12-11-2016

The Impact of Consumer Compliments versus Complaints: A Functional Neuro-Imaging Exploration of the Effects of Electronic Word of Mouth

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ABSTRACT

Social media represent one of the fastest growing marketing channels in the world. Consequently, both researchers and practitioners are increasingly interested in the effects of social media marketing efforts on the likelihood of consumers to engage with and subsequently purchase from a brand. However, hitherto, little research has explored how social media users process the information they encounter on social media and how this information affects the nature and level of brain activity that occurs. In the proposed study, we will use functional neuroimaging (fMRI) tools to complement psychometric measures to specifically explore the neural activity that occurs in response to comments or electronic word-of-mouth; i.e., consumers' responses to posts from brands on social media. The selection of comments focuses on two dimensions of theoretical interest, namely the nature of the comment—compliment versus complaint—as well as the nature of the brand the comment is targeting—low versus high involvement. The theoretical and practical significance of this study are discussed.

Keywords: Social Media Marketing, Electronic Word-of-Mouth, Functional Neuroimaging, Purchase Decision Involvement, Compliments, Customer Complaints

INTRODUCTION

Social media marketing is an area of burgeoning research and growing company investments. Research to date has largely focused on the nature of brand messaging on social media as well as the nature and impacts of electronic word-of-mouth (eWOM), specifically through the use of content analytical, survey, and experimental methods. However, little is known about the ways in which social media users process the information they encounter on social media and specifically the impacts of eWOM on the nature and level of brain activity that occurs when users process social media comments about brands.

In this study, we aim to use functional neuroimaging (fMRI) tools to complement psychometric measures to explore the neural activity that occurs in response to eWOM; i.e., consumers' comments on brands on social media. Specifically, there are two dimensions of eWOM information processing that we will explore. The first dimension pertains to the nature of eWOM—compliment versus complaint. Thus, our first research question aims to explore *whether distinct brain activity can be observed when processing (i.e., reading) positive versus negative comments about brands on social media.*

The second dimension focuses on the interaction between the nature of eWOM and the nature of the brand, specifically the typical level of involvement during a consumer's purchase decision from the brand. Purchase-decision involvement is a popular construct in marketing and advertising research that focuses on the amount of uncertainty associated with the goods or services offered by a brand. Consumers expend more time and effort collecting information for brands that offer goods or services that are expensive and characterized by high levels of uncertainty (e.g., financial services or airplane tickets). In this study, we are interested to see *if high levels of purchase-decision involvement associated with a brand moderate the relationship of the nature of e-WOM—compliment versus complaint—on the nature and level of brain activity observed.*

LITERATURE REVIEW

The Nature of Electronic Word-of-Mouth: Compliments versus Complaints

Determining the nature of eWOM, specifically whether consumer engagement with a brand on social media is positive or negative, has been a popular area in social media research. Advances in sentiment and topic analyses have enabled the large-scale analysis of consumer comments to overcome the challenges associated with hiring human experts to code such comments. The focus in this area of research has largely been on being able to reliably conclude whether a consumer comment is positive or negative in order to enable brands to respond properly and timely to address any consumer complaints or criticisms (c.f., Huang et al., 2013).

Traditional marketing literature has explored the topic of consumer complaints by studying the effects of businesses to traditional consumer complaint letters and exploring how

this influences future replies by the same consumers. In general, research in this domain finds that repurchase intention and positive word-of-mouth are associated with strategic responses to customer correspondence (c.f., Shields, 2006).

With the proliferation of social media, consumer comments—both positive and negative—are no longer one-on-one but are visible to other (potential) consumers, hence, the novel need to explore how the processing of eWOM generated by existing consumers affects brand perceptions of other social media users. Specifically, we are interested in the question whether reading negative consumer comments—i.e., complaints—has a stronger effect on brain activity than reading positive comments—i.e., compliments— and, in turn, whether negative comments are thus a stronger antecedent to attitudes held toward a brand.

Specifically, we anticipate that negative comments are more likely to evoke perceptions of distrust, thereby resulting in a stronger activation of the orbitofrontal cortex—activated in situation of high uncertainty (Krain et al., 2006) as well as the insular cortex and amygdala—due to distrust and fear of loss (Wicker 2003). On the other hand, we believe that positive comments are less likely to result in a strong activation of the striatum—i.e., the reward pathways associated with trust (Knutson et al., 2001).

H1: Negative comments will have a stronger impact on brain activity than positive comments.

The Level of Brand Purchase Decision Involvement: Low versus High

Purchase involvement or purchase-decision involvement refers to the extent of interest and concern that a consumer brings to bear upon a purchase-decision task (Mittal, 1989; Beatty et al., 1988). Purchase involvement thus encompasses the time and effort invested in making a purchase, i.e., the research that may precede the transaction. Thus, in purchases that involve high uncertainty, consumers experience high involvement because of the perceived risk of negative consequences (Houston and Rothschild, 1978). Purchase involvement thus relates to price comparison and risk reduction.

While involvement is a characteristic that resides within the consumer, certain product categories can be conceived of as high or low involvement. High involvement products are generally expensive and are associated with high potential risk. Consumers do not always find these products inherently enjoyable, but instead they invest time and attention because the product is important, expensive and/or risky. Examples include buying a home, financial investments, and/or airline tickets (primarily business travel). When shopping for high purchase involvement goods, consumers are seeking extensive information to support decision-making by reducing risk. Low involvement products, on the other hand, are commodities that do not personally engage the consumer, hence, are neither perceived as fascinating nor risky (Lally, 2007). Examples include food, beverages, and office supplies.

Given that purchase decision involvement is associated with the amount of time and effort a consumer invests in researching a brand and its products or services, the level of purchase decision involvement associated with a brand is also expected to impact the amount of time a consumer expends on processing social media based information about a brand as well as the value the consumer attaches to electronic word-of-mouth. Hence, for high purchase-decision involvement brands, compared to low purchase-decision involvement brands, consumers are more likely to explore social media comments regarding a brand and its products and to be influenced by the nature of consumer comments.

The effects of purchase-decision involvement on the ways in which consumer comments are processed has not been previously explored in the literature, however, given the strong relationship between a consumer's level of uncertainty and information retrieval efforts and a brand's level of purchase-decision involvement, we propose the following exploratory hypothesis:

H2: The level of purchase-decision involvement associated with a brand moderates the relationship between comment nature and brain activity so that the effect is stronger for brands characterized by high purchase-decision involvement compared to brands with low purchase-decision involvement.

Perceptions of Brands: Trust and Distrust

For the mediating variables, we explore two distinct perceptions a consumer may develop about a brand—namely trust and distrust—as a result of the nature of the eWOM encountered by the consumer, and possibly moderated by the level of purchase-decision involvement associated with the brand.

Trust. Typically defined as a person's willingness to be vulnerable to another party based on the belief that the other party will act according to expectations (Mayer et al., 1995; Dimoka, 2010). In the context of marketing, trust is thus the consumer's willingness to be vulnerable to a brand based on the belief that the brand's product or service will conform to the consumer's expectations.

Distrust. Distrust, as the opposite of trust, has been defined as an expectation that the brand will not act in the consumer's best interest. Such distrust—typically characterized by lack of confidence and a fear of harm—may be related to perceptions and/or expectations of incompetence or harmful motives and behaviors (Deutsch, 1958; Ullman-Margalit, 2001).

In line with Dimoka (2010), who found that distrust is a stronger (albeit, negative) predictor of a buyer's willingness to pay a price premium than trust, we also hypothesize that

attitudes towards brands—such as brand equity and purchase intention—will be affected to a greater extent by distrust than trust, as follows:

H3: Distrust is likely to have a greater and opposing (i.e. negative) effect on a consumer's perceptions of brand equity and a consumer's intent to purchase from the brand than trust.

Attitudes Towards Brands: Equity, and Purchase Intention

For the dependent variables, we explore two distinct attitudes a consumer may hold toward the brand, namely equity and purchase intention, as follows.

Brand Equity. The incremental utility or value added by a brand name which contributes to the company's long-term profitability is commonly referred to as brand equity (Chen & Chang, 2008). High equity has been associated with consumer satisfaction, brand preference, premium price, and high profit values (Chang & Liu, 2009). We hypothesize brand equity to be affected by the level of distrust or trust that consumers perceive about a brand as a result of the consumer comments—complaints versus compliments—encountered on social media, as hypothesized above.

Purchase Intention. Purchase intention refers to the behavioral inclination of a consumer to purchase a certain product or service in the future. Positive purchase intention is thus viewed as an important antecedent to actual purchase action. Similar to the previously validated effects of trust and distrust on the price premium a buyer is willing to give to the seller (Dimoka, 2010), we also expect perceptions of trust and distrust to affect purchase intention, however, with distrust having a stronger effect than trust.

Future Brand Social Media Engagement Intention. Future Brand Social Media Engagement Intention refers to the behavioral inclination of a consumer to interact with a brand's social media touch points in the future (Coursaris et al., 2016). Positive engagement intention is thus viewed as an important proxy for actual engagement with the brand. Similar to the hypothesized effects for purchase intention, we also expect perceptions of trust and distrust to affect engagement intention, however, with distrust having a stronger and opposing effect than trust (Dimoka, 2010), as hypothesized above. There is one important distinction to highlight, namely whereas distrust will likely have a negative effect on purchase intention, it may have a positive effect on future engagement intention as the nature of the engagement with the brand on social media could be negative—e.g., complaints or trolling comments.

Proposed Research Model

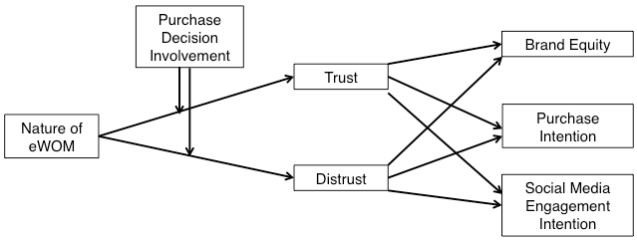

Figure 1. Proposed Research Model

METHODS

Participants. Fifteen participants will be recruited to participate in an fMRI study conducted to determine neural correlates in response to positive or negative electronic word-of-mouth—i.e., compliments versus complaints—on social media. Each subject will be screened for MRI safety (i.e., no metal implants or piercing) and compensated for their participation in this study.

Brand and Message Selection. The specific brands from which messages were selected are McDonald's and Delta Airlines. These two brands were selected for two primary reasons. First, both brands represent leaders in their respective domains and maintain a considerable social media presence. Second, these brands represent different levels of purchase-decision involvement, namely: low involvement as found for McDonald's and high purchase-decision involvement found in Delta Airlines.

For each of these brands, we decided to select tweets as the specific form of eWOM given the short length of messages to facilitate easier and faster cognitive processing in the context of an fMRI-based study, which offers only limited real-estate for displaying visual stimuli. For each brand, four tweets will be selected, two negative and two positive. For both conditions, two tweets will be selected, so that one tweet is informational and specific, e.g., "*Delta refused to refund my 400 dollar ticket*" or "*Thank you Delta for the complimentary upgrade for my flight from YYZ-JFK*" and the other tweet is emotional and general i.e. "*Delta Airlines is the worst airline in the world*" or "*I love Delta Airlines*".

Data Collection. Data collection will involve a combination of functional neuroimaging and psychometric surveys, in the following sequence. First, subjects will complete a brief survey (i.e., pre-test) regarding their established sentiment towards both brands, McDonald's and Delta Airlines, in addition to completing a mandatory MRI safety sheet. Second, subjects will enter the fMRI scanner and will be presented with visual stimuli for 4 seconds. Subjects are randomly assigned to a condition—positive or negative—after which the stimuli they receive will include two tweets per brand of the same nature (i.e., positive or negative). The visual stimuli thus consist of consumers' real public updates on Twitter (i.e., tweets) projected on a rear-projection screen located in the scanner, which are viewed via an

angled mirror attached to the head coil. Subjects' brain activity will be recorded throughout the experiment. Following each stimulus (i.e., tweet), subjects will be shown a set of psychometric questions regarding their attitudes toward the brand and required to answer on a 5-point Likert scale (thumb through pinky).

The specific scales employed in this study include previously validates scales of trust (measured through benevolence (Gefen, 2002) and credibility (Ba and Pavlou, 2002) as well as distrust (McKnight and Choudhury, 2006) as well as scales for brand equity (Chang and Liu, 2009), purchase intention (Dodds et al., 1991), and Future Brand Social Media Engagement Intention (Coursaris et al., 2016).

DISCUSSION

Research on social media has proliferated in recent years, however, the majority of prior studies have focused on the nature of brand messages or the self-reported effects of eWOM rather than focusing on the specific brain-level activity that precedes and triggers particular attitudes towards brands. Hence, this study aims to contribute to this novel domain of research by exploring two dimensions of eWOM, namely the effects of the nature of the consumer comments—compliments versus complaints—and the effects of the level of purchase-decision involvement associated with a brand—low versus high.

Results—which will be presented at the conference—will highlight the brain-level activity associated with different types of e-WOM, compliments versus complaints, as well as the extent to which moderation occurs between constructs that have previously been studied in isolation, specifically the relation between the nature of e-WOM and the level of brand purchase-decision involvement.

In regards to implications for practice, a clear contribution will be made in identifying the actual impact of consumer posts on social media users' attitudes toward a brand. Specifically, the analysis of the relationship between the nature of e-WOM and the level of purchase-decision involvement will reveal whether (i) low or high involvement brands are more susceptible to the impacts of negative consumer comments and if (ii) the nature of consumer comments—informational versus emotional—has a differential impact for high versus low involvement brands.

REFERENCES

1. Ba, S., & Pavlou, P. A. (2002). Evidence of the effect of trust building technology in electronic markets: Price premiums and buyer behavior. *MIS quarterly*, 243-268.
2. Beatty, S. E., & Smith, S. M. (1987). External search effort: An investigation across several product categories. *Journal of consumer research*, *14*(1), 83-95.
3. Chang, H. H., & Liu, Y. M. (2009). The impact of brand equity on brand preference and purchase intentions in the service industries. *The Service Industries Journal*, *29*(12), 1687-1706.
4. Chen, C. F., & Chang, Y. Y. (2008). Airline brand equity, brand preference, and purchase intentions—The moderating effects of switching costs. *Journal of Air Transport Management*, *14*(1), 40-42.
5. Coursaris, C. K., van Osch, W., & Balogh, B. A. (2016). Do Facebook Likes Lead to Shares or Sales? Exploring the Empirical Links between Social Media Content, Brand Equity, Purchase Intention, and Engagement. In *2016 49th Hawaii International Conference on System Sciences (HICSS)* (pp. 3546-3555).
6. Deutsch, M. (1958). Trust and suspicion. *Journal of conflict resolution*, 265-279.
7. Dimoka, A. (2010). What does the brain tell us about trust and distrust? Evidence from a functional neuroimaging study. *Mis Quarterly*, 373-396.
8. Dodds, W.B., Monroe, K.B., Grewal, D. 1991. "Effects of Price, Brand, and Store Information on Buyers' Product Evaluations," Journal of Marketing Research (28:3), pp. 307-319.
9. Gefen, D. (2002). Reflections on the dimensions of trust and trustworthiness among online consumers. *ACM Sigmis Database*, *33*(3), 38-53.
10. Houston, M. J., & Rothschild, M. L. (1978). Conceptual and methodological perspectives on involvement. *Research frontiers in marketing: Dialogues and directions*, *184*(187), 262-270.
11. Huang, S., Peng, W., Li, J., & Lee, D. (2013, May). Sentiment and topic analysis on social media: a multi-task multi-label classification approach. In Proceedings of the 5th annual acm web science conference (pp. 172-181).
12. Knutson, B., Fong, G. W., Adams, C. M., Varner, J. L., & Hommer, D. (2001). Dissociation of reward anticipation and outcome with event-related fMRI. *Neuroreport*, *12*(17), 3683-3687.
13. Krain, A. L., Wilson, A. M., Arbuckle, R., Castellanos, F. X., & Milham, M. P. (2006). Distinct neural mechanisms of risk and ambiguity: a meta-analysis of decision-making. *Neuroimage*, *32*(1), 477-484.
14. Lally, L. (2007). "Degrees of Delight: A Model of Consumer Value Generated by E-Commerce," *IRMA International Conference*, pp. 1006-1007.

15. Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of management review*, *20*(3), 709-734.

16. McKnight, D. H., & Choudhury, V. (2006, August). Distrust and trust in B2C e-commerce: Do they differ?. In *Proceedings of the 8th international conference on Electronic commerce*. (pp. 482-491). ACM.

17. Mittal, B. (1989). Measuring purchase-decision involvement. *Psychology & Marketing*, *6*(2), 147-162.

18. Shields, P. O. (2006). Customer Correspondence: Corporate Responses and Customer Reactions. Marketing Management Journal, 16(2).

19. Ullmann-Margalit, E. (2001). *Trust, distrust, and in between* (No. dp269).

20. Wicker, B., Keysers, C., Plailly, J., Royet, J. P., Gallese, V., & Rizzolatti, G. (2003). Both of us disgusted in My insula: the common neural basis of seeing and feeling disgust. *Neuron*, *40*(3), 655-664.

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