



Research Paper

An Empirical Study on User Continuous Purchase Intention of Social E-commerce Platforms: A Case Study of Pinduoduo

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ABSTRACT: This study reviews the relevant research on the continuous purchase intention of users on social e-commerce platforms, taking Pinduoduo as an example. The study uses the SOR (Stimulus-Organism-Response) model to consider the social platform atmosphere and user perceptions that influencing continuous purchase intentions. A theoretical model of user continuous purchase intention on the Pinduoduo platform was constructed. The model and hypotheses were tested through questionnaire surveys and empirical analysis. Data analysis was conducted using SPSS 26 and AMOS 24 software, leading to the following conclusions: [1]. The interactive atmosphere on Pinduoduo significantly positively affects users' perceived entertainment, and the supportive atmosphere affects both users' perceived trust and entertainment. [2]. Users' perceived entertainment positively affects perceived trust, and perceived trust and entertainment significantly influence continuous purchase intention. [3]. Perceived trust among users partially mediates between Pinduoduo's interactive atmosphere and continuous purchase intention, as well as between the supportive atmosphere and continuous purchase intention. The study ends with a discussion of the limitations of the research and the managerial implications derived from the findings.

KEYWORDS: SOR Theory; Social E-commerce Platform; User Continuous Purchase Intention; Pinduoduo

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I. INTRODUCTION

As social traffic continues to integrate with e-commerce transactions, it is projected that the transaction volume of China's social e-commerce industry will reach 3,416.58 billion yuan in 2023. Pinduoduo is one of China's most prominent social e-commerce platforms, and its success is attributed to its unique social fission model. Users can obtain more discounts by inviting friends to participate in group purchases. This model attracts users and encourages them to promote the platform voluntarily. Therefore, studying user's consumer behavior on the Pinduoduo platform is very important. Social shopping scenarios possess the characteristics of the online shopping environment created by Internet technology. However, the environment of social media platforms significantly impact users' shopping behavior and is a crucial factor. Thus, research on social operators mainly focuses on what components a platform has, how it can bring value to users or provide psychological satisfaction, and how users can benefit from positive evaluations of a platform, emphasizing how to promote continuous consumption[1]. This paper focuses on the factors and mechanisms influencing continuous purchase intention under the influence of interactive and supportive atmospheres on the Pinduoduo platform.

II. LITERATURE REVIEW

2.1 SOR

The SOR model was initially proposed by Mehrabian and Russell in 1974, building upon the traditional stimulus-response model by introducing the intermediary variable of the organism to explain human internal activities[2]. In the SOR model, consumer behavior is described as the reception of environmental stimuli that affect internal psychological activities, including cognition, emotion, and physiological changes, ultimately leading to various purchasing decisions, effectively explaining the purchasing behavior. This model applies to the study of both online and offline purchasing behaviors. In this study, 'S' represents the interactive and supportive atmosphere of the Pinduoduo platform, 'O' represents the user's perceived trust and entertainment, and 'R' represents the user's continuous purchase intention.

2.2 Social E-commerce

Social e-commerce refers to social websites or media where users can assist in purchasing and selling goods through interaction and content generation. Yonghua Gong and others studied the factors that influence the trust mechanism in social e-commerce users, believing that familiarity and preference similarity significantly impact the trust of social e-commerce users[3]. Meichan Li, Junyu Liu, and others' research point out that perceived value positively affects user purchase intention [4][5]. Xue Lan and others' research shows that under the social e-commerce model, the higher the user trust, the higher the degree of purchase intention[6].

2.3 Continuous Purchase Intention

Jones and Sasser initially proposed the concept of continuous purchase intention, who believed that after purchasing goods or receiving services, customers form subjective perceived value based on their previous shopping or service experience, thereby generating the intention to repurchase[7].

2.4 Hypothesis

2.4.1 Interactive Atmosphere and Perceived Trust

Köhler and colleagues found that proper communication interaction mechanisms can help virtual community members find groups with common attributes. Within groups that share the same values or interests, members are more likely to establish close emotional connections, ultimately enhancing the sense of trust among members[8]. Moreover, the interactive atmosphere of Pinduoduo can disseminate information among people, allowing users to obtain information through their knowledge, thereby reducing risk and increasing trust. Therefore, Hypothesis H1 is proposed:

H1: The interactive atmosphere of Pinduoduo positively affects users' perceived trust.

2.4.2 Interactive Atmosphere and Perceived Entertainment

Perceived entertainment is a psychological experience that users generate when interacting with the external environment. Fiore found a significant positive correlation between the interactivity of online retail website environments and users' perceived entertainment[9]. Therefore, Hypothesis H2 is proposed:

H2: The interactive atmosphere of Pinduoduo positively affects users' perceived entertainment.

2.4.3 Supportive Atmosphere and Perceived Trust

Luo Hua and others believe that managing and improving compensation levels and sustainable payment systems can also enhance user trust. The trust and identity among users will also strengthen with the increase in support and respect from other users[10]. Therefore, Hypothesis H3 is proposed:

H3: The supportive atmosphere of Pinduoduo positively affects users' perceived trust.

2.4.4 Supportive Atmosphere and Perceived Entertainment

Virtual entertainment is a prerequisite for users to enjoy social media. Koo and Ju have empirically demonstrated that atmospheric cues such as menu optimization and navigation maps in shopping website support systems significantly affect the user's state of arousal and psychological pleasure[11]. Therefore, Hypothesis H4 is proposed:

H4: The supportive atmosphere of Pinduoduo positively affects users' perceived entertainment.

2.4.5 Perceived Entertainment and Trust

The perceived entertainment of online users will affect the overall evaluation of the platform, and the overall evaluation and attitude of users towards the platform are closely related to perceived trust[12]. The attitudes of internet users are also influenced by the quantity of goods and their subjective emotions, which makes them trust social e-commerce shopping more when they are in a pleasant state. Therefore, Hypothesis H5 is proposed:

H5: The perceived entertainment of Pinduoduo users positively affects their perceived trust.

2.4.6 Perceived Trust and Continuous Purchase Intention

Lee found that in Taiwan, China, the perceived trust of online shopping website users is positively correlated with their attitudes. Similarly, the perceived trust of social e-commerce users also affects their willingness to consume[13]. Therefore, Hypothesis H6 is proposed:

H6: The perceived trust of Pinduoduo users positively affects their continuous purchase intention.

2.4.7 Perceived Entertainment Continuous Purchase Intention

In the Web 2.0 era, the entertainment awareness of social websites has an essential impact on users' willingness to continue using social websites. Studies have shown that customers' immersive experiences and

perceived entertainment positively affect their willingness to consume and satisfaction[14]. Therefore, Hypothesis H7 is proposed:

H7: The perceived entertainment of Pinduoduo users positively affects their continuous purchase intention.

2.4.8 Mediating Role of Perceived Trust and Perceived Entertainment

Hanyang Luo studied the influence mechanism of Internet word-of-mouth, and the results indicated that consumers' cognitive trust and affective trust play a mediating role in the relationship between consumers' perceived credibility of online reviews and their online purchase attitudes[15]. Many studies have explored the impact of users' perceived trust on their sustained purchasing behavior, but there is relatively less research on the mediating role of perceived entertainment. Therefore, Hypotheses H8 to H11 are proposed.

H8: User-perceived trust mediates the relationship between Pinduoduo's interactive atmosphere and continuous purchase intention.

H9: User-perceived entertainment mediates the relationship between Pinduoduo's interactive atmosphere and continuous purchase intention.

H10: User-perceived trust mediates the relationship between Pinduoduo's supportive atmosphere and continuous purchase intention.

H11: User-perceived entertainment mediates the relationship between Pinduoduo's supportive atmosphere and continuous purchase intention.

2.5 Theoretical Model

Social e-commerce platforms act as intermediaries connecting users and merchants. Users who receive information on these platforms are influenced by the environment provided by the platforms. To gain a deeper understanding of user behavior in social e-commerce, a theoretical model based on the SOR theory has been constructed (Figure 1).

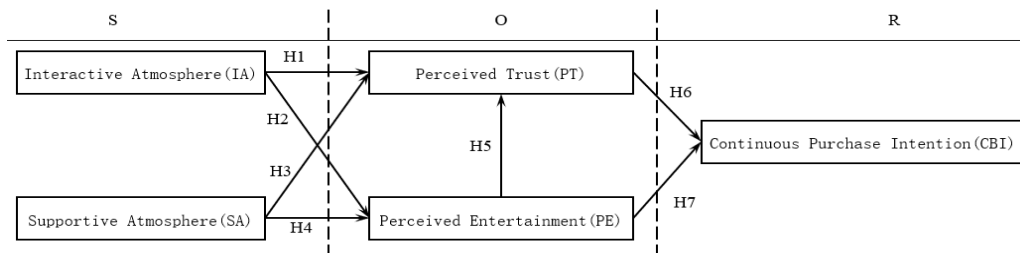


Figure 1. Theoretical Model of Social e-commerce platforms

III. MATERIALS AND METHODS

3.1 Questionnaire Design

The questionnaire consists of two parts. The first part includes demographic information such as gender, age, occupation, education level, disposable income, and years of online shopping experience. The second part comprises scale items for five variables: "Interactive Atmosphere," "Supportive Atmosphere," "Perceived Trust," "Perceived Entertainment," and "Continuous Purchase Intention."

3.1.1 "Interactive Atmosphere (IA)" is designed with four measurement indicators:

- 1). "I believe I am a member of the virtual community built on the Pinduoduo platform (IA1)."
- 2). "I establish good social relationships with other users through sharing content on the Pinduoduo platform, and can become friends (IA2)."
- 3). "There are many activities and services for product information exchange and interpersonal interaction on the Pinduoduo platform (IA3)."
- 4). "The Pinduoduo platform has many interactive design features that help me achieve my intended goals effectively (IA4)."

3.1.2 Supportive Atmosphere (SA) is designed with three measurement indicators

- 1). "Other users on the Pinduoduo platform are willing to help each other solve problems (SA1)."
- 2). "If I encounter difficulties while shopping, the Pinduoduo platform or other users will give me encouragement and support (SA2)."
- 3). "Whenever I need it, the Pinduoduo platform or other users can provide valuable recommendations and suggestions (SA3)."

3.1.3 Perceived Trust (PT) is designed with three measurement indicators

- 1). "The commitments made by the Pinduoduo platform are reliable (PT1)."
- 2). "The Pinduoduo platform can provide sufficient product information and excellent services (PT2)."
- 3). "I feel that the Pinduoduo platform is well-intentioned towards its users (PT3)."

3.1.4 Perceived Entertainment (PP)" is designed with two measurement indicators

- 1). "When I use the Pinduoduo platform to interact with other users, I do not feel the passage of time (PP1)."
- 2). "Interacting and watching interactions between other users on the Pinduoduo platform can inspire my thinking and bring me joy (PP2)."

3.1.5 Continuous Purchase Intention (CBI) is designed with four measurement indicators:

- 1). "I will continue to use the Pinduoduo platform in the future (CBI1)."
- 2). "I will use the Pinduoduo platform instead of other types of e-commerce to continue purchasing the goods I need (CBI2)."
- 3). "I will consider the Pinduoduo platform as one of the ways to purchase goods (CBI3)."
- 4). "I will recommend the Pinduoduo platform to others (CBI4)."

The questionnaire uses a Likert scale with five points for all scale items, where 1 to 5 represent "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree," respectively.

3.2 Questionnaire Distribution, Collection, and Data Analysis

A preliminary survey was conducted by distributing questionnaires to 107 social e-commerce users. The effective recovery rate of the questionnaires was 96%. The reliability and validity of the scales were tested using SPSS 26. The Cronbach's α for each variable was more significant than 0.80, and the KMO value for the scales was greater than 0.80, indicating that they are suitable for formal investigation. The formal survey collected data through the online distribution of questionnaires. After excluding invalid questionnaires with response times of less than 220 seconds and those with identical answers to all scale items, 309 valid questionnaires were obtained. The adequate sample size is more than 15 times the number of scale items, which is reasonable. The sample size distribution in terms of gender, age, education level, and other variables corresponds with the actual situation, indicating that the sample has appropriate representativeness.

IV. RESULT

4.1 Reliability and Validity Testing

The Cronbach's α coefficients for all **variables** (Interactive Atmosphere (**IA**) ; Supportive Atmosphere (**SA**) ; Perceived Trust (**PT**) ; Perceived Entertainment (**PP**) ; Consumer Buying Intention (**CBI**)) are above 0.9, making them suitable for factor analysis. The composite reliability (**C.R.**) for all variables is greater than 0.8, indicating good internal consistency reliability of the scale. The average variance extracted (**AVE**) values for all variables are greater than 0.5, indicating good convergent validity for each variable of the scale (Table 1).

Table 1. Reliability and Validity Test

| Variable | Items | Cronbach's α | C.R. | AVE |
|----------|-------|---------------------|-------|-------|
| IA | 4 | 0.9 | 0.873 | 0.632 |
| SA | 3 | 0.9 | 0.831 | 0.622 |
| PT | 4 | 0.901 | 0.852 | 0.59 |
| PP | 2 | 0.903 | 0.801 | 0.634 |
| CBI | 4 | 0.902 | 0.846 | 0.578 |

The square roots of the AVE for each variable are all greater than the inter-variable Pearson correlation coefficients for that variable, indicating good discriminant validity of the scale (Table 2).

Table 2. Discriminant Validity Test

| Variable | IA | SA | PT | PP | CBI |
|----------|----------|----------|----------|----------|--------|
| \IA | 0.7951 | | | | |
| SA | 0.577*** | 0.7886 | | | |
| PT | 0.514*** | 0.566*** | 0.7681 | | |
| PP | 0.475*** | 0.508*** | 0.579*** | 0.7963 | |
| CBI | 0.524*** | 0.49*** | 0.521*** | 0.378*** | 0.7605 |

Note: The diagonal elements (e.g., 0.7951 under IA) represent the square root of AVE for each variable, and the off-diagonal elements are the inter-variable Pearson correlation coefficients. The asterisks (**, **,) denote the significance levels of the correlation coefficients, commonly used to indicate statistical significance (e.g., *** for $p < 0.001$, ** for $p < 0.01$, * for $p < 0.05$).

4.2 Model Fit Test of the Research Model

The model fit indices were calculated using AMOS 24, with the results showing $\chi^2/df=1.456$, RMSEA=0.038 , GFI=0.944 , AGFI=0.923 , CFI=0.990 , TLI=0.987. All indices meet the required standards, indicating a good fit between the data and the model, which allows for empirical research to be conducted.

4.3 Hypothesis Testing

Structural equation modeling was performed using AMOS 24 to test the hypotheses. The results of the path analysis (Table 3) indicate that except for H1, the p-values for H2 to H7 are all less than 0.05, suggesting that hypotheses H2 to H7 are all supported.

Table 3. Model Path Test Results

| Hypothesis | Path | Unstandardized Coefficient | Standardized Coefficient | Standard Error | Z-value | P-value | Result |
|------------|--------|----------------------------|--------------------------|----------------|---------|---------|---------------|
| H1 | IA→PT | 0.132 | 0.136 | 0.083 | 1.585 | 0.114 | Not Supported |
| H2 | IA→PP | 0.247 | 0.283 | 0.073 | 3.374 | *** | Supported |
| H3 | SA→PT | 0.292 | 0.292 | 0.079 | 3.707 | *** | Supported |
| H4 | SA→PP | 0.337 | 0.354 | 0.084 | 4.029 | *** | Supported |
| H5 | PP→PT | 0.344 | 0.327 | 0.081 | 4.232 | *** | Supported |
| H6 | PT→CBI | 0.429 | 0.467 | 0.08 | 5.346 | *** | Supported |
| H7 | PP→CBI | 0.191 | 0.208 | 0.069 | 2.79 | ** | Supported |

Note: ** Denotes significance at the p<0.05 level; *** Denotes significance at the p<0.001 level.

4.4 Mediation Effect Test

The mediation effect was tested using AMOS 24 with the Bootstrapping method, performing 1000 resamples, and calculating the 95% Confidence Interval (CI) with Bias-corrected adjustments. The results (Table 4) indicate that the p-values for H8 and H10 are less than 0.05, suggesting the presence of a mediation effect, while the p-values for H9 and H11 are greater than 0.05, indicating no mediation effect.

Table 4. Mediation Effect Test

| Hypothesis | Path | Effect Size | SE | 95% Confidence Interval (CI) | | | Result |
|------------|-----------|-------------|-------|------------------------------|-------------|---------|---------------|
| | | | | Lower Bound | Upper Bound | P-value | |
| H8 | IA→PT→CBI | 0.082 | 0.045 | 0.011 | 0.182 | 0.024 | Supported |
| H9 | IA→PP→CBI | 0.032 | 0.041 | -0.007 | 0.125 | 0.109 | Not Supported |
| H10 | SA→PT→CBI | 0.125 | 0.052 | 0.043 | 0.250 | 0.004 | Supported |
| H11 | SA→PP→CBI | 0.044 | 0.049 | -0.013 | 0.146 | 0.121 | Not Supported |

V. CONCLUSIONS

5.1 Findings

5.1.1 The Impact of Interactive and Supportive Atmospheres on User Perception

- 1). Pinduoduo's interactive atmosphere significantly enhances users' perceived entertainment by promoting communication and interaction among users. This indicates that on social e-commerce platforms, users not only pursue the value of goods but also seek satisfaction in social interaction and entertainment.
- 2). The supportive atmosphere significantly enhances users' perceived trust and entertainment by providing a good shopping experience and after-sales service. Such an atmosphere can increase users' confidence in the platform and improve user satisfaction.

5.1.2 The Impact of User Perception on Continuous Purchase Intention

- 1). Users' perceived entertainment positively affects perceived trust, indicating that when users have an entertaining experience on the platform, they are more likely to trust it.
- 2). Both perceived trust and perceived entertainment significantly and positively affect users' continuous purchase intention. This indicates that establishing user trust and enhancing user entertainment experience are vital to promoting continuous purchasing on social e-commerce platforms.

5.1.3 Mediating Role of Perceived Trust

Perceived trust among users partially mediates between the interactive, supportive atmospheres and the intention to make continuous purchases. This implies that the platform can enhance users' trust by fostering a positive atmosphere, subsequently promoting continued purchasing behavior.

5.2 Managerial Implications

5.2.1 Enhance Social Interaction and Entertainment Experience

Pinduoduo should continue to strengthen social interactions among users by adding features such as user reviews, sharing, and discussions to increase user engagement and entertainment value. Additionally, the platform could plan more interactive activities, such as flash sales and group buying discounts, to increase the fun of user participation.

5.2.2 Enhance User Experience and Service Quality

1). Pinduoduo should continuously optimize the shopping process to enhance user experience, for instance, by providing precise and concise product displays, fast and stable payment systems, and efficient and accurate logistics services.

2). Strengthen after-sales service to address issues encountered during shopping, enhancing users' trust in the platform.

5.2.3 Strengthen User Trust Building

Pinduoduo can enhance user trust through various method, such as strengthening product quality supervision, maintaining transparent transaction mechanisms, and ensuring comprehensive protection of user rights and interests. At the same time, the platform can actively collect user feedback, promptly handle user complaints, and improve user satisfaction and loyalty.

5.2.4 Utilize Data-Driven Precision Marketing

1). By analyzing user data to understand user needs and purchasing behavior, achieve precise recommendations and personalized marketing.

2). Based on user profiles, develop different marketing strategies to improve marketing effectiveness and conversion rates.

5.3 Research Limitations and Prospects

This paper has some limitations and shortcomings:

1). There is a lack of collection of objective data already available on the Pinduoduo platform, relying solely on questionnaire surveys, which is a relatively singular approach. Future research could obtain objective data through more direct methods like web platform data scraping.

2). Using convenience sampling has affected the sample's representativeness. Future research should employ random sampling methods, expand the sample range, and enhance the accuracy and reliability of the study.

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