

An Empirical Study on the Impact Mechanism of Big Data-based Precision Push Models on Consumers' Online Buying Behavior in Southwest District of China

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Abstract: In the era of big data, consumers, as the main body of the economy, had been affected to a large extent by purchasing behavior. This impact would have mainly been reflected in the changes in consumer behavior, coupled with the development of the e-commerce industry in society. Consumers did change from traditional physical store purchases to online purchases as consumers' online purchases increased. However, in the face of many commodities, it would be difficult for users to find items of interest. The precision push model came into being the user's mathematical modeling based on the user's behavior characteristics for searching the user's possible feelings in items of interest to users. However, whether the matching of the precise push mode and the user interacted effectively, promoting and stimulating the consumption behavior of consumers would still face the problem of accuracy and efficiency.

Keywords: Big Data ; Precision Push Model ; Online Buying Behavior

1 Introduction

The business scope of e-commerce continues to expand, bringing more abundant service options. Many commodity types gather on the platform quickly, while the emerging technologies of the Internet of Things are fully developed and applied, and everything can be digitalized. The pace of people's lives is getting faster with the development of the economy. Although e-commerce platforms provide consumers with a large number of products to choose from and provide convenience for them, consumers have limited time and energy, and a large amount of product information disrupts people's vision. Information overload has become a norm, making it a burden for consumers to choose their favorite products on platforms with intricate details. According to surveys by relevant institutions, online consumers value the shopping experience on e-commerce platforms, and they are quickly submerged in the platform search due to a large amount of information about the products to be selected. This poor consumer experience leads to their willingness to buy not being assertive.

2. Theoretical Basis

2.1 Planned Behavior Theory (Bauer 2018).^[1]

The consumer response to the atmosphere created by the e-commerce platform by analyzing the Tmall Double Eleven event in 2014 to test whether the division of online shopping atmosphere is reliable. The results obtained through in-depth interviews, combined with previous research conclusions, divided the shopping atmosphere of the Double Eleven online shopping festival into safety atmosphere, panic buying atmosphere, festival atmosphere, convenient atmosphere, preferential atmosphere.

2.2 Technology Acceptance Model (Davis 1989)^[2]

The technology acceptance model suggests two main determinants perceived usefulness, which reflects the degree to which a person believes that using a specific system improves his work performance; perceived ease of use, which reflects a person's belief that it is easy to use a particular system.

2.3 Customer Satisfaction Index Model (Liu 2003)^[3]

The American Customer Satisfaction Index (ACSI) model, which was based on the SCSB (Swedish Customer Satisfaction Index) model, is a customer satisfaction index measurement model that is widely used or referenced. The models include six hidden variables: user expectations, perceived quality, perceived value, user satisfaction, user complaints, and user loyalty.

2.4 The E-Commerce Precision Marketing Strategy in Big Data Environment (Guo 2019)^[4]

Precision marketing has been around for some time as a hyper-relevance exercise. Now, advanced technologies such as machine learning have opened a new way for marketers to reach and attract customers. It is data-driven, enables marketers to make evidence-based decisions, and makes it easier to retain, cross-sell, and up-sell existing customers.

2.5 Offline and Online Shopping Decision Model (Sonwaney and Chincholkar 2019)^[5]

The process of making a buying decision is somewhat different from the offline and offline situation due to the conditions of the environment, offering, atmosphere, time efficiency, urgency, payment security, purchase condition, and so on. The traditional

consumer decision model generally starts with need and awareness, then information search, alternative evaluation, purchasing, and reviewing post-purchasing process. In terms of the online buying decision, customers are usually attracted by the stimulus such as online promotion, media attraction, and other related messages that increase awareness and confidence in buying decisions.

3. Understanding the Impact Mechanism of Big Data-based Precision Push Models on Consumers' Online Buying Behavior

3.1 Analyze the consumer purchase decision involving the mechanism of precision push on consumer purchasing behavior in Southwest of China:

The precision push is a stimulus variable for consumer buying behavior — the degree of influencing factors, according to the theoretical model of planned behavior and the evolution process model of consumer online shopping decision-making behavior.

3.2 Explore the influence factors on consumer online buying behavior when precision push is used as a stimulus variable through buying attitude, perceived value, and purchase intention:

The buying attitude is divided into three dimensions: perceived ease of use, perceived usefulness, and perceived risk; perceived value is divided into three dimensions: perceived quality, shopping experience, and user expectations; and purchasing intention is divided into two sizes: cognitive awakening and emotional awakening.

3.3 Suggest improving the advantages and disadvantages of precision push services and future development trends with providing better service to the needs of consumers:

The factor of precision push has a significant positive impact on purchasing behavior. When a large amount of product information floods to the online shopping platform, consumers will be more blind when making choices. Advantages and disadvantages will depend on how consumers evaluate the information they gain from the technology.

4. The Conceptual Framework for the Research Study

The relationship between influencing factors of purchase attitude, perceived value and purchase intention, and online purchase behavior; perceived ease of use, perceived usefulness and perceived risk, and purchase attitude; perceived quality, shopping experience, and user expectation, and perceived value; awareness awakening and emotional awakening and emotional arousal, and purchase intention; precision and online purchase behavior. Using regression analysis testing, all influence factors significantly impact online purchase behavior, purchase attitude, perceived value, and purchase intention, respectively.

5. The Countermeasures for the Improving of Big Data-based Precision Push Models on Consumers' Online Buying Behavior

5.1 The influence of virtual experience on product and service information search

With the high development of internet commerce, too much information may disrupt consumers' searching for the best information for their needs. In the virtual experience of C2C e-commerce, a good website design should accommodate the proper precision push mode associated with big data in offering the history of information viewing. It means consumers often sense and accept various products or services to obtain the most direct information for their needs.

5.2 The influence of virtual experience on personal evaluations of product and service alternatives

Consumers will no longer count on strictly evaluating product and service alternatives from business promotion compared to the traditional marketing environment. The help of big data by providing the correct information based on experience and track record will help the decision making by consumers.

5.3 The influence of virtual experience on online post-purchase behavior

As the learning of the buying process from the experience of product or service process, the evaluation of post-purchase of online experience would not simply be decided by the product and service features, but simply heavily on consumption experience and interaction. The influence mechanism of the precision push model will serve as one of the critical issues for consumers in reviewing their purchase patterns and performance.

6. Conclusion

Many impacts on consumer behavior will also need to be based on the credibility of influence for evaluating alternatives whether the demand and supply of certain products and services are limited. The credibility on impact for purchase decision mainly relates to price, quality, after-sales service, and that critical information may need the mechanism for verifying. The era of big data should make product information quantifiable, transparent, and accessible, and consumers can also independently collect information about intended products, read relevant significant data analysis conclusions, realize rational consumption, and realize expected utility value to the greatest extent.

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