The Boundary Role of Consumer Involvement in Review Credibility and Purchase Decisions

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Abstract. Consumer decision-making is becoming more and more influenced by online reviews. Negative reviews have mostly been viewed in earlier studies as risk cues that increase uncertainty and reduce purchasing intentions. However, the notion that "negative reviews equal risk" is no longer sufficient in information-rich digital contexts. Based on research insights from electronic word-of-mouth, persuasion theory, and cognitive dissonance theory, this paper discusses how moderately negative online comments function in a domain that is overwhelmingly filled with favorable reviews. In doing so, it also emphasizes the boundary effect of consumer participation. Drawing on a synthesis of current literature, this analysis is based on the perspectives of information diagnosis, two-way information effects, and imperfect review structures. Results indicate that imperfect structures of reviews with limited, reasonable, and interpretable negative information are closer to human-like demands for authentic feedback, and add to the credibility and reference-value of review. In addition, presence of positive and negative reviews are not equivalent to decreased purchase intentions. The presence of information conflict that is within a controllable range for both information and subjective evaluation can stimulate more nuanced and comprehensive cognitive processing in which the processing may yield more balanced and psychologically logical judgments. Low involvement still causes bad reviews to predominantly serve as danger signals, even while increasing engagement enhances this impact among highly active consumers. This study improves knowledge of negative online reviews and provides theoretical implications for review research and platform design by focusing on review structure and cognitive processing.

Keywords: Negative Online Reviews, Electronic Word of Mouth, Review Credibility, Cognitive Dissonance, Consumer Involvement

1 Introduction

Online evaluation has now become the core information basis for consumers to reduce decision-making uncertainty and judge product quality. Most of the existing relevant studies regard negative online reviews as risk warning signals, believing that such reviews will have a continuous suppressive effect on consumers' purchase intention by deepening their perception of uncertainty and potential loss expectations. This linear

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interpretation logic of "negative evaluation is risk warning" has also occupied a mainstream position in the field of electronic word-of-mouth research for a long time. For example, Liu, Lu and Chen systematically analyzed the quality, quantity, length and timeliness of negative evaluations based on the structural equation model, and found that negative evaluations with high information diagnostics will significantly improve consumers' perceived risk and reduce their willingness to buy through risk avoidance mechanisms. Similar studies generally adopt the linear intermediary path of "evaluation characteristics-risk perception-purchase intention", which provides stable empirical support for the suppressive effect of negative evaluation. This linear explanation path of "negative = risk" has long dominated the research of electronic word of mouth [1].

However, with the continuous growth of the number of online evaluations, the recent studies gradually found that there is a marginal decreasing effect on the impact of the number and form of evaluations. In the context of high evaluation density, consumers move beyond simply relying on review quantity or emotional tone, but pay more attention to whether the information has diagnostic and reference value. This change has prompted the academic community to re-examine the function of negative evaluation in the evaluation system.

Both persuasion research and online evaluation research show that the imperfect evaluation structure with overall positive but a small amount of negative information may be more in line with consumers' expectations of real market feedback, thus improving the credibility of the evaluation system [1].

In this situation, negative reviews not only a signal of risk; but also produce an indirect influence on consumers' purchase decision-making by enhancing the authenticity and diagnosability of product evaluation information.

Furthermore, when positive and negative reviews appear at the same time, this may cause consumers caught in the behavior of dealing with conflict information , but this process is not common. Based on the elaboration likelihood model (ELM), whether consumers integrate negative information depends on their involvement. Highly involved consumers are more likely to process systematically through the central path, while low-induced consumers tend to directly interpret negative comments as unfavorable signals.

Based on the above analysis, this article discusses the mechanism of moderate negative online evaluation, and focuses on the boundary role of consumer involvement. This research theoretically helps to break through the linear interpretation that simply equates negative evaluation with risk signals, and reveals the possible differential impact under specific cognitive conditions; from the research perspective, the online evaluation effect is combined with the consumer information processing path, enriching the understanding of individual psychological mechanisms of electronic word-of-mouth research. At the practical level, this article also provides a more situationally sensitive decision-making reference for the platform evaluation presentation method and the reputation management of merchants.

2 Traditional Interpretation Path of Negative Online Evaluation-The Linear Model of "Negative = Risk"

In the existing electronic word-of-mouth research, negative online evaluations is usually regarded as a risk warning signal mainly involving decision-making risks such as product performance uncertainty, service quality fluctuations and potential transaction losses [2]. The mainstream view is that negative information can reveal potential problems in products or services, thus helping consumers avoid potential decision-making risks. Its overall effect is to have an inhibitory effect on consumers' willingness to buy by strengthening risk perception and uncertainty expectations.

Under this framework, the research of Liu, Lu and Chen is representative [1]. From the perspective of information characteristics, this study systematically examines the quality, quantity, length and timeliness of negative evaluation, which together affect the understandability and reference value of evaluation information. [1]. The study found that high-quality, large-quantity and relatively new negative evaluations can significantly improve consumers' perceptions of usefulness and ease of use of evaluation information. [1]. In other words, when the content of negative evaluation is clear, the information is sufficient and easy to understand, consumers are more likely to use it as an effective information basis with reference value and decision-making relevance [1]. Further empirical results show that perceived usefulness and perceived ease of use will not promote purchase by improving the positive attitude, but will directly or indirectly reduce the willingness to buy by strengthening risk assessment. [1]. This result strengthens the core logic of traditional research: the main function of negative evaluation is not emotional catharsis or attitude expression, but by increasing the diagnostic value of information and enhancing consumers' risk aversion tendency, so as to inhibit purchasing behavior.

At the theoretical level, this path is highly consistent with the hypothesis of "negative bias". Negative bias, that is, the psychological tendency of individuals to pay higher attention to negative clues in the process of information processing. Relevant studies generally believe that consumers are more sensitive to negative information than positive information and tend to give them a higher weight [2]. Therefore, the mainstream model defaults to one premise: all negative information is essentially unfavorable signals, and its direction of influence has stable linear characteristics, that is, the more negative information and the more significant it is, the lower the willingness to buy.

However, this linear suppression hypothesis of "negative = risk" often ignores the differences in the degree, nature and overall evaluation structure of negative information, and also gives less consideration to the complex psychological processing involved that may occur when consumers face "overall positive but containing a small amount of negative information". This limitation is an important starting point for subsequent research to try to break through.

3 The Shift of Online Evaluation Research: From "How Much Information" to "How Useful the Information Is"

Traditional online evaluation research used to focus on the "quantity" and "form" of evaluation, but recent studies have revealed the nonlinear characteristics of their impact, and the focus has gradually turned to the "validity" and "diagnostic" of information, that is, whether the information helps to judge the real quality of the product and its distinction.

3.1 Evaluate the Marginal Decreasing Effect of Quantity and Form

The research of Zheng et al. provides key evidence for this change. They integrated the theory of attention competition and visual search. Through empirical experiments and modeling analysis, they found that there is a marginal decreasing effect on the impact of online evaluation on consumers' information acquisition and purchasing decisions. Specifically, whether it is the increase in the number of plain text evaluations or the increase in the proportion of evaluations including videos/pictures, its positive impact on consumers' information acquisition and final purchase intention gradually weakens, rather than linear growth [3]. This finding directly challenges the implicit hypothesis of the continuous positive effect of the number of evaluations' in early studies, proving that the utility of simply increasing the number of evaluations or the stacking of visual content has an upper limit determined by attention resources and information processing capacity.

3.2 Limited Attention and Information Diagnostics

The core mechanism of the above marginal diminishing effect lies in the limited attention of consumers. There is a bottleneck in the information processing ability of individuals. When the number of evaluations exceeds a certain threshold, the marginal cognitive value of new homogeneous information (especially one-way positive information) will decline rapidly. Information overload will increase the complexity of decision-making and weaken consumers' ability to integrate core quality clues.

This prompts researchers to think what kind of information structure can overcome the limitation of attention more effectively in high-saturation review environments.

The key to moderate introducing negative reviews lies in the fact that they can make the clue more diverse. These clues may cover different sides of the products, in order to increasing the comprehensiveness and reliability of in formation diagnosis, and providing additional references for customers’ quality assessment.

4 Bidirectional Information, Imperfect Realism, and Source Reliability

4.1 Two-Sided Message Effects and the Enhancement of Review Reliability

In persuasion research, a common view is that the persuasive effect is not only based on the value of the information, also is highly influenced by the structural feature of the information and the way of presentation. According to this framework, the two-sided information effect is widely used to explain why information containing both positive and negative elements is usually more persuasive than purely positive information. The analysis of evidence shows the two-sides information, by delivering both positive and negative information, demonstrates openness and equilibrium, thereby increasing the customers' trust of the source of information. This phenomenon will reduce the audience's psychological defenses against potential persuasive or manipulative intentions [4]. In recent years, research on online comments has extended this framework to information consumption sector. Early research tended to simply view online comments as positive or negative expressions. However, more recent research has focused more on the role of credibility and information quality of comments in consumer decision-making process. Studies have found that the credibility of online reviews has a direct positive impact on purchase intention. Comment quality plays a supporting role, promoting deeper cognitive processing of review content and establishing psychological connections between information conflicts and purchase decisions [5]. These findings indicate that consumers' judgement of reviews is not only dependent on their emotional tone, but also on their credibility, objectivity, and practicality. From this perspective, a comment environment that include both positive and negative information is like a two-way communication in traditional exchanges. When a comment system can provide users a good experience and contains a small amount of negative feedback, consumers will infer that the platform allows for original expression rather than selective shielding or manipulation. This inference will enhance consumers' overall trust in the comment system and prompt them to invest more cognitive resources in evaluating system. In an information-rich comment environment, consumers rely more on perceived diagnostic information when forming attitudes, rather than purely emotional cues [6]. It should be noted that the improvement in reliability brought by two-way communication does not mean that negative information is useful. Its impact depends on whether the negative content is considered reasonable and understandable. Negative comments that point out minor flaws rather than fundamental flaws are more likely to become a sign of credibility. In this case, negative online comments not only increase risk perception but also have an indirect incentive effect by increasing consumers' perception of honesty and transparency [4,5].

4.2 Imperfect Review Structures and Authenticity Judgments

Based on the two-way information effect, recent studies on online reviews have proposed the concept of "incomplete review structure" to explain consumers' skepticism towards environments that consistently publish positive reviews. In real-world consumption scenarios, products or services rarely provide a completely consistent positive experience for all consumers. Therefore, a review environment characterized by extremely positive reviews may be perceived as deviating from actual consumption patterns. This perception undermines the overall credibility of the product.

Empirical research has confirmed this view. Previous studies have shown that the relationship between average ratings and purchase probability is not strictly linear. If the rating is too high, consumers may consider the review "very good," thereby reducing their purchase intention [7]. This study is not the latest, but its core conclusions have been further supported by subsequent research. Later studies have consistently shown that the authenticity and reliability of reviews are among the most stable and influential factors affecting purchase intention. In many cases, these factors may even outweigh the emotional value itself.[8]

Further empirical research has investigated the formation of authenticity judgments in online reviews. The results show that consumers value the authenticity of reviews more than positive ratings when processing review information. This suggests that moderate inconsistency (limited bias and definition, not involving core quality defects) can improve consumers' perception of authenticity. Furthermore, when the number of reviews is large, consumers tend to rely heavily on the diagnostic value of information during the decision-making process. In this context, some negative reviews can help consumers better understand the potential trade-offs and increase their confidence in their decisions [6].

However, not all negative reviews have a positive impact on the judgment of authenticity. Generally, specific and easily understood negative feedback is more likely to increase credibility. Conversely, vague or extremely negative information may reawaken consumers' awareness of the risks associated with the core performance of the product. This difference is consistent with existing research on peer review operations. Previous studies have shown the existence of promotional reviews and strategic operations on online platforms and indicate that consumers' skepticism towards an environment of overly positive reviews is a reasonable adaptive response [9].

In conclusion, online review systems should not be viewed as an information environment that seeks complete consistency. Instead, they should be seen as a judgment environment that is incomplete but realistic. When the overall tone of the evaluation is positive, limited and reasonable negative information can increase authenticity and credibility. This structure helps consumers form more balanced and stable decisions. In this context, negative online reviews no longer merely have an inhibitory effect, but can indirectly increase purchase intention by strengthening the judgment of authenticity.

5 Cognitive Discomfort and the Processing Processes of Conflicting Information.

5.1 Cognitive Dissonance Theory: Information Confrontation and Moderating Motivational Mechanism.

Cognitive dissonance theory, initially developed by Festinger, is the mental strain in which those who hold several opposing thoughts, beliefs, or interpretations at the same time experience [6]. When there are cognitive inconsistencies, individual psychological stress leads to the activation of moderating motivations that seek to restore cognitive consistency [10,11]. These counter-processes include not passive (or passive response to) information but rather active cognitive adjustments through which beliefs are changed. In the context of consumer decision-making, cognitive dissonance frequently arises when consumers encounter conflicting evaluative cues. Online review environments can give many positive evaluations while providing relatively few negative responses. This information construct does not explicitly either endorse or oppose any particular choice. In this way, it might in part lead to more goal-oriented and integrative motivational processing as it brings positive information to the same level as negative, making it more difficult for subjects to maintain cognitive dissonance [11]. It is borne out by empirical research. It has been shown that if individuals are confronted with a conflicting or double-evaluation, they tend to reconstruct their evaluations instead of making an automatic negative judgment [12]. Hence this theoretical perspective explains why consumers do not, from a psychological point of view, actively reduce their willingness to buy when both positive and negative reviews have an effect on the purchase.

5.2 Online Reviews: A Controllable Domain of Cognitive Dissonance

For online reviews research, the application of cognitive dissonance theory may enable the review sites to emerge as a site of controlled cognitive dissonance. In information-seeking contexts, the consumer becomes both exposed to positive and negative evaluative cues, and yet able to detect and perceive this information. In contrast to settings that present heavily concentrated negative information which cannot be easily regulated, review environments with a generally positive evaluative tone accompanied by little negative feedback tend to induce a manageable degree of cognitive dissonance. It is at this level of cognitive dissonance that we are far more likely to trigger meaningful associations than avoidance behavior. Sequential processing studies suggest that individuals are more likely to choose what information to prioritize because when presented with contradictory information, they seek to make distinctions rather than discard it altogether. Instead of completely ignoring evaluative cues, decision-makers provide differential weight to evaluative cues and do not completely disregard them [13]. On one hand, when negative reviews give concrete and relevant details or context about the product in more detail and context, they allow to understand product features and usage problems from a more specific and systematic perspective [14]. This mechanism serves to better incorporate cognitive processing to a depth and in terms of facilitating the information conflicts resolved [15]. Consumers' opinions on the truthfulness, impact and personal relevance of negative feedback in online reviews display selective weighting for online reviews. When negative information contains a small error or subjectivity, consumers consider it a trade-off option of acceptable choice and not conclusive evidence that they can counter-argue. Information diagnostic research has confirmed this interpretation further. Mudambi and Schuff [15]. posit that the explanation and information value of online reviews is more important to consumers than the emotional value. When negative reviews are clear and contextual, they may also potentially bolster consumers' grasp of what products are like or under what conditions of usage. Indeed, recent studies indicate that contradictory review cues trigger more profound integrative cognitive pathways that assist consumers to work through conflicting information through rational weighing and evaluation [15].

5.3 Relevance and Correlation with Purchase Intention

According to cognitive dissonance, the relationship of negative online reviews on purchase intention is not symmetric—and it does not always contain a deterrent effect.

When the overall evaluative tone is positive, minimal negative information is not harmful but can actually result in higher cognitive engagement and deepen evaluation by customers. This method leads to consumers developing broader, more systematic, and more careful evaluation of the perceived risks. Consumers can choose to make decisions that are not just realistic, but internally consistent if they combine contradictory information rather than leave it alone. In recent empirical investigations, this phenomenon has been reaffirmed. Zhou and Li also revealed that the experience of inconsistent online reviews is associated with increased cognitive involvement in consumers, which links information conflict to purchasing behaviors [16]. Accordingly, Gupta and Harris reported that consumers made a balanced judgment when encountering inconsistent product reviews not by perceiving negative information to be a strong hindrance but by weighing against it [17]. Thus, cognitive dissonance theory is an essential psychology framework through which to comprehend how contradictory data in online reviews is processed. Through this framework, negative reviews are much more than risk signals but fundamentally integrated into the information integration process. This mechanism is further corroborated by the previous discussion on credibility and authenticity, which also indicates the extent to which the negative effect on online reviews is dependent on the extent to which consumers can and desire to manage cognitive dissonance. This boundary condition will be examined, in the next section, through the lens of consumer engagement.

6 The Boundary Role of Consumer Involvement

Consumer involvement is regarded as a crucial boundary condition that shapes the variations in information processing routes and their respective depths. According to the Elaboration Likelihood Model (ELM) proposed in Communication and Persuasion: Central and Peripheral Routes to Attitude Change, individuals do not adopt a uniform mode of information processing in persuasive contexts; instead, they switch between the central and peripheral routes based on their level of involvement [18].

In highly involved situations, consumers believe that the decision-making results are highly related to themselves, so they are more willing to invest in cognitive resources and engage in deeper processing of information content. They not only pay attention to the positive and negative value of information, but also evaluate the logical consistency and rationality between information. When there are both positive and moderate negative information in the evaluation, high-in consumers are more likely to seek to integrate these seemingly contradictory clues, thus forming a more rational and stable judgment based on system processing. This provides the basis of the psychological mechanism for the "reverse effect" that moderate negative evaluation may trigger.

On the contrary, in low-inclusive situations, consumers lack the motivation to do deep cognitive processing, and often rely on peripheral clues such as star rating, number of evaluations or emotional color for quick judgment. In this case, negative information is more likely to be simply interpreted as an unfavorable signal without triggering in-depth trade-offs and integration. Therefore, moderate negative evaluation is difficult to activate the complex cognitive adjustment process, and its impact is still manifested as the inhibition of the willingness to buy.

It can be seen that the reverse effect is not universal but depends on whether consumers have sufficient involvement level and central processing motivation. Therefore, the level of consumer involvement serves as a crucial boundary condition that enables moderately negative reviews to exert a positive effect.

7 Conclusion

This study examines the mechanisms through which negative online reviews influence consumers' purchase intention and reflects on the traditional linear perspective that equates negative reviews with risk signals. By systematically reviewing research on electronic word-of-mouth, persuasion theory, and cognitive dissonance, the analysis demonstrates that the effects of negative online reviews are not inherently suppressive. Instead, their influence is highly contingent on review structure characteristics and consumers' information-processing approaches.

The findings indicate that, in contexts where the overall evaluative tone is positive, imperfect review structures containing a limited, reasonable, and interpretable amount of negative information are more likely to be perceived as authentic and credible. Uniformly positive reviews tend to deviate from the natural distribution of real consumption experiences and may trigger suspicion regarding selective filtering or manipulation. In contrast, limited inconsistency provides cues of realism, enhancing both the credibility and diagnostic value of the review system. Within this process, negative reviews do not function as risk warnings, but are incorporated into overall judgments as signals of authenticity.

Further analysis from a cognitive dissonance perspective suggests that informational conflict arising from the coexistence of positive and negative reviews does not necessarily lead to avoidance behavior. When cognitive dissonance remains within a regulatable range, consumers are more likely to engage in systematic and integrative cognitive processing, forming balanced and psychologically coherent judgments through the evaluation of both positive and negative information. This cognitive mechanism explains why consumers do not automatically reject products, under certain conditions, the presence of negative reviews does not automatically weaken purchase intention and may instead contribute to more stable decision outcomes.

In addition, this study highlights the boundary role of consumer involvement in shaping the effects of negative reviews. High-involvement consumers are more inclined to integrate conflicting information deeply, thereby attenuating the suppressive impact of negative evaluations. In contrast, under low-involvement conditions, consumers tend to rely more heavily on heuristic processing, rendering negative reviews more likely to function as unfavorable signals. These findings indicate that the influence of negative online reviews is not uniform, but highly context-dependent.

Overall, this study advances the understanding of negative online review effects by examining review structures and cognitive processing mechanisms, revealing the underlying logic of the "imperfect yet credible" phenomenon. The conclusions contribute to theoretical discussions on authenticity judgment and information integration within electronic word-of-mouth research, while also offering practical implications for the design of platform review systems and the management of brand reputation in online environments.

Authors' Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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