

Understanding the Impact of Emotional Comments and Image on Resistance Intention and Participation: A Study of Taiwanese Consumers' Buying Behavior

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Abstract

This study explores consumer resistance behavior in the social media era by examining the influence of emotional comments on such behavior through an eye-tracking experiment. Utilizing online comments from a popular social media platform, the research reveals that both positive and negative emotional comments relate to resistance intention and participation, subsequently affecting purchasing decisions. Product image contributes to resistance intention, while brand image has little effect. The study emphasizes managerial prompt action to address inappropriate behavior in resistance movements, by delineating differences between the product pre and post-improvement, and targeting young potential resistance groups with the brand's message before they join the movement.

Keywords: Consumer resistance, Online comments, resistance intention, Purchasing behavior, Brand image

1. Introduction

Online reviews significantly impact consumer resistance intentions (Zhang & Lee, 2018). Previous research has shown that negative reviews tend to influence people's decisions (Makarem & Jae, 2016), and resistance movements are typically group actions aimed at influencing other consumers not to buy products from the companies being resisted (John & Klein, 2003; Friedman, 1991). Negative perceptions of a company are the most common reason for resistance movements (Lasarov et al., 2021), which can be triggered not only by dissatisfaction with product quality but also by any action by the company that goes against people's common sense.

Given the importance of online reviews in shaping consumer behavior, this study aims to investigate the impact of online comments on consumers' resistance intentions using physiological responses such as eye

movements and skin conductance. Using a web crawler to collect and analyze online comments from third-party sources, the study uses natural language processing to classify comments as positive or negative and observes participants' physiological responses to positive and negative comments about two different brands. Using eye movement and skin conductance responses to measure physiological reactions to online comments is a novel approach to understanding the relationship between online reviews and consumer behavior. This study aimed to enrich the literature by examining the impact of both positive and negative comments on individuals' resistance intention and participation. Furthermore, the study explored the relationships between product image, brand image, and resistance intention to provide a more comprehensive understanding.

The contribution of this study is to confirm that negative comments stimulate more robust physiological responses in participants, leading to a higher likelihood of resistance participation. By combining both questionnaire data and physiological measurements, this study provides a more comprehensive understanding of the impact of online reviews on resistance participation. The results of this study can provide practical implications for companies in managing their online reputation and responding to negative comments.

2. Literature Review

2.1. Resistance

Garrett (1987) argues that group resistance can directly impact companies and prompt them to modify their policies, but often neglects individual consumer behavior in the marketplace. Boote (1998) found that consumer complaints may turn against companies, and resistance behavior represents voluntary efforts to discourage people from purchasing certain goods.

Barakat and Moussa (2017) identified that factors influencing consumer participation in resistance include perceived benefits and costs, locus of control, perceived power and credibility of resistance organizers, and perceived overall participation size. Friedman (1999) classified resistance into instrumental and expressive categories, with the former aiming to force inappropriate policy changes and the latter to express consumer dissatisfaction. Hoffmann and Stefan (2009) showed that resistance behavior is influenced by behavioral intention, which is related to the expected performance of the behavior. Cossio-Silva et al. (2019), Lavorata (2014), Jones & Hielanen (2022), and Suhud (2018) revealed a strong link between resistance intention and behavior, which can be influenced by manipulating perceived performance and stimuli. García-de-Frutos & Ortega-Egea (2022) found that consumers may be more likely to participate in resistance activities if they perceive the messages they receive as hate, and anonymous online news and discussions may facilitate resistance formation and intention.

2.2. Online Review

Internet reputation is established by customers posting positive and negative reviews about products or companies online, creating electronic word-of-mouth (eWOM) that influences consumer purchase decisions. Consumers access online reviews through guestbooks, forums, news groups, and bulletin boards, with the volume and sentiment of reviews being of greatest concern. Online reviews are more influential than official announcements, and the evaluation of online reviews is the strongest indicator for consumers before they make a purchase decision. Hennig-Thurau et al. (2004) found that the primary issue affecting consumer resistance behavior is online review comments about products or companies, with online comments reducing uncertainty about products. The influence of online review sentiment on a customer's decision to purchase products has been highlighted in recent research (Wang et al., 2022). Furthermore, a customer's resistance intention plays a significant role in their participation in boycotts (Salem et al., 2022). Studies have also emphasized that a customer's attitude towards review comments impacts their intention to resist or engage in boycotts (El-Said, 2020; Su et al., 2022). Notably, a customer's involvement in a boycott has a substantial effect on their future purchasing intentions (Ali, 2021). This study proposes three hypotheses regarding online review comments and resistance behavior, as well as a fourth hypothesis stating that participation in resistances affects purchase intention.

H1: The sentiment of an online review comment affects participants' emotional responses positively.

H2: Resistance intention affects resistance participation positively.

H3: Attitude towards online review comments affects resistance intention positively.

H4: Participation in resistances affects purchase intention positively.

2.2. Physiological Signal

Galvanic Skin Response (GSR), also referred to as Electrodermal Activity (EDA) or Skin Conductance Response (SCR), is a measure of the subtle changes in skin caused by the interaction between the external environment and physiological state. GSR parameters that can be measured after stimulation include amplitude (in μS), delay in seconds, rise time, and half-recovery time (Boucsein, 2012; Fowles et al., 1981; Ohira and Hirao, 2015). GSR has been found to be significantly positively correlated with attention or anxiety, indicating that attention can be reflected through GSR (de Santos Sierra et al., 2011; Giannakakis et al., 2017; Myers, 1974; Vahey and Becerra, 2015). GSR has been utilized in psychotherapy for disorders such as eating disorders, phobias, or Post Traumatic Stress Disorder (PTSD) to assess the severity of the patient's condition and adjust the treatment approach based on the measured data (Dawson, Schell, & Filion, 2017). Additionally, GSR has been employed to measure consumers' interest and emotional responses to products, as well as people's reactions to various stimuli.

Eye movement tracking technology is a non-invasive tool that captures infrared light reflected from the pupil to record changes in eye movement, allowing for the analysis of the process of eye tracking (Rayner, 1998). This technology is required to track the trace of eye movement when individuals view visual information. It can be used to measure the processing of visual information, record the fixed positions of participants' eyes at specific times, and create eye movement sequences and paths based on the focus of the information. Eye tracking technology has been applied to various consumer-related studies, particularly those related to the internet, to provide precise information about consumer visual attention, such as gaze or visualization patterns, in order to quantify the effectiveness of advertising banners (Vila & Gomez, 2015).

Eye-tracking technology is a useful tool for researchers to objectively measure and analyze eye movement data, including fixation duration, number of fixations, and visual path. The use of eye-tracking technology allows for real-time monitoring of eye

movements, providing insights into people's internal cognition and emotions. In addition, eye-tracking technology can be used to investigate how emotional polarity affects engagement of different types of users.

The current study aims to examine the impact of online reviews on resistance to participation based on the effect of third-party reviews on consumer behavior. Previous research has shown that third-party reviews can cause physiological changes in consumers, subsequently affecting consumer behavior. Clearly, a negative brand image can significantly impact a customer's resistance intention (Krishna & Kim, 2022). However, it is not only the brand image, but also a negative product image that can affect customers' resistance intentions (Su et al., 2022). Furthermore, when customers read negative review comments, their eye movements are likely to differ between those with resistance intentions and those without (Bigné et al., 2023; Mikalef et al., 2021). Therefore, this study proposes hypotheses H5-H7 related to brand and product image and eye movement behavior's relationship to resistance to participation.

The study proposes a research framework based on factors identified in the literature review, and an experimental design will be conducted using PTT as a simulation platform to capture comments from different brands. The study will combine the questionnaire results with physiological signal responses and conduct mixed physiological signal research on eye movement and skin conductance to gain insights into how viewers engage with brand case reviews on the internet.

H5: Brand image influences resistance intention positively.

H6: Product image influences resistance intention positively.

H7: Eye movement behavior is related to resistance to participation positively.

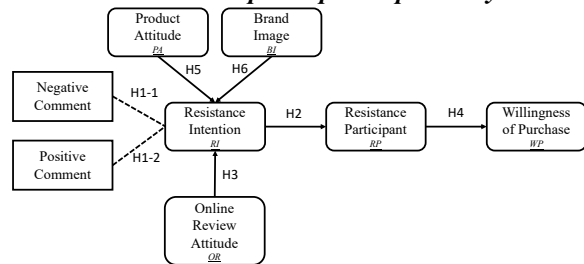


Figure 1. Research Framework

3. Research Method

In this research, a mixed-method approach was used to collect data, employing both a questionnaire and an experiment. A pilot questionnaire was initially conducted to ensure the reliability and validity of the questionnaire design before distributing the formal

questionnaire through online snowball sampling. The final questionnaire design was modified based on participant feedback, with only those questions containing misunderstandings or doubts being revised. Additionally, scholarly research employs Natural Language Processing (NLP) techniques to conduct sentiment analysis on online reviews by means of semantic analysis and machine learning algorithms (Ding et al., 2008; Yu & Hatzivassiloglou, 2003; Mullen & Collier, 2004; Pang et al., 2002; Zhang et al., 2011). To ensure the efficacy of the manipulation check—that is, to verify that all experimental materials effectively elicit responses from participants—this study integrates NLP with physiological measurements. Specifically, eye-tracking and skin conductance responses are utilized to examine participants' reactions to comments pertaining to two distinct brands.

The experimental component of this study aimed to investigate whether consumers would develop resistance intentions due to different types of brand or product reviews when viewing online comments. Physiological signals, such as skin conductance, eye-tracking, and the psychological resistance scale, were used to validate hypotheses and measure behavior.

The study employed a 2 x 2 within-subjects experimental design to understand the effects of different comment stimuli on participants. Prior to the formal experiment, a questionnaire was administered to assess participants' behavior and determine whether they met the experimental criteria. During the experiment, each participant viewed 240 comment stimuli and could select one of three coupons after viewing each comment type.

This research aimed to examine participants' physiological signals while viewing different comment stimuli, compare the differences in physiological signals across the eight visual stimuli, and explore the effects of eye movement behavior and resistance participation based on their responses to the questionnaire.

4. Analytical Results

Between December 1, 2020 and March 28, 2021, an online survey was conducted in which 568 responses were received, of which 508 were valid, resulting in a valid response rate of 89.43%. The sample comprised of an almost equal distribution of male and female respondents, with the most common age group being between 39 and 43 years old, accounting for 20.9% of the total sample. The majority of respondents worked in the service industry, representing 28.5% of the total sample.

To assess the reliability of the questionnaire scale, Cronbach's α and composite reliability (CR) coefficients were used. The study found that all constructs had a

Cronbach's α value greater than 0.7 (with the lowest being 0.728 for the "product attitude" construct) and all constructs had a CR value greater than 0.7 (with the lowest being 0.875 for the "purchase intention" construct), indicating good reliability for all constructs.

The study also evaluated the factor loading for each item, which Hair et al. (2009) recommended to be above 0.7, with a value greater than 0.6 being acceptable. In this study, the factor loading for each item met the standard of 0.7. In addition, the study used the average variance extracted (AVE) to measure the variation of latent variables in each measurement item, which can be used not only as a criterion for judging reliability but also as an indicator of convergent validity. The study found that the AVE of each construct was more significant than 0.5, in line with recommendations by Fornell and Larcker (1981) and Bagozzi and Yi (1988), indicating that all constructs had convergent validity.

The study also evaluated the discriminant validity using the Heterotrait-Monotrait ratio of correlations (HTMT). The study found that all constructs met the HTMT standard, with the highest value being 0.779, which is lower than the criteria of 0.85 proposed by Hair et al. (2017), indicating discriminant validity.

The structural model in this study showed good fit, as evidenced by the standardized root mean square residual (SRMR) of 0.052, which is below the recommended threshold of 0.08. The variance inflation factor (VIF) was within an acceptable range of 1.261 to 2.671, with the highest value below 5.

The current study enrolled 18 participants, 9 males and 9 females, between the ages of 21 and 24 years, who were undergraduate or graduate students. Participants were selected based on their responses to a screening questionnaire designed to identify those who had a potential resistance intention. To differentiate between participants with and without a resistance intention, they were presented with a public-relations crisis news report and PTT comments related to a brand case. Participants were then given a choice between three coupon options. The choice of the first option indicated a lack of resistance intention, while the latter two options were considered as indicating participation in a resistance, based on previous studies. Following the experiment, two participants with incomplete data were excluded from the analysis, resulting in 16 participants' data being included.

The study aimed to investigate the influence of positive and negative comments on physiological changes, as measured by skin conductance response (SCR), which detects the interaction between the external environment and the human brain-heart reaction. Lang et al. suggested that the measurement period should start at the first second of the stimulus and end at the sixth second of the stimulus, and data of skin

conductance during the 6-second interval of each comment stimulus should be extracted. This study employed T-test analysis to examine whether there were significant differences in the skin conductance changes of the participants when they viewed the different comment stimuli, in order to confirm that the comments were perceived differently by the participants.

In this study, the participants were divided into two groups based on their intentions to resist and were shown eight stimuli of comment. The stimuli included positive and negative comments about the product and brand of international brand case A, positive and negative comments about the brand of international brand case A, positive and negative comments about the product of brand case B, and positive and negative comments about the brand of brand case B. The analysis showed that the results of almost all comment stimuli (With only a few exceptions, like Subject No. 12) were largely consistent. For this specific subject, who displayed no resistance intention, there was no notable difference in their response to stimuli that featured brand B, accompanied by both positive and negative remarks about the product, and stimuli that showcased brand B with positive and negative comments directed at the brand itself), regardless of whether they were discussing brands or products, could induce significant negative emotional changes in participants. In summary, the study concludes that using positive and negative comment stimuli as emotional classification indicators by SnowNLP can affect consumer resistance intentions and lead to resistance behavior. Therefore, the analysis of the skin conductance experiment supports hypothesis H1-1 and H1-2, which states that positive and negative comments can influence resistance intentions.

The present study utilized eye-tracking analyses to investigate the differences in attention between positive and negative comments of two brand cases, brand A (an international brand) and brand B (a local brand), among participants with and without resistance intentions. The study included 16 participants, with 8 participants in each group, and employed an eye-tracker to collect eye-tracking data. Statistical analyses of eye-tracking variables and heat maps were conducted to compare the differences in viewing brand comments between the two groups, and areas of interest were drawn for each type of comment. Participants were given the option to choose from three coupons after viewing each type of comment. Choosing the first option was interpreted as not participating in the resistance, while the latter two options were interpreted as participating in the resistance. The results of the study showed that participants with resistance intentions displayed distinct patterns in attention toward each type of comment. Specifically, negative comments about the product received the fastest initial gaze time from resistance

participants. Negative comments about the brand received the longest total gaze time from participants, whereas positive comments about the brand garnered the shortest total gaze time from resistance participants. Participants with resistance intentions showed the highest average gaze time on positive comments about the product and the lowest average gaze time on negative comments about the brand. In the area of interest, negative comments about the brand received the most attention from resistance participants, while positive comments about the brand received the least attention. These findings suggest that attention bias may play a role in consumers' resistance intentions toward certain brands or products, which supports the study's hypotheses and underscores the importance of understanding consumers' attentional processes in shaping resistance behavior.

The analysis of the first gaze time revealed that negative comments about local brands captured the attention of participants without resistance intention the quickest, while positive comments about the brand were the slowest. With respect to total gaze time, negative comments about the brand held the attention of participants without resistance intention the longest, while positive comments attracted their attention for the shortest duration. On average, participants without resistance intention paid the most attention to positive comments about the product and the least attention to negative comments about the brand. In terms of the area of interest, negative comments about the brand received the most attention from participants without resistance intention, while positive comments about the brand received the least. (Lasarov et al., 2021).

The study's analytical results indicate that positive comments about the brand were the most attention-grabbing for both participants with and without resistance intention in terms of average gaze time. However, negative comments had a more significant impact on attracting the attention of both types of participants in the interest area's average gaze time. In conclusion, the study suggests that positive and negative comments can affect consumer resistance behavior. The number of participants opting to participate in resistance increased after viewing the comments, indicating that the comment stimuli can influence resistance behavior. Therefore, the eye-tracking analysis supports hypothesis H7, which suggests that eye-tracking behavior is related to resistance participation (Lasarov et al., 2021).

5. Implications

5.1 Research Implications

Resistance intention significantly impacts resistance participation, which in turn affects purchase

intention, supporting hypotheses H2 and H4 (Suhud, 2020). Negative attitudes influence consumers' willingness to participate in resistance and seek negative arguments against the target, particularly when ignoring certain opinions. These findings are consistent with prior research demonstrating that participating in resistance affects purchase intention, as observed in Shah and Ibrahim (2016) and Sen et al. (2001). Additionally, resistance participation impacts purchasing behavior, as consumers may opt not to transact with the resistance target.

Product image and the attitude of online comments significantly affect resistance intention, supporting hypotheses H3 and H6, respectively (Kurup & Jain, 2018). However, brand image does not significantly impact resistance intention, contradicting the findings of Lasarov et al. (2021). This could be because Taiwanese consumers do not believe that resistance can lead to changes that would affect the brand image of the target, which is deeply ingrained in their minds. Therefore, brand image does not affect resistance intention or alter consumers' short-term consumption habits.

Positive and negative emotional comments significantly impact participants' emotions, supporting hypotheses H1-1 and H1-2, respectively, as demonstrated by the skin conductance study. Participants displayed significant reactions to different comment stimuli, suggesting that emotional comments affect their psychological state and elicit intense responses. Furthermore, eye movement behavior is associated with resistance participation, as most participants engage in resistance behavior after viewing negative comments (Bigné et al., 2023; Mikalef et al., 2021).

5.2 Managerial Implications

The findings of the study indicate that emotional comments play a significant role in shaping consumers' resistance intention and, ultimately, their buying behavior. Positive and negative comments can affect consumers' perception of the brand, leading them to refrain from purchasing the brand's products and even discourage others from doing so. It is noteworthy that the use of the internet in Taiwan may impact consumers' motivation to resist and their perception of resistance-related literature.

The study also found that product image has a stronger influence on resistance intention than brand image. This suggests that managers can address resistance by focusing on product-related issues, such as improving product features, quality, or design. To prevent or mitigate the negative impact of resistance, managers can take preemptive actions by proactively communicating the improvements made to the product

and targeting potential resistors before they join the resistance movement.

In light of the pervasive use of the internet and social media, managers can leverage these platforms to reach out to potential resistors and influence their perception of the brand. By providing clear and concise messages about product improvements and addressing any issues that may lead to resistance, managers can potentially reduce the economic pressure that resistance movements may cause. Overall, this study highlights the importance of understanding the drivers of resistance behavior and suggests practical strategies that managers can use to address resistance and minimize its negative impact.

6. Conclusion

To further elaborate on the conclusion, this study provides significant insights into the relationship between emotional comments, resistance intention, resistance participation, and purchasing behavior. The study demonstrates that businesses need to be aware of the impact of emotional comments on consumer behavior, particularly when dealing with resistance movements. The findings highlight the importance of taking prompt action to address inappropriate behaviors and engaging young potential resistors with specific information to receive the brand's message before they participate in resistance.

Furthermore, the study sheds light on the importance of product image in resistance intention and the limited impact of brand image. Businesses should focus on managing their product image to reduce resistance intentions among consumers. The study also indicates that the use of the internet can further influence resistance motivation and literature, which businesses need to consider when developing their brand management strategies.

While this study provides valuable insights, future research should take into account the individual preferences of consumers and the effects of exposure to comment stimuli in the online environment. Researchers should also consider how the omission of certain keywords can impact the accuracy of results, and how participants may base their behavior on their subjective likes and dislikes, which may not reflect their actual intentions. Addressing these issues can improve the accuracy and relevance of future studies on resistance movements. The second and following pages should begin 1.0 inch (2.54 cm) from the top edge. On all pages, the bottom margin should be 1-1/8 inches (2.86 cm) from the bottom edge of the page for 8.5 x 11-inch paper. (Letter-size paper).

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