S. and South Korean consumers.

High-context cultures such as Asian and African countries use indirect and implicit communication styles, but low-context cultures, in contrast, have explicit and direct communication styles (Taylor et al., 1997). For example, advertisements in high-context cultures tend more to be relational, intuitive, and contemplative, while those in low-context cultures are more likely to be analytical and action-oriented (Taylor, Miracle, & Chang, 1994).

Cultural contexts affect consumers significantly when it comes to information-seeking and -giving because people with different cultural contexts have different methods of communication. Cultural contexts also have implications for advertising. Previous research on global advertising has utilized cultural contexts in comparing direct-versus-indirect communication, verbal-versus-nonverbal advertising messages, small amount of information versus large amounts of information, and intuitive-versus-analytic advertising messages (Taylor et al., 1994). Taylor et al. (1994) found that TV commercials in high-context cultures are more

likely to have indirect and nonverbal messages with small amounts of information, while TV commercials in low-context cultures tend more to involve direct/verbal messages and large amounts of information.

Thus, people in low-context cultures may be more encouraged to express their opinions than those in high-context cultures, and are more likely to use direct and explicit communication styles. With that in mind, the following hypothesis is posed:

H3: U.S. consumers are more likely to give direct product recommendations than are South Korean consumers (e.g., a direct recommendation with a specific brand name).

As high-context cultures prefer indirect and ambiguous communication styles, they may have different styles of opinion-giving (e.g., explicit versus implicit) when they offer opinions online. People in high-context cultures may have tendencies to give product recommendations with a smaller amount of information, and without mentioning direct brand or product recommendations. With that in mind, the fourth hypothesis is posed as follows:

H4: When giving product recommendations, U.S. consumers are more likely than South Korean consumers to write postings with smaller amount of information when they are engaged in opinion-giving.

Method

To examine the proposed hypotheses, a content analysis of the discussion boards of six digital camera review sites based in the U.S. and South Korea was conducted. A coding sheet for the content analysis was obtained from Fong and Burton's 2008 study, and modified to fit the

purposes of the current study. To examine each hypothesis of this study, the following units were measured:

H1—Website country, whether or not an online posting has direct requests for camera recommendation, numbers of questions in an original posting

H2—Website country, number of online responses per original posting

H3—Website country, whether or not the online response has brand or product references

H4—Website country, number of words per online response

Content analysis was selected as the main data collection method for this study because it provides a great way to find international differences in communication contents (Berelson, 1971). Content analysis also helps researchers have direct understanding of social interactions by allowing them to look directly at texts in communication (Busch et al., 2005). We followed Fong & Burton's (2008) methodology of content analysis and coded for almost all the same variables. However, unlike Fong and Burton (2008), we did not collect any data relative to country of origin effects.

Content samples

Online postings in the discussion boards of six digital camera review websites were used as units of analysis for the current study. Online digital camera review sites were chosen as samples of this study for three reasons. First, online review sites are one of the most frequently visited websites when consumers search for product-related information or brand recommendations (Riegner, 2007). Consumers visit online review websites since they can easily locate information related to products they are planning to purchase; the subjects on most review

websites are based around one particular type of product (e.g., Edmunds.com – automobiles; dpreview.com – digital cameras; apartmentratings.com – apartments).

Second, product review websites are generally third party, independent websites that are not affiliated with product manufacturers. This is important because consumers deem the product review websites not to be controlled by companies (Sussan, Gould, & Weisfeld-Spolter, 2006). Third, there are plenty of digital camera review websites online, and many of them are actively used by South Korean and U.S. consumers. Digital cameras are one of the most popular electronic purchases for both Korean and US consumers, and are frequently searched online because they are easy to purchase online (Riegner, 2007).

Selection of Review Websites

The review websites included in this study were, *Digital Photography Review* (www.dpreview.com)*, Steve's Digicams* (www.steves-digicams.com), *Digital Camera Resource Page* (www.dcresource.com), *DC Inside* (dica.dcinside.com), *SLR Club* (www.slrclub.com), and *Dizin* (www.dizin.co.kr). The former three websites are U.S.-based digital camera review websites, while the latter three are South Korea-based. All of the six websites had discussion boards in their menus, which are used by numerous consumers in each country.

Selections of the review websites went through two stages. First, the researchers searched for digital camera review websites using the most popular Internet portals in both the countries (the U.S.: Google.com, Yahoo.com, & Ebay.com; Korea: Naver.com, Daum.net, & Auction.co.kr). The portals were chosen primarily based on their popularity in their respective countries when the research was conceived. Second, the researchers chose three most visited digital camera review websites in each country using their web traffics and the amount of postings. Although *Steve's Digicams* was the fourth-visited digital camera review site in the U.S.,

the website was included for analysis because the second and third most visited websites did not offer discussion boards. *Digital Photography Review* was the most-visited digital camera review website in the U.S., and *Digital Camera Resource Page* was the fifth-most-visited digital camera review website. The South Korea-based review websites were also chosen based on the number of user visitations. *DC Inside* was the leading digital camera review website in South Korea, followed by *SLR Club* and *Dizin*.

All six websites had discussion boards in their menus, and the discussion boards were actively used by numerous U.S. and South Korean Internet users.

Coding procedures

The observation of the discussion boards was conducted by the principal investigator (PI) and two recruited coders. All coders were bilingual. The PI and a coder (i.e., the second coder) evaluated online postings to analyze information-seeking behaviors, and the PI, the second, and third coders evaluated online commentaries in response to original postings which incorporated direct requests for camera recommendations. The third coder was additionally recruited while data were collected due to the large number of commentaries (N=2023). Both, the second and third coders were recruited based on their understanding of U.S. and South Korean cultures and their language skills. Both the coders had lived in the U.S. for several years, and were fluent in both English and Korean.

To assess inter-coder reliability, we utilized Perreault and Leigh's (1989) Index of Reliability (IR). Perreault and Leigh's (1989) IR was employed because it is deemed to be a better measure of reliability than other measures such as percentage agreement, coefficient of reliability, Scott's π, or Cohen's Kappa (Cho & Khang, 2006).

For training purposes, before coding online postings, the PI explained to the second coder the basic information of the study such as the purpose of the study and the four hypotheses, and then showed several exemplary coding. The PI and the second coder next individually evaluated the first fifty online postings in the U.S.-based discussion boards and fifty online postings in South Korea-based discussion boards. Perreault and Leigh's IR was .91 in this stage. After coding the one hundred online postings, the PI and the second coder resolved disagreements by discussion, and coded a further random sample of one hundred online postings for inter-coder reliability's sake. After coding a hundred random postings, both coders checked the coding together, and found that the estimate of inter-coder reliability on each category was satisfactory (>.80) (Perreault & Leigh, 1989). The Perreault and Leigh's IR was 1.0 for website country, website name, author, and date of topic started; .90 for direct requests; and .87 for the number of questions in an original posting. (See Table 1 for the numbers of postings analyzed for each website.)

Table 1. Number of postings analyzed for U.S. and South Korea

	U.S.-Based Discussion Boards				South Korea-Based Discussion Boards				
	Digital Photography Review	Steve's Digicams	DC Resource Page	Total U.S.	DC Inside	SLR Club	Dizin	Total Korea	Grand Total
Number of Postings	642	201	71	914	416	521	20	957	1871

Results

Information-seeking behavior

To test H1, the numbers and percentages of online postings that contained direct requests for recommendations were analyzed. There was a significant difference between the South Korea-based discussion boards and the U.S.-based discussion boards in terms of the numbers of

online postings that contained direct requests for camera recommendations (χ^2=27.81; p<.01). For the Korean discussion boards, 21.9% of the online postings included direct requests for digital camera recommendations, whereas only 12.7% of the online postings in the U.S.-based discussion boards included direct requests for digital camera recommendations.

The number of questions in an original posting were also measured to test H1, because it could gauge discussion board users' willingness to engage in information-seeking behaviors; if an individual writes more questions in a single posting, this might mean that the consumer engages more in information-seeking. There was a significant difference between the average numbers of questions in an original posting with requests for product information in the U.S.- and the South Korea-based discussion boards (F(1, 322)=20.78; p<0.01). The mean number of questions in an original posting posted by the participants of the U.S.-based discussion boards was 1.1 (SD=.44), whereas the participants of the South Korea-based discussion boards, in contrast, on average posted 1.56 (SD=1.56) questions in an original posting. Hence, H1 was supported.

Information-giving behavior

The mean number of the online postings in response to each direct request for camera recommendations were measured to test H2. There was a significant difference between the U.S. and the South Korean discussion board participants in terms of the average numbers of online responses per original posting as a result of a direct request for camera recommendations (F(1, 324)=105.09; p<0.01). For the U.S.-based discussion boards, the mean number of online responses per original posting was 10.31 (SD=8.25), whereas the average number of online responses per online posting provided by the South Korea-based discussion board participants was only 3.94 (SD=2.7).

The U.S.-based discussion boards' higher numbers of online postings in response to an opinion-seeking original posting (10.31, as opposed to 3.94) suggest that the participants of the U.S.-based discussion boards, as hypothesized, were more likely to engage in information-giving than were the participants of the South Korea-based discussion boards. Therefore, H2 was supported.

Communication styles of U.S. and South Korean Internet users

To test H3 examining whether and to what extent the U.S. and South Korean consumers provide direct/indirect product recommendations, online responses with brand references were counted. Although analysis found a slight difference between the U.S.- and the South Korea-based discussion boards in terms of the percentages of online responses with brand references (1.9%), the difference was not significant enough to generalize the online behaviors of the consumers from both countries (χ^2=0.96; p>.01). For both the U.S.- and the South Korea-based discussion boards, more than 75% of the camera recommendations were written with brand references, while less than 25% of the online responses did not contain brand references; the brand- or product-referred online responses posted in the U.S.-based discussion boards were 76.0%, while those in the Korea-based discussion boards were 77.9%. Therefore, H3 was not supported.

The mean number of words used in an online response was measured to test H4 that examined the communication styles of the U.S.- and South Korea-based discussion board users when they are engaged in information-giving. Analysis revealed significant differences between the discussion board participants in the two countries (F(1, 2021)=139.58; p<0.01). For the South Korea-based discussion boards, the mean number of words used in an online response was

74.86 (SD=80.2), while the average number of words in an online response for the U.S.-based discussion boards was 141.98 (SD=149.13). Therefore, H4 was supported.

Discussion, limitations, implications for future study

This study found some cross-cultural differences and similarities between the U.S. and South Korean consumers by examining four hypotheses concerning the content of brand- or product-related UGC found in the discussion boards of six product review websites: three U.S. and three South Korean digital camera review websites.

South Korean discussion board users seemed more likely to engage in information-seeking than did the participants of the U.S.-based discussion boards. Larger proportions of online postings in South Korea-based discussion boards were found to contain direct requests for digital camera recommendations than those in the U.S.-based discussion boards. The number of questions in an original posting was also different across U.S.- and South Korea-based discussion boards. These results mimicked the findings of Fong and Burton's 2008 study which found that the participants of the China-based discussion boards more engaged in information-seeking than did their U.S. counterparts (Fong & Burton, 2008). Similar to what Fong and Burton (2008) found, the findings of the current study related to information-seeking support Hofstede's (1980; 1991) work on individualistic/collectivistic cultural dimensions.

Another finding of this study was that the participants of the U.S.-based discussion boards engaged more in information-giving than did those of the South Korea-based discussion boards. The numbers of online responses which included camera recommendations were measured to examine the degrees of engaging in information-giving across the users of the U.S.- and South Korea-based discussion boards. This finding was also consistent with the finding of

Fong and Burton (2008). They found that consumers from individualistic cultures such as the U.S. posted more responses for camera recommendations than did those from collectivistic cultures such as China. This finding is also in line with Hofstede's (1980; 1991) individualism/collectivism dimension.

Notwithstanding the positive results regarding information-seeking and -giving behaviors, the hypothesis concerning the discussion board users' use of communication styles (i.e., direct versus indirect) when engaged in information-giving was rejected in the current study. Almost the same proportions of camera recommendations written with brand references were found in both the U.S.- and South Korea-based discussion boards. In other words, both the U.S. and South Korean consumers are likely to give a product recommendation with specific brand or product names.

The hypothesis pertaining to how much information the U.S. and South Korean consumers provide when writing online posts relative to product recommendations was supported in the current study. This implies that the U.S.-based discussion board participants were more likely to write camera recommendations with more words than were the South Korean discussion board users. This finding is consistent with Hall's (1981; 1990) cultural contexts. Since people from low-context cultures are more likely to provide more clearly articulated opinions with much more information than those from high-context cultures (Ko et al., 2006), the participants of the U.S. discussion boards might write their opinions with more words.

Limitations

Since this study replicates a previous study conducted by Fong and Burton (2008), the study has similar limitations as the original study as well. One limitation of the study is the use of only one product category as the topic of the discussion boards of the product review websites.

Consumer behaviors may vary according to the product categories in which they are interested. Investigating the discussion boards related to only one kind of product might not be sufficient to generalize cultural differences.

Another limitation of the current study is the researchers' incapability of ascertaining the true nationalities of the discussion board participants. Although the participants of the South Korea-based discussion boards are likely to be Koreans because Korea is the only country of which the official language is Korean, the nationalities of the participants of the discussion boards based in the U.S. may vary because many countries use English as their official language. English is the official language in at least 55 countries (e.g., the UK, India, & Nigeria). However, the current study has valuable implications because this is the first cross-cultural study comparing communication styles between English- and Korean-speaking Internet users relative to Hofstede's cultural dimensions and Hall's cultural contexts.

A further limitation of the current study is that the researchers measured only the numbers and percentages of online postings and the numbers of questions in an original posting to examine information-seeking behaviors. Consumers, in reality, often engage in information-seeking by searching and reading brand- and product-related information without posting questions in discussion boards. Although the authors were aware of this, it was not possible to measure how many times online postings were viewed by Internet users with traditional content analysis technique, because most of the discussion boards analyzed did not have the "number of views" function.

Implications and future studies

The present study has several implications for both practitioners and researchers. Firstly, since this study is one of the first academic research studies pertaining to the brand-related UGC

found on product review sites relative to Hofstede's cultural dimensions and Hall's cultural contexts, it will provide a benchmark for researchers who have similar academic interests in related fields. UGC is a fairly new research field as consumers have begun to use Web 2.0 for their everyday lives. Therefore, it is suggested that more studies be conducted to understand how consumers from different cultures use brand-related UGC differently for purchase processes. A plethora of possible cross-cultural research questions concerning brand-related UGC have not yet been studied.

As this is one of the first cross-cultural studies comparing the U.S. and South Korean consumers' UGC use for product decision-making, it provides insightful findings to global marketers and online advertisers. This study suggests to global marketers that they consider the influential powers of reference groups and eWOM for marketing products to consumers in South Korea. The current study suggests that the reference groups of South Korean consumers may significantly influence their peers on product purchase decisions. Furthermore, the study's findings may apply to many other countries that demonstrate high-context cultures such as Asian (e.g., China, Japan, Vietnamese, etc.), African, Arabic, and some European countries (e.g., France, Greece, etc.) (Copeland & Griggs, 1985; Hall, 1981).

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2019 학자/학문후속세대 글로벌 콜로키움[B]

일　　시 : 2019년 7월 19일(금) 오후 2시 30분~6시
장　　소 : 숭실대학교 숭덕관 317호
주　　최 : (사)한국광고학회
후　　원 : HS Ad

시 간	내 용	비 고
14:30-14:40	개　　회	316호 진행
14:40-15:40 (60')	**The Interaction of Form Design and Function Innovativeness on Product and Advertising Evaluation** • 발표 : 이상원(Ball State University)	• 사회 : 김상훈 (인하대학교)
	Interactive Advertising in Virtual Reality • 발표 : 안선주, 김주영(University of Georgia)	
	• 공동토론 : 전종우(단국대학교)	
15:40-15:50	Coffee Break	
15:50-16:50 (60')	**How Anthropomorphic Naming Increases Purchase Intentions for Irregular Produce** • 발표 : 김경옥(Bryant University)	
	Negative Word of Mouth on YouTube : Social and Semantic Network Analysis of Consumer Responses to Crisis • 발표 : 최진아(William Paterson University) 박세정(John Carroll University)	
	• 공동토론 : 안희경(한양대학교)	
16:50-17:00	Coffee Break	
17:00-17:20 (20')	**광고 타깃의 우연성과 필연성** • 발표 : 김주영(University of Georgia) • 토론 : 안대천(인하대학교)	
17:20-17:40 (20')	**언제, 왜, 어떻게 기계 학습이 광고 연구에 영향을 미칠까?** • 발표 : 손현상(Colorado State University) • 토론 : 홍문기(한세대학교)	

06

The Interaction of Form Design and Function Innovativeness on Product and Advertising Evaluation

발표 : 이상원(Ball State University)
토론 : 전종우(단국대학교)

The Interaction of Form Design and Function Innovativeness on Product and Advertising Evaluation

Sangwon Lee, Ball State University, USA (slee20@bsu.edu)

This study is about the central role of product design and innovativeness on consumer's attitude toward the product and advertising. This study examines the individual and joint effects of the two design dimensions: form design and functional design on consumer's evaluation of new products and social media advertising. The design is one of the critical factors of success especially in today's market place where technology gaps between companies have become smaller, and companies can produce products that are similar in features, quality and price (Homburg et al., 2015; Jindal et al., 2016; Lee, 2010 and 2013; Veryzer, 1995).

Despite the importance of form design in forming product and brand value, few studies have examined the effect of the design and innovativeness on consumer's evaluation of new product and ad. in social media context. Given that the use of social media as a promotion tool among corporations is becoming a norm (Okazaki and Taylor 2013), design of the product or brand may contribute to the success of the firm's marketing communication in several ways.

Employing theoretical underpinnings from processing fluency theory, this study examines two major research questions. First, how does product form design interplay with innovativeness in new product context? Specifically, what type of form is more advantageous for a radically new product (RNP) or an incrementally new product (INP)? Second, is there a social media effect in consumer's evaluation of innovative products with various form designs? More specifically, how is the interaction effect of design and innovation different in social media context?

Results from the experiment conducted demonstrate that (1) the form design for an incrementally new product (INP) had better follow the incumbent products for better evaluation, less typical form is evaluated as good as more typical form for radical innovations. (2) Form design of an innovative product matters more to the technologically more sophisticated consumers (experts) than technologically less sophisticated consumers (novices).

Future study will examine how the form design of product or brand logo affects consumer's evaluation of social media advertising.

Keywords: design, innovation, social media advertising, radically new product, incrementally new product

07

Interactive Advertising in Virtual Reality

발표 : 안선주, 김주영(University of Georgia)
토론 : 전종우(단국대학교)

Sponsored Virtual Experiences: A Novel Platform for Native Advertising

Sun Joo (Grace) Ahn, Jooyoung Kim

With the advent of digital and interactive advertising platforms, there has been a surge of interest in advertising with these emerging platforms, in particular advergames (Cauberghe & De Pelsmacker, 2010; Peters & Leshner, 2013; Terlutter & Capella, 2013), which are digital games specifically designed and created to serve as advertisements to promote brands, while the content mimics that of traditional digital games (Kretchmer, 2005). The assumption underlying this growing interest in advergames reflects the shift in media consumption behaviors, wherein close to half of all U.S. adults report playing video games, with younger Americans twice as likely as their older counterparts to engage in video game play (Perrin, 2018). Advergames covertly integrate the brand's attempt to advertise their product with the fun and engaging experience of game play so that persuasive attempts may be masked by game mechanics, such as points, badges, and levels (Wojdynski, Evans, & Hoy, 2018). Therefore, advergames serve as the most recent form of native advertising, wherein the paid content and original content blend in flawlessly together. Studies have generally documented favorable outcomes of advergames in enhancing brand recall and positive brand attitudes (Cauberghe & De Pelsmacker, 2010; Van Reijmersdal, Rozendaal, & Buijzen, 2012).

Another novel platform for advertising that is relatively under-explored in the context of native advertising is immersive virtual environments, popularly known as virtual reality (VR). VR systems use digital devices to provide layers of sensory information that come together to create experiences that closely mimic those in the physical world (Bailenson, 2018). With the

increasing popularity and accessibility of VR, a number of brands have used the platform to present engaging immersive experiences that may or may not be perceived as advertising. For example, Coca-Cola introduced a VR experience that was an immersive reprisal of its famous Christmas advertisement of Santa on his sleigh, delivering happiness through the world (James, 2015). Last year, Jeep introduced an immersive surfing experience that allowed audiences to ride the waves with their brand 'ambassadors,' who are surfers themselves seeking the best surfing experience. These *sponsored virtual experiences* are similar in nature to advergames in that the advertising attempt is covertly masked through engaging and interactive experiences—VR may serve as a new platform for native advertising.

Advergames versus Sponsored Virtual Experiences

However, sponsored virtual experiences are distinctly different from advergames in several ways. First, platform features differ dramatically between common advergames and VR in that VR offers richer layers of sensory information through stereoscopy, spatialized audio, haptic feedback, and real-time body tracking and rendering. Therefore, experiences that are rendered in VR can be complex and grand in scale and authenticity compared to advergames, which are relatively simple and elementary. A number of studies have confirmed that users in VR can temporarily forget that the environment that they are in is mediated—the perception of non-mediation—because of the extent that VR systems are able to mimic physical experiences (Ahn et al., 2016; Bailenson, 2018; Biocca, 1997; Lombard & Ditton, 1997).

In addition, sponsored virtual experiences lack the elements of game mechanics. Therefore, the individual's motivation in engaging with the experience is likely to differ from the way that individuals engage with advergames. Focusing on the goals of the game may interfere with the cognitive processing of brand messages and vice versa. Findings from an earlier study

testing the effect of advergames (Peters & Leshner, 2013) on brand and game related outcome measures supports this difference: engaging with advergames that had brand messages featured centrally in the game led to positive impact on brand recall, but negatively impacted game enjoyment and intentions to play again in the future. For advergames, then, there may exist a paradox wherein the most enjoyable games are ones that have least relevance to the brand, which suggests that when consumers focus solely on the goals of the game and enjoy playing it, they may not remember or favor the brand.

Unlike advergames, sponsored virtual experiences through VR systems do not present a secondary goal to users, allowing them to focus on the content of the message itself rather than attempting to gain points and badges. A few earlier studies have demonstrated that VR experiences may elicit favorable brand preferences in users (Ahn & Bailenson, 2014; Ahn & Bailenson, 2011; Lombard & Snyder-Duch, 2001) but the experiences incorporated in these earlier studies were limited in nature, explicitly portraying brand messages and persuasive intent and unnatural in the context of advertising. In recent years, as can be seen from examples discussed above, brands sponsor and create immersive experiences designed to be much more discreet in their persuasive attempts. As users ride on Santa's virtual sleigh or coast on the waves on a virtual surfboard, they may genuinely enjoy and engage with the experiences.

Psychosocial Mechanisms of Advergames and Sponsored Virtual Experiences—A Self-Determination Theory Approach

Some earlier studies have demonstrated that people play advergames largely for fun and competition (Youn & Lee, 2004). Consequently, advergame effects are often confounded by variables related to the game rather than the brand or product, such as the user's performance in the advergame (Steffen, Mau, & Schramm-Klein, 2013) or the user's proficiency with the game

mechanics (Kuo & Rice, 2015). Without the element of competition, goals to win, or issues with proficiency, the psychosocial mechanisms that link enjoyment to advertising outcomes are likely to be different for sponsored virtual experiences.

Self-determination theory (SDT) delineates the intricacies of human cognitive and behavioral regulation by emphasizing people's innate propensities to behave autonomously (Ryan & Deci, 2000). SDT offers a framework for explicating the degree to which an action is self-determined (i.e., intrinsically motivated), and postulates two broad types of human motivation: intrinsic and extrinsic motivation. Intrinsic motivation refers to the natural tendency to engage in interesting and playful activities, regardless of reward contingencies. For example, people voluntarily choose to travel and engage in recreational sports because they genuinely enjoy the activity and not because there is an external reward attached to the behavior.

Conversely, extrinsically motivated individuals tend to perform an activity for its instrumental value rather than for enjoyment from the activity *per se*—for instance, players who engage in sports purely to win or to lose weight. The relationship between external rewards and intrinsic motivation is complicated—even if the individual initially began the activity because he or she enjoys it, the presence of external rewards are likely to weaken the individual's intrinsic motivation (Deci, 1971, 1972; Lepper, Greene, & Nisbett, 1973). For example, Deci (1971) found that offering money as a reward lowered college students' motivation to engage in a learning activity.

Because advergames are simpler in structure and narrative compared to fully fledged video games, players are likely to focus more on the external rewards (e.g., points, badges, ranking). Conversely, eliminating the external rewards and allowing players to focus on the pleasures of exploring the virtual space may be more intrinsically enjoyable. Lepper and

colleagues (1973) refer to this phenomenon as over-justification; that is, providing extrinsic rewards for an activity that people would have engaged in anyway diminishes their original enthusiasm for it. Therefore, building on these earlier findings, we hypothesize:

H1: Advergames will increase participants' attention to external rewards, thereby leading to lower (a) intrinsic motivation and (b) intentions to engage in future play compared to sponsored virtual experiences.

Impact of Immersion on Persuasion Knowledge

In addition to differences in the content of such native advertisements, we also aim to investigate the impact of platform features on brand related outcomes. Studies confirm that because processing rich layers of sensory information in VR requires significant cognitive resources, this leads to decreased recall of information delivered during the experience (Bailey, Bailenson, Won, Flora, & Armel, 2012). A recent study confirmed this earlier finding in the context of advertising by demonstrating that participants recalled significantly less brand placement information when they watched a movie in 3D versus 2D (Breves & Schramm, 2019). Stereoscopy, they found, required more cognitive resources to process the visual information and therefore left less capacity to process brand placement information to be retrieved later. Recent studies have also found that when cognitive load is high, participants are less likely to active persuasion knowledge and recognize the persuasive purpose of native advertising (Jing Wen, Kim, Wu, & Dodoo, 2019). Taken together, we hypothesize the following impact of immersion on persuasion knowledge:

H2: The higher immersive environment of VR will trigger (a) higher cognitive load, and therefore, (b) less advertising recognition than the lower immersive environment of a desktop monitor.

When persuasion attempts are not recognized in native advertising, individuals' persuasion knowledge may not be triggered and their brand attitude may not be negatively affected (Friestad & Wright, 1994; Wei, Fischer, & Main, 2008). Furthermore, individuals often find highly immersive experiences to be more enjoyable than lower immersive experiences (Persky & Blascovich, 2008; Skalski & Tamborini, 2007). Taken together, we hypothesize:

H3: The higher immersive environment of VR will trigger more favorable brand attitude than the lower immersive environment of a desktop monitor

Proposed Methods

Design and Participants

A virtual experience sponsored by Oreo and McDonald's (both low involvement food brands) will be created. An earlier study comparing direct experiences against advertisements also looked at a candy bar as their low involvement product (Wright & Lynch, Jr., 1995). These experiences will be used for the sponsored virtual experience conditions. In the Oreo virtual experience, participants will be floating down a river of milk standing on an Oreo cookie, paddling with a straw. In the McDonald's virtual experience, participants will be riding on the restaurant's plate, shooting different sauces (e.g., ketchup, mayo, mustard) at various McDonald's food items.

For the advergame conditions, game mechanics will be added to the virtual experience to create a game of the same virtual world. For example, in the Oreo virtual experience, participants will earn points for every stroke they make with the straw and their trip down the river will be timed so that they can be ranked against other players. In the McDonald's experience, participants will earn points for every food item they successfully shoot with the correct sauce.

In the high immersive condition, participants will be in a highly immersive VR space with full head and body tracking as well as haptic feedback. In the low immersive condition, participants will experience the same virtual experiences through a desktop computer monitor.

Dependent Measures

Mental effort. The Paas (1992) rating scale for mental effort will be used to assess participants' cognitive effort during their virtual or gaming experiences.

Persuasion knowledge. Participants' recognition of persuasion attempts will be measured using two items from earlier studies (Jing Wen et al., 2019; Wojdynski, 2016): "This virtual experience/game was a commercial," and "This virtual experience/game was advertising."

Ad recognition. We will follow the methods used in earlier studies to assess participants' recognition of advertising elements. Participants will be first asked, "Was there any advertising during the virtual experience/game you just finished?" Participants who respond yes will be asked follow-up questions of, "If yes, what area(s) of the experience/game contained advertising?" and "If yes, please indicate in as much detail as possible what characteristics of the content you mentioned that led you to believe it was advertising?" Participants' responses to the three questions will be coded by trained coders into a binary measure where only those that mention disclosure elements are coded as ad recognition (Jing Wen et al., 2019; Wojdynski, 2016).

Attitude toward the brand. Semantic differential scales will be used to assess attitudes toward the brand both before and after exposure to experimental treatment to assess changes over time.

Enjoyment of the virtual experience/game. To assess enjoyment toward engaging with the virtual experience or game (i.e., intrinsic motivation), a three-item scale used in earlier

advergame studies (Peters & Leshner, 2013) will be administered: “Playing the game/engaging in the virtual experience was exciting,” “I enjoyed playing the game/engaging in the virtual experience,” and finally “Playing the game/engaging in the virtual experience gave me a lot of pleasure.

Intentions for future engagement. Participants’ intentions to play the game/engage in the virtual experience again in the future will be measured with three items from earlier studies looking at virtual applications (Chung, Han, & Joun, 2015): “If I owned the game/virtual experience, I would [intend/expect/plan] to play/experience it again.”

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08

How Anthropomorphic Naming Increases Purchase Intentions for Irregular Produce

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How Anthropomorphic Naming Increases Purchase Intentions for Irregular Produce

Kacy Kim (Bryant University)

Nearly half of all food produced in the United States is wasted. Each year, 72 billion pounds of fruits and vegetables are dumped into landfills or incinerated; 20 billion pounds (28 percent) of fruits and vegetables never even leave the farm (NRDC 2017) because they are too big, too small, asymmetrical, or scarred to meet strict cosmetic standards (Feeding America 2019). Driving much of this excessive waste is consumer psychology, which holds standardized, stereotypical views of how produce should appear.

This research suggests an alternate way to change consumer perceptions about abnormally formed produce. Could purchase intentions be enhanced by anthropomorphizing irregular produce? That is, might consumers be more attracted to a misshapen orange that has a human name?

This research suggests that we might counter negative judgments by humanizing irregular produce. Furthermore, this research predicts that consumers will have more salient abnormality perceptions when they judge produce from large automated corporate farms and will have less salient abnormal perceptions when they judge produce from small local farms with manual production and distribution.

09

Negative Word of Mouth on YouTube : Social and Semantic Network Analysisof Consumer Responses to Crisis

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Negative Word of Mouth on YouTube: Social and Semantic Network Analysis of Consumer Responses to Crisis

Jin-A Choi (William Paterson University); Sejung Park (John Carroll University)

Personal transgressive misconduct by the vice president of Korean Air, Heather Cho, shocked the public on December 5, 2014. Since labeled as the "nut return," "nut rage" or "nut gate" incident, Cho demonstrated behavior that exemplifies corporate transgression and deviation from societal moral standards (Kim, Yoo & Uddin, 2018). Such behavior instigated the public to express negative sentiment on various social media platforms. The promulgation of distaste and disapproval, in other words, negative word of mouth, infiltrated social media for months and years after the incident. The public responded with word of mouth behaviors on social media by expressing anger, disapproval and the need for justice.

There is a gap in literature regarding public reactions to irresponsible corporate actions as most research to date has focused on positive consumer response to socially responsible corporate behavior (Grappi, Romani & Bagozzi, 2013). However, the virality of social media has especially revolutionized the way in which the public responds to crises (Liu, Austin & Jin, 2011). Social media acts as a catalyst which accelerates the spread of crises (Gonzalez-Herrero & Smith, 2010) by providing an outlet for unmonitored, free flow discussion among stakeholders. Additionally, there is a dearth of research on the analysis of brand-related conversation surrounding a crisis. Two understudied categories of public responses, negative word of mouth (ie. negative comments, recommending against brand, and discrediting the company) and protest (ie. boycotting) will be examined to understand how the nut rage incident affected Korean Air as a brand (Grappi, Romani, & Bagozzi, 2013).

Employing social network analysis and semantic analysis, this study investigates the dynamics of WOM network on YouTube, the pattern of co-commenting activities across videos, as well as public reaction and concern toward Korean Air. A total of 512 videos featuring the nut rage incident, from December 8, 2014 through November 11, 2018, and 52,772 relevant public comments embedded in the network were collected. Semantic network analysis with a CONCOR block modeling will be conducted to analyze the textual data. The results will offer practical implications on crisis communication and brand reputation.

Key word: Social Media, Social Network Analysis, Crisis Communication, Word of Mouth, Brand Reputation

Negative Word of Mouth on YouTube: Social and Semantic Network Analysis of Consumer Responses to Crisis

Jin-A Choi (William Paterson University); Sejung Park (John Carroll University)

Dissatisfaction often leads to greater word of mouth (WOM) than satisfaction, where in some cases, dissatisfied customers engaged in WOM twice, or as high as 10 times, as much as satisfied customers (Anderson, 1998). Negative communication is likely to have greater impact than positive communication, possibly putting corporate reputation and brand attitudes at risk when negative communication occurs (Lutz, 1975). Therefore, this suggests that corporate social transgressions that violate moral standards/behaviors not only elicit negative emotional reactions, such as anger, contempt and disgust, by the public (Haidt, 2003), but prompts the public to engage in negative WOM which may negatively impact the brand.

Consumers are sensitive to corporate wrongdoings and their reactions to such irresponsible behaviors are known to be negative (Hollenbeck & Zinkhan, 2010). Upon seeing moral systems violated, consumers are induced to react, such that consumers may perform destructive punitive actions by creating negative image of and avoiding the brand (Romani, Grappi & Bagozzi, 2013). Consumers choose brands based on their attitudes and values toward the corporate's business practices regarding issues of justice, fairness, well-being, etc. (Micheletti, 2003). Conscious consumers may subsequently choose to avoid brands by boycotting (Micheletti, 2003) or engaging in antibrand activities (Hollenbeck & Zinkhan, 2010) in hopes of social justice or changing the corporation's controversial behaviors.

There is a gap in literature regarding public reactions to irresponsible corporate behavior as most research to date has focused on positive consumer response to socially responsible corporate behavior (Grappi, Romani & Bagozzi, 2013). However, the virality of social media has especially revolutionized the way in which the public responds to crises (Liu, Austin & Jin, 2011). Social media acts as a catalyst which accelerates the spread of crises (Gonzalez-Herrero & Smith, 2010) by providing an outlet for unmonitored, free flow of discussion among stakeholders. Furthermore, marketing literature shows a link between customer WOM and sales, offering an explanation in the pattern of consumers' adoption behaviors and subsequent rise and fall in sales as a result of WOM (Chevalie & Mayzlin, 2006). Additionally, there is a dearth of research on the analysis of brand-related conversation surrounding a crisis.

In this study, corporate irresponsible behavior concerns violation of moral standards or behaviors, in ethical and social contexts, by corporations (Haidt, 2003). Specifically, we examine the damage from corporate social moral transgression, which is the act of a corporation harming a community by violating norms or expectations of respect (Grappi, Romani & Bagozzi, 2013). What then will happen when consumers learn about irresponsible corporate behavior? In this study, the public's reaction to Korean Airline's social transgression and their ultimate effects on consumer behavior is explored. Personal transgressive misconduct by the vice president of Korean Air, Heather Cho, shocked the public on December 5, 2014. The incident occurred when a flight attendant failed to follow the airline's procedures and served nuts to first-class passengers in their original plastic package instead of a plate. Cho ordered the airplane to return to the gate and forced the

responsible cabin crew off the plane. Since labeled as the “nut return,” “nut rage” or “nut gate” incident, Cho demonstrated behavior that exemplifies corporate transgression and deviation from societal moral standards (Kim, Yoo & Uddin, 2018). The vice president’s behavior instigated the public to express negative sentiment on various social media platforms. In particular, numerous parody videos and news content were created and shared on YouTube. The promulgation of distaste and disapproval, in other words, negative WOM, infiltrated YouTube for months and years after the incident. The public expressed anger, disapproval and the need for justice.

We investigate the negative WOM network at the aggregate level from a social network perspective. Considering that social media discussions are dominated by few elite users, this study focuses on such active users that produced comments across multiple videos on YouTube and their responses to the Korean Air’s crisis at the level of video (Shapiro & Park, 2017). The structural properties of the negative WOM network, the pattern of co-commenting activities among the users, and their responses to the crisis expressed in the comments will be investigated.

To explore the dynamics of negative WOM network and how the public responded to Korean Airline’s social transgression, this study will conduct social network analysis and semantic network analysis. A total of 512 videos that addressed the nut rage incident in Korean language, from December 8, 2014 through November 11, 2018, were collected. First, the network structure will be investigated to examine how the negative WOM network was constructed. Second, multiple centrality measures will be calculated to determine which contents are influential in the network. Third, the pattern of negative WOM activities among

the public will be revealed. Lastly, to examine the active commenters' reaction and concern toward the brand, semantic network analysis and a CONCOR block modeling will be carried out. A total of 52,772 comments generated by the active commenters will be examined.

Previous studies have investigated public responses to corporate crises, such as negative WOM, through quantitative empirical research mostly with surveys or experiments. However, the examination of networking characteristics at the macro level and actual public responses were limited. Rich managerial implications on consumer behavior can be gleaned from examination of the dynamics of WOM behavior and public comments left on social media. Managers could yield crucial information that could help them understand how consumers or other stakeholders behave towards brands that act irresponsibly.

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10
광고 타깃의 우연성과 필연성

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광고 노출의 우연성과 필연성

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광고와 오디언스의 만남은 '노출'이라는 것을 통해 이루어 진다. 그 만남은 불가(佛家)에서 얘기하는 '옷깃만 스쳐도 인연이다' 와 같은 비인지된 찰나의 만남, 즉 학문적으로 Mere Exposure 에 속하는 노출일 수도 있고, 오디언스의 상황과 관심도에 따라서 보다 깊은 처리가 되는 Engaged Exposure 가 될 수도 있다. 물론 mere exposure 도 축적된 효과로 나타날 수 있지만, 광고인들은 그들의 광고가 적시적소(適時適所)에 적인(適人)에게 노출돼서 효율과 효과를 동시에 잡고 싶은 기대가 있을 것이다.

아날로그 시대의 광고가 이와 같은 적시/적소/적인에 대한 계획을 대부분 우연에 대한 기대에 기초해서 했었다면, 현시대의 디지털 광고는 매우 정교하게 계획되어 실행되는 필연적 노출을 지향한다. 2018 년 미국 디지털 광고의 80%가 프로그래마틱 광고(Programmatic Advertising)로 시행되었다는 통계를 보아도, 마케터들이 전략적인 함수를 만들고, 이 함수에 따라 광고가 만들어지고, 인공지능(AI)에 의해 계산되고 최적화된 방식에 따라 ad exchange 에서 광고의 노출이 결정되는 일련의 과정은, 마치 도미노의 설계자가 치밀하게 1 번 피스부터 마지막 피스까지의 과정을 디자인하는 것과 매우 유사하다.

이 글에서는 이러한 현시대 광고의 노출에 대한 우연성과 필연성에 대한 의미를 철학적인 접근을 통하여 고찰해 보고자 한다.

우연적 만남과 필연적 만남

모든 것의 만남에는 만남의 주체들이 있고, 만남이 이루어지는 시간과 장소가 있다. 다시 말해서 주체들이 같은 시간과 장소에 있을 때에 만남이 이루어 지는데, 그것이 계획된 것이라서 주체들이 서로의 만남에 대한 예상을 할 수 있었고 다른 만남에 대한 개연성이 없었다면 필연적 만남이 될 것이다. 반대로, 계획이 없었고 예상하지 못한 만남이라면 우연적 만남이 될 것이다. 하지만 어떤 만남이 한 쪽 주체 A 에 의해서 (상대 주체가 인지하지 못한 상태로) 계획되었다면, 그것은 우연인가 필연인가? 아마도 계획한 주체인 A 에게는 필연이 되고, 계획에 대해 모르는 B 는 이를 우연으로 생각하게 될 것이다. 또한 A 가 그의 친구 C 에게 B 와 만날 것을 미리 알려 준다면, C 에게 있어서도 이 둘의 만남은 필연이 된다. 하지만 여기에는 한가지 중요한 모순점이 존재한다. 즉, 만남이라는 현상이 아직 일어나지 않았다는 점이다. 하지만 미래 어떤 시점에 있어 어떤 일이 일어나도록 계획해서 예정한 상태일 경우, 미래에 일어날 그 일은 필연인가?

또한 여기에 제 3 자인 만남의 설계자가 있다고 가정한다면, 그에게 있어서도 그 만남은 필연일 것이다. 마치 도미노 설계자에게 있어서 첫번째 도미노 피스(piece)로부터 시작되어 마지막 피스가 쓰러질 때 까지의 과정은 필연적인 사건(각 도미노 피스가 쓰러지는)의 연속이 되는 것처럼, 설계의 정교함은 필연적 결과의 가능성을 높이게 된다.

10 년 이상 한국인의 애창곡 상위 5 위권(갤럽, 2014)[1] 에 들어가는 곡 중 하나인 노사연의 “만남”은 이렇게 시작한다. “우리 만남은 우연이 아니야. 그것은 우리의 바램이었어. 잊기엔 너무한 나의 운명 이었기에…” 1989 년에 발매된 2 집에 수록된 이곡은 탈북자들이 가장 좋아하는 인기곡으로 꼽히기도 했다. 이렇듯 부부의 연, 부모와 자식간의 만남, 管鮑之交(관포지교)의 관중(管仲)과 포숙(鮑叔)과 같은 죽마고우로서의 만남, 등등, 이 세상을 살면서 만나게 되는 많은 만남 중에는 자의든 타의든 마치 나에게 숙명처럼 필연적으로 느껴지는 것이 있다. 그렇다면 어떤 만남이 우연이고, 또 어떤 만남이 필연인 것일까?

세상의 많은 종류의 만남에, 사람간의 만남 뿐만 아니라 사회적 상태(예: 직업이나 직장), 사물(예: 자동차), 종교, 또는 반려동물과의 만남 등을 포함해서, 필연성을 부여하고 믿는 경우를 우리 자신과 주변에서 많이 볼 수 있다. 필연적인 만남을 믿고 싶어하는 우리들의 마음은 현재의 만남에 대한 무의식적인 소망에 기반해 있다고 한다. 마치 험난한 과정을 통해 남한으로 온 탈북자들이 남한과의 만남, 즉 성공한 탈북을 결코 우연으로 생각하기 어려운 것처럼, 소망스러운 만남은 그에 수반되는 긍정적 경험 때문에 소중하게 느껴지고 그것이 지속되길 원하는 마음이 있기 때문에 필연성을 부여 하고 싶어진다는 것이다. 만일 그것이 우연적인 만남이라면, 헤어짐 또한 우연적으로 발생할 것이기 때문에 우연성은 부정되어야 하는 것이다.

노사연의 “만남”의 가사(박신 작사)에는 중국 후한(後漢)의 왕충(王充, AD 27~100?)이 논형(論衡)에서 구분한 마주침(遇, 우: 만나다)과 잼(揣, 췌: 헤아리다, 재다)의 개념이 들어 가 있다. 왕충은 그의 저서 「논형(論衡)」 중 행우(幸偶)와 봉우(逢遇)편에서 마주침(우발적 만남)과 헤아림(또는 잼 – 준비된 만남)에 대해 이렇게 설명한다.

> 땅에 있는 땅강아지와 개미 위로 사람이 발로 밟고 지나간다. 발에 밟힌 것들은 눌려 죽고, 밟히지 않은 것은 다치지 않고 살아남는다… 들에 있는 풀에 불이 붙었을 때 마차가 지나 갔던 자리에는 불이 붙지 않는다. 날벌레가 거미의 줄을 지나가다 잡히는 것도 있고 벗어나는 것도 있다. 짐승들도 떼지어 달리다가 사냥군의 그물에 잡히기도 하고 빠져나가기도 한다. 어부가 그물질하다 보면 잡히는 고기도 있고 빠져나가는 것도 있다. 큰 죄를 지은 간교한 도적이 발각되지 않기도 하고 작은 죄인이 발각되는 경우도 있다. 『논형』「행우(幸偶)」
>
> ‘마주친다[遇]’는 것은, 미리 능력을 준비해 두는 것도 아니고 유세할 내용을 미리 갖추어 두는 것도 아니지만 군주의 마음에 우연히 맞게 되는 것이기 때문에, ‘마주친다’고 한다. 만일 군주의 마음을 헤아려 유세할 내용을 맞추어 존귀한 지위를 얻었다면, 이것은 ‘잰다[揣]’라고 하지, ‘마주친다’고 하지 않는다. 봄에 씨를 심고 곡식이 자라나면 가을에 곡식을 거두는 경우나, 어떤 것을 구하기 위해 일을 해서 그것이 완수되는 경우는 ‘마주친다’고 하지 않는다. 구하지 않았는데도 저절로 이루어지고 일을 하지 않았는데도 저절로 일이 완수되어야 ‘마주친다’고 이야기한다… 요즘 세상 사람들은

[1] http://www.gallup.co.kr/gallupdb/reportContent.asp?seqNo=634

> ‘마주친다’와 ‘마주치지 않는다’라는 의미를 정확히 이해하지 못하면서, ‘마주친’ 경우에는 그것을 칭송하고 ‘마주치지 않은’ 경우에는 그것을 비난한다. 이는 드러난 결과에 근거한 것이며 이미 이루어진 일을 판단하는 것이지, 이것으로는 그 사람의 행실과 재능을 알 수 없는 법이다. 『논형』「봉우(逢遇)」

즉, 우발적이고 우연적인 만남인 마주침은 저절로 이루어 지는 것이고, 준비된 만남인 잼(‘재다’의 명사형, 한자로는 揣)은 구할 것이 있고 그를 위한 일을 해서 이루어진 경우를 의미하는 것이다.

브랜드와 소비자도 만남이라는 과정을 통해 서로 알아가고 익숙해 지고 친구 같은 또는 심지어 연인같은 관계로 발전해 간다. 던컨과 모리아티 (Duncan and Moriarty, 1997)는 ‘접점’, 즉 contact point(또는 다른 문헌에서는 touch point 라고 하기도 한다)라는 개념을 제시하면서 소비자는 브랜드가 만든 접점, 소비자들이 만든 접점, 그리고 근본적 접점(intrinsic contact point)을 통해서 브랜드와 만남을 한다고 보았다. 던컨과 모리아티에 따르면 브랜드 접점은 소비자가 갖는 모든 브랜드 경험(“any experience a customer has with a brand”)이며 이는 미디어플래닝의 시작점이기도 하다. 접점(接點)이라는 단어 자체가 두 개체가 만나서 닿는 점을 뜻하니까 접점은 만나는 점이고 브랜드 접점은 브랜드와 소비자가 만나는 곳이 된다. 브랜드가 소비자를 만나는 접점 중 하나인 브랜드가 만든 접점(brand-created contact point)은 요즘 용어로 ‘paid media’로도 부를 수 있는데, 이는 광고라는 경험을 통해서 이루어 지게 된다. 즉, 광고라는 접점을 통해서 브랜드와 소비자의 만남이 이루어 지는 것이다. 물론 광고는 미디어의 시공간에 배치돼야 하므오 브랜드는 광고를 타고 미디어라는 장소에서 소비자와 만남을 하게 되는 것이다. 하지만 브랜드와 소비자는 하람들의 만남처럼 언제 어디서 만나기로 약속을 하고 만나지 않는다. 마치 우연히 길에서 옛친구를 조우한 것 과 같이 소비자가 어떤 시점에, 특정 미디어에서 특정 컨텐츠를 소비할 때 우연히 광고를 보게 되는 것 처럼 보인다. 광고와 소비자의 만남은 이렇듯 우연히 발생하는 것일까? 우연한 만남이 되려면 브랜드와 소비자가 서로의 움직임에 대해 전혀 정보를 갖고 있지 않은 상태에서 독립적으로 행동하다가 만나야 하는데 과연 광고를 통해 브랜드가 소비자와 만나는 접점은 그런 의미에서 우연과 필연 중 어느것에 가까운 것일까?

앞서 『논형』의 「봉우(逢遇)」편에 있는 글을 보면 광고와 소비자의 만남을 우연이라 보기 어렵다는 것을 짐작해 볼 수 있다. 논형에 있는 글을 광고 상황에 맞게 각색해 보면 아래와 같이 적용해 볼 수 있다.

> 광고에서 ‘마주친다[遇]’는 것은, 미리 광고 타깃에게 맞게 준비해 두는 것이 아니지만 소비자의 눈에 우연히 맞게 되는 것이기 때문에, ‘마주친다’고 한다. 만일 소비자의 행동패턴을 헤아린 광고를 해서 좋은 광고결과를 얻었다면, 이것은 ‘잼’ 또는 “헤아림[揣]’라고 하지, ‘마주친다’고 하지 않는다. 소비자의 마음 속에 메시지를 심은 후 시간이 흘러 효과를 거두는 경우나, 소비자의 마음을 구하기 위해 광고를 해서 그것이 완수되는 경우는 ‘마주친다’고 하지 않는다. 구하지 않았는데도 저절로 이루어지고 일을 하지 않았는데도 저절로 일이 완수되어야 ‘마주친다’고 이야기한다… … 많은

> 사람들이 '마주친다'와 '마주치지 않는다'라는 의미를 정확히 이해하지 않고, 광고와 소비자가 '마주친' 경우에는 칭송하고 '마주치지 않은' 경우에는 비난한다. 이는 드러난 결과에 근거한 것이며 이미 이루어진 일을 판단하는 것이지, 이것으로는 그 광고의 효율성과 효과를 알 수 없는 법이다. (즉, 소비자에 대한 헤아림이 있었어야 비로소 효율성과 효과를 판단할 수 있는 것이다.)

왕충의 생각을 빌려서 광고상황에 적용해 보면, spray and pray (뿌리고 기도하는) 방식의 광고는 광고와 소비자간의 우연적 만남이지만, 연구와 경험적 인사이트를 통해 정교하게 집행되는 광고는 메시지와 소비자 간의 필연적 만남을 지향한다고 볼 수 있다.

우연과 필연의 철학적 의미

왕충의 마주침과 잼을 통한 우연과 필연의 구분은 그것이 거의 2 천년전에 제시된 것을 고려해 볼 때 매우 통찰력 있는 방식이다. 앞서 생각 해 본 듯이 광고와 소비자의 만남은 왕충의 생각을 적용해 볼 때 우연이 아니고 잼 또는 헤아림, 즉 필연에 가깝다고 볼 수도 있는데, 필연은 정말 존재하는 것인가? 필연이 있다는 것은 어떠한 만남이 미리 정해져 있다는 것인데, 그것은 합리적인 생각인가?

철학에서는 어떤 일이 반드시 그렇게 될 수 밖에 없다면 필연이고 그렇지 않을 가능성도 있었다면 우연으로 본다. 다시 말해서 반사실문이 성립하면 우연이고 그렇지 않으면 필연인 것이다. 그러나 우연과 필연의 정의와 그들간의 관계는 매우 복잡하고 이해하기 어렵다. 일단 시점의 문제가 있을 수 있다. 즉, 반사실문이 성립하는 시점으로 과거와 미래가 모두 포함 될 수 있는가이다. 예를 들어, 철수와 영희가 결혼을 한 시점에서 보면, 결혼이라는 것이 이미 발생해서 그 사실을 과거로 돌아가서 바꿀 수 있는 반사실문이 존재하지 않는다는 점에서 이미 발생한 일은 필연이 된다. 하지만 결혼전에 철수가 '나는 영희와 결혼하게 될 것이다'라고 한다면 이는 반사실문이 앞으로 성립할 가능성이 있기 때문에 필연으로 볼 수는 없는 것이다. 즉, '내가 영희와 결혼한 것은 필연이다'라고 말 할 수는 있지만 '내가 영희와 결혼할 것은 필연이다'와 같이 미래시점에 발생할 일을 필연이라 할 수는 없는 것이다.

이를 광고 상황에 적용해 보면, 애플이 신제품 아이폰 10 광고 A 와 B 중 A 를 철수에게 보여주려 하면서, '철수는 아이폰 10 광고 A 를 볼 것이다'라는 확신을 하고 있다면 그 확신하고 있는 내용은 참인가 거짓인가. 당연히도 이에 대한 반사실문, 즉 '철수가 A 광고를 보지 않을 수 있다'라는 추측도 가능하기 때문에 참 또는 필연으로 볼 수는 없다. 따라서 철수가 A 광고를 보게 된다면 그것은 우연이 되는 것이다. 결국 미래에 일어날 일이 여러 가능성 있는 일 중 하나라면, 그에 대한 예측은 필연성을 띤다고 볼 수 없는 것이다.

사실 이와 같은 생각은 오래전 BC 4 세기부터 '미래시점 우연명제'라는 문제로(the problem of future continents) 많은 철학자들이 고민해 왔던 난제이다. 왜냐하면, 모든 명제는 참과 거짓으로 판단할 수 있어야 하는데 미래시점에 대한 명제는 그 판단이 불가능하다고 생각되기 때문이다. 먼저

아리스토텔리스(Aristotle)는 미래시점 명제를 참과 거짓의 이가(二價)로 판단할 수 없으므로 우연(contingent)이라는 제 3 의 논리값을 사용해야 한다고 생각했다. 즉, '내일 비가 올 것이다'는 예측은 참과 거짓을 현재 알 수 없으므로 우연적(contingent)이라는 양상(modality)을 가진다고 보는 것이다. 즉 모든 명제는 참, 거짓, 우연적이라는 세가지 양상으로 판단할 수 있다는 것이다. 수학적으로 생각하면 보다 더 분명하다. 2+y=4 의 경우 y=2 가 되는 것은 필연이다. 하지만 x+y=4 와 같은 문제의 경우, x 와 y 가 자연수라면 1 과 3, 3 과 1, 2 와 2 와 같은 경우가 있기 때문에 y 가 2 인 것은 필연적이지 않다. y=2 라면 그것은 세가지 경우 중 하나이기 때문에 우연인 것이다. x 와 y 가 정수라면 그 "우연성"은 커지게 될 것이다.

결국 앞서 예를 들었던 아이폰 10 광고상황에서, 미래 어떤 시점에서 철수는 (1) 광고에 노출 되지 않을 수도, (2) 광고 A 에 노출 될 수도, (3) 광고 B 에 노출 될 수도 있기 때문에 '철수는 광고 A 에 노출 될 것이다'라는 것은 우연적이라고 볼 수 있다.

하지만 우연이라는 것은 존재하지 않는다고 주장하는 철학자들도 있었는데, 대표적으로 디오도러스 크로너스(Diodorus Cronus, BC 284 년 경에 사망한 것으로 알려져 있음)는 다음과 같은 Master Argument 를 통해서 우연성에 대한 논리적 문제점을 주장하기도 했다.

> 디오도러스 크로너스의 Master Argument
> (D1) 과거에 대해 참인 명제는 필연이다.
> (D2) 불가능한 명제는 가능한 명제에서 나올 수 없다.
> (D3) 참과 거짓을 알 수 없는 가능한 명제는 존재한다.

즉, 필연인 명제는 참이고 가능한 것이고, 가능한 명제에서는 가능한 명제만 나와야 하기 때문에, 참과 거짓을 알 수 없는 가능한 명제는 미래시점에 존재 할 수 없다는 것이다. 현재의 예측으로 미래에 어떤 일 A 가 일어나지 않는다고 한다면 이와 같은 예측을 과거시점에서도 할 수 있다는 것은 참이다. 모든 과거에 발생한 일은 필연이기 때문에, 이와 같은 과거의 예측은 필연이 된다. 불가능성은 가능성에서 나올 수 없기 때문에 (즉, 둘은 공존할 수 없다), A 가 일어날 가능성은 없어야 한다. 어떤 일이 발생할 것이라는 예측이 거짓이라면, 그것은 절대로 참이 될 수 없다, 따라서 참과 거짓을 알 수 없는 가능한 명제는 존재할 수 없다. 즉, 위의 D1 과 D2 가 참이기 때문에 D3 는 거짓이 되는 것이다.

광고상황으로 돌아가서 이해해 보면, 철수가 광고 A 를 본 것은 우연이 아니고 필연이 되는 것이다. 왜냐하면, 이미 발생한 광고 A 의 노출은 참일 수 밖에 없으므로 노출 전인 과거시점에서 이를 예측했다면 그것은 필연을 예측한 것이 되는 것이다.

이와 같은 논리적 전개는 미적분을 창시하고 발전시킨 수학자인라이프니쯔(Leibniz)의 견해와도 비슷한 맥락을 가진다. 그는 모든 일은 이미 예정돼 있다는 신에 의한 숙명론을 믿었기 때문에, 사람들이 우연히

발생했다고 여기는 것들이 사실상 필연적으로 예정돼 있었다고 보았다. 이를 좀 더 확대해서 생각해 보면, 신의 존재를 믿지 않더라도 자연의 이치나 거대한 우주의 힘을 생각해 봐도 어느정도 이해가 가능한 부분이다. 즉, 나무에서 떨어진 개미가 중력의 법칙에 의해서 필연적으로 땅에 떨어지게 될 것을 개미는 예측할 수 없더도 과학을 아는 인간은 할 수 있다는 점에서도 그렇다. 물론 개미가 그 중간에 어떤 나뭇잎으로 떨어질 수도 있는데 그것 또한 그 때의 바람의 방향등에 따른 필연적 결과로 볼 수 있는 것이다. 라이프니쯔는 참(truth)에는 필연적인 참(necessary truth)과 우연적(또는 조건적) 참(contingent truth)이 있다고 보면서 다음과 같이 설명한다.

> 확신적 참(affirmative truth)은 주관성을 지닌 서술에서 볼 수 있다. 절대적 참(absolute truth)을 지닌 명제는 동의명제(1=1 과 같은)로 설명될 때 가능하다… 필연성을 결여한 것은 우연한 것인데, 어떤 것의 반대가 필연적이라면 그 어떤 것은 불가능하고 그 나머지는 가능하다… 우연적 참(contingent truth)는 아직 절대적 참에 도달하지 못한 가능한 일을 가리킨다.

이와 같이 우리에게 발생하는 모든 일들에 대한 필연성은 많은 고대 철학자들이 주장해 온 바이다. 이 중 물리적 필연성(physical necessity)이라는 개념도 있다. 이에 따르면 이제까지 발생된 모든 일과 그 일들이 앞으로도 발생할 것이라는 것은 필연적이고 그 외 다른 경우는 없어야 한다. 이를 철학에서 현실주의(actualism)이라 부르는데, 이와 반해 가능주의(possibilism)는 아직 발생하지 않은 일도 가능하다는 주의이다. 현실주의자들도 가능주의자들이 주장하는 가능성을 인정하기는 하지만, 그것은 아직 발생하지 않았기 때문에 현실세계에 관련없다는 입장을 가진다. 따라서 필연성이라는 것은 결정주의(determinism)를 따르며 현실주의적 영역에서만 가능하다. 이에 관련하여, 루시퍼스[i](Leucippus)는 다음과 같은 주장을 한다. “Nothing occurs at random, but everything for a reason and by necessity” (모든 일은 필연적으로, 반드시 어떤 이유로 인해 발생한다. 우연히 발생하는 일은 없다.)

즉 철학자의 세계관에 따라 세상에 발생하는 모든 일은 모두 필연적으로 보거나 우연적인 것도 있다고 보는 견해로 나뉠 수 있다. 이를 ‘가능성’이라는 개념으로 연결 지어 이해 해 보면, 필연적이거나 우연적인 일 모두 발생하였기 때문에 가능성이 있었던 일이라 볼 수 있다. 즉, 가능성 안에 우연성과 필연성이 있는데 그 둘은 서로 완전히 독립적이다. 다시 말해서, 우연적이면서 필연적인 것은 없는 것이다. 가능성과 필연성의 관계는 집합이론에서의 드 모르간 법칙(De Morgan's law)을 따르는 것으로 다음과 같이 볼 수 있다.

> *A 가 필연적이지 않다는 것은 A 가 아닌 일도 가능하다는 것이다.*
> *("It is not necessary that A" is equivalent to "It is possible that not A.")*
> *A 가 불가능하다는 것은 A 가 발생하지 않을 것이 필연적이라는 것이다.*
> *("It is not possible that A" is equivalent to "It is necessary that not A.")*

이 또한 광고 상황에 적용해 보면 다음과 같다.

광고 A 를 보는 것이 필연적이지 않다는 것은 광고 A 를 보지 않는 것도 가능하다는 것이다.
광고 A 를 보는 것이 불가능하다면 광고 A 를 보지 않게 되는 것은 필연적이다.

이를 가능성과 필연성의 양면성("duality" of possibility and necessity)이라는 논리적 개념으로도 이해할 수 있다. 즉,

철수가 광고 A 를 볼 것이라 단정할 수 있다면, 광고 A 를 보지 않게 될 가능성은 없다.
철수가 광고 A 를 볼 가능성이 있다면, 광고 A 를 보지 않게 될 것이라고 단정할 수는 없다.

이는 양상논리(modal logic)를 통해서도 이해할 수 있다. 양상논리는 필연성과 가능성에 대한 논리적 접근법이다. 좀 더 축약된 설명을 위해서 양상논리에서는 필연성을 위해 □(정사각형)을 쓰고 가능성을 제시하기 위해서 ◇(다이아몬드)를 쓴다. 즉 □A 는 "A 는 필연적으로 발생한다"의 의미이고, ◇A 는 "A 가 발생할 가능성이 있다"의 의미를 갖는다. 이 외에 논리학에서 일반적으로 쓰이는 기호들인 "→"(…면), "¬"(부정), "∧"(그리고), "∨"(또는)을 사용하여 아래와 같은 간단한 추론을 할 수 있다[ii].

□이 볼펜을 놓으면 반드시 땅에 떨어진다.

이 볼펜을 놓으면 반드시 땅에 떨어진다.

광고 상황으로 적용시켜 보면,

□철수는 반드시 광고 A 를 본다.

철수는 반드시 광고 A 를 본다.

논리학적으로 좀 더 복잡하게 아래와 같은 일반 상황에서의 추론도 가능하다.

□(문이 열려있다 → (문 닫는 것을 잊었다 ∨ 도둑이 들었다))
□(창문이 깨져 있다 → (공이 날아와서 창문을 깼다 ∨ 도둑이 들었다))
창문이 깨졌다 ∧ 문이 열려 있다
¬◇(문 닫는 것을 잊었다 ∧ 공이 날아와서 창문을 깼다)

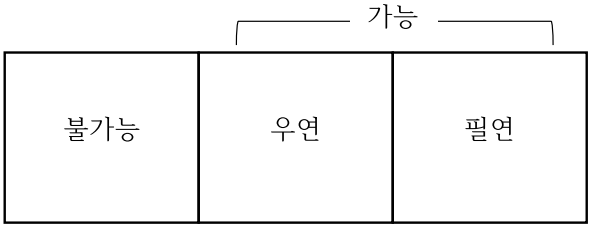
□도둑이 들었다

이 또한 광고상황에 적용해 보면,

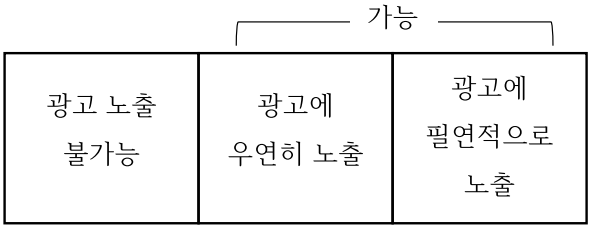
□(철수가 하이마트에서 신형 LG TV 를 특가로 구매했다 → (철수는 LG TV 를 좋아한다 ∨ 철수가 하이마트 LG TV 특가 광고를 봤다))
□(철수가 하이마트에 갔다 → (철수는 다른 전자제품 마트를 싫어한다 ∨ 철수가 하이마트 LG TV 특가 광고를 봤다))
철수가 신형 LG TV 를 특가로 구매했다 ∧ 철수가 하이마트에 갔다

~◇(철수는 LG TV 를 좋아한다 ∧ 철수는 다른 전자제품 마트를 싫어한다)
□철수가 LG TV 특가 광고를 봤다

인류의 지식의 역사 속에 셀 수 없이 다양하고 쉽게 이해하지 못할 수준의 깊은 철학적 논의들이 많지만, 앞에서 간략하게 선택적으로 논의한 철학적 접근들을 종합해 보면 우연과 필연은 가능성의 프레임을 이용해서 아래와 같이 분류해 볼 수 있다.



이를 광고에 적용시켜보면,



시간에 따른 우연성과 필연성의 구분

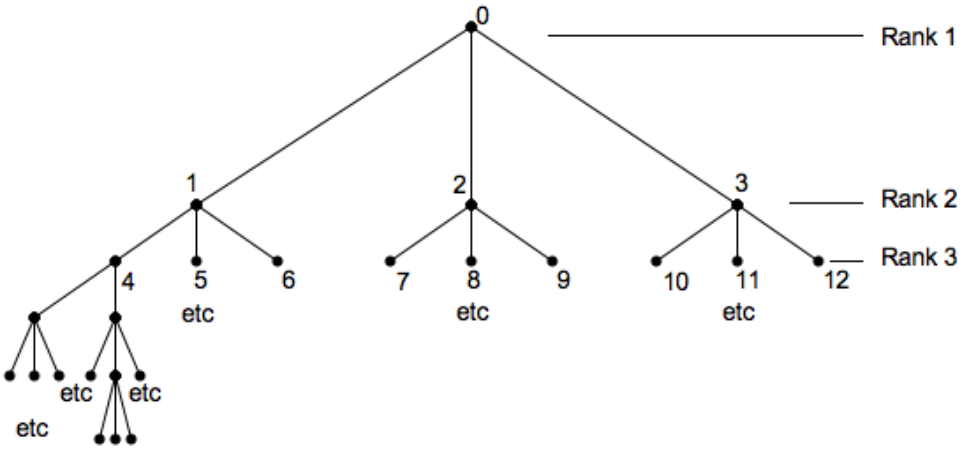
철학자들에 따르면 우연과 필연은 예측시점 또는 발생 시점에 따라 달아질 수 있다고 한다. 이는 앞서 논의했던 미래시점 우연명제의 문제와 연관지어 생각해 볼 수 있는데, 간략하게 기호화해서 아래와 같이 연관시킬 수 있다. 프라이어(A.N. Prior, 1914-69)는 이를 F(=future)와 P(=prior)라는 시간 개념을 더해서 아래와 같이 서술하였다.

F(x) “시간 x 안에 앞으로 반드시 그럴 것이다” (“in x time units it will be the case that …”)
P(x) “시간 x 까지 늘 그랬다” (“x time units ago it was the case that …”)
□ “필연적으로 그래야 한다” (“it is necessary that …”)

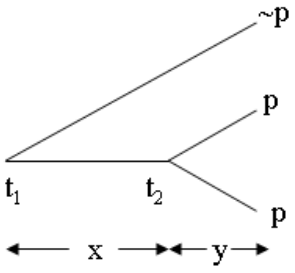
시간 개념을 우연성과 필연성의 구분에 넣는 시도에는 여러가지가 있는데, 아래에 최초의 구조적 시도로 알려진 사울 크립케(Saul Kripke)의 시간 가지치기(Branching Time Semantics)를 살펴보자. (이것은 사울이 1958 년에 프라이어에게 보낸 편지 속에 제시되었다고 한다.) 아래 그림에서 사울은 현재를 Rank 1 으로 보고 그 다음 순서로 다가오는 미래시점에서 가능한 이벤트나 상태를 Rank 2, 그리고 그 다음 미래시점에 가능한 것을 Rank 3, 그 다음은 Rank 4 등등으로 도식화했다. 이를 통해 사울은 미래에 발생할 일들에 대한 가능성, 그리고 가능한 일들에 대한 우연성과 필연성은 선형적 관계 보다는 아래와 같은

나무가지 모양의 구조적 형태로 봐야 한다는 주장을 했다.[iiiiv] 다음 그림에 대한 사울크립케의 설명을 옮기면 다음과 같다.

> *첫번째 시작점인 0 포인트는 현재이다. 그리고 Rank 2 의 1, 2, 3 포인트들은 현재 바로 다음에 가능한 일들이다. 만일 1 번 포인트가 실제 발생한다면, 그 다음에는 4, 5, 6 번 포인트들이 가능해 진다. 이 나무모형은 현재와 미래에 발생 가능한 모든 것들을 보여주며, 각 포인트는 그 현재와 그 다음 미래에 발생할 일들을 결정한다.*



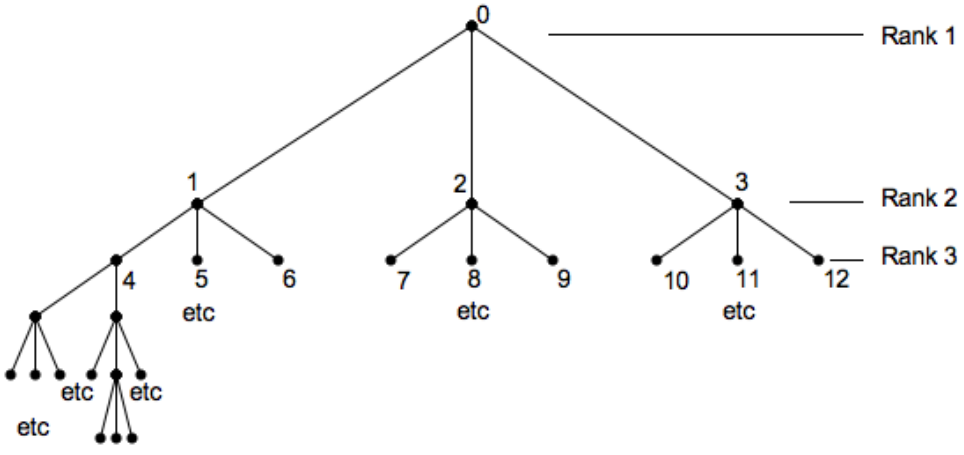
이러한 시간의 이동에 따른 우연과 필연의 이동에 대한 구조적 형태는 과연 현재라는 것이 어떤 구조적 형태 속에서 이동해 갈 수 있느냐는 근본적 오류성을 가지고 있다는 문제점이 있다(Smart, 1949; McCall, 1976:, Nerlich, 1995, McFarlane, 2008). 비슷한 예로 미국 실용주의 철학의 창시자인 찰스 S. 퍼스(Charles S. Peirce)의 해법을 그림으로 소개해 보면 다음과 같다.



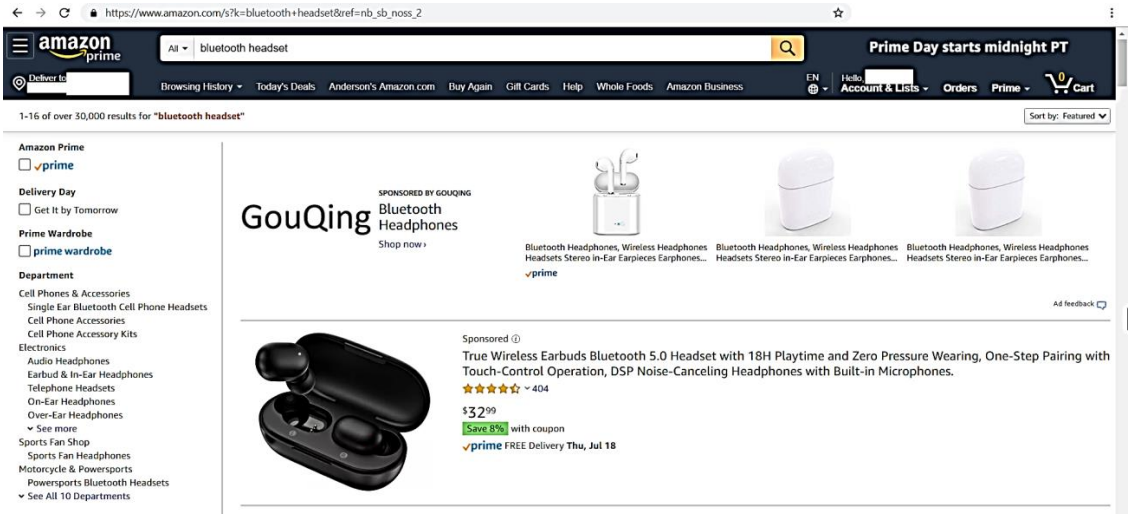
여기서 x 와 y 는 시간을 뜻하고 t 는 시점을 뜻한다. 이 그림에서 F(y)p 는 t2 시점에서는 참이다. 여기서, F(x)는 x 라는 시간이 흐른 뒤의 미래를 뜻한다. 따라서 F(x)p 는 x 라는 시간이 흐른 후에는 p 가 발생한다는 의미이다. 하지만 F(x)F(y)p 라는 예측은 t1 에서는 ~p 의 가능성도 있으므로 거짓이 된다.

이후에 등장한 여러 복잡한 철학적 고찰이 많지만, 대부분이 시간의 이동을 공간적으로 이해하는 오류성은 쉽게 해결하지 못한 것으로 보인다. 프라이어도 이러한 문제점을 지적하긴 했지만, 신중하게만 이용한다면 상당히 유용한 설명으로 봤다.

다시 돌아가서 사울 크립케의 시간가지치기 형태를 광고상황에 접목해 보자. 아래는 블루투스헤드셋의 잠재고객인 철수가 온라인 쇼핑을 하는 가정하에 GouQing 이라는 회사가 자사의 블루투스헤드셋 스폰서광고를 철수에게 노출시키고자 하는 상황이다.



철수의 과거 온라인 쇼핑행동에 대한 데이타를 그가 자주 이용하는 아마존, 이베이, 구글이 가지고 있고 그것을 SSP (Supply-Side Platform)에 제공하고 GuoQing 은 이를 DSP (Demand-Side Platform)를 통해 자동으로 리얼타임비딩을 하게 될 것이다. 이때 철수가 웹브라우저에서 아마존으로 가서 bluetooth headset 을 검색할 경우, 0.1 초도 안 되는 찰라에 GuoQing 의 스폰서광고가 철수에게 보여지게 된다. 이 상황을 크립케의 시간가지치기 모형에 대입해서 그려 보면 다음과 같다. 즉, 현재가 0 인 상황(철수가 브라우저만 오픈한 상황)에서 QuoQing 은 다음 시점에 철수가 Amazon, ebay, 또는 Google 중 어디로 갈지에 따라, 그리고 검색어를 무엇으로 할 지에 따라 광고를 노출 시킬 준비를 하고 프로그래마틱바잉을 시작한다. 결국 모든 경우의 수를, 기존에 확보된 데이타에 근거해서 예측을 하여 시간가지치기 모형 속에 그려 놓고, 시간이동에 따른 광고노출을 실시간으로 집행하게 된다. 이 모든 것이 0.1 초[v] 안에 (인벤토리부터 광고노출까지의 모든 과정을 포함) 이루어 진다. 사람의 눈이 깜빡이는데 걸리는 시간이 0.3-0.4 초 가량 걸리는 것을 고려하면 눈깜빡할 사이의 1/3 도 안 되는 시간에 모든것이 이루어 지는 것이다. 결국 아마존에 가서 'bluetooth headset'이라는 검색어를 사용한 철수의 모니터는 아래와 같은 모습일 것이다.



디지털 광고 노출의 우연성과 필연성

테크놀로지의 발전에 따라 지금의 디지털 광고는 대부분 정해진 규칙과 광고주의 선호에 따라 자동적으로 집행된다. 프로그래마틱 바잉(programmatic buying)이라는 프로세스를 통해서 광고주들은 적시적소적인에게 적확한 광고를 자동적이고 동시적(real-time)으로 집행할 수 있다. 이는 방대한 양의 데이터를 컴퓨터가 리얼타임으로 분석하는 과정에 기인한다. 브랜드의 목표, 브랜드 데이타, 소비자 데이타, 광고유형과 노출 가능한 미디어에 대한 모든 정보를 기계에 한꺼번에 넣고 돌려서 '프로그래마틱'이라는 프로세스가 여러 데이타 포인트들을 분석해서 어떤 광고가 언제, 누구에게, 어떤 미디어로 집행될 지 자동적으로 결정해 주는 일련의 과정인 것이다(Adweek[vi], 2013). 이는 방대한 양의 데이타를 인간이 일일히 다 처리해서 정확도 높은 결정을 짧은 시간 안에 내릴 수 없다는 이유에서다.

여기에는 두가지 전제가 있는데, 첫째는 방대한 양의 유용한 데이타가 존재한다는 점이고, 둘째는 짧은 시간 안에 데이타를 처리해야 한다는 점이다. 발전된 테크놀로지로 인해 수 없이 많은 소비자데이타가 생산되고 있는데(그들이 어디에 언제 있는지에 대한 정보를 포함해서) 늘 움직이고 있는 그들에게 적확한 광고를 내보내는 결정을 인간이 할 수 없기 때문이다. 과거에는 광고의 최적화를 하기 위해서 효과 검증을 위한 일정한 시간이 필요했다. 하지만 지금은 프로그래마틱바잉, 보다 정확하게는 프로그래마틱 집행, 을 통해서 동시간대에 리얼타임으로 광고 최적화가 가능해 진 것이다. 프로그래마틱 광고집행은 다음과 같은 도식으로 간단히 설명할 수 있다.

가위바위보를 언제나 이기는 방법

감추어졌거나 아직 드러나지 않은 진실을 가지고 하는 게임은 상대의 진실을 정확히 파악할 수만 있다면 100 전 100 승이 가능하다. 포커카드게임에서 상대의 패를 훤히 들여다 볼 수 있다면, 게임을 질 수가 없다. 간단하게 가위바위보를 생각해 보자. 당연한 얘기지만, 가위바위보를 언제나 이길 수 있는 방법은 상대가 어떤 것을 낼 지 미리 보고 재빨리 그것을 이길 수 있는 것으로 내는 것이다. 상대가 가위를 내는 것을 보고 바위를 내면 당연히 이길 수 있다. 문제는 이것을 얼마나 빨리 할 수 있느냐이다. 마치 영화 타짜의 명대사 "손은 눈보다 빠르다"와 같은 방법이다. 선행 논의에 따라 적용해 보면, 철학적으로 다음과 같은 명제가 가능하다. 따라서 아직 이기지 않았지만 아래의 상황이 그대로 이루어지면 이기게 되는 것은 필연적이다.

상대가 가위를 낼 때 내가 바위를 내면 이긴다.

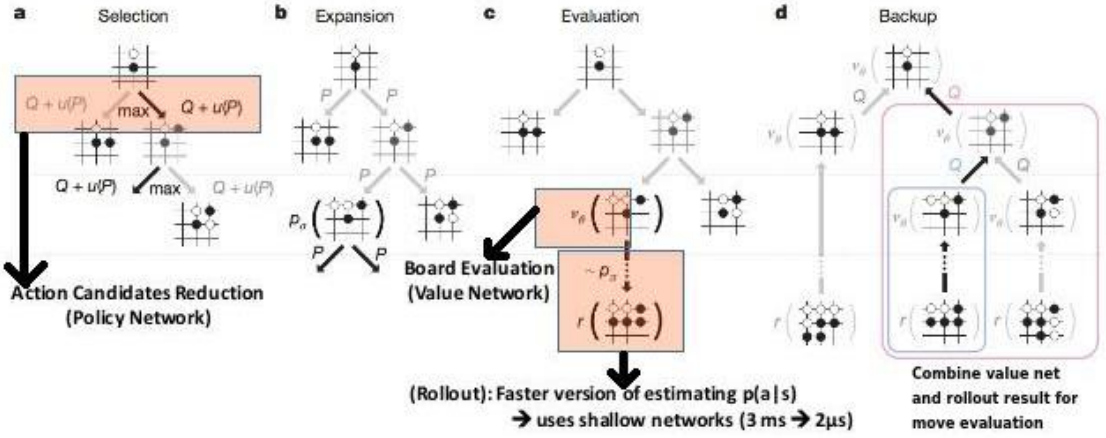
이는 새로울 것이 없는 참명제이지만, 광고상황에도 다음과 같이 적용시켜 볼 수 있다.

철수가 모니터를 보고 있을 때 광고를 띄우면 광고가 철수에게 노출 된다.

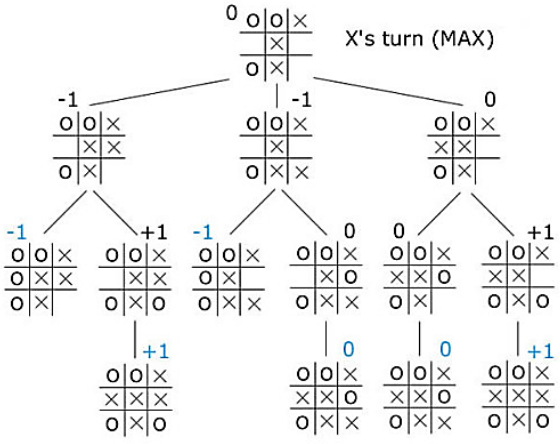
앞에서 프로그래마틱바잉이 0.1 초 안에 이루어져서 소비자의 모티터에 특정 광고가 노출된다고 했는데, "철수가 모니터를 보고 있을 때 광고를 띄우면 광고가 철수에게 노출 된다"는 당연한 것 같은 필연적 노출이 가능한 것이 아닐까? 상대가 가위를 내는 것을 보고 0.1 초 만에 바위를 낸다면, 그것은 필연적으로 승리할 수 밖에 없는 승부인 것 처럼, 광고 또한 프로그래마틱이라는 과정을 통해 어떤 특정 소비자에게 광고를 보여주는, 결국 그 소비자는 필연적으로 그 광고를 보게 되는 결과를 자아낼 수 있는 것이 아닐까?

2016 년 3 월 9 일에서 15 일까지 서울의 포시즌스 호텔에서 진행된 이세돌과 알파고간의 바둑대결에서 알파고가 4 승 1 패로 최종 승리를 했었다. 사람이 아닌 알파고가 어떻게 게임에서 승리할 수 있었는지 살펴보면 광고의 프로그래마틱바잉과 같은 프로세스가 컴퓨터 안에서 엄청난 속도로 일어났기 때문임을 알 수 있다. 다음 그림에서 보듯이 알파고는 수만번의 사전 학습을 통해서 전형적이거나 그렇지 않은 다음 수를

현재의 상대방 수에서 계산해 내고, 그 중에 가능성이 높은 것을 선별하고 또 그 중에 그 다음으로 이어질 수들을 선계산해서 가장 승리의 확율이 높은 무브(move)를 선택하는 과정을 반복한다.



얼핏 보면, 일련의 이런 과정은 사울 크립케(Saul Kripke)의 시간 가지치기와 비슷한 전개과정을 보여 준다. 시간의 이동은 바둑의 무브에 따라 함께 가고, 알파고는 상대의 무브 다음에 할 무브를 어떻게 할 지 현실적으로 가능한 모든 경우의 수를 미리 준비해 놓고 대응해 가는 것이다. 마치 아래 그림의 3 목(틱택토 게임)의 게임트리와도 비슷하다고 볼 수 있다[vii]. 종합해 보면, 요즘의 인공지능에 근거한 프로그래마틱바잉을 통한 광고의 특정 소비자에게의 노출은 필연일 가능성이 우연일 가능성 보다 더 높은 것이다.



맺음말: 광고 노출, 우연인가 필연인가?

우연과 필연에 대한 개념과 차이, 그리고 시점에 따른 가능성에 대한 철학적 고찰은 아리스토텔레스로 거슬러 올라가야 할 정도로 방대하고 심오하다. 이 글에서 매우 선택적으로 살펴본 몇가지 철학적 접근들은

주제의 심오함에 비춰 볼 때 매우 제한적이며, 필자가 비철학자임에서 비롯됐을 수 있는 오류 또한 있을 수 있다. (오류를 발견하였거나 추가 제언이 있을 시 기탄없이 필자에게 알려주고 가르쳐 주시기 바란다.) 본 글에서 살펴본 몇가지 철학적 접근을 되새김해서 이 글을 시작하면서 했던 물음, 즉 광고노출이 우연인가 필연인가에 대한 답을 도출해 보려 한다. 왕충, 아리스토텔레스, 디오도러스 크로너스, 라이프니쯔, 사울 크립케와 찰스 S. 퍼스가 한자리에 모여서 논의를 하는 모습을 상상해도 좋을 것 같다. 전제조건으로 소비자 정보를 완벽하게 파악한 AI 에 의해 프로그래마틱바잉이 실시돼서 광고가 집행된다고 가정해 보자.

> 왕충: *소비자 정보를 파악하고 특정 광고목표를 성취하기 위해 광고를 전달한다면, 그 광고와 소비자의 만남은 헤아림이지 마주침이 아니다. 즉, 그 광고노출은 필연이다.*
>
> 아리스토텔리스: *광고가 어떤 소비자에게 노출 될 것이라고 보는 것은 반사실문(노출이 안 되는 상황)이 존재하기 때문에 필연이 될 수 없고 우연적이다.*
>
> 디오도러스 크로너스: *이미 발생한 광고 노출은 참일 수 밖에 없으므로 노출 전인 과거시점에서 이를 예측했다면 그것은 필연을 예측한 것이 되는 것이다. 소비자가 광고를 봤다면 그것은 우연이 아니고 필연이다.*
>
> 라이프니쯔: *모든 일은 신에 의해 이미 예정돼 있다. 광고노출 또한 필연적이다.*
>
> 프라이어와 사울 크립케(Saul Kripke): *어떤 시점을 지난 후의 광고노출은 필연이다. 하지만 그 시점 전까지는 우연이다.*
>
> 찰스 S. 퍼스: *어떤 시기를 지난 후의 광고노출은 필연이다. 하지만 그 시기 밖에서는 우연이다.*

아리스토텔리스를 제외하고는 다른 철학자들은 프로그래마틱바잉을 통한 광고집행과 그 광고에의 노출은 필연이라 보는 것 같다. 이는 지금의 광고인과 마케터들에게 몇가지 시사점을 준다.

첫째, 필연적 노출은 효율적이다. 적시적소적인에게의 광고가 필연적으로 집행된다는 것은 비용의 낭비를 없애 줄 것이다.

둘째, 필연적 노출이 진정하고 valid 한 노출이 되기 위해서는 정보와 인사이트의 활용, 그리고 똑똑한 AI 와 알고리듬의 개발이 중요하다.

세째, 필연적 노출 즉 광고와 소비자의 필연적 만남이 지속될 경우, 필연의 인연화가 가능하게 되어 브랜드 충성도에 긍정적 영향을 끼칠 수 있다.

네째, 필연적 노출은 노출의 책임성을 부각시킨다. 즉, 머신건을 쓰는 군인 보다 스나이퍼가 결과에 대한 구체적 책임을 비중있게 지게 되는 것과 같다.

프로그래마틱 광고는 이제 당연한 미디어집행 방식이 되어 가고 있다. 2019 년에 미국내 디지털 미디어의 65%가 프로그래마틱을 사용할 것으로 전망하고 있고(제니스, Zenith, 2018)[viii], 전세계적으로는 849 억달러가 프로그래마틱 광고에 사용될 것으로 전망되고 있다.[ix] 컴퓨터의 속도와 테크놀로지로 연결된 경제와 사회 속에서 브랜드가 소비자와 만나는 접점은 점점 더 명확하고 적확해 지고 있고, 그에 따른 접점의 효율화가 프로그래마틱바잉이라는 프로세스를 통해 성취되고 있다. 마치 알파고가 짧은 순간에 수만개의 가능성을 분석하고 그 중에 최적의 장소에 바둑돌을 놓는 과정을 거쳐서 결국 승리를 했듯이, 프로그래마틱바잉 또한 광고노출의 valid 한 필연성을 높임으로써 소비자와 기업 메시지의 만남을 좋은 인연으로 발전시켜 나가는데 도움을 줄 수 있도록 발전돼 가야 할 것이다.

광고 노출은 이제 필연이다.

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[i] http://metaphysicist.com/problems/necessity/
[ii] http://www.phil.uu.nl/~rumberg/infolai/Modal_Logic.pdf
[iii] Letter from Saul Kripke to A.N. Prior, dated September 3, 1958, kept in the Prior Collection at Bodleian Library, Oxford, Box 4. See also Ploug et al. 2012
[iv] Ploug, T., and Øhrstrøm, P., 2012, 'Branching time, indeterminism and tense logic'. Synthese, Vol. 188, Nr. 3, pp. 367–379, Springer-Verlag Berlin Heidelberg.
[v] https://en.wikipedia.org/wiki/Real_Time_Bidding
[vi] https://www.adweek.com/brand-marketing/programmatic-dummies-153590/
[vii] https://lyaunzbe.wordpress.com/2009/10/18/game-trees-and-the-minimax-algorithm/
[viii] https://www.zenithmedia.com/65-of-digital-media-to-be-programmatic-in-2019/
[ix] https://www.statista.com/statistics/275806/programmatic-spending-worldwide/

11

언제, 왜, 어떻게 기계 학습이 광고 연구에 영향을 미칠까?

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언제, 왜, 어떻게 기계 학습 (machine learning)이 광고 연구에 영향을 미칠까?

손현상

1. 들어가며

인터넷과 모바일 기술의 눈부신 발전에 힘입어, 최근 기업들은 엄청난 규모의 데이터들을 모으고, 활용할 수 있게 되었다. 예를 들면, 구글은 한 달에 대략 10,800,000,000 개의 서치 쿼리를 감지해 낼 수 있고 (ComScore, 2016), 월마트는 매시간 100만 개 이상의 고객 거래 데이터를 축적하고 있다. 소셜 미디어 분야에서도 유저들은 수많은 데이터들을 만들어 낸다. 소비자들은 평균 하루에 142분을 소셜미디어 사용에 쓰고 있고, 매 분마다 페이스북 유저들은 243,000 개의 사진들을 업로드하고 350,000 개의 트윗을 만들고 있다. 하지만 구슬이 서 말이어도 꿰어야 보배라는 속담처럼 이러한 대규모의, 비구조적인 (unstructured) 데이터를 광고/ 마케팅 의사 결정에 이용하는 방법은 최근 급속히 발전한 기계 학습 (machine learning) 과 강화 학습 (deep learning) 기술을 만나 꽃을 피우게 되었다.

비록 기계학습의 기본적인 아이디어가 1960년대 최근접 이웃 알고리즘 (Nearest Neighbor Algorithm)을 응용한 패턴 인식 기법의 발전으로 이미 정립되었지만 (Cover & Hart, 1967), 기계학습 응용의 결정적인 계기는 2012년 Hinton이 이끄는 연구팀이 심층 신경망 (Deep Neural Network)으로 학술 이미지 분류에서 탁월한 결과를 낸 이후였다 (Krizhevsky, Sutskever, & Hinton, 2012). 이후 기계 학습은 눈부신 발전을 거듭하여 공학/ 의학 분야 뿐만 아니라 마케팅/ 광고 등 사회과학 분야에서도 응용되기 시작하였고, 이미 알리바바 (Alibaba) 가 기계학습과 심층학습 (deep learning), 그리고 자연어 처리 (Natural Language Process, NLP) 기술 을 응용하여 간단한 광고 키워드를 입력할 경우 1초 안에 20,000 라인의 광고 카피를 생성하는 기술을 시연한 바 있다 (Chou, 2018).

이런 추세의 배경은 크게 두 가지를 꼽을 수 있다:첫째, 컴퓨터 중앙 처리 장치 (CPU)와 그래픽 처리 장치 (GPU)의 발전과 병렬연결 계산 (parallel computing) 능력에 진화로 인한 계산 능력의 발전. 둘째, 소셜 미디어의 번영으로 인한 다양한 종류의 소위 대용량 데이터 (big data)의 응용 가능성이다. 학계에서는 이러한 업계의 동향과 사안의 중요성에 부응하고자, 데이터와 데이터 분석에 관련한 연구 우선순위 (research priority)를 선정하고, 광고, 마케팅 학자들에게 기대하는 연구 방향을 제시하고 있다. (Marketing Science Institute, 2018). Marketing Science Institute는 "1) 기계 학습 (machine learning)과 빅데이터가 마케팅 의사 결정을 어떻게 최적화 시킬 것인가?" 2) 비구조적 자료 (unstructured data), 예를 들면 비디오, 음향, 텍스트 데이터를 고객 경험을 파악하고, 고객 관리 (customer relationship management) 측면과 커뮤니케이션 전략을 수립하는데 어떻게 활용할 것인가?를 향후 2년간 가장 중요한 연구 과제 중 하나로 설정하고 있고, 수많은 기계/ 심층 학습 기법들이 기존의 광고/미디어 연구 방법론을 보충하고 있다.

따라서 본 연구에서는 광고 실무자와 연구자가 일찍이 접해보지 못 했던 대용량 데이터와 강화/ 심화 학습 방법론을 왜 관심을 가져야 하는가, 언제 우리가 사용할 수 있는가, 어떻게 광고/마케팅 연구에 응용할 수 있는지를 예시와 함께 논의해 보고자 한다.

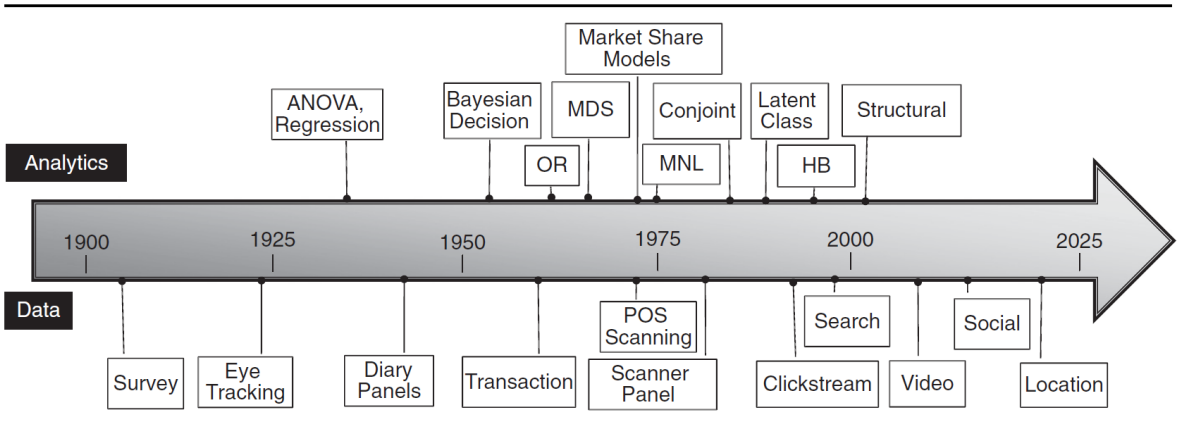
2. 빅데이터와 기계학습

본격적인 기계학습의 활용을 논하기에 앞서, 기계학습의 필수 요건인 대용량 데이터 (big data)의 정의와 개략적인 발전 방향을 살펴보기로 한다.

2.1. 빅데이터란?

META Group (현재 이름: Gartner)가 빅데이터의 정의를 3개의 **V**들로 정의한 이래 (***Volume***: 데이터의 크기, ***Velocity***: 데이터 입출입의 속도, ***Variety***: 데이터의 근원과 출처의 다양성, Laney, 2001), 업계와 학계에서는 다양한 방식으로 빅데이터를 정의해 왔다. 맥킨지 컨설팅 그룹은 빅데이터를 전형적인 데이터 관리 프로그램으로 모으고, 저장하고, 분석하기 힘든 대용량의 데이터로 정의하였다 (McKinsey Global Institute, 2011). 이러한 기본적인 정의를 바탕으로 비록 거의 모든 데이터의 원천 생산자는 소비자라고 할 수 있지만, 데이터를 얻기 위해 기업을 통해야 하는가 소비자로부터 직접적으로 모을 수 있는가에 따라 우리는 빅데이터의 종류를 크게 1) 기업 생산 빅데이터, 2) 소비자 생산 빅데이터 2 가지로 나누어 생각해 볼 수 있다

이해를 돕기 위해 Wedel 과 Kannan (2016)의 데이터 구분을 기본 프레임으로 삼아서 빅데이터의 종류를 알아보도록 하겠다. Wedel 과 Kannan (2016)은 광고와 마케팅 연구에 쓰이는 데이터를 처음 등장한 때를 기준으로 시대별로 분류하여, 설문 데이터 (survey), 아이 트래킹 데이터 (eye tracking), 소비자 구매 일지 (diary panels), 거래 데이터 (transaction), 포스 스캐너 데이터 (point of sale scanning), 온라인 클릭 데이터 (clickstream), 서치 데이터 (search data), 비디오 데이터 (video), 소셜 데이터 (social), 그리고 위치 데이터 (location)로 구분하였다. (그림 1).



Notes: ANOVA = analysis of variance; MDS = multidimensional scaling; POS = point of sale; MNL = multinomial logit model; HB = hierarchical Bayes. This timeline summarizes the availability of new marketing data and the development of the major classes of marketing models. As new types of data became available, new models to analyze them followed.

그림 1. 광고/마케팅 연구에 쓰이는 데이터의 등장 (Wedel & Kannan, 2016).

2.1.1. 기업 생산 빅데이터 (Firm generated big-data)

빅데이터에 관한 가장 흔한 오해가 빅데이터를 소비자가 직접적으로 만들어내는 소위 소셜 빅 데이터에 국한하여 생각하는 것이다. 그러나 빅데이터는 앞서 살펴본 정의에 따라 데이터의 종류에 무관하게

엄청나게 대용량이면 그 자체로 빅 데이터라고 할 수 있다. 따라서 대규모로 모아진 고객 거래 데이터 (transactional data), 스캐너 데이터 (Points of sale scanner data), 아이 트래킹 (eye tracking data), 심지어 고객 설문 데이터 (survey) 도 대용량으로 모을 수 있다면 그 자체로 빅데이터라고 할 수 있다. 이에 더해 최근 디지털/ 인터넷 기술의 발달로 기업들이 소비자로부터 모을 수 있는 사물 인터넷 (internet of things) 데이터, 헬스케어와 연관된 데이터들 (예를 들면, MRI 스캔 데이터, 소비자 보험 이용 내역 데이터) 들 역시 빅데이터의 범주에 들어갈 수 있다.

2.1.2. 소비자 생산 빅데이터 (User generated big-data)

편의상 기업이나 기관을 거치지 않고 연구자가 모을 수 있는 빅 데이터를 소비자 생산 빅데이터라고 구분할 때, 가장 대표적인 소비자 생산 빅데이터는 소셜 빅 데이터이다. 소셜 빅 데이터는 앞서 언급한 소비자들이 페이스북과 트위터 상에 올리는 텍스트 데이터뿐만 아니라, 인스타그램을 위시한 이미지 기반 소셜 미디어에 올라오는 이미지, 동영상 데이터, 개별 소비자로 부터 모을 수 있는 위치 데이터, 소비자가 인터넷에서 정보를 찾고 검색을 할 때 입력한 서치 쿼리 데이터, 그리고 자발적으로 상품과 서비스에 대한 평가를 남기는 온라인 리뷰 전문 사이트 (예를 들어 yelp.com, tripadvisor.com)에 올라온 방대한 텍스트나 이미지 데이터를 포함한다. 뿐만 아니라 전문 상거래 사이트나 온라인 쇼핑 사이트에 달린 소비자들의 리뷰 역시 소비자 생산 빅 데이터라고 할 수 있다. 이러한 소비자 생산 빅데이터는 설문이나 포커스 그룹을 통해 모은 데이터와 비교했을 때, 첫째, 편향 (bias) 없는 소비자의 우리 회사와 브랜드에 대한 즉각적인 반응을 측정할 수 있고, 둘째, 비교적 쉽게 데이터를 수집할 수 있다는 장점을 갖는다.

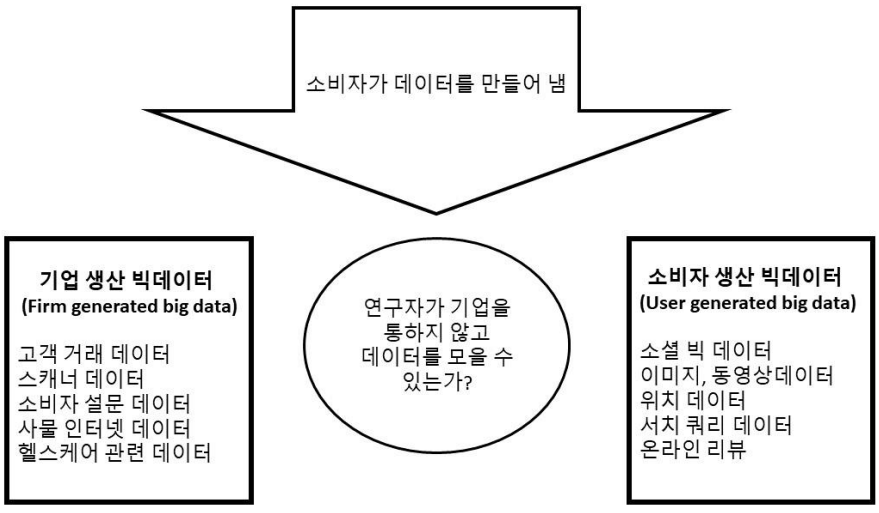


그림 2. 빅데이터의 분류

2.2. 기계학습의 정의

이와 같은 빅데이터를 기업의 의사 결정에 사용하기 위해서는, 단지 방대한 양의 데이터를 모으는 것뿐만 아니라 적절한 데이터 가공 (data mining)과 분석 (analytics) 이 필수적이다 (McKinsey Global, 2016). 실제로 맥킨지 컨설팅 그룹은 기업이 빅데이터의 이용으로 얻을 수 있는 가치를 미국 소매업계의 경우 단지 30~40%, 헬스케어 업계에서는 10~20%만 활용하고 있고, 이 같은 현상은 데이터 분석 (data

analytics) 능력의 부재로 인한 것으로 추산하고, 업계의 적극적인 기계 학습 방법의 도입을 주장한 바 있다 (McKinsey, 2016).

이처럼 빅데이터 분석에 필수적인 기계 학습은 "명시적인 프로그래밍 없이 컴퓨터가 학습하는 능력"을 갖추게 하는 연구 분야로 정의되고 (Arthur, 1959), 우리는 "어떤 작업 T에 대한 컴퓨터 프로그램의 성능을 P로 측정했을 때, 경험 E로 인해 성능이 향상"되었다면, 이 컴퓨터 프로그램이 작업 T와 성능 측정 P에 대해 경험 E로 "학습" 되었다고 한다 (Mitchell, 1997). 예를 들어, 연구자가 상품이나 서비스에 대한 가짜 리뷰 (deceptive review)를 밝혀내는데 관심이 있다고 생각해 보자. Anderson 과 Simester (2012)는 선행 연구 리뷰를 통해 이메일, 컴퓨터 메시지, 10-k 재정 증명서 등에 사용된 가짜 문서가 가진 특징을 한정했다: 1) 긴 단어의 사용과 문서 자체의 길이, 2) 가족 관련 단어의 빈번한 사용, 3) 느낌표의 반복적 사용 (!! 또는!!!). 이와 같은 특징을 바탕으로 32만여 개의 패션 관련 상품 리뷰 데이터를 회사로부터 제공받아 위의 3가지 요소로 실제 구매 기록이 확인된 리뷰 (true review) 와 구매 기록이 확인되지 않은 리뷰 (deceptive review) 간의 차이를 밝혀내었다.

만일 같은 데이터 셋을 바탕으로 기계 학습 모델을 만든다고 가정해 보자. 먼저 우리는 단지 가족 관련 단어 외에 문자 그대로 모든 단어를 가능한 독립 변인 (feature)으로 넣을 수 있다. 그리고 만일 리뷰의 텍스트 파일 말고도 다른 데이터 셋이 있다면 (예를 들어, 리뷰를 남긴 소비자의 인구/심리학적 특성) 그 데이터 역시 가능한 독립 변인으로 넣을 수 있다. 이렇게 방대한 독립변인들을 바탕으로 가짜 리뷰에 어떤 단어들이나 특징들이 주로 나타나는지 살펴 볼 수 있다. 실제로 Jindal 과 Liu는 단순 단어뿐만 아니라 1) 리뷰 길이, 2) 리뷰에 대한 사람들의 평가, 3) 긍정적/ 부정적 단어의 비율, 4) 리뷰 평점과 다른 사람들의 평점과의 일치도 등등의 요소를 고려하여 가짜 리뷰를 구별한 적이 있다 (Jindal & Liu, 2008). Ott 와 동료들은 (Ott, Choi, Cardie., & Hancock, 2011) 단어 사용에 좀 더 집중하여 가짜 리뷰에서는 명사/형용사/전치사가 상대적으로 많이 사용되고, 최상급 표현과 감각 관련 단어들이 많이 사용된 된다는 것을 밝혔다. 이 모든 연구과정이 전형적인 기계 "학습" 연구의 과정을 거쳐서 이루어지게 된다.

1. 전체 가능한 데이터를 70%의 훈련 데이터 (training set) 와 30%의 실험 데이터 (testing set)을 나누고,
2. 훈련 데이터 셋에 가짜 리뷰에 어떤 단어들이 많이 나타나는지 알아내고, (예를 들면, 감각 관련 단어들), 가능한 모든 독립변인들의 모델 기여도를 추가한 후 (예를 들면, 리뷰 작성자의 성별, 인구 통계학적 특징)
3. 발견한 패턴을 감지하는 알고리즘을 작성하여, 프로그램이 이러한 패턴을 감지했을 때 (감각 관련 단어를 많이 사용하고, 최상급 표현이 빈번하게 사용될 경우) 그 리뷰를 거짓 리뷰로 분류하게 된다.
4. 그리고 알고리즘을 실험 데이터 셋에 적용한 후, 충분한 성능이 나올 때까지 1과 2단계를 반복하게 된다.

이러한 기계 학습을 통한 문제 해결은 전통적 방식의 모델링에 비해 크게 두 가지 장점을 갖는다: 모

델의 유지 및 보안이 쉽고, 많은 요소들 (features, independent variables)를 동시에 고려 할 수 있다는 점이다. 만일 시장 교란을 목적으로 한 누군가가 위의 연구 결과를 바탕으로 가짜 리뷰에 형용사/ 최상급 표현을 줄였다고 가정해 보자. 이 경우 기계 학습에 기반을 둔 모델은 일반 리뷰에 비해 자주 나타나는 패턴을 "자동"으로 감지하여, 어떤 단어가 가짜 리뷰 임을 판단하는데 필요한 알고리즘을 "자동으로 학습" 하게 된다. 전통적인 모델링에서는 형용사/ 최상급 표현을 독립변수에서 제거한 후, 새로운 탐색적 연구 또는 선행 연구를 통해 가짜 리뷰를 판단하기 위한 새로운 독립 변수를 넣어 주어야 한다. 만일 시장 교란자가 계속 가짜 리뷰의 패턴을 바꾼다면, 우리는 영원히 새로운 독립변인을 추가해야 할 것이다.

둘째로, Anderson 과 Simester 의 (2012) 연구처럼 우리가 예상하지 못한 (기존 이론으로는 예측 불가능한) 데이터도 성공적으로 모델링 할 수 있다. 예를 들어, Hovland (1951) 이래로 긴 문장이 주장의 강도를 증대시켜 결국 신뢰도와 연관된다는 연구가 커뮤니케이션 분야에서 주를 이루고 있다. 하지만 더 긴 문장을 사용한 문장이 가짜 리뷰로 밝혀지는 경우처럼 기존 이론이나 연구 결과에 관련 없는 분석도 유연하게 실행할 수 있다는데 기계 학습의 장점이 있다.

2.3. **기계학습의 장/ 단점**

기계 학습의 정의와 빅데이터의 정의를 바탕으로 장/점을 각각 살펴본다면, 아래 표로 요약할 수 있다.

장점	단점
1. 많은 상황에서 응용할 수 있다	1. 과적합 (overfitting) 의 위험이 있다
2. 예측이 정확하다	2. 해석이 불가능하다 (왜 그런지 모른다)
3. 데이터 분석에 한정적인 (때로는 거의 없을 정도로) 전제를 필요로 한다	3.전통적인 "통계적 유의미한 차이 (statistical significant test)" 가 불가능하다
4. 데이터 안에 관계가 있다	4. 많은 가중치를 계산할 때는 느려질 수 있다
5. 대규모의 데이터를 분석할 수 있다	5. 대규모의 데이터가 필요로 하다
6. 많은 "공학"이 있지만 이론은 없다	6. 많은 "공학" 이 있지만 이론은 없다

표 1. 기계학습의 장/단점

첫째로, 기계 학습은 수많은 상황에서 응용할 수 있다. fMRI 데이터부터 서치 쿼리 분석, 소비자 설문 데이터, 소셜 데이터에 이르기까지 문자 그대로 거의 모든 연구 상황에서 이용될 수 있다. 둘째로, 예측이 (대부분의 경우) 매우 정확하다. 왜냐면 예측이 정확해질 때까지 모델을 훈련시키기 때문이다. 셋째로, 전제 (assumption) 없이 모델을 세울 수 있다. 예를 들면 유명한 OLS 회귀분석은 오류가 정규 분포를 따른다는 것을 전제로 모델 추정을 하는데, 기계 학습은 이러한 전제가 필요 없다. 왜냐면 우리가 가지고 있는 데이터를 기반으로 모델을 세우기 때문이다. 따라서 우리는 데이터 안의 관계에 관심이 있고, 동시에 기술 발달로 인해 대규모의 데이터를 분석할 수 있게 되었다. 마지막으로 복잡한 확률론적 이해 없이도 모델 적합도와 결과를 이해할 수 있다.

마치 동전의 양면처럼 기계 학습의 장점은 반대로 단점이 되기도 한다. 첫째로, 우리가 가지고 있는

데이터 안의 관계를 주목하기 때문에 많은 분석을 쉽게 할 수 있으나 반대로 모델 과적합 (overfitting)의 문제가 자주 발생한다. 둘째로, 많은 경우 이론적 배경 없이 모델을 생성하기 때문에 각 독립 변인들이 무엇 때문에 결과를 예측하는지 알기가 쉽지 않다. 한 예로 2018년 UT-Austin big data analysis 세미나 시간에 물리학과 박사쟁이 인공 신경망을 응용해 아주 작은 물질이 과연 연구자가 관심을 가져야 하는 물질인지 아니면 노이즈 인지를 판단하는 모델을 만든 적이 있었다. 모델 정확도는 93%가량 되었고, 특정 물질이 노이즈 인지 아닌지는 알 수 있었지만 결정적으로 이것이 왜 노이즈 인지는 알 수 없었고, 교수의 조언은 회귀 분석을 돌려보고 거기에 맞춰서 결과를 해석해 보라는 것이었다. 연관된 논의로 우리가 흔히 접할 수 있는 p-value 기반의 통계적 유의미성 검정을 비롯한 여러 가지 결과 해석이 불가능하고, 많은 경우에 우리는 모델의 정확도만을 알 수 있다. 따라서 많은 경우 기계 학습은 예측적이거나 (predictive) 인과관계 추론 (causal relationship) 이 아니라 기술적인 (descriptive) 특징을 갖는다.

또한 기계학습의 모델은 많은 양의 데이터를 분석 가능하게 하지만 동시에 모델을 훈련하고 실험하는데 많은 데이터가 필요하다. 300개가량의 데이터 포인트를 갖는 설문 조사는 아마도 기계 학습과 전통적 최소자승법을 이용한 회귀분석의 결과가 다르지 않을 것이다. 마지막으로 장점이자 단점으로, 우리는 확률론, 통계적 이론을 기계 학습에 적용하지 않는다. 따라서 많은 정통 통계학자들은 기계 학습이 이론적 깊이가 얇다고 비판하곤 한다.

2.4. 기계학습의 종류

대부분의 기계학습의 용어는 연구자가 통계학적 배경을 갖느냐, 공학적 배경을 갖느냐에 따라 다르게 쓰이지만 근원적으로 지칭하는 것은 같다. 공학적 설명으로 기계학습은 지도 학습 (supervised learning)과 비지도 학습 (unsupervised learning), 그리고 준지도 학습 (semi-supervised learning) 그리고 강화 학습 (reinforcement learning)이 있으나, 본 논문에서는 광고 연구와 큰 관련이 있는 지도학습과 비지도학습에 집중하여 알아보고자 한다.

2.4.1. 지도학습

지도학습은 모델을 생성하는데 있어 훈련 데이터에 일정한 기준으로 레이블 (label)을 붙이는 방법을 의미한다. 분류 (classification)와 회귀분석 (regression)이 대표적인 지도학습의 예이다. 앞선 가짜 리뷰 예시처럼, 연구자는 데이터에 0 = 가짜 리뷰, 1 = 진짜 리뷰와 같이 레이블을 붙이고, 주어진 데이터 안에서 여러 독립변인들을 고려했을 때, 과연 특정 리뷰가 가짜인지 진짜인지를 가려내는 과업을 수행하게 된다 (분류). 광고/ 마케팅 연구에서는 소비자 불만 텍스트와 기업의 반응을 바탕으로 개별 소비자가 기업에 반응에 만족하는지 = 1, 불만족하고 재 반박하는지 =0을 분류하고 고객 관리 전략 (Customer Relationship Management)에 응용한 연구 (Son, 2019) 가 있다.

2.4.2. 비지도학습

비지도학습은 반대로 훈련 데이터에 레이블이 없고 말 그대로 데이터 그 자체로 학습을 하는 방법을 말한다. 대표적인 비지도학습 방법으로는 주성분 분석 (Principle Component Analysis, PCA), K-평균 (k-means), 기댓값 최대화 (Expectation Maximization) 등이 있다. 대표적으로는 20억 개의 방송 콘텐츠 관련

트윗을 주성분 분석으로 분석하여 궁극적으로 닐슨 시청률을 예측한 연구 (Liu, Singh., & Kannan, 2016), 페이스북 상에서 기업들의 포스팅과 소비자들의 포스팅의 내용의 차이를 수치화 하여 궁극적으로 소비자의 온라인 활동에 미치는 영향을 측정한 연구 (Chung, Sung, Son, Ryoo, & Wilcox, 2019) 등이 있다.

3. 왜 기계 학습이 광고 연구에 필요한가? (Why?)

이상으로 기계 학습과 빅데이터란 무엇인지에 대해 대략적으로 알아보았다. 앞으로 왜 기계 학습이 광고 연구에 필요한지에 대해 논의하여 보겠다.

3.1. 효과적으로 연구를 진행할 수 있다

아마도 가장 큰 이유는 사람의 노동력을 크게 줄일 수 있기 때문일 것이다. 예를 들어, 유튜브에 업로드된 광고에 대한 반응을 분석하고자 할 때, 30여만 개의 댓글을 분석하고자 한다. 이때 전통적인 방식으로 사람이 손으로 내용을 코딩하는 것과, 기계 학습을 통해 일정한 기준을 훈련시키고 자동화된 내용분석을 실행하는 것은 시간/ 노동력 측면에서 큰 차이가 있을 것이다. 예를 들어 뉴욕 타임스에서 일정 기간에 안에 보도된 북한 관련 기사 254개와 그 기사들에 달린 댓글 84,913 개를 기계 학습 방법으로 모으고, 자연어 분석을 실행했을 때, 시간은 병렬 컴퓨팅과 고성능 GPU 없이도 30분 내외로 걸린다 (Son & Song, 2018). 더욱 대규모의 텍스트 데이터 처리 역시 최근 발달한 병렬 컴퓨팅 기술 (parallel computing) 과 연구자가 손쉽게 기계 학습 모델을 생성할 수 있게 해주는 다양한 프로그램의 발전으로 인해 (예를 들어 keras, TensorFlow) 더욱 효율적으로 광고 연구를 진행할 수 있게 되었다.

3.2. 많은 요소를 동시에 고려할 수 있다.

또 다른 강점으로는 연구자는 문자 그대로 "모든" 정보를 모델을 만들고 추정하는데 사용할 수 있다. 예를 들어, 소비자가 유튜브 등 의 플랫폼을 이용하여 동영상을 보고 있을 때, 온라인 인 스트림 (in-stream) 광고를 접하게 된다면, 어떻게 해야 광고를 클릭하게 만들고, 피하지 않고 끝까지 시청하게 할까? 라는 연구 문제를 세웠다고 가정해 보자 (Jeon, Son, Chung, & Drumwright, 2019). 이러한 문제를 해결하기 위해 연구자는 첫째, 온라인 광고 시청자들을 모아서 포커스 그룹 인터뷰를 진행할 수 있고, 둘째, 소비자 대상으로 설문 조사를 실시하거나, 셋째, 실험실이나 온라인 상황에서 통제된 실험을 실시할 수 있을 것이다. 이와 같은 상황에서 연구자는 실험 연구에서는 1~3 가지 요소 (factor, independent variable or feature), 설문 연구에서는 최대 10여 가지의 요소를 독립 변인으로 상정하고 개개 요인 또는 요인들 관의 상호 작용이 소비자 광고 시청 행동에 미치는 영향을 연구할 수 있다. 전통적인 통계 (classical statistics, frequentist approach) 뿐만 아니라 베이지안 추론 (Bayesian estimation)을 동원하더라도 이 이상의 요소들을 한 연구에서 동시에 고려하는 것은 현실적으로 매우 힘든 일이 될 것이다. 앞서 예시로 든 Jeon et al., (2019)의 연구에서는 여러 요소들 중에 온라인 동영상 광고 재생 시간 (30 초 vs. 60초), 남은 광고 시간을 알려주는 타이머의 유/무, 그리고 광고 건너뛰기 버튼의 유무 이렇게 세 가지 요소를 탐구하였다. 하지만 이 3가지 요소 이외에도 소비자의 광고 시청 행위/ 클릭 행위에 영향을 미치는 요소는 무궁무진하게 많을 것이다. 광고의 콘텐츠, 모델의 유/무, 영상에 등장하는 물건들 같은 광고 내용에 관련된 요소뿐만 아니라, 컴퓨터의 성능, 동영상 재생 당시 인터넷 속도, 브라우저의 종류, 그리고 그날의 기온과 습도, 날씨에 이르기까지 문자 그대로 모든 요소가 소비자의 광고 시청 행위에 영향을 미칠 수 있을 것

이다. 만일 30가지의 요소들 (features, independent variables)의 존재 유무 (0 = 아니오, 1 = 예) 로만 측정한다고 해도, 각 요소들의 상호작용을 모두 고려한다면 30개의 주효과 (main effect) 와 2^30 = 1,073.741,824 개의 상호작용 효과를 분석해야 한다. 이럴 때 기계 학습에서 널리 이용되는 lasso (least absolute shrinkage and selection operator) regression technique를 통해 중요하지 않은 변수에 패널티를 주어 0으로 만든 후, 중요한 변수들만 "자동"으로 골라내어 모델을 생성할 수 있다. 이처럼 기계 학습은 데이터만 가능하다면 주어진 모든 변수의 조합으로 모델을 생성할 수 있고, 우리가 예상하지 못했던 요소의 영향과, 그들의 상호작용까지도 밝혀낼 수 있다는데 큰 장점을 갖는다. 표 1에서 살펴볼 수 있듯이, 광고/ 마케팅 연구는 소비자 설문 데이터 부터 아이 트래킹, 위치 데이터에서 소셜 데이터에 이르기까지 수많은 종류의 데이터를 사용하고 있다. 따라서 이러한 다양한 종류의 데이터를 동시에 고려하여 소비자의 행동을 연구하려면, 기계학습의 방법론이 필수적이다.

4. 언제 기계학습을 연구에 응용할 수 있는가? (When?)

이제, 대표적으로 세 가지 분야 (내용 연구, 네트워크 분석, 콘조인트 분석)를 중심으로 언제 (when) 우리가 기계 학습을 광고/ 마케팅 연구에 응용할 수 있을지 살펴보고자 한다.

4.1. 내용 연구 (content analysis)

가장 쉽게 응용할 수 있는 분야는 광고/ 미디어 콘텐츠부터 소비자, 사용자의 반응 (예: 댓글)들까지 가능한 모든 콘텐츠를 자동화된 방법으로 모으고 분석하는 것이다. 광고 메시지부터 광고 이미지, 유명인을 모델로 사용하는 케이스 (celebrity endorsement)에 이르기까지 (Choi, Lee, Kim, 2005), 내용 연구 방법은 가장 중요한 광고 연구의 한 축으로 자리 잡았다. 기계 학습, 그중에서도 자연어 처리 방법 (Natural Language Process)를 이용하여 연구자들은 보다 손쉽게 대용량의 텍스트 메시지를 분석할 수 있게 되었다. 기계 학습 방법 중, Word2Vector 방식을 응용하여 한국어로 된 사회 공헌 기사 분석 (Park, Son, Yang, & Lee, 2019) 을 실행한 연구가 있고, 12,000 개의 소비자 생성 콘텐츠 (User generated contents) 를 합성곱 인공 신경망 (Convolutional neural network) 방법을 통해 정보 값이 없는 문장들을 걸러내어, 소비자들의 상품 선호들을 추출해 낸 연구가 있다 (Timoshenko, & Hauser, 2019). 이와 같은 텍스트 데이터 기반의 내용분석 이외에도 최근 Support Vector Machine (SVM)과 합성곱 인공 신경망을 이용하여 56개 브랜드의 브랜드 관련 이미지들에서 브랜드 특성 (brand attributes)들을 추출해 낸 후, 이 같은 특성들을 가진 소비자의 소셜 미디어 포스팅을 분석하여 브랜드의 비주얼커뮤니케이션 전략을 수립한 연구가 있다 (Liu, Dzyabura, & Mizik, 2018). 더 나아가 인간만의 고유한 영역이라 생각되어 왔던 "창의성" 평가 부분에서도 기계 학습은 많은 성과를 보이고 있다. Touia 와 Netzer (2019)는 창의성을 익숙함 (familiarity)와 신선도 (novelty)의 최적의 조합으로 표현할 수 있다고 가정하고, 4,000 개의 아이디어를 계량화하여 각각의 아이디어의 창의성을 평가하고, 더 나아가 개개의 아이디어를 기술함에 있어 최적의 단어 선택을 추천해주는 연구를 진행하였다. 같은 맥락으로 광고 연구에서도 광고 카피나 상품 설명에 있어서 이러한 접근 방법을 채택할 수 있을 것이다.

4.2. 네트워크 분석 (Network Analysis)

또 다른 기계 학습의 응용 분야는 네트워크 분석이다. 전통적으로 네트워크 분석은 노드 (Node)와 엣

지 (Edge)를 모형화하여 개인과 집단들 간의 관계가 어떻게 구조적으로 엮여 있고, 시간이 감에 따라 어떻게 변하는가에 관심이 있다. 기계 학습에서는 이러한 기술적 (descriptive) 측면의 네트워크 분석에서 더 나아가 네트워크 군집을 찾아내고 (Community detection), 링크 연결을 예측하는 기법이 사용되고 있다 (Fortunato, 2010; Zhou, 2015). 그러나 대부분의 기계 학습을 응용한 네트워크 분석은 물리학을 위시한 자연과학 분야에서 많이 사용되고 있다. 예를 들어 Zhou (2015)는 계층적 감마 프로세스 (Hierarchical Gamma Process)를 응용한 네트워크 군집 방법을 통해 Neural Information Processing System (NIPS) 저자 간의 네트워크를 분류하였다. 이제 광고/ 마케팅 분야에서도 대규모의 네트워크, 특히 소셜 네트워크의 분석이 가능해진 만큼, 네트워크 분석을 통해 소비자/ 유저 간의 네트워크를 분석하는 연구의 필요성도 증가하고 있다.

4.3. 콘조인트 분석 (Conjoint analysis)

시장 조사와 상품 개발, 광고 전략 수립에 가장 중요한 연구 방법 중 하나인 콘조인트 분석 기법도 기계 학습 분야의 발전으로 큰 진전을 보이고 있다. 콘조인트 분석은 조사 대상을 상정하고, 그 대상을 구성하는 여러 속성과 속성별 수준을 동시에 고려하여 사람들의 선호도가 가장 높은 조합을 찾아내는 방법이다. 예를 들어 새로운 음료수를 시장에 내어놓기 전에 음료 회사는 1) 병의 종류: 페트병 (흰색/ 갈색), 유리병 (흰색/ 갈색) 2) 자사 브랜드와 경쟁 브랜드 (4개의 전국 브랜드, 3개의 로컬 브랜드), 3) 음료 라벨: 바이오, 공정 무역, 독립 회사가 운영하고 있습니다 표시, 4) 라벨의 그림: 실제 과일 사진, 과일 그림, 그리고 5) 가격과 같은 요소들을 조합하여 소비자들은 어떤 조합을 가장 선호하는지 (예를 들어, 흰색 페트병에 로컬 브랜드, 공정무역 라벨에 과일 사진이 프린트된 음료) 연구하게 된다. 이때, 연구자들은 상품의 특성들뿐만 아니라 level balance, orthogonality, overlap, utility balance 등 통계적인 분석 요인들도 고려해야 하기 때문에, 결론적으로는 수천에서 수만 개의 조합들이 생산된다. 이러한 수많은 조합들 중에 연구자는 인공 신경망 (Artificial Neural Network, ANNs)를 응용해 가장 최선의 조합들을 찾아낼 수 있다 (Kutz, 2019). 즉 실제 소비자에게 콘조인트 분석을 실시하기 이전에 가능한 조합들 최적의 실험 디자인을 찾아내는 방식으로 기계 학습 방법을 응용하여 기업과 광고주의 입장에서 과연 우리가 최적의 상품/ 서비스를 제공하고 있는지, 우리의 가격 정책이 올바른지 연구할 수 있다.

5. 어떻게 할 것인가 (How?)

비록 기계 학습이 광고/ 마케팅 연구 방법론의 획기적인 발전에 여러 방면에서 기여할 것으로 기대되지만, 연구자는 기계 학습 방법을 방법론으로 적용하기 앞서 여러 가지 철학적인 문제를 생각해 봐야 한다.

5.1. 광고 연구자로서 새로운 통찰 (novel insight)을 찾아내야 한다.

첫째로, 가장 중요한 점으로, 광고 연구자로써 우리는 단순히 빅데이터를 모으는 대서 멈추지 않고, 광고 실무자들과 연구자들이 응용 가능한 새로운 통찰을 찾아내야 한다. 빅데이터와 기계 학습의 연구 초창기에는 모델을 세우고, 데이터를 모으는 것 자체가 의미가 있는 연구였다. 특히 self-reported 소비자 설문 데이터에서 벗어나 소비자들의 즉각적인 반응과 의견을 모을 수 있는 소셜 빅데이터 연구에서 이러한 경향이 두드러졌다.

예를 들면 350,000 개의 휴대폰, 컴퓨터 관련 소비자 리뷰를 분석한 Tirunillai 와 Tellis (2014)의 연구는 사용의 용의성 (easy of use)를 소비자의 휴대폰 상품 관련 의사 결정에 가장 중요한 요소로 밝혀 내었다. 이 연구는 대용량 데이터를 통해 소비자의 욕구 (needs)를 추출해 낸 선구자적 연구라 의의가 있지만 사용의 용의성, 성능 (performance), 외관 (visually appealing), 신뢰성 (reliability) 등 리뷰로부터 추출해 낸 요소들이 기술 수용 모델 (Technology Acceptance Model, Venkatesh & Davis, 2000) 을 바탕으로 한 소비자 설문을 통해 얻어낸 결과와 크게 다르지 않았다. 빅데이터와 기계 학습을 연구에 응용하기 위해 많은 노력과 자원이 데이터 수집 단계부터 필요하기 때문에, 연구자들은 기존 연구 결과와 이론을 바탕으로 새로운 통찰 (insight)를 찾아내는 방식으로 연구를 구성해야 할 것이다.

5.2. 측정 가능하고 (measurable) 타깃 가능한 (targetable) 변수를 찾아야 한다.

둘째로, 광고 실무자와 연구자는 비록 기계 학습이 수많은 변수를 동시에 고려할 수 있지만, 연구 모델에 무작위로 변수 (feature)를 넣기보다는 실무자들이 측정 가능하고 타깃 가능한 변수를 찾아서 이것들 위주로 모델을 구성해야 한다. 이 점이 소비자 심리 (consumer psychology)를 바탕으로 하는 소비자 행동 (consumer behavior) 연구와는 구별되는 기계학습과 모델 연구의 특이점이라고 할 수 있다. 예를 들어 광고 구전 (word-of-mouth)에 대하여 연구를 수행하고자 할 때, 연구자들은 소비자의 소셜 미디어 상의 온라인 행동에 영향을 미칠 여러 가지 요소를 고려해야 한다. 선행 연구를 바탕으로 가능한 변수들을 선정할 때, 콘텐츠 관련 요소들 (예를 들어, 긍정/부정 콘텐츠, 유머 콘텐츠) 이외에도 사용자 관련 요소들도 고려해 볼 수 있다. 온라인 광고 구전에 영향을 미치는 사용자 관련 변수로는 독특성 욕구 (need for uniqueness)를 꼽을 수 있는데, 전통적 실험 연구나 설문 연구에서는 이 경향성을 설문 문항으로 측정하곤 했다. 그러나 우리가 소비자의 독특성 욕구랑 광고 구전이 관련이 있다는 것을 밝혀 내더라도 실무자의 입장에서 광고 전략을 세울 때, 우리는 소비자의 독특성 욕구를 기반으로 광고 타깃을 설정하기가 쉽지 않다. 현실 세계에서는 광고 타깃 (target audience)의 심리적 경향성인 독특성 욕구를 측정하기가 쉽지 않기 때문이다. 이때 우리는 기계 학습을 통해 심리적 변수를 간접적으로 측정할 수 있다. 예를 들면 소비자의 콘텐츠 소비 데이터를 융합해, 몇 가지 소셜 미디어 플랫폼을 사용하는가? 최근에 포스팅을 한 곳은 어디인가 등을 기준으로 독특성 욕구를 수량화하여 광고 캠페인의 타깃을 한정할 수 있다.

5.3. 융합된 데이터 셋 (integrated data set) 을 활용해야 한다.

앞서 논의한 대로, 기계 학습의 효과는 다양한 데이터 셋의 결합에서 극대화된다. 예를 들어 트위터 상의 텍스트를 분석하여 사용자들의 기분 (mood)를 주가 예측에 이용한 Bollen, Mao 그리고 Zeng (2011)의 연구를 기반으로, 우리는 다른 가능한 데이터 셋을 결합해 볼 수 있다. 이를테면, 우리는 이미 날씨와 기분 간의 상관관계가 있다는 것을 알고 있으니 (Cunningham, 1979; Howarth & Hoffman, 1984) 기후/ 날씨 데이터를 결합해, 날씨와 트위터 트위터 상의 텍스트의 상호 작용을 주가 예측 모델을 만드는데 쓸 수 있을 것이다. 무엇보다 유망한 분야는 오프라인 데이터와 온라인 데이터의 결합이다. 많은 경우 소비자 들은 정보 탐색 (information search) 과정에서 온라인 정보와 오프라인 데이터를 종합하여 사용한다. 만일 TV 광고에서 본 컴퓨터를 구매하고자 할 때, 소비자들은 첫째로 온라인 검색을 통해 여러 가지 상품 관련 정보를 입수할 것이다 (온라인 리뷰, 검색 광고 노출), 그런 다음, 매장을 방문하여 다양한 프로모션 캠페인에 노출될 것이고, 그와 동시에 온라인 정보와 오프라인에서 접한 정보를 비교할 것이다. 이

같은 온라인/ 오프라인 정보 탐색 행위는 상대적으로 저관여/ 저가격의 상품을 구매할 때도 마찬가지로 나타난다. 할인 마트를 방문한 김에 기저귀를 대용량으로 구매하려고 하는 소비자는 아마도 휴대폰을 열어 다른 온라인 쇼핑몰에서 하는 할인 행사를 동시에 검색해 볼 것이다. 따라서 이 소비자의 의사 결정은 1) TV나 신문에서 본 광고, 2) 마트 방문 시 보게 되게되는 프로모션, 그리고 3) 동시에 검색한 모바일 정보 이렇게 다양한 정보에 영향을 받을 것이다. 특히 검색 광고 (paid search advertising) 의 효과는 주효과 보다 전이 효과 (spill over) 가 크다는 점을 고려해 봤을 때 (Rutz & Bucklin, 2011), 이처럼 온/오프라인 데이터 셋을 결합하여 소비자 행동을 모델링 하는 것이 훨씬 정확하게 광고/프로모션의 효과를 측정할 수 있게 도와줄 것이다.

6. 맺음말

이상으로 최근 사회과학 연구에서도 큰 관심을 받고 있는 기계 학습과 빅데이터를 광고 연구에 어떻게 적용해 볼 수 있을지에 대해 논의해 보았다. 디지털/ 인터넷 기술의 발달로 가능하게 된 대규모 데이터의 수집은 컴퓨터 계산 용량의 비약적 발전과 소프트웨어 발전으로 연구자들이 전문적인 슈퍼컴퓨터 없이도 기계 학습을 광고 연구에도 도입할 수 있게 만들었다. 향후 연구자들은 새로운 분석의 툴로서 기계학습을 내용 연구부터 네트워크 분석에 이르기까지 새로운 광고 연구의 지평을 열 수 있을 것이다.

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