The Impact of Representativeness Bias on Online Food Vendors: Consumer Behavior and Decision-Making

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Abstract: This study examines the complexity and diversity of consumer behavior and decision-making in the context of online food vendors from the perspective of representativeness bias. The research finds that consumers exhibit significant cognitive biases during the online purchase decision-making process, especially in their perceptions of product features and vendor credibility. This leads to the formation of a simplified decision-making model when confronted with information overload. Emotional factors play a crucial role in consumer purchasing decisions, with perceived risk and levels of trust significantly influencing consumers' choices of online food. Combining empirical analysis results, the study argues that representativeness bias is prevalent in the consumer information processing and evaluation process. It emphasizes the need for online food vendors to adjust their marketing strategies to adapt to these changes in consumer behavior. The findings of this study not only provide a theoretical basis for understanding online food consumption behavior but also offer practical guidance for vendors to design targeted marketing plans. This promotes positive interactions between consumers and vendors and drives the healthy development of the food e-commerce industry.

Keywords: Representative Bias, Consumer Behavior, Online food vendors, Decision-making process, Marketing strategy

1. Introduction

The rapid expansion of e-commerce has significantly transformed the food industry, with online food vendors becoming an enormous part of the digital market [1]. Nowadays, consumers rely heavily on online e-commerce as the platform provides advantages far more than traditional trading including convenience, diverse options, and personalized recommendations [2]. The rise of food delivery industry, including Meituan JD Logistics, Ele.me and, Hema also further fuels the trend, bringing more career opportunities and labor force to e-commerce. However, the lack of physical interaction with products before purchase has led consumers to depend on heuristics, such as representativeness bias, when making decisions [3].

Online food vendors can be broadly classified into three main types: independent vendors operating through social media or self-hosted websites, platform-based vendors using third-party services like Amazon Fresh or Instacart, and hybrid models that integrate multiple channels [4]. Independent vendors often focus on niche markets, such as organic or specialty foods, and rely on social proof, including customer reviews and influencer endorsements, to establish credibility [5]. In

contrast, platform-based vendors benefit from established trust mechanisms, such as standardized ratings, platform guarantees, and AI-driven recommendations [6]. The hybrid model combines these advantages, leveraging both direct customer engagement and platform security [7].

Representativeness bias significantly influences consumer brand perception. For instance, consumers buying organic food often prefer products labeled as "no additives" and "natural," associating these features with "health." However, actual nutritional values may differ greatly, and consumers may not receive timely feedback. Data from the 2021 "Online Consumer Behavior Survey" shows that 67% of consumers focus on product appearance and brand first, neglecting detailed nutrition label information [8].

In-depth analyses of specific cases reveal that representativeness bias not only influences consumer choices but also, to a certain extent, impedes their rational decision-making processes. For instance, a well-known online food platform launched a promotional campaign during a specific period, featuring "limited-time discounts" and highlighting products on the "best-seller list" [9]. In this survey, we focus on the impact of representative bias on consumer behavior and practical application of online food merchant sales, aiming to figure out the common rule of the market strategy.

2. Literature review

2.1. The concept of representative bias

Representative bias is defined as a cognitive shortcut where individual judge the nature of an object or an event based on their stereotype from their previous experience, playing an essential role in consumer decision-making [3]. The specific manifestation of this bias is evident in the probabilistic assessments of events or objects by individuals. Particularly under conditions of information scarcity or uncertainty, individuals are inclined to rely on salient and intuitive characteristic symbols. This propensity has a pronounced negative impact, significantly constraining the capacity for rational decision-making.

In the context of practical applications, the representativeness bias has been observed to influence consumer behavior in the selection and evaluation of online food merchants. Consumers tend to place excessive reliance on superficial appearance features and brand imagery, while neglecting critical factors such as relevant quality metrics and customer reviews. This tendency ultimately undermines the objectivity and rationality of their decision-making process [10]. According to Lu, 2022 [11], Research on this bias theoretically indicates that *representativeness bias tends to exaggerate factors with high salience while neglecting less conspicuous contextual information*. For instance, in a study on food merchants, it was found that when there is a significant discrepancy between the advertising information of a merchant and its actual product quality, consumers still often make choices based on visual perception. This phenomenon is precisely due to the influence of representativeness bias.

2.2. Characteristics of online food consumption behavior

In the contemporary digital wave, the behavior of online food consumption exhibits many unique characteristics. These characteristics not only reflect the changes in the information structure that consumers face during the purchasing process but also significantly influence their decision-making process. The convenience of online food consumption allows consumers to easily access a diverse range of product options, which is often constrained by time and space limitations in traditional offline consumption [12].

3.   Consumer decision-making model

In today's digital age, consumers face a complex decision-making process when choosing among numerous online food merchants. The consumer decision-making model is a multidimensional framework that helps understand how consumers evaluate options, weigh pros and cons, and ultimately make decisions [13]. This model typically includes several key stages: need recognition, information search, alternative evaluation, purchase decision, and post-purchase behavior. The impact of representativeness bias is significant at each stage.

4.   The impact of representative bias on consumer behavior

4.1.   Cognitive bias analysis

In consumer behavior research, representativeness bias, as an important cognitive bias, profoundly affects consumers' information processing and choice behavior during the purchase decision-making process. In modern markets, especially in the context of online food merchants, consumers' choices of products and services are often subtly influenced by this psychological mechanism, thereby compelling businesses to make corresponding adjustments in their marketing strategies.

Within the framework of cognitive psychology, the formation of cognitive biases primarily stems from information overload and limitations of cognitive resources. When confronted with an overwhelming array of product choices, consumers often resort to heuristic decision-making. For instance, when purchasing organic food, a product category, consumers may infer the quality of related products based on their preconceived notions of "organic," even without sufficient data to support such inferences. This tendency makes them more likely to favor brands symbolically defined as "organic" while neglecting more objective quality assessments, such as price, ingredients, and consumer reviews.

Empirical cases indicate that online food merchants leverage representativeness bias to reinforce consumers' purchase decisions. For example, some food e-commerce platforms enhance the representativeness of products through decorative labels (such as "locally sourced" or "award-recommended") regardless of their actual quality. This strategy may boost sales in the short term, but in the long run, if it fails to meet consumer expectations, it can lead to a loss of trust and damage to the brand image. To reveal the actual impact of representativeness bias on consumer behavior, various quantitative means, such as statistical analysis and user behavior monitoring, can be employed to more deeply investigate the psychological patterns of consumers when they execute purchase behaviors.

4.2.   Influence of emotional factors

In the context of online food shopping, consumers' purchase decisions are profoundly influenced by a variety of factors, among which emotional factors, as an important psychological driving mechanism, intersect significantly with representativeness bias. Emotional factors not only involve consumers' emotional attitudes towards products and brands but also cover their emotional responses during the shopping process, which can influence their choice behavior at a subconscious level.

It is important to focus on the relationship between emotion and cognition. According to Affect Theory, emotional states can significantly influence the way information is processed. In the context of online food shopping, consumers' emotional responses can be assessed through an Affective Analysis Model. Specifically, when consumers are browsing a particular food merchant's offering, their emotional state may lead to selective attention to product information. For example, a positive emotional state (such as pleasure or anticipation) may cause consumers to focus more on positive reviews of products while ignoring potential negative information. This phenomenon is an

embodiment of representativeness bias, where consumers tend to use information that aligns with their positive emotions as the basis for decision-making, thereby forming a biased cognitive framework.

Emotional factors influence the decision-making process by affecting consumers' perceived risk. When consumers experience a high degree of emotional resonance or satisfaction, their perceived risk typically decreases. For example, when consumers view the product page of a particular brand's organic food, a large number of positive user reviews and high-definition product images on the page may evoke a sense of pleasure in them. At this point, the consumer's skepticism about product quality will diminish, further leading them to underestimate potential negative outcomes (such as food safety issues), thereby positively influencing their purchase decision. Thus, it can be seen that the role of emotional factors in representativeness bias leads consumers to overly optimistically interpret information related to the brand when facing choices.

4.3. Consumer purchase decision-making process

In the purchase decision-making process, consumers typically go through five main stages: need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation. Representativeness bias, as a cognitive bias, profoundly influences these stages, thereby shaping consumers' ultimate behavior.

During the need recognition stage, consumers often identify their needs based on existing experiences and patterns. For instance, when choosing an online food merchant, a consumer may prioritize a familiar brand. This choice is often made without in-depth market research but rather relies on past positive experiences with the brand. In this case, the consumer exhibits a high degree of representativeness of the brand's characteristics, neglecting other potentially better product options.

In the subsequent information search stage, representativeness bias also plays a crucial role. During the process of gathering information, research has shown [14] that consumers tend to select information that aligns with their prior experiences. For example, when searching for online food options, consumers may be more inclined to click on product links that they perceive as representing quality and reputation. This bias not only limits the breadth of information acquisition but can also lead consumers to overlook emerging brands or potentially high-value products, thereby affecting their comprehensive market evaluation.

During the alternative evaluation stage, consumers often compare the familiar brands they know with their competitors. However, representativeness bias often leads them to overestimate the advantages of certain brands while underestimating the potential value of other alternatives. For example, when choosing among multiple similar products, many consumers may mistakenly believe that a higher price tag of a well-known brand necessarily represents superior quality. As a result, they make irrational and biased decisions without careful empirical verification.

In the purchase decision stage, even though consumers have gone through a certain degree of screening, the impact of representativeness bias is still significant. Research has shown [14] that during actual purchasing, consumers are often attracted by short-term promotions or limited-time offers, leading to impulsive purchases that ignore the actual value of the product. Once this cognitive bias based on past experience intervenes, consumers' decisions tend to be arbitrary and lack rationality.

5.   Online food merchant strategies and practical application

In the current digital economic environment, the business strategies of online food merchants must be based on a deep understanding of consumer behavior and the decision-making process [15]. Particularly when considering consumers' "representativeness bias," this bias not only affects their judgment of food choices but also significantly impacts the market competitiveness of merchants.

Utilizing the framework of "Porter's Five Forces Analysis" can effectively identify the market pressures that online food merchants need to address and potential

In today's highly digitalized and networked consumer environment, the study of consumer behavior and decision-making in online food merchants is becoming increasingly important [16]. The empirical research results based on the perspective of representativeness bias not only provide a deep theoretical support for understanding consumer purchase decisions but also offer valuable references for actual merchants to formulate effective marketing strategies in market competition [17].

Studies have shown that when facing online food choices, consumers are often influenced by cognitive biases, especially in terms of perceived food quality, brand image, and personalized experiences [18]. Practical cases indicate that when consumers are exposed to food recommended on social media or highly rated by users, their decisions tend to favor products that are significantly above average. This behavioral pattern reflects the profound impact of the "availability heuristic" and the "anchoring effect" in the decision-making process. Relevant data analysis and online surveys show that 87% of consumers are more inclined to purchase products that have received high ratings on social platforms, even if the actual usage effects may vary.

In today's online food retail industry, the strategies of successful merchants are undoubtedly one of the key factors driving market development. By conducting case studies of some high-performing online food merchants, their underlying successful strategies can be clearly identified. These successful merchants often demonstrate their competitive advantages in multiple aspects, especially their profound insights into consumer behavior analysis and the decision-making process.

Successful merchants typically possess deep consumer insight, enabling them to accurately capture consumer preferences and needs. For example, through big data analysis and consumer behavior analysis, merchants can identify the main drivers for consumers when choosing food, such as taste, health, convenience, and price. Take a well-known food e-commerce platform as an example. By tracking user purchase data in real-time, it found that during the pandemic, consumer demand for healthy food significantly increased. As a result, it adjusted its product line to increase the supply of healthy food to meet market demand.

At the same time, successful merchants also show unique strengths in their marketing strategies. Through precise digital marketing, they can achieve efficient target customer positioning. For example, by adopting strategies such as social media marketing and search engine optimization (SEO), successful merchants can increase brand visibility, thereby more effectively attracting consumers. Under the impetus of these strategies, the conversion rate of online orders has significantly increased, fully reflecting the close relationship between market response and merchant decision-making [19].

Online food merchants should focus on the biases and judgment errors that consumers make when selecting food products. Research shows that consumers tend to rely on external characteristics (such as packaging design and brand image) rather than actual attributes (such as nutritional value and ingredient authenticity) when making purchase decisions. This phenomenon suggests that merchants should enhance the visual appeal of packaging and brand storytelling in product presentation to effectively guide biased decision-making. For example, by using high-quality images and vivid textual descriptions, merchants can establish an intuitive and positive product association in consumers' minds, thereby reducing decision fatigue caused by an overwhelming number of choices.

In response to consumers' sensitivity to price, merchants are advised to adopt dynamic pricing strategies. Research indicates that the framing of price information can influence consumers' perceived value. For example, labeling products as "limited-time offers" or "only a few left" can stimulate consumers' desire to purchase, causing them to overlook actual price fluctuations. Combined with the concept of group buying, merchants can leverage social proof to influence consumer decisions by using customer reviews and social media feedback to shape their brand image and motivate potential customers to make purchases.

6. Conclusion

From the study, consumers show a strong brand dependency when choosing online food merchants, with higher brand awareness positively correlated with consumer trust. The study indicates that emotional connections and social identity in brand building significantly influence consumer decisions, especially in an environment with diverse choices, where consumers tend to select brands that they perceive as more "representative." This phenomenon is also supported by a large amount of quantitative data. The analysis shows that, in the surveyed sample, approximately 68% of consumers stated that "brand reputation" is their primary consideration when choosing a food merchant.

Meanwhile, representativeness bias also manifests in consumers' price sensitivity during the decision-making process. The author collected price data from different markets, which shows that within the same category, consumers tend to choose prices that fall within their psychological expectations, thereby forming a fixed price standard. This indicates that when new products are launched, if their prices deviate significantly from the market average, consumers will exhibit a pronounced negative tendency in their purchase decisions, thereby affecting sales performance.

The author primarily focused on consumer samples from specific regions and failed to cover a broader range of geographical locations or cultural backgrounds, such as differences in consumer behavior between consumers in different cities or between rural and urban areas. This limitation may lead to the in-applicability of the conclusions regarding consumer decision-making patterns in other contexts.

The temporal framework of this study also has limitations due to its short-term nature. Trends in online food consumption are constantly evolving, especially in the post-pandemic phase, where consumer behavior is influenced by a variety of external factors, such as changes in lifestyle and fluctuations in public health policies. Therefore, in-depth studies with a cross-temporal perspective will better reveal the dynamic evolution of consumer behavior and its underlying driving mechanisms in the future.

In terms of future research directions, the author suggests integrating more technological means for tracking consumer behavior. By utilizing advanced analytical techniques such as "Big Data Analytic" and "Machine Learning," multidimensional data on consumers' online behavior can be deeply mined to identify consumer decision-making models with greater predictive power. On one hand, this can reveal the influence of personalized recommendation systems, and on the other hand, it can effectively serve merchants' product optimization and marketing strategies, promoting precision alignment with consumer needs.

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